

**Volume 58 - Number 5 - Supplement 2014**

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**Indian Journal of  
Physiology  
And  
Pharmacology**

The official Journal of the Association of Physiologists and Pharmacologists of India

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## PREFACE

It is our immense pleasure to invite you to Puri for the 60<sup>th</sup> Annual Conference of Association of Physiologists and Pharmacologists of India (APPI). During the conference, we aim to discuss the scientific advances achieved in Physiology and Pharmacology across the globe. The theme of the conference is ***Taking Physiologists and Pharmacologists from Classroom to Community.***

Scientific program including plenary lectures and symposia is being planned to provide an opportunity for the delegates to keep themselves abreast with the rapid progress being made in the exciting fields of physiology and pharmacology. In this regard, it is heartening that several leading scientists have consented to participate in these academic exercises: In addition to the usual CME program, two pre-conference workshops are being planned to provide a more interactive and hands on training opportunity.

Puri is an enchanting city in which the old world charm of its cultural heritage blends with the excitement of sand & surf. We welcome you to experience Puri, the land of Lord Jagannath.

Wishing you all a pleasant stay at Puri.

**Dr. Arpita Priyadarshini**  
*Organising Secretary*

**Prof. R.R. Mohanty**  
*Chairman, Organising Committee*

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# **SCIENTIFIC PROGRAMME**

## 20<sup>TH</sup> NOVEMBER, 2014

- 07:00 AM - 09:30 AM Breakfast
- 08:00 AM - 05:30 PM Registration
- 09:00 AM - 09:45 AM **Plenary Lecture 1**  
**Topic :** "Trends in Physiology Education"  
**Speaker :** Emeritus Prof. Tony Macknight (MD, PhD, FRSNZ), New Zealand  
**Chairpersons :** Prof. V. Mohan Kumar & Prof. Dinesh K Dubey
- 09:45 AM - 10:30 AM **Plenary Lecture 2**  
**Topic :** Fine-tuning CaV1.3 Channel Function in the Brain  
 by Alternative Splicing and RNA Editing  
**Speaker :** Tuck Wah Soong, PhD, HOD, Dept. of Physiology, National University of Singapore  
**Chairpersons :** Prof. Ramji Singh & Prof. H. N. Mallick
- 10:30 AM - 10:45 AM Tea Break
- 10:45 AM - 11:30 AM Key Note Address  
**Topic :** Taking Physiology and Pharmacology from Classroom to Community  
**Speaker :** Prof. Niranjan Tripathy, MD, F.I.C.A., F.C.C.P., F.I.C.N., F.I.C.P.,  
 F.I.A.C.M., F.I.C.C., F.G.S.I., F.I.S.C.D., F.I.P.S.  
 Vignyan Academy Awardee, Sahitya Academy Awardee  
 Director Institute of Medicine, Cuttack  
**Chairpersons :** Prof. Tony Macknight & Prof. Bindu kuty
- 11:30 AM - 01:00 PM Symposia

Hall A	Hall B	Hall C	Hall D
<b>Topic 1 :</b> Protecting and promoting war fighters under extremes of environment	<b>Topic 2 :</b> Neural plasticity and disease	<b>Topic 3 :</b> Biological time mechanism	<b>Topic 4 :</b> Fluid & Electrolytes in health & diseses

- 01:00 PM - 02:00 PM Lunch
- 02:00 PM – 03:00 PM Poster Session ( Hall E ) and Free Paper Presentations

Hall A	Hall B	Hall C	Hall D
Free Paper Presentations	Free Paper Presentations	Free Paper Presentations	Free Paper Presentations

- 03:00 PM - 03:15 PM Tea Break
- 03:15 PM - 05:00 PM Symposia

Hall A	Hall B	Hall C	Hall D
<b>Topic 5 :</b> Space Physiology The road ahead.	<b>Topic 5:</b> Medicine & Physiology in sports	<b>Topic 7:</b> Update in Respiratory Physiology	R. Srinivasan & Harish Gupta Prize Presentation

- 05:30 PM - 06:30 PM Panel Discussion with Press and Media ( Hall A )
- 06:30 PM onwards Inauguration, Cultural Programme followed by Dinner

## 21<sup>ST</sup> NOVEMBER, 2014

- 06:30 AM -09:00 AM **Marathon Run** on **Theme: “Run for Research”**
- 07:00 AM - 09:30 AM Breakfast
- 08:00 AM - 05:30 PM Registration
- 08:00 AM – 09:00 AM **Diamond Post Graduate Written Test ( Open to all PG) ( HALL A )**  
Organised by Prof. B. B. Pradhan & Faculty, Dept. of Physiology,  
MKCG Medical College Berhampur, Odisha
- 09:00 AM - 09:45 AM **Plenary Lecture 3**  
**Topic :** Glial Platicity and Neurodegeneration  
**Speaker :** Prof. T. Raju, Senior Professor and Head of the Department, Dept. of Neurophysiology,  
NIMHANS  
**Chairpersons :** Prof. Sunita Tiwari & Dr. S. S. Sircar
- 09:45 AM - 10:30 AM **Plenary Lecture 4**  
**Topic :** Radiotracers in Drug Development  
**Speaker :** Prof. A. K. Singh, Director, Personnel, DRDO,  
**Chairpersons :** Prof. Srikanta Mohanty & Dr. S. Seethalakshmi,
- 10:30 AM - 10:45 AM Tea Break
- 10:45 AM - 11:30 AM **Plenary Lecture 5**  
**Topic :** Humor in Teaching.  
**Speaker :** Prof. Puthuraya, Visiting Prof., International Medical College, Bengaluru.  
**Chairpersons :** Prof. D. K. Agarwal & Dr. Sabita Singh
- 11:30 AM - 01:00 PM Symposia

Hall A	Hall B	Hall C	Hall D
<b>Topic 8 :</b> Central pain modulator mechanism	<b>Topic 9 :</b> Role of Yoga in alleviation of cardiovascular risk	<b>Topic 10 :</b> Nano - Technology	<b>Topic 11 :</b> Ergonomics & exercise physiology

- 01:00 PM - 02:00 PM Lunch
- 02:00 PM – 03:00 PM Poster Presentation ( **Hall E** ) & Free Paper Presentations

Hall A	Hall B	Hall C	Hall D
Free Paper Presentations	Free Paper Presentations	Free Paper Presentations	Free Paper Presentations

- 03:00 PM - 03:15 PM Tea Break
- 03:15 PM - 05:00 PM Symposia

Hall A	Hall B	Hall C	Hall D
<b>Topic 12 :</b> Problems & Perils of publication of a paper	<b>Topic 13 :</b> Physiology from laboratory to bedside	<b>Topic 14 :</b> Evidence based mind medicine & meditation	Free Paper Presentations

- 05:00 PM - 06:00 PM “ **Grand Viva Voice for Diamond Post Graduate Award** ”
- 06:00 PM - 07:00 PM General Body Meeting
- 07:00 PM onwards DJ Night & Banquet

## 22<sup>ND</sup> NOVEMBER, 2014

07:00 AM - 11:00 AM Breakfast

08:00 AM - 09:00 AM Registration

09:00 AM - 09:45 AM **Plenary Lecture 6**

**Topic :** Adipokines gene expression – novel marker and regulator of metabolic syndrome

**Speaker :** Prof. Sunita Tiwari, Prof. & Head, Department of Physiology, King George's Medical University, Lucknow (India).

**Chairpersons :** Prof. Anupama Panda & Prof. Arati Mohanty

09:45 AM - 10:15 AM **Maj. Gen. S. L. Bhatia Oration Award**

By Dr. Shashi Bala Singh, OS & Sc 'H' Director, (DIPAS)

**Chairpersons :** Col (Prof.) Anuj Chawla, AFMC, Pune & Prof. Surekha Devi

10:15 AM - 10:30 AM Tea Break

10:30 AM - 12:00 PM Symposium & Presentation by Awardees

Hall A	Hall B	Hall C	Hall D
<b>Topic 15:</b> Current concepts of Acute respiratory distress syndrome (ARDS)	1. <b>M.L. Gupta Prize</b> Dr. Anuj Chawla	5. <b>Prof. R.C. Shukla Oration Award</b> Dr. B. Sinha	8. <b>HH Loescheke Award</b> Dr. A. Jhon Mathew
	2. <b>B.K. Anand Research Prize.</b> Dr. A.K. Pandey	6. <b>Life Time Achievement Award</b> Dr. M.G. Gogate	9. <b>KP Puthraya Award</b> Dr. S. Sirkar
	3. <b>Dev. Raj Bajaj Research Prize.</b> Dr. Kusal Das	7. <b>A.V. Tilak Parvati Award</b> Dr. A.K. Chandra	10. <b>G.K. Pal Award</b> Dr. B. Sinha
	4. <b>Dr. Shushila Thacker Prakruti Mandir Prize</b> Dr. Ritesh Netan		

11:30 AM - 12:15 PM **Plenary Lecture 7**

**Topic :** Rhythmic Inversion Exercise Techniques: Healthier Approach To Hypertension

**Speaker :** Prof. Madhusudan B Jani, M S University of Baroda

**Chairpersons :** Prof. Narsingh Verma & Prof. S. B. Deshpande

12:15 PM - 01:30 PM Free Paper Presentation

Hall A	Hall B	Hall C	Hall D
Free Paper Presentations	Free Paper Presentations	Free Paper Presentations	Free Paper Presentations

01:00 PM - 02:00 PM Lunch

02:00 PM - 05:00 PM Meet your mentors

Hall A	Hall B	Hall C	Hall D
Prof. D.K. Dubey	Prof. G.K. Pal	Prof. Soong Tuk Wah	Prof. Tony Macnighy
Prof. Bindu Kutty	Prof. Ramanjan Sinha	Prof. S.C. Mahapatra	Prof. K.K. Deepak
Prof. S.B. Deshpande	Dr. Sajikumar Sreedharan	Prof. Sunita Tiwari	

05:00 PM onwards Concluding Remarks & Award distribution.





## **DETAILS OF SYMPOSIA**

20<sup>th</sup> November, 2014 – 11:30 AM - 01:00 PM

Symposium 1

Hall A

***Protecting and promoting war fighters under extremes of environment***

Symposium Leader: **Dr. Sashi Bala Singh**, OS & Sc 'H' Director, (DIPAS)

Chairpersons : Prof. Manish Bajpei & Dr. T. N. Satyaprava

Sl. No.	Speaker	Affiliation	Title
1.	Dr. Abhishek Bharadwaj	Scientist 'D', Heat Physiology Group, Environmental Physiology Division, Defense Institute of Physiology and Allied Sciences [DIPAS]	Protecting and promoting war fighter under extremes of environment: Fighting fit in desert
2.	Dr. DK Dubey	CO, 3 AFH Amla, MP PIN: 460553	Protection of an Aviator from Environmental Challenges
3.	Dr. Jyotsna Prasad	Scientist C, Neurobiology Division DIPAS (DRDO) Lucknow Road, Timarpur, Delhi-54	Stressful Operational Condition Induced Mood Alterations and Possible Therapeutic Strategies
4.	Dr. Koushik Ray	Scientist 'D' Defence Institute of Physiology and Allied Sciences, Defence Research and Development Organization, Ministry of Defence, Govt. of India, Lucknow Road, Timarpur, Delhi - 110054.	High altitude induced alteration in sleep architecture and cognitive function
5.	Dr. Manish Sharma	Scientist D, Peptides and Proteomics Division, Defence Institute of Physiology and Allied Sciences, DIPAS, DRDO, Lucknow Road, Timarpur, Delhi-110054.	Understanding hypoxic brain through its expression signatures: Implications for Extracellular Matrix dynamics

20<sup>th</sup> November, 2014 - 11:30 AM - 01:00 PM





Symposium 2

Hall B

***Neural plasticity and disease***

Symposium Leader: **Dr. Laxmi T Rao**, M.Phil, PhD, Asso. Prof., Dept. of Neurophysiology, NIMHANS, Bengaluru

Chairpersons : Dr. Laxmi T Rao & Dr. SajikumarSreedharan

Sl. No.	Speaker	Affiliation	Title
1.	Dr.SajikumarSreedharan 	Department of Physiology, National University of Singapore, Singapore	Competition between recently potentiated synaptic inputs reveals a winner-takes all phase of synaptic tagging and capture
2.	Dr.EyleenGoh 	Duke-NUS Graduate Medical School, Neuroscience and Behavioral Disorders, Singapore	GABA Signaling in Neurodevelopmental Disorders
3.	Dr.PreethiHegde 	Reader, Department of Physiology, RV Dental College and Hospital, Bangalore	Enhancing extinction of fear memory in Wistar rats -Targeting the timing of exposure to the enriched environment
4.	Dr.Sabitha Nair 	Research Associate, Department of Neurophysiology, NIMHANS, Bangalore	17 $\beta$ -estradiol modulates glutamate induced calcium signaling and mitochondrial function in cortical neurons.





20<sup>th</sup> November, 2014 – 11:30 AM - 01:00 PM

Symposium 3  
Hall C

***Biological Time Mechanism: basics to applied***

Symposium Leader: **Dr. Meenakshi Sinha**, Additional Professor, Deptt. of Physiology, AIIMS, Raipur

Chairpersons : Prof. B. B. Pradhan & Prof. R. R. Mohanty

Sl. No.	Speaker	Affiliation	Title
1.	Dr. Atanu Kumar Pati 	Professor, School of Life Sciences , Pt. Ravishankar Shukla University, Raipur	Time in Biology and Medicine
2.	Dr. Chandana Haldar 	Professor & Head, Department of Zoology, Banaras Hindu University, Varanasi	Rhythms in Immunity: Role of Melatonin
3.	Dr. Narsingh Verma 	Professor, Department of Physiology, KG Medical University, Lucknow	Blood pressure variability: Its clinical utility
4.	Dr. Meenakshi Sinha 	Additional Professor, Deptt. of Physiology, AIIMS, Raipur	Application of biological rhythms in medicine

20<sup>th</sup> November, 2014 - 11:30 AM - 01:00 PM

Symposium 4





Hall D

***Fluid and Electrolyte in Heal & Disease***

Symposium Leader: **Dr. Jayanti Mishra** (Professor of Physiology)KIMS, KIIT UNIVERSITY,

Bhubaneswar, Odisha

Chairpersons : Prof. Neelam Vaney & Dr. R. G. Latti

Sl. No.	Speaker	Affiliation	Title
1.	Dr. Jayanti Mishra 	Professor of Physiology, KIMS, KIIT UNIVERSITY, Bhubaneswar, Odisha	Chronic kidney disease and Associated Dyselectrolytemias
2.	Dr. Ellora Devi 	Associate Prof IMS and SUM Hospital Bhubaneswar Odisha	PHYSIOLOGY OF FLUID & ELECTROLYTE BALANCE
3.	Dr. Nibedita Priyadarsini 	MD (Physiology) Plot No.: 1C/ 87, Sector-9, CDA, Markatanagar, Cuttack-753014	ACUTE RENAL FAILURE
4.	Dr. S C Dash 	MD DM FRCP (London) X-Professor and Head, Department of Nephrology, Dialysis & Transplantation Medicine at AIIMS, New Delhi	Renal Sodium handling in Essential hypertension

20<sup>th</sup> November, 2014 – 03:15 PM - 05:00 PM

Symposium 5

Hall A

### ***Space Physiology: The Road Ahead***

Symposium Leader: Prof. Dinesh Dubey, CO, 3 AFH, Amla, MP, PIN - 460553.

Chairpersons : Prof. K. K. Deepak & Prof. Sachidananda Sharma

Sl. No.	Speaker	Affiliation	Title
1.	Dr. Biswajit Sinha	Scientist 'D' and Associate Professor, Institute of Aerospace Medicine Bangalore, India	The Microgravity experiments
2.	<i>Dr (Prof) Dinesh Dubey</i> 	<i>CO, 3 AFH Amla, MP PIN: 460553</i>	The need for space physiology research
3.	Dr. Unnikrishnan Nair S	VSSC Project director of Human Spaceflight Project	

20<sup>th</sup> November, 2014 – 03:15 PM - 05:00 PM

Symposium 6

Hall B

**Medicine & Physiology in Sports**

**Symposium Leader:** Dr. Sushil Chandra Mahapatra, Professor and Head, Department of Physiology AIIMS, Bhubaneswar.

**Chairpersons:** Prof. A. K. Pradhan & Prof. Kamala Nanda

Sl. No.	Speaker	Affiliation	Title
1.	Dr. Sushil Chandra Mahapatra 	Professor and Head Department of Physiology AIIMS, Bhubaneswar, Odisha	Introduction to the Symposium
2.	Dr. Prabeer Chandra Mohanty 	Professor and Head Department of Trauma and Emergency AIIMS, Bhubaneswar, Odisha	Sports Injury and Its Prevention
3.	Dr. Apurba Barman 	Assistant Professor Department of Physical Medicine and Rehabilitation AIIMS, Bhubaneswar, Odisha	Principles of Sports Injury Management
4.	Dr. Ramanjan Sinha 	Professor and Head Department of Physiology AIIMS, Raipur, Chhattisgarh	Sports & Exercise as a Determinant of Mental Health
5.	Dr. Amit Ghosh 	Assistant Professor Department of Physiology AIIMS, Bhubaneswar, Odisha	Is Elite Sportsman Born to be, or Trained to be Champion: Nature-Nurture Controversy

20<sup>th</sup> November, 2014 – 03:15 PM - 05:00 PM





Symposium 7

Hall C

### ***Update in Respiratory Physiology***

Symposium Leader: **Prof (Dr) Arati Mohanty**, Professor, Dept. of Physiology, IMS and SUM Hospital, Bhubaneswar, Odisha – 751003, India

Chairpersons: Dr. Jyoti Kumar & Dr. Jalaj Saxsena

Sl. No.	Speaker	Affiliation	Title
1.	Dr. Manasi behera 	Working as ASST PROFESSOR PHYSIOLOGY since APRIL, 2011 in IMS AND SUM HOSPITAL, BHUBANESWAR.	ALLEVIATING RESPIRATORY DISEASE BY ALTERNATIVE METHOD – YOGA.
2.	Dr. Sandhya Gupta 	Assistant Professor, Dept. of Physiology, I M & Sum Hospital, 8, Kalinga Nagar, Ghatikia, Bhubaneswar, Orissa, India. Pin: 751003	Physio-Anatomy of the Respiratory System
3.	Dr. Manoj Kumar Panigrahi 	Assistant Professor, Department of Pulmonary Medicine, All India Institute of Medical Sciences, Bhubaneswar, Odisha – 751019, India	Molecular basis of Asthma and COPD
4.	Dr. Dipti Mohapatra 	Associate Professor, PG Department of Physiology, IMS & SUM Hospital, SOA University, Bhubaneswar, INDIA	ROLE OF SPIROMETRY IN DIAGNOSIS OF RESPIRATORY DISEASES



21<sup>st</sup> November, 2014 – 11:30 PM - 01:00 PM

Symposium 8

Hall A

***An update on central pain modulator mechanism***

Symposium Leader : **Prof (Dr.) Ramanjan Sinha**, Professor & Head, Dept of Physiology, All India Institute of Medical Sciences, Raipur, C.G.

Chairpersons : Prof. S. C. Mohapatra & Prof. Shripad Despande

Sl. No.	Speaker	Affiliation	Title
1.	<i>Dr. Ramanjan Sinha</i> 	Professor & Head, Deptt of Physiology, All India Institute of Medical Sciences, Raipur, C.G.	Central Pain Modulatory Mechanisms
2.	Dr. Manasi Bhattacharjee 	Assistant professor VMMC and Safdarjung Hospital New Delhi	The link between palatability and analgesia
3.	Dr. Rashmi Mathur 	Professor & Head Department of Physiology All India Institute of Medical Sciences New Delhi	Role of Ventromedial nucleus of hypothalamus in modulation of pain
4.	Dr. Kaushiki Mukherjee 	Scientist (DST) Department of Physiology AIIMS, New Delhi	Pain Modulation is Opioid Mediated

21<sup>st</sup> November, 2014 – 11:30 PM - 01:00 PM




Symposium 9

Hall B

***Role of Yoga in alleviation of cardiovascular risk***

Symposium Leader : **Dr. G. K. Pal**, Professor and Head, Department of Physiology, JIPMER.

Chairpersons : Prof. Anupama Panda & Prof. Kusal K Das

Sl. No.	Speaker	Affiliation	Title
1.	Dr. G. K. Pal 	Professor and Head, Department of Physiology, Jawaharlal Institute of Postgraduate Medical College and Research (JIPMER), Pondicherry – 605 006	Cardiovascular risks: pathophysiology
2.	Dr. Pravati Pal 	Professor, Department of Physiology, JIPMER, Pondicherry – 605 006.	Health impacts and assessment of cardiovascular risks
3.	Dr. Vivek Kumar Sharma	Additional Professor, Jawaharlal Institute of Postgraduate Medical College and Research (JIPMER), Pondicherry – 605 006	Alleviation of cardiovascular risks by asanas and physical exercises
4.	Dr. S. Velkumary 	Associate Professor, JIPMER, Pondicherry – 605 006.	Effects of pranayama on alleviation of cardiovascular risks

21<sup>st</sup> November, 2014 – 11:30 PM - 01:00 PM




Symposium 10

Hall C

## **Nanotechnology**

**Symposium Leader : Dr. Mrs. S. Seethalakshmi**, Professor and Head, Dept. of Pharmacology, ESIC MEDICAL COLLEGE&PGIMSR, CHENNAI, TAMILNADU.

Chairpersons : Prof. A. K. Singh & Prof. Chandrashekhar Mallappa Karpoor

Sl. No.	Speaker	Affiliation	Title
1.	<b>Dr. Mrs. S. Seethalakshmi</b> 	Professor and Head Department of Pharmacology ESIC MEDICAL COLLEGE&PGIMSR CHENNAI TAMILNADU	Challenges and New Advances in Nanomaterial Research
2.	<b>Dr. Prithwijit Banerjee</b> 	Assistant Professor (Pharmacology) at Government Medical College.	Application of Nanotechnology in Medicine
3.	<b>Dr. K. M. Aparna Mani</b> 	PhD Research Scholar Sri Ramachandra Medical College and Research Institute, Chennai Porur,	Herbal Nanotechnology in Drug Development

21<sup>st</sup> November, 2014 – 11:30 AM - 01:00 PM

Symposium 11

Hall D




***Ergonomics exercise physiology***

**Symposium Leader:** Dr. Amit Bandyopadhyay, Assistant Professor, Department of Physiology, University of Calcutta

Chairpersons : Prof. K. K. Deepak, AIIMS, New Delhi, India.

&

Prof. Prakash C. Dhara, Department of Human Physiology with Community Health  
Vidyasagar University, Midnapore, West Bengal, India.

Sl. No.	Speaker	Affiliation	Title
1.	 Dr. Amit Bandyopadhyay	Assistant Professor, Department of Physiology, University of Calcutta	Effect of Ramadan Intermittent Fasting on Selective Fitness Profile Parameters
2.	 <b>Prof. Prakash C. Dhara</b>	Department of Human Physiology with Community Health, Vidyasagar University,  Midnapore -721102 , West Bengal	Health hazards of primary school children due to mismatch between classroom furniture and anthropometric measures
3.	 Dr. Poonam Gupta	Asstt. Prof. Physiology, M.L.N. Medical College, Allahabad	Study of Influence on Heart Rate Variability (Potential Autonomic Component) in Dynamic Moderate Exercise

21<sup>st</sup> November, 2014 – 03:15 PM - 05:00 PM





Symposium 12

Hall A

***Problems & Perils of publication of a paper***

Symposium Leader : **Prof. Shripad Deshpande**, Professor of Physiology, IMS, BHU, Varanasi

Chairpersons : Prof. Sumangala Mahesh Patil & Prof. Mamoni Dihingia

Sl. No.	Speaker	Affiliation	Title
1.	Dr. S. B. Deshpande 	Professor of Physiology, IMS, BHU, Varanasi	Introduction
2.	Dr. K.K.Deepak 	Executive Editor - IJPP AIIMS, New Delhi	Ethics of Publication
3.	Dr. S.S. Sircar 	Editor-Physiology Section, IJPP, AIIMS, Jodhpur	Dilemma of the Editor
4.	Dr. G.K.Pal 	Professor of Physiology JIPMER, Puducherry	Tips for making a good paper
5.	Dr. S.B.Deshpande	Professor of Physiology, I.M.S. B.H.U., VARANASI	Reviewer's points of view

**21<sup>st</sup> November, 2014 – 03:15 PM - 05:00 PM**






**Symposium 13**

**Hall B**

***Physiology from laboratory to bedside***

**Symposium Leader :** Dr. Anil Kumar Pandey, Professor & HOD, Physiology, ESIC Medical College & Hospital, NCR Faridabad-121001

**Chairpersons :** Prof. Asim Das & Prof. Deben Singh Laishram

Sl. No.	Speaker	Affiliation	Title
1.	<b>Dr. Anil Kumar Pandey</b> 	Professor &HOD Physiology, ESIC Medical College & Hospital, Faridabad	Diagnosis to Treatment: What is the role of Physiologist?
2.	<b>Dr. Rita Khadka</b> 	Associate Professor, Department of Basic and Clinical Physiology, BPKIHS, Dharan, Nepal	Symptomatic Myocardial Ischemia: Why Evaluate Autonomic Performance?
3.	<b>Dr. Abhinav Dixit</b> 	Associate Professor of Physiology, AIIMS, Jodhpur	Clinical prospects of Event Related Potentials
4.	<b>Dr. Dilip Thakur</b> 	Associate Professor, Department of Basic and Clinical Physiology, BPKIHS, Dharan, Nepal	Physiology to bed side: Somato-Sensory Nerve Conduction Study Applications
5.	<b>Dr. Rajesh Kathrotia</b> 	Assistant Professor of Physiology, AIIMS, Rishikesh	Evaluation of Left Ventricular Performance

21<sup>st</sup> November, 2014 – 03:15 PM - 05:00 PM






Symposium 14

Hall C

***Evidence based Mind, Medicine & Meditation***

Symposium Leader : Dr Raj Kumar Yadav, Additional Professor Faculty-in-Charge, Integral Health Clinic Dept of Physiology, AIIMS, New Delhi 110029

Chairpersons : Dr. Raj Kumar Yadav & Dr. S. C. Mahapatra

Sl. No.	Speaker	Affiliation	Title
1.	Dr Raj Kumar Yadav 	Additional Professor Faculty-in-Charge, Integral Health Clinic Dept of Physiology, AIIMS, New Delhi 110029	Introduction to the symposium
2.	Dr Dipti Magan 	NDMC, Delhi	Psychoneuroimmune effects of meditation
3.	Dr Kumar Sarvottam 	AIIMS, New Delhi	Obesity related inflammation and cardiovascular diseases: efficacy of yoga based lifestyle intervention
4.	Dr Ritesh Netam 	AIIMS, New Delhi	Interleukin-6, vitamin D, and diabetes risk factors are modified even by a short- term Yoga-based lifestyle intervention
5.	Dr SC Mahapatra 	AIIMS, Bhubhaneshwar	Concluding remarks

22<sup>nd</sup> November, 2014 – 10:00 AM - 12:00 PM

Symposium 15

Hall A






***Physiological perspectives of Acute Respiratory Distress Syndrome (ARDS)***

**Symposium Leader: Prof. S. B. Deshpande**, Dept of Physiology, IMS, BHU, Varanasi

**Chairpersons:**

1. Prof. S.B.Deshpande, Dept of Physiology, IMS, BHU, Varanasi

2. Prof. K.R.K. Murthy, Dept of Physiology, Santhiram Medical College, Nandyal

S.No	Topic	Speaker and Present designation	Photograph
1.	Current concepts of ARDS	<b>Prof. S.B.Deshpande</b> , Professor of Physiology Dept of Physiology, IMS, BHU, Varanasi Email: desh48@yahoo.com	
2.	Oleic acid induced ARDS model	<b>Dr. Parul Sharma</b> , Senior resident, Dept of Physiology, AIIMS, Jodhpur Email: drparulsharmajpr@gmail.com	
3.	ARDS in scorpion envenoming syndrome	<b>Dr. K.R. Krishna Murthy</b> , Professor of Physiology, Dept of Physiology, Santhiram Medical College, Nandyal Email: kradhakrishnamurthy@yahoo.com	
4.	Scorpion venom-induced ARDS Vs oleic acid model	<b>Ms. Aparna Akella</b> , Research Scholar, Dept of Physiology, IMS, BHU, Varanasi Email: aparna358@gmail.com	
5.	Current treatment strategies for ARDS	<b>Dr. Ratna Pandey</b> , Associate Professor Dept of Physiology, IMS, BHU, Varanasi Email : Ratna93@yahoo.co.in	





**PANEL DISCUSSION**

## PANEL DISCUSSION

- Convenor** : Dr. Sashibala Singh & Dr. Arpita Priyadarshini
- Discussion Topics** :
1. How far is Nobel Prize from Physiologists of India.
  2. Provision for MD Physiologists to do DM.
  3. Taking Physiologists & Pharmacologists from classroom to community.
  4. Pharmaco Vigilance
  5. Role of Politician & media in Medical Education.
  6. Career opportunities for physiologists and pharmacologists.
  7. Funding for Research in Physiology and Pharmacology.

## PANEL DISCUSSANTS

1. Dr. T. R. Raju, NIMHANS, Bengaluru
2. Dr. H. N. Mallick, Prof. of Physiology, AIIMS, New Delhi.
3. Dr. Bindu M Kutty, NIMHANS, Bengaluru.
4. Dr. K. K. Deepak, AIIMS, New Delhi.
5. Dr. Rajashree Mallick, MLA, Jagatsinghpur
6. Sj. Pravat Biswal, MLA, Cuttack
7. Dr. Sukanta Mohanty, Professor & Head, Dept. of Pharmacology, SCBMC, Cuttack.
8. Dr. Sabita Mohapatra, Professor & Head, Dept. of Pharmacology, VSSMC, Burla
9. Monika Nayer Patnaik, M.D., Eastern Media Pvt. Ltd.





# **APPI AWARD PRESENTATIONS**

## **MAJ. GEN. S.L. BHATIA ORATION AWARD**

Major General S.L. Bhatia donated Rs.10,000/- in the year 1976 to create an endowment for an Annual Oration Award to be given to an Indian Scientist of eminence who would have contributed substantially to the research and development in the field of Physiology, Pharmacology of the Allied Sciences through outstanding works primarily carried out in India.

**Dr Shashibala Singh**

Director DIPAS, Delhi

## **PROF. BALDEV SINGH ORATION AWARD**

Prof. Baldev Singh Oration Award for recognition of outstanding work carried out in the field of Neurophysiology/Neurosciences. This oration was instituted by the Faculty of the Dept. of Physiology, AIIMS, New Delhi with a generous donation of Rs.25,000.00

**No Awardee**

## **PROF. M.L. GUPTA PRIZE**

In 1979, Prof. M.L. Gupta, Principal & Controller, RNT Medical College, Udaipur Instituted M.L. Gupta Prize in Medical Education and Technology for recognition of substantial contribution to Medical Education and Technology with special reference to Physiology/Pharmacology and allied Sciences in India.

**Dr Anuj Chawla**

Prof & Head, Dept of Physiology AFMC, Pune

## **DR. B.K. ANAND RESEARCH PRIZE IN PHYSIOLOGY**

Dr. B.K. Anand, Founder member of APPI donated Rs.5000/- in the year 1976 to create an endowment from the proceeds of which an annual cash/Prize/Medal will be given to young Indian Scientist below the age of 40 years for the best paper in Physiology submitted during the year.

**Dr Anil Kumar Pandey**

Prof & Head Dept of Physiology,  
ESIC Medical College & Hospital, Faridabad

## **C.L. MALHOTRA RESEARCH PRIZE IN PHARMACOLOGY**

Dr. C.L. Malhotra Founder Member of APPI offered Rs.5000/- in 1976 to creation endowment from the proceeds of which an annual cash/medal will be given to an Indian Young Scientist below the age of 40 years for the best paper submitted in Pharmacology during the year.

**No Awardee**

## **DEV RAJ BAJAJ RESEARCH PRIZE IN TECHNIQUES/INSTRUMENTATION FOR THE BEST PAPER SUBMITTED ON THE DEVELOPMENT OF NEWER TECHNIQUES/INSTRUMENTATION IN PHYSIOLOGY/PHARMACOLOGY/ ALLIED SCIENCES.**

**Dr Kusal Das**

Prof. & Head Dept of Physiology, BM Patil Medical College, Bijapur

## **A.V. TILAK PARVATHI DEVI PRIZE FOR THE BEST PAPER IN ENDOCRINOLOGY/NEURO ENDOCRINOLOGY**

**Dr Amar K Chandra**

Prof, Dept of Physiology, University College of Science and Technology, University of Calcutta, Kolkata

## **SUSHILA THAKER PRAKRITI MANDIR PRIZE FOR RESEARCH INVESTIGATION IN THE FIELD OF NATURAL HEALTH, NATUROPATHY & YOGA**

**Dr Ritesh Netam**

Assoc Prof, Dept of Physiology, AIIMS New Delhi

## **PROF. R.C. SHUKLA ORATION AWARD FOR BEST PAPER IN CARDIOVASCULAR PHYSIOLOGY**

**Dr B Sinha**

Assoc Prof, Dept of Physiology, IAM Bangalore

**PROF. K.P. PUTHURAYA AWARD FOR THE BEST TEACHER IN PHYSIOLOGY**

**Dr Sabyasachi Siircar**

Prof & Head, Dept of Physiology, AIIMS Jodhpur

**GK PAL AWARD**

**Dr B Sinha**

Assoc Prof, Dept of Physiology, IAM Bangalore

**BEST BRANCH AWARD**

**Belgaum, Karnataka**

Dr Nirmala S Anand Organising Sec And Assoc Prof Dept of Physiology,  
JNMC, Belgaum, Karnataka

**H.H. LOESCHEKE RESEARCH PRIZE IN TECHNIQUES/  
INSTRUMENTATION  
FOR THE BEST PAPER IN RESPIRATORY PHYSIOLOGY**

**Dr A John Mathew**

Prof, Dept of Physiology, CMC Vallore

**LIFE TIME ACHIEVEMENT AWARD**

**Dr. M.G. Gogate**

Retired Professor

## KEYNOTE SPEAKER



### **Prof. Dr. Niranjan Tripathy**

Director, Institute of Medicine  
Nima Sahi, Cuttack, Odisha.  
email: drntripathy@rediffmail.com

#### **“TAKING PHYSIOLOGY AND PHARMACOLOGY FROM CLASSROOM TO COMMUNITY”.**

- Physiology is a science in its own right and the physiologist who pursues his research quite detached from medical problems, is a scientist par excellence.
- Some of the most valuable contributions to medical science and community have been the outcome of research in physiology laboratory around the world, whose application couldn't have been foreseen.
- To name a few discoveries of : Insulin, Acetylcholine, Steroid hormones have contributed immensely to human wellbeing. All this will be discussed during the talk.

## **BIODATA**

Prof. Dr. Niranjan Tripathy, born in 1942 had a brilliant academic career. He passed MD, General Medicine in 1972 and had fellowships in all the super speciality of General Medicine. He is:

F.I.C.A. (Fellow, International College of Angiology, New York, USA 1975)

F.C.C.P. (Fellow, International College of Chest Physicians, USA 1981)

F.I.C.N. (Fellow, International College of Nutrition, 1989)

F.I.C.P. (Fellow, Indian College of Physicians, 1992)

F.I.A.C.M. (Founder Fellow, Indian Association of Clinical Medicine, 1995)

F.I.C.C. (Fellow, Indian College of Cardiology, 1996)

F.G.S.I. (Founder Fellow, Geriatric Society of India, 1996)

F.I.S.C.D. (Fellow, Indian Society of Communicable Diseases, 1998)

F.I.P.S. (Fellow, Indian Psychiatric Society, 2000)

Prof. Tripathy joined Odisha Medical Service in 1965 and took voluntarily retirement in 1980 under protest for freedom. He taught at SCB Medical College and later joined MA Medical College, Hisar, Haryana as Professor and HOD Medicine and was instrumental in recognizing the Medical college as the Post Graduate Institute.

He was President of Association of Physicians of India, Odisha, President - Indian Medical Association Cuttack, President – National Medicos Association and Life member of almost 15 Professional Medical Associations.

He at present President of “Odisha Hematology”, the association of hematologist of the State.

He is an active Rotarian and was organizing Chairman for Puri Rotary International Conference in 2001. He led a Rotary International Group Study Exchange to USA from India as a leader and goodwill ambassador for Professional training for six weeks. He has organized more than 100 mega Health & Eye Camps in different district of Odisha and Haryana.

He is a social activist and was Chairman – Juvenile Welfare Board, Cuttack from 1989 to 2005.

He was member in the Governing Body of SCB Medical College, Cuttack, Odisha Red Cross. He is presently Secretary – Sarala Sahitya Sansad, a Prestigious Literary Organization. Founder President – Nursinghanath Rural Health Centre in Jagatsinghpur district, and more than 20 social and cultural organizations including “Basundhara”, CDA, Cuttack.

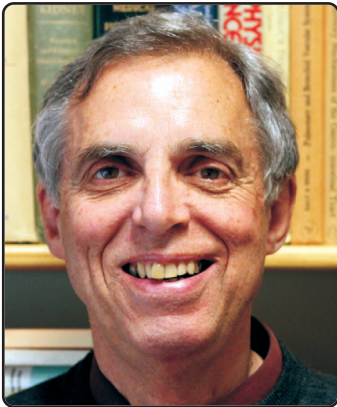
He published more than 40 original scientific articles in national and international peer reviewed journals, including American Heart Journal and Journal of Association of Physicians of India. He published and broadcast more than 400 popular science articles in print and electronic media like Newspapers, All India Radio and Doordarshan. He published 11 books. His book “Adhunik Roga Vigyan” is best seller for 10 years and ran into 10 imprints.

He has travelled more than 50 major countries of the world including USA, UK, Germany, all major countries of Europe and East Asian Countries and attended more than 100 national and international conferences including India.

He has been honoured by his Excellency Governor of Odisha, Odisha Vigyan Academy, Odisha Sahitya Academy and more than 20 other organizations.







## *“Trends in Physiology Education”*

A D C Macknight

Some 50 years ago when I began my University Teaching career, the challenges we faced were very different from those that exist today. Then, there were no computers, no internet, no photocopying, few good textbooks and limited library resources. Of necessity, lectures provided students with all the information that it was felt they needed. In the teaching Laboratory, the equipment would have been instantly recognized by the famous physiologists of the late 19<sup>th</sup> century, and the experiments the students did on anesthetized animals and animal organs and tissues would have been familiar to those physiologists.

Learning was largely passive and the examinations were designed to encourage the students to regurgitate, as accurately as possible, the information that they had learnt from their lecture notes.

Many of us grew dissatisfied by this approach and a number of innovative ideas including problem-based and case-based teaching were introduced and trialed. New technologies such as photocopying allowed students access to additional information and paper chart recorders and storage oscilloscopes modernized the teaching laboratories. However, despite these ‘improvements’ learning remained largely passive.

Now, the introduction of personal computers and development of powerful learning software is allowing us to revolutionize education. We can now deliver material designed to facilitate learning and understanding. Through on-line, active learning sessions, modern laboratory sessions and discussion of relevant patient videos, we can humanize the teaching of physiology for students entering the health professions who can now learn their physiology in the context in which they will use it in clinical practice.



## ***Fine-tuning $Ca_v1.3$ Channel Function in the Brain by Alternative Splicing and RNA Editing***

Tuck Wah Soong, PhD

Department of Physiology, Yong Loo Lin School of Medicine, NUS Graduate School for Integrative Sciences and Engineering and Neurobiology/Ageing Programme, National University of Singapore

Posttranscriptional mechanisms such as alternative splicing and RNA editing are exquisite means to fine-tune  $Ca^{2+}$ -dependent regulation of voltage-gated ( $Ca_v$ ) calcium channels. The generation of alternatively spliced isoforms and edited channels not only diversify function but it also influences the pharmacology of the channels.

Post-transcriptional modifications of the IQ-domain, encoded by exon 41, of the  $Ca_v1.3$  L-type channels regulate  $Ca^{2+}$ -dependent inhibition (CDI). The lack of CDI in the  $Ca_v1.3$  channels may play an important role in cochlear amplification, neurotransmitter release and activity-dependent transcription in the hair cells or in the pacemaker activity of the suprachiasmatic neurons. We have recently discovered RNA editing at the IQ-domain resulting in the reduction of CDI. This pin-point modification is mediated by adenosine deaminase acting on RNA 2 (ADAR2) enzyme.  $ECS^{-/-}$  mice genetically targeted to produce unedited  $Ca_v1.3$  channels exhibited lower action potential spike frequencies in electrophysiological slice recordings of spontaneous oscillations in the suprachiasmatic neurons. These mice were shown to be more anxious and altered sleep patterns. Alternative splicing at the C-terminus not only alters channel biophysical properties but also modulates sensitivity to inhibition by dihydropyridines.

Overall, alternative splicing and RNA editing mechanisms contribute significantly to  $Ca^{2+}$  homeostasis via regulating  $Ca^{2+}$ -dependent inhibition (CDI), a negative feedback mechanism on  $Ca_v1.3$  channel function.



## *“Glial Plasticity and Neurodegeneration”*

Dr. T. R. Raju,  
Senior Professor and Head of the Department,  
Department of Neurophysiology,  
NIMHANS, Hosur Road,  
Bengaluru – 560029 ( India )

**Introduction:** The major cell type of the Central Nervous System (CNS) is Glia. They outnumber neurons by 15 to 30 times, accordingly there are 1.5 to 3 trillion glial cells in the human CNS. Glia is subdivided into astrocytes, microglia and oligodendrocytes. Astrocytes and microglia undergo structural and functional changes in neurodegenerative diseases. This type of glial plasticity could be detrimental for the survival of neurons. My talk would focus on astrocytes and microglial changes in Amyotrophic Lateral Sclerosis (ALS), a devastating neurodegenerative disorder.

**Methods:** Pure astroglial and microglial cultures were established from Wistar rats (P0). The cultures were propagated in media alone (DMEM+10% FBS/DMEM-F12 +10% FBS) or exposed to CSF from patients suffering from ALS (ALS-CSF), and other non-neurodegenerative diseases (NALS-CSF) respectively. After 48 hrs of exposure to 10% v/v CSF, the cells were fixed with 4% paraformaldehyde. Immunostaining was performed for VEGF, GDNF, inflammatory markers like PGE-2, COX-2, IL6 and TNF- $\alpha$ . Microglial cells were checked for proliferation using MTT assay.

**Results:** There was a change in the morphology of astrocytes. Astrocytes were transformed from epithelioid flat morphology to process bearing and fibrous. This was accompanied by a significant down-regulation of GLT-1, Vascular Endothelial Factor (VEGF) and Glial Derived Neurotrophic Factor (GDNF). There was an up-regulation of GFAP, S100 $\beta$ , PGE-2, COX-2, IL6 and TNF- $\alpha$ . Further, pure microglial cultures exposed to ALS-CSF showed proliferation and a transformation of morphology from ramified to amoeboid. An up-regulation of PGE-2 and COX-2 was also observed in microglia suggesting a definite role for microgliosis.

**Conclusion:** The down-regulation of GLT1, VEGF and GDNF, and up-regulation of GFAP, S100 $\beta$  and inflammatory markers namely, PGE-2, COX-2, IL6 and TNF- $\alpha$  in the astroglial cultures exposed to ALS-CSF might suggest loss of trophic support in addition to the inflammatory response ultimately leading to degenerative consequences on the motor neurons. Additionally, the ALS-CSF induced reactive microgliosis and up-regulation of the inflammatory, cytotoxic cytokines. Pathological plasticity in the glial cells may lead to the death of motor neurons in ALS.

**Funding agency:** DBT, ICMR, CSIR-UGC



## *“Radiotracers in Drug Development”*

**Dr. A. K. Singh**

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New Delhi- 110 011, India.

### **Radiotracers in Drug Development**

Drug development is highly time and cost intensive process with quite low probability of new drug molecule reaching to market. A study by Tufts Centre For Study Of Drug Development reveals that out of 5000 molecules tested at preclinical level, only one molecule reaches the market. Therefore, the worldwide pharmaceutical R & D is focusing its attention on the development of new drug delivery systems and leveraging drug development by high through put screening. After designing a new delivery system, its optimization involves the in-vitro and in-vivo studies. A wide range of in-vitro optimisation techniques are available to optimise a drug delivery system. In-vivo studies are also carried out either by blood sampling method or urine analysis. Besides, being cumbersome and tedious these methods do not provide insight about the fate of a drug delivery system in-vivo. Pharmacoscintigraphy, a much-touted technology can answer all above-mentioned queries regarding a delivery system. It provides a non invasive method to monitor the in vivo fate of a different pharmaceutical dosage forms. Radiolabelling of formulation is done with short-lived radioisotope preferably  $^{99m}\text{Tc}$ . The most appropriate ingredient of the formation is tagged with radioisotope and this radioactive dosage form is administered via intended route of administration and the subject (humans/animals) is scanned under a gamma camera. Radioisotopes tagged with drugs/formulations/devices provide vital information regarding the extent, rate, site, and mode of drug release and morphology of the drug delivery system during release in humans under the ethical norms. Pharmacoscintigraphy provides the dynamic images showing the location of the dosage form inside the subject along with the release of the drug from the dosage form to blood thereby enabling the researchers to understand the relationship between in vivo performance and resultant pharmacokinetic parameters. Pharmacodynamics (mechanism of action) of a new drug molecules can also be studied by this technique by tagging the drug molecule with a radioisotope and vital information qualitative as well as quantitative can be obtained. Present paper proposes an effective approach for the development and evaluation of new drug molecules and drug formulations using a Pharmacoscintigraphy.



## *Adipokines gene expression – novel marker and regulator of metabolic syndrome*

**Sunita Tiwari**

Prof. & Head

Department of Physiology,

King George's Medical University, Lucknow-226003 (India)

The metabolic syndrome (MetS) clusters several metabolic abnormalities, including central obesity, dyslipidaemia, hyperglycaemia, and hypertension. Adipose tissue acts as endocrine gland and secretes various adipokines such as Interleukin-6 (IL-6), Tumor necrosis factor (TNF- $\alpha$ ), Resistin, Leptin and Adiponectin<sup>1</sup> that control glucose and lipid metabolism. Dysregulation of adipokine (adiponectin, leptin, IL-6, TNF- $\alpha$  and resistin) production may promote obesity-linked metabolic disorders and cardiovascular disease. Adipokines have local and systemic biological effects, influence insulin sensitivity and the development of metabolic syndrome, Type 2 diabetes and atherosclerosis.

Adipokines secreted from visceral and/or subcutaneous adipose tissue may be responsible for development of obesity associated complications. It has been estimated that people with the MetS are at five-fold increased risk of developing type 2 diabetes<sup>2</sup>. Postmenopausal obese women may be at high risk for metabolic syndrome, since total and central obesity increases after the menopause transition<sup>3</sup>. The emergence of these risk factors may be a direct result of ovarian failure or alternatively an indirect result of metabolic consequences of central fat redistribution with estrogen deficiency<sup>4</sup>.

Controversy in the area of fat distribution and insulin sensitivity still exist. It is not clear whether adipokines synthesized by omental adipose tissue has powerful association with insulin resistance or whether subcutaneous adipose tissue shares this link. Visceral adipocytes and abdominal subcutaneous adipocytes by virtue of dysregulated synthesis and secretion of different adipokines are responsible for development of metabolic syndrome in postmenopausal women. Hence, a study was designed to determine the degree of mRNA expression of TNF- $\alpha$ , IL-6, Resistin, Adiponectin and Leptin in visceral and subcutaneous adipose tissue of postmenopausal women with metabolic syndrome. Association between adipokines released from different sites of adipose tissue and mRNA expression was studied. The study concluded that BMI and WC have independent and a significant association of Visceral Adipose Tissue (VAT) **adiponectin mRNA expression** with TG (triglyceride) and HDL (high density lipoprotein) suggesting its potential modulatory role in lipid metabolism. Subcutaneous Adipose Tissue (SAT) **TNF- $\alpha$  mRNA expression** show a significant and positive association with insulin and HOMA and suggest its modulatory role in metabolic syndrome. **IL-6 mRNA expression** in adipose tissue does not show any association with insulin resistance.

**Key words:** Metabolic syndrome, adipose tissue, glucose, adipokines and HOMA

**1.** (Obes sug. 2006) **2.** (Nesto, 2003; Grundy, 2008) **3.** (Am J Physio Endo Met 2005) **4.** (J of clin Endocri & met 2003).



## *Rhythmic Inversion Exercise Techniques: Healthier Approach To Hypertension*

**Dr. Madhusudan B Jani,**

Head, Department of Physiology,

Faculty of Medicine, M S University of Baroda

Inversion therapy has been around a long time - inversion has been talked about since 400 BC when Hippocrates, the father of modern medicine, monitored patients being hung from a ladder in the interests of their health.

According to Dr. Martin, practicing uncommon postures offset the spine compressing forces of gravity. Gravity's relentless pressure deforms us and contributes to a wide variety of physical ailments. Intelligent use of inverted brachiation and other compensatory postures and rhythmic exercise can employ gravity to our benefit. Benefits of inverted decompression, mobilization and oscillation are commonly achieved through the "Head Downward Position". Gravity is a considerable stressor to our body and when exercising primarily in the upright position we are adding to this stress. When inverted, forces (gravity) work opposite on the body than when standing e.g., in the spine the spaces between the vertebrae are enlarged and stress on the spine is relieved. This may help backache and soreness, can relax overtaxed muscles, give the exerciser an awareness of proper spine position and Core muscles can be strengthened without stressing the spine. According to Pat Layton, physiology teacher for the Iyengar Yoga Institute of San Francisco's Advanced Studies Program, People have to do aerobics because they don't invert. You have to run really hard-get the heart pumping hard-to circulate blood down to the feet and up the back. It doesn't mean that one shouldn't do aerobics, but over and above inversions are a healthier way to get the benefits [to the circulatory system], particularly as you get older. Yoga inversion (head down) will not be as effective as inversion supported on back and shoulder or using the inversion table is because of basic physics. The portion of your spine that is vertical during the Yoga pose will still be in compression -- because of the gravitational force acting on your body in opposition to the force acting at the position your body is being supported. Hanging upside down from your heels on the inversion table causes the entire spine to be in tension - not compression. Putting the spine into tension effectively reduces the pressure on spinal discs; that is, it decompresses the discs.

Those that swear by inversion and its benefits say that inversion therapy helps correct the imbalances effected by gravity. Because we spend most of our life sitting or standing, blood is pulled down into our lower body and our circulation grows progressively sluggish. Hanging upside down reverses the blood flow temporarily, which allows more blood and oxygen to reach the brain. Inversion therapy is also said to be great for your spine. Gravity, and day-to-day stresses like running or walking, can also affect your back, reducing the space between your vertebrae which leads to pressure on the discs and to pain and discomfort. Until very recently, there has been little interest in the West in objectively documenting the effects on health, especially for the more advanced or esoteric practices, such as inversions. The medical doctors who have conducted the existing studies are predominantly Indian. The human body is sensitive to the fluctuations of gravity because it consists of more than 60 percent water. From the skin in, the body is dense with cells, floating in a bath of intercellular fluid. A complex network of vessels weaves in and around every cell, steadily moving fluids through valves, pumps, and porous membranes, dedicated to transporting, nourishing, washing, and cleansing.

In a 1992 Yoga International article on Headstand and the circulatory system, Coulter wrote: "If you can remain in an inverted posture for just 3 to 5 minutes, the blood will not only drain quickly to the heart, but tissue fluids will flow more efficiently into the veins and lymph channels of the lower extremities and of the abdominal and pelvic organs, facilitating a healthier exchange of nutrients and wastes between cells and capillaries. According to David Coulter, Ph.D., who taught anatomy at the University of Minnesota for 18 years, when one inverts, tissue fluids of the lower extremities drain far more effectively than when one is asleep. Areas of congestion clear.

Inversion can act positively on the cardiovascular system, as blood flow is in some parts aided, and in other parts challenged, which can lead to a mild cardiovascular workout. Regular inversion can have a positive effect in fighting varicose veins, and, as blood is helped to infuse the brain, the increased oxygen it carries may have positive impact on maintaining brain function in later years.

Our understanding of how inversions benefit us, then, is built upon expert opinion, case studies, and educated reasoning. In the absence of more scientifically rigorous studies, we can cite biomechanical principles, measure indices such as heart rate or blood pressure, and witness the effects of inversions on people who practice regularly. When one comes down from Headstand, one often feels clearer and calmer. Headstand floods the brain with freshly oxygenated blood, and the brain is refreshed. Is there such a thing as too much blood to the brain? Dr. B. Ramamurthi, a neuroscientist based in India, has shown that the brain is protected from an influx of blood that would overwhelm its delicate structures, and that when a reasonably healthy individual inverts, there is usually no excessive influx in the blood vessels of the brain. There are four major systems in the body that the practice of inversions is said to positively influence: cardiovascular, lymphatic, nervous, and endocrine. Turning yourself upside down encourages venous return. The circulatory system is comprised of the heart, the lungs, and the entire system of vessels that feed oxygen and collect carbon dioxide and other waste products from the cells. Arteries fan out in an intricate tributary system from the heart, which pumps freshly oxygenated blood from the lungs outward. Veins return blood to the heart, and, unlike arteries, make up a low-pressure system that depends on muscular movement or gravity to move blood along. One-way valves at regular intervals prevent backwash and keep fluids moving towards the heart in a system known as "venous return." Is Inversion Therapy to Reduce Pressure on Swollen Legs? A short spell upside down is said to stimulate the circulation, which in turn may help lessen swelling the legs and improve varicose veins. Varicose veins occur when the valves in your leg veins weaken and circulation back to the heart is reduced. Blood begins to pool in the veins and they enlarge in certain places. Inversions where your legs are raised above your head, including the shoulder stand, help your blood drain back towards the heart and reduce the pressure on your leg veins and lead to fall in total peripheral vascular resistance. Those that swear by inversion and its benefits say that inversion therapy helps correct the imbalances effected by gravity. Because we spend most of our life sitting or standing, blood is pulled down into our lower body and our circulation grows progressively sluggish. Hanging upside down reverses the blood flow temporarily, which allows more blood and oxygen to reach the brain. My lecture is based on the experimental evidences of rhythmic exercise of lower limbs like inverted cycling during inversion (not head stand), in which body rests upon back and shoulder on the floor. The principle of rhythmic exercise of lower limbs like inverted cycling during inversion (60 % to 80 %) had been applied among the swimmers under the water for 20 to 30 seconds during each inversion. Pre and post rhythmic inversion exercise, on floor and under water, blood pressures were registered and concluded as healthier ways to control hypertension.



**SYMPOSIUM LECTURES**

## **PROTECTING AND PROMOTING WAR FIGHTER UNDER EXTREMES OF ENVIRONMENT: FIGHTING FIT IN DESERT**

**Bharadwaj A, Baburaj T P, Gupta R K, Chaudhary P, Bajaj AC, Singh Gulab, Panjwani U and Singh S B**

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Facing wrath of nature during the course of service is an unfortunate reality for our soldiers. May it be the heights of Himalayas with sub-zero temperature and rarefied oxygen content or scorching sun of Thar desert. These extremes pose severe physiological challenges which get expressed as diminished performance and in severe conditions, pathological consequences. Soldiers deployed at high and extreme high altitudes often encounter hypoxic conditions which at times lead them to pathological conditions of less to severe consequences. Acute mountain sickness (AMS) is an occurrence that is common among soldiers and is of low severity. In severe conditions, soldiers develop high altitude pulmonary edema (HAPE) involving lungs and high altitude cerebral edema (HACE), involving the brain. Similarly, there are several physiological consequences due to extreme high ambient temperature. Dry heat (high temperature with low humidity- encountered at desert) and humid temperatures (temperature with high humidity-encountered at coastal regions and jungles) pose severe physiological strain on the serving soldiers. A gamut of heat illness affects the soldiers in varying degrees. Consequences as mild as heat fatigue, heat rash, sun burn and dehydration to severe conditions of heat hyperpyrexia and heat stroke are regular feature among the jawans. Research has been carried out in several dimensions to help alleviate such incidents among our fighting forces. Studies leading to development of replenishment drink – DIP-SIP have helped tackle the detrimental effects of dehydration to some extent. Exploration in the field of auxiliary cooling devices to keep the soldiers body cool has lead to development of man mounted cooling system (MMACS). Wearing these portable apparatus would help the forces maintain their body temperature within permissible limits while working under high ambient heat. Work carried out at DIPAS in varied magnitude has helped us better understand the effects of harsh environment on soldiers facing such conditions. Alongside, extensive research in finding solutions to provide relief and ameliorate the deleterious effects of harsh temperatures has helped to an extent keeping our soldiers fighting fit at altitudes and the deserts of Rajasthan.



## **PROTECTION OF AN AVIATOR FROM ENVIRONMENTAL CHALLENGES**

**GP Capt (Prof) DK Dubey**

Classified Specialist (Physiology)

Commanding Officer, 3 Air Force Hospital, Amla (MP)

General Secretary APPI

India is a large tropical country having all combination of weather conditions. The pilot faces problems not only from the environment but from the A/C itself, helmet, gloves, visor, goggle, Pilot of a military aircraft faces varied kind of challenges from the environment. The military pilot challenges are different from a civil pilot in many aspects. The challenges in a military scenario are thermal (High and low temperature), low atmospheric pressure (Hypoxia), disorientation, visibility, enemy threat, target acquisition, low back ground illumination or glare, prolonged work hours, low cabin pressure, sustained long duration flights, vibrations, bird hit and noise etc. Other problems include separation from families and friends, socially alien, post retirement invalidment /worthiness to name a few.



Fighter pilots face different gamut of challenges compared to Transport and helicopter pilots. The problems of G forces, ejection induced injuries, weapon related issues and target acquisition and shooting are more with the fighter pilots while back ache due to prolonged flight is common in transport pilots and vibration induced headache and low body aches are observed more among the helicopter pilots.

Some of the protection given to these pilots are aimed to reduce heat load by offering air-conditioned vehicles, keeping A/C in the shades/ hangers, cooling the cabins, wearing the cotton vest and by drinking cool water. The cold discomfort is reduced by warming the Squadron rooms, A/C cabin heating, proper clothing with high 'Clo' value, and by consuming hot water/ tea/coffee.

Hypoxia is a problem for every pilot and no body is immune from it. However, proper training, use of equipment available and provision of oxygen in the fighter cockpit has greatly reduced the incidence and accidents due to hypoxia. G-forces are reduced significantly by wearing anti-G suits, performing exercises in the cabin while sitting and flying, by avoiding alcohol, drugs of any kind, proper sleep before resorting to a sortie, avoiding hot or cold exposure, high motivation etc. Ejection related injuries are essentially seen after an ejection however the injuries have been minimized due to better ejection seats and the mechanisms provided in newer A/Cs. Vibrations related problems are reduced significantly because of better ergonomically designed seats and dampeners in the helicopters and other fixed wing A/Cs.

Better designed a/c, state of the art avionics, radars, night vision equipment, armament, training, and health of pilot has made the military flying much safer and effective but some of peculiarities of military flying will always persist as long as military A/C and pilot exist.



## STRESSFUL OPERATIONAL CONDITION INDUCED MOOD ALTERATIONS AND POSSIBLE THERAPEUTIC STRATEGIES

**Jyotsna Prasad, Satyanarayan Deep, Dipiti Prasad, Shashi Bala Singh**

Defence Institute of Physiology and Allied Sciences, Defence Research and Development Organization, Ministry of Defence, Lucknow Road, Timarpur, Delhi, India 110054

Harsh working conditions prevailing in LIC areas results in increased physical and psychological stress leading to anxiety and depression. To investigate the effect of LIC we performed cross-sectional study on the unit allotted for base line studies and in LIC areas. There were 3 groups: Group-I-Control subjects stationed at peace locations, Group-II-Subjects deployed in LIC, Group-III-Clinically diagnosed patients of anxiety and depression (positive controls). Based on the findings on human studies we tried to simulate the LIC in animals by applying existing model of depression to find out the detail mechanisms of LIC induced depressive behaviours. In the animal study we investigated the possible neuroprotective effect of L-NAME and Valeriana wallichii in rats exposed to Chronic Restraint model with (CRH) and without hypoxia (CRS). L-NAME (75mg/kg, i.p.) and oral administration of Valeriana walichii (200mg/kg) were given during chronic restraint for 21 days. After the behavioural analysis, animals were sacrificed to evaluate the levels of pro-inflammatory cytokines, changes in cellular architectures and neuronal apoptosis in hippocampus. Iba-1, DCX, COX-2 and NFkB were evaluated by IHC. L-NAME decreased the level of pro-inflammatory cytokines which can be correlated in improving behaviour. L-NAME reduces the expression of COX-2 in hippocampus and also improved the adult proliferating cells number in DG of hippocampus along with reduced expression of NFkB. Hence administration of L-NAME could be a useful therapeutic strategy in ameliorating CRH induced depressive behaviour. Also the proliferation of progenitor cells in the adult rat hippocampus was significantly reduced along with the reduced dendritic arborization (spine density). Exogenous administration of valeriana wallichii prevented the adverse changes induced by

chronic restraint stress. The results show the therapeutic effects of Valeriana Wallichii treatment as well as improvement in the behaviour.

**Keywords:** Anxiety, Depression, Behaviour, Valerina Wallichii, L-NAME, neuroprotection.



## **HIGH ALTITUDE INDUCED ALTERATION IN SLEEP ARCHITECTURE AND COGNITIVE FUNCTION**

**Koushik Ray, Usha Panjwani, Krishna Kishore, Lalan Thakur, JP Anand, Sanjeev Kumar  
and Shashi Bala Singh**

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Sojourners to high altitude experience poor-quality of sleep due to hypobaric hypoxia (HH). Sleep architecture is disturbed at high altitude with frequent awakenings associated with pronounced oxygen desaturation and periodic breathing, increased light NREM sleep (stages 1 and 2) and reduced of deep NREM sleep (stages 3 and 4). The changes in sleep pattern at high altitude are probably related to oxygenation of the sleep related centers on the brain. But this does not explain the lesser decrement on REM as compared to NREM sleep in humans. Given the fact that the oxygen of the brain increased more during REM, it would be expected that REM be more disrupted due to hypoxia at high altitude. But on the other hand, in experimental animals, rats and cats, the REM sleep is affected more than NERM during chronic hypoxia exposure. It is suggested that the difference could be linked to the regulation of cerebral blood flow, the effects being different in humans and experimental animals. Cognitive and neuropsychological functions have been compromised during high altitude exposure due to slowing of the mental processing. Deep sleep or delta sleep is an important factor for maintenance of cognition in plain or altitude. It is likely that the direct effects of hypoxia on brain causes variations in the level of specific neurotransmitters involved in cognitive processes because the experimental studies on rats showed alterations in the expression of enzymes linked to sleep neurotransmitter synthesis pathway and subsequent loss of homeostasis at neurotransmitter level disrupts the sleep pattern in hypobaric hypoxia and thus reduces the cognitive performance.



## **UNDERSTANDING HYPOXIC BRAIN THROUGH ITS EXPRESSION SIGNATURES: IMPLICATIONS FOR EXTRACELLULAR MATRIX DYNAMICS**

**Gaurav Kumar, Aastha Chhabra, Kalpana Bhargava, Shashi Bala Singh, Dipti N Prasad  
and Manish Sharma.**

*Defence Institute of Physiology and Allied Sciences (DIPAS), DRDO, Delhi-110054. India*

Hypobaric Hypoxia (HH) is known to be associated with neurophysiological impairment including psychomotor performance, cognitive function like learning and memory. In certain individuals, it can also culminate in high altitude cerebral edema (HACE). While our understanding of pathophysiological consequences of HH has been growing, much needs to be understood at the cellular and molecular level. We utilized an established rat model for studying neuronal effects of hypobaric hypoxia and performed global gene expression profiling for two different regions of brain namely, hippocampus and prefrontal cortex in a temporal manner (Day 1, 3 and 7 post HH). We consistently observed modulation of genes

associated with various classes of cell-cell communication pathways including extracellular matrix-related and cell adhesion amongst others, across various time points and two regions of the brain. Interestingly, the genes modulated in our data set grossly composed various components of glio-vascular units of brain, suggesting its perturbation by HH. We tested this proposition by performing immuno-histochemistry and ultra-structural studies in specific regions of the brain. The results of these studies corroborated the biological theme implicated by transcriptome data. Taken together, our data suggests an interplay between glio-vascular unit perturbation by HH and feedback loops attempting to restore homeostasis through ECM regulation. It is plausible that the resultant of this dynamics is determined by the extent and severity of HH and in consequence, regulates specific clinical phenotype – either moderate (AMS) or severe (HACE/ Neuronal loss/Long term memory loss).



## NEURAL PLASTICITY IN HEALTH AND DISEASE

**Laxmi T Rao, M.Phil, PhD**

Associate Professor, Department of Neurophysiology, NIMHANS, Bangalore

### Brief Introduction of the Symposium:

Neuronal and synaptic plasticity is the fundamental basis in understanding the cognitive functions. In the present symposium, we will discuss the current understanding on the experience – dependent modification of neuronal and synaptic plasticity in health and disease. Sajikumar Sreedharan from NUS will provide an insight into the importance of synaptic competition in creating stable long-lasting memory in neural networks without disruption. While Eyleen Goh will discuss how drugs modulating GABA signaling as a potential therapeutics for neurodevelopmental disorders, specifically Rett syndrome. Preethi Hegde will throw some information how timing of exposure to Enriched environment (EE) induce plasticity in the brain. Sabitha Nair will finally discuss on the role of glutamate in excitotoxicity and physiological significance of estrogens in neurotrophic and neuroprotective effects.



## COMPETITION BETWEEN RECENTLY POTENTIATED SYNAPTIC INPUTS REVEALS A WINNER-TAKES ALL PHASE OF SYNAPTIC TAGGING AND CAPTURE

**Sajikumar Sreedharan**

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Department of Physiology, Yong Loo Lin School of Medicine,  
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### Abstract

Canonical models suggest that mechanisms of long-term memory consist of a synapse-specific, protein synthesis-independent induction phase (changes in synaptic weights/temporary tagging of such synapses) and, within adjacent dendritic compartments, a protein synthesis-dependent distribution phase that may accompany or immediately precede induction and whose protein products enable consolidation through synaptic capture. We now report that this distribution phase is competitive in a “winner-take-all” fashion when synapses potentiated at induction compete with each other for plasticity-related proteins. This finding highlights the importance of synaptic competition in creating stable long-lasting memory in neural networks without disruption.



## GABA SIGNALING IN NEURODEVELOPMENTAL DISORDERS

Dr. Eyleen Goh

Duke-NUS Graduate Medical School,  
Neuroscience and Behavioral Disorders, Singapore;  
Lee Kong Chian School of Medicine,  
Nanyang Technological University, Singapore

### Abstract

Rett Syndrome is a neurodevelopmental disorder that usually arises from mutations or deletions in methyl-CpG binding protein 2 (MeCP2), a transcriptional regulator that affects neuronal development and maturation without causing cell loss. We found MeCP2 knockdown delays neuronal development and increases neuronal excitability and  $\gamma$ -aminobutyric acid (GABA) signaling has been implicated in both processes. In this talk, I will describe association of MeCP2 knockdown-mediated structural defects with alterations in synaptic transmission and neural network activity *in vitro*. Similar retardation of dendritic growth was also observed in MeCP2 deficient newborn granule cells in the dentate gyrus of adult mouse brains *in vivo* demonstrating direct and cell autonomous effect on individual neurons. These data suggest that drugs modulating GABA signaling are potential therapeutics for neurodevelopmental disorders, specifically Rett syndrome.



## ENHANCING EXTINCTION OF FEAR MEMORY -TARGETING THE TIMING OF EXPOSURE TO THE ENRICHED ENVIRONMENT

Preethi Hegde

Department of Physiology,  
D.A.P.M.R.V. Dental College, Bangalore, Karnataka, India-560078.

### Abstract:

The newness and challenge is an important component that induces plasticity in the brain. Enriched environment (EE), a combination of enhanced social relations, physical exercise and interactions with non-social stimuli is known to induce plasticity in the brain. EE has been proved to have beneficial effect of EE on cognitive functions and psychiatric disorders. PTSD is one of the psychiatric disorders that is studied using the classical fear conditioning as the model, in which PTSD symptoms appear to be maintained. We aimed to analyze the effects of exposure to EE at different time period during the fear conditioning paradigm. To understand how behaviour dependent plasticity is reflected in the activity of neuronal populations, the Local Field Potentials (LFPs) were recorded from CA1-hippocampus, lateral nucleus of amygdala and infralimbic region of medial prefrontal cortex during the behavioral paradigm. Behaviorally, we observed that rats exposed to EE before fear conditioning and re-exposure after extinction training exhibit less freezing than control during the recall of extinction fear memory. In addition, we also found decreased theta power and reduced synchronized theta oscillations in all three brain regions during freezing on the retention of contextual fear memory. Thus, the timing of exposure to EE may be linked, enhancing the extinction of fear memory.



## 17 $\beta$ -ESTRADIOL MODULATES GLUTAMATE INDUCED CALCIUM SIGNALING AND MITOCHONDRIAL FUNCTION IN CORTICAL NEURONS.

Sabitha K.R.,

Department of Neurophysiology, NIMHANS, Bangalore.

Glutamate facilitates calcium influx through glutamate receptors, and excess calcium leads to excitotoxicity. Estrogens are neurosteroids, having important physiological relevance and are known to exert neurotrophic and neuroprotective effects in response to a variety of neuronal injuries including excitotoxic insults.

In the present study, we examined the contribution of NMDA and non-NMDA sub-types of glutamate receptors activated  $Ca^{2+}$  signaling, mitochondrial functions and neurotoxicity in the presence and absence of estrogen in mixed primary cortical cultures. Glutamate stimulation resulted in a transient increase in  $[Ca^{2+}]_i$  in cortical neurons but estradiol attenuated the transient  $[Ca^{2+}]_i$  rise as well as the secondary sustained calcium response (SSCR) in a dose dependent manner.  $Ca^{2+}$  influx occurred mainly through NMDA receptor stimulation compared to AMPA and Kainate and 17 $\beta$ -estradiol inhibited this  $Ca^{2+}$  influx.

Acute treatment (5 min) with 17 $\beta$ -estradiol was also sufficient to attenuate glutamate induced  $Ca^{2+}$  influx, suggesting a role for membrane receptor mediated mechanism. Administration of BSA tagged estrogen and specific estrogen receptor antagonist, ICI182, 780 confirmed that estradiol acts through membrane localized estrogen receptors.

We demonstrate that mitochondrial calcium sequestration in estrogen pretreated neurons was less as compared to the control cultures. This could be due to the attenuation in glutamate induced  $Ca^{2+}$  influx by estrogen. Glutamate stimulation caused a rapid depolarization of mitochondria. Estrogen significantly inhibited glutamate-induced mitochondrial membrane depolarization. We suggest that the decrease in mitochondrial calcium overload could be a possible mechanism, by which estradiol prevents mitochondrial membrane depolarization. The protective effects of these neurosteroids includes a potent alleviated intracellular calcium elevation, attenuation of free radical formation, ablated mitochondrial calcium loading and subsequent mitochondrial membrane potential maintenance, prevented cytochrome c release and enhanced cell survival.



## TIME IN BIOLOGY AND MEDICINE

Atanu Kumar Pati

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All living organisms keep track of the passage of time. They possess functional clocks at all levels of biological integration. The ecosystem, population, individual, organ, tissue, and cell exhibit rhythms with diverse frequencies. The periods of most of the documented biological rhythms match with that of any one of the geophysical cycles present in the nature. Any biological variation, with an approximately 24-h period is called a circadian rhythm. It persists even in the absence of environmental time cues, like day and night cycle and maintains its periodicity with a  $\tau$  (tau) very close to 24 h. Thus circadian rhythms are endogenous. The basic circadian system is believed to consist of at least three important components, namely photoreceptor, pacemaker, and outputs. The underlying molecular mechanisms of these clocks seem to have extraordinary degree of evolutionary conservation and appear to be a universal feature of the clocks in models as divergent as algae, fungi, fruit flies, mice and humans. Chronobiology is the subject

that includes study of importance of time in biology and medicine; mechanisms of biological rhythms; and application of their principles in the optimization of treatments in clinics and in the management of problems in shift workers.



### **RHYTHMS IN IMMUNITY: ROLE OF MELATONIN**

**Professor Chandana Haldar and Sameer Gupta**

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The photoperiod is the most proximate cue that drives the rhythmicity in the physiological functions. The ability of photoperiod to dictate seasonal functions *via* the circadian timing involve rhythmic melatonin release from the pineal gland. Melatonin being an arm of the circadian clock, imparts time-related signal to the various physiological systems including the immune system. We noted that the variations in the proliferation response of the lymphoid cells were parallel to the plasma levels of melatonin. Based on our observations in a small diurnal rodent *Funambulus pennanti*, we propose that short photoperiod induced modulation in levels of melatonin and low circulatory steroids positively regulate the immune status. These effects of melatonin on the immune system are known to be mediated by its high affinity membrane bound receptors MT<sub>1/2</sub> which are also known to exhibit diurnal variation in its expression pattern. However, the prolonged exposure to short days can induce photo-neuroendocrine-immune-refractoriness that eventually results in loss of short-day induced immune enhancement due to spontaneous reproductive recrudescence. Our study established that the day length induced changes in the hormonal (melatonin/steroids) levels modulate the seasonal rhythms in immune functions. The effects of photoperiodically modulated melatonin on the immune system can be considered as an adaptive strategy that helps animals to cope up with the stressful environmental conditions.



### **BLOOD PRESSURE VARIABILITY: ITS CLINICAL UTILITY**

**Prof Narsingh Verma, Shipra Bharadwaj, B. Anjum, Manish Goyal, Arun Goel**

Department of Physiology KG Medical University Lucknow

Blood pressure measurement by sphygmomanometer or automated devices is the routine approach for diagnosing hypertension in clinics, but patients may be misclassified due to masked hypertension or “white coat” hypertension. Not only that, it also misses the variability of blood pressure which occurs throughout the day, week, and season. The addition of ambulatory blood pressure monitoring (ABPM), has helped in improving the diagnosis and treatment decisions and measuring this variability. ABPM is not new as more than 50 years have passed since first attempt for ABPM was made by Hinman et al. in 1962. The potential of this technique was not recognized that time and nobody expected that it will soon become indispensable tool in day to day practice. Its recognition and acceptance in clinical practice took little time and now there is overflow of data using ABPM from different groups around the world. Most of the studies on efficacy of various pharmacological agents are done by using ABPM. Study of circadian pattern of blood pressure has provided several insights into the patho-physiology of target organ damage in hypertensives with identification of dipping and non dipping patterns among hypertensives and their treatment restoring the dipping pattern. Chronomics is now guiding the drug therapy in such patients, have made ABPM

indispensible tool not only in diagnosing but overall management of hypertension. Recently several studies have increasingly demonstrated its application in identifying risk of target organ damage in Type 2 Diabetes and Kidney transplant patients. The variability of blood pressure has been recognised as an independent risk factor for stroke and other cardiovascular morbidity. In this context our group is working on investigating circadian pattern of Blood Pressures among normal subjects, hypertensive patients, Type-2 Diabetes Patients, CAD Patients and Pregnancy induced hypertension. Some of the interesting findings from our group will be discussed during the meeting.



## APPLICATION OF BIOLOGICAL RHYTHMS IN MEDICINE

Meenakshi Sinha<sup>1</sup> & Usha Sachdeva<sup>2</sup>

Department of Physiology, <sup>1</sup>AIIMS, Raipur (C.G.); <sup>2</sup>CMMS, Arabian Gulf University, Manama, Bahrain

The mammalian brain has been bestowed with inner biological clock i.e. the Suprachiasmatic nucleus of hypothalamus alongwith several other peripheral oscillators in the body. These clocks/oscillators not only help in temporal adaptation of the species to their environment by circadian entrainment but also synchronize the rhythmicity of various components of the body as was suggested long back by J.Aschoff & C.Pittendrigh. It has been realized clearly now that circadian input pathway is sensitive to pathologic alterations resulting in entraining abnormalities eg, age related or blindness related chronopathologies. In this context, the authors own experiences of studies conducted at the field conditions of Antarctica (with prolonged light/dark cycle) shall also be discussed during presentation, which simulates the aforesaid conditions. On the other hand, the modern era & our lifestyle also poses serious threat of circadian disruption leading to several chronopathologies. Chronotherapy i.e. time specific treatment of pathological symptoms might be the answer for many such pathologies eg. cancer, autoimmune diseases, hypertension, seasonal affective disorders, sleep abnormalities, shift workers and neurological disorders like autism by entrainment of variables. In this regard, clinical applications of melatonin, the chronobiotic from pineal gland, has emerged as an important cornerstone of chronomedicine.



## CHRONIC KIDNEY DISEASE AND ASSOCIATED DYSELECTROLYTEMIAS

DR Jayanti Mishra,

Professor of Physiology, KIMS, KIIT UNIVERSITY,  
Bhubaneswar, Odisha.

Chronic kidney disease (CKD), is a progressive loss in renal function over a period of time. Often, chronic kidney disease is diagnosed as a result of screening of people known to be at risk of kidney problems, such as those with high blood pressure or diabetes. Chronic kidney disease may also be identified when it leads to one of its recognized complications. It is differentiated from acute kidney disease in that the reduction in kidney function must be present for over 3 months. The three most common causes of CKD are diabetes mellitus, hypertension, and glomerulonephritis. Together, these cause approximately 75% of all adult cases.

Chronic kidney disease is identified by a blood test for creatinine. Higher levels of creatinine indicate a lower GFR and as a result a decreased capability of the kidneys to excrete waste products. Recent guidelines classify the severity of chronic kidney disease in five stages, with stage 1 being the

mildest and stage 5 being severe illness with poor life expectancy if untreated. Stage 5 CKD is often called **end stage renal disease (ESRD)**, **end stage renal failure (ESRF)**, or **end-stage kidney disease (ESKD)** and is synonymous with the now outdated terms **chronic kidney failure (CKF)** or **chronic renal failure (CRF)**. Blood pressure is increased due to fluid overload and production of vasoactive hormones created by the kidney via the RAS (renin-angiotensin system), increasing one's risk of developing hypertension.

- Accumulation of urea, leading to azotemia and ultimately uremia
- Potassium accumulates in the blood (known as hyperkalemia with a range of symptoms including malaise and potentially fatal cardiac arrhythmias). Hyperkalemia usually does not develop until the GFR falls to less than 20-25 mL/min/1.73 m<sup>2</sup>, at which point the kidneys have decreased ability to excrete potassium. Hyperkalemia in CKD can be exacerbated by acidemia (which leads to extracellular shift of potassium) and from lack of insulin.<sup>[2]</sup>
- Erythropoietin synthesis is decreased
- Fluid volume overload — symptoms may range from mild edema to life-threatening pulmonary edema
- Hyperphosphatemia — due to reduced phosphate excretion, which follows the decrease in glomerular filtration. Hyperphosphatemia is associated to increased cardiovascular risk, being a direct stimulus to vascular calcification.<sup>[3]</sup>
- Hypocalcemia — due to 1,25 dihydroxyvitamin D<sub>3</sub> deficiency.
- Metabolic acidosis, due to accumulation of sulfates, phosphates, uric acid etc.
- Iron deficiency anemia, which increases in prevalence as kidney function decreases, and is especially prevalent in those requiring haemodialysis. It is multifactorial in cause but includes increased inflammation, reduction in Erythropoietin, hyperuricemia leading to bone marrow suppression.
- Atherosclerosis
- Sexual dysfunction



## PHYSIOLOGY OF FLUID & ELECTROLYTE BALANCE

DR Ellora Devi

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### PHYSIOLOGY OF FLUID & ELECTROLYTE BALANCE.

Body fluids are distributed between ICF & ECF compartments . In a 70kg adult man Total body water =42L(60% of body weight ).Variation exists depending on age, gender & percentage of body fat . Regulation of fluid volume, solute concentration & distribution between the two compartments depends on water & sodium balance. Water provides 90-93% of fluid volume . ECF account for (14L) 20% of body weight. Divided into interstitial fluid (11L) & blood plasma (3L).The plasma & interstitial fluid have similar ionic composition, except higher concentration of proteins in plasma. Sodium contributes 90-95% of extracellular solutes ,chloride & bicarbonate ions in less quantity.

ICF 28L (40% of body weight) present inside 100 trillions of cells . Contains large amount of K<sup>+</sup> , phosphate & sulphate ions .Proteins ,almost 4 times as much as in plasma. fluid volume in different compartments measured by , Indicator dilution Principle.

The main regulator of water & sodium is the maintenance of effective circulating blood volume . In vascular system, stretch receptors exert effect through ADH & sympathetic nervous system .Kidneys, exert their effect by ,sympathetic nervous system & renin –angiotensin –aldosterone system .Thirst controls water intake ,ADH controls urine concentration & renal output.





## ACUTE RENAL FAILURE

Dr. Nibedita Priyadarsini

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### **ACUTE RENAL FAILURE**

#### **DEFINITION:**

Acute renal failure (ARF) is a syndrome characterized by rapid decline in glomerular filtration rate (hours to days), retention of nitrogenous waste products, and perturbation of extracellular fluid volume and electrolyte and acid-base homeostasis.

#### **CAUSES OF ARF:**

**Pre-renal (55-60%):** Hemorrhage, burns, vomiting, diarrhea, poor fluid intake, dehydration, fever, use of diuretics, cardiac failure, diabetes mellitus, liver dysfunction, or septic shock

**Intrinsic (35-40%):** Interstitial nephritis, acute glomerulonephritis, vacuities, tubular necrosis, ischemia, toxins

**Post-renal (5%):** Prostatic hypertrophy, cancer of the prostate or cervix, or retroperitoneal disorders neurogenic bladder, bilateral renal calculi, papillary necrosis, coagulated blood, bladder carcinoma, blocked catheter

#### **SIGNS & SYMPTOMS:**

Decrease in urine output, Nausea/Vomiting, loss of appetite, abdominal/ flank pain, HTN, edema (lower extremity), pulmonary edema, ascites, fever, rash, arthralgia, asterixis, h/o heart disease or liver disease

#### **COMPLICATIONS:**

Intravascular volume overload, hyperkalemia, hyponatremia, hypocalcaemia, anemia, metabolic acidosis & hyperuricemia

#### **DIAGNOSTIC APPROACH TO ARF:**

- History
- Physical examination
- Assessment of urine volume
- Urine analysis
- Blood chemistry
- Blood & urine indices
- Radiologic studies
- Renal biopsy

#### **TREATMENT**

Identification of the cause of ARF

Correction of the primary hemodynamic abnormality

Prevention & management of uremic complication



## RENAL SODIUM HANDLING IN ESSENTIAL HYPERTENSION

Prof. DR. S. C. Dash

Head Deptt Of Nephrology Kims,Kiit University,Bbsr

Essential hypertension (better called primary hypertension) is strongly linked etiopathogenetically to high salt intake & blood pressure. This is evidenced from epidemiological, migration, intervention & genetic studies in human & animal studies<sup>1,2</sup>. Inability of kidneys to excrete appropriate amount of salt

is probably the main reason. Thus kidneys play central role in regulating arterial pressure. Today's contemporary societies in developed as well as in developing countries consume salt in far too excess (nearly 10 times) what evolutionally human body is adapted to ingest & excrete. Thus chronic consumption of high salt diet is a major factor in high prevalence of hypertension.

Hypertension affects 20-25 % of the population in the USA & other developed countries. Several years ago our epidemiological study in an Indian rural 'Oraon' tribal population revealed although the incidence is low, in Oraon tribals when these people migrated to cities to live on a diet with high salt and calorie pressure increased by 5 to six times. Similar migration studies provide evidences relating habitual salt intake & blood pressure. One such example a carefully conducted controlled study from Kenya where subsistence farmers ate low salt/ high potassium diet. Out of these those who migrated to the urban community diet with ate increase salt diet & low potassium developed elevated blood pressure after a few months.

### **Role of kidney in primary hypertension**

Kidney has a central role to play in genesis of primary hypertension. Several years ago (1972) Guyton et al noted that although sympathetic nervous system & renin angiotensin system are important for short term elevation of blood pressure, ultimately it is the kidney that is responsible for long term blood volume & blood pressure control.<sup>3</sup> Dahl's (1975) experiment clearly indicated that hypertension can be transferred from hypertensive salt sensitive rat to normotensive Dahl salt resistant rat by transplantation of kidney.<sup>4</sup> Subsequent study revealed blood pressure in bilaterally nephrectomized hypertensive rat does not rise when cross transplanted with a kidney from normotensive rat.

In human, patients with essential hypertension complicating renal failure have been cured of their underlying hypertension by kidney transplantation from a normotensive donor.<sup>5</sup>

Similarly another study showed that hypertensive patients with endstage nephrosclerosis became normal over a follow up period of 4-5 years following bilateral nephrectomy was done and they were transplanted with a kidney from young normotensive donor.

All these transplant & this studies in animal and human suggests that whatever functional abnormalities may occur at other sites, the primary disturbance that initiates rise in blood pressure in these hereditary forms of hypertension resides in kidneys.

Phenomenon of pressure natriuresis & diuresis confirms regulatory role of kidneys on blood pressure. There are other blood pressure controlling systems in the body which show difference in time of activation after pressure suddenly becomes abnormal.<sup>6</sup> There are neural receptors reacts within seconds while hormonal system respond within minutes. But the system which contributes to greatest extent is the kidney fluid volume system which reacts within hours or days. When the blood pressure rise to abnormal level the excess pressure causes kidney to excrete more sodium & water than what is being consumed leading to fall in extracellular volume & fall in arterial pressure. Conversely if the pressure falls below normal then consumed salt & water overbalance the excreted amount of water leading to rise in pressure.

### **How is Renal inability to excrete appropriate amount of salt linked to hypertension ?**

Studies on normotensive first degree relative of hypertensive patients have shown inability to excrete expected quantity of sodium and rise in blood pressure. This phenomenon has been also seen in spontaneously hypertensive rat (SHR). With age Kidney's capacity to excrete sodium declines & even smaller increase in salt intake induce rise in arterial pressure.

Relatives of hypertensive patients have shown inability to excrete expected quantity of sodium and rise in blood pressure. This phenomenon has been also seen in spontaneously hypertensive rat (SHR). Kidney's capacity to excrete sodium declines with age & even smaller increase in salt intake induce rise in arterial pressure.<sup>7</sup>

Majority of hypotheses suggest increased salt intake raises plasma sodium leading to ECF volume expansion which in turn increases cardiac output contributing to rise in blood pressure. That normally will cause excretion of salt & water to bring back ECF volume to normal. However greater rise in plasma sodium that occurs in hypertension prone subjects is due to a defect in the kidney's ability to excrete salt and regulate ECF Volume. Even then plasma sodium in most of such patients is normal.

A unifying hypothesis explains why plasma sodium & plasma volume remain in normal range in many of these patients of essential hypertension in the presence of kidney's inability to excrete desired amount of salt and water.<sup>8</sup> This phenomenon is because a plasma factor which increases natriuresis. That factor not yet clearly identified. It may be Na<sup>+</sup>- K<sup>+</sup>- ATPase inhibitor or some other substance. The later mechanism raises blood pressure and simultaneously produces natriuresis & inhibits Na<sup>+</sup>- Ca<sup>++</sup> exchange pump in vascular smooth muscle cell. It is not entirely clear what this factor could be. One study in 27 untreated patients with essential hypertension revealed plasma marinobufagenin immunoreactivity. This substance rises with acute volume expansion & also in essential hypertension. Variable rise in plasma ouabain immunoreactivity has also been reported in EH.<sup>9</sup> This mechanism strongly indicates crucial role of kidneys in pathophysiology of essential hypertension.



## **SPACE PHYSIOLOGY : THE ROAD AHEAD THE MICROGRAVITY EXPERIMENTS**

**Dr. Biswajit Sinha**

Scientist 'D' and Associate Professor  
Institute of Aerospace Medicine, Bangalore, India

Microgravity environment is a unique environment where human body confronts with myriad challenges of space exploration. With successful launch of first human space flight in 1961, many short term and long term human space flights were successfully carried out in last 53 years. The alterations in normal physiological functioning during space mission not only depend on the exposure duration but also on physiological status of the individual. In fact, much of our understanding of human behaviour and performance in space has been obtained from the study of analog experiments on the earth like research stations in Antarctica, polar expeditions, nuclear submarines, undersea habitats, oil drilling rigs, and space simulator experiments. With the advancement of technology, the space tourism for common people is not far from the reality. Hence, it is extremely important to understand the effect of microgravity on human beings. Simulation experiment on the earth is the only way to understand the impact of spaceflight on physiological responses.

Scientific literatures have suggested five basic strategies to simulate a microgravity environment and study its effects on humans namely, head-down bed rest, wheelchair confinement of paraplegics, water immersion, immobilization and confinement, and parabolic flights. Head down bed rest has provided the most of the information about human physiologic dynamics in simulated microgravity. This is a useful spaceflight analogue on the earth as many of the results obtained during simulation method have been correlated with actual findings in space like physiologic responses and adaptations including psychologic stress, hormonal changes and immune function. In head-down bed rest, subjects remain confined to the bed for an extended time (weeks, months, or a year) in a horizontal or head-down tilt position (-3° to -12°). Recent study in our lab has compared orthostatic tolerance of aerobic trained and resistance trained individuals after having been exposed to head-down (-6° angle from the horizon) bed rest for 6 hours and it was observed that resistance trained people were better off than their aerobic trained counterparts in

tolerating orthostatic stress post head-down bed rest. In water immersion, the subjects float in a tank full of thermo-neutral water separated by a tarpaulin sheet. Cephalic shift of body fluids take place during immersion due to abolition of hydrostatic gradient and generation of buoyancy force due to immersion in the water. Study from our laboratory compared the gastric motility of healthy individuals on intake of four different types of foods under dry supine immersion for six hours. Whole body or segmental casts restrict limb and body movements in humans and animals. This procedure produces an effective analogue for simulating the effect of weightlessness on human skeletal muscle loading. Changes in muscle structure and function produce results similar in magnitude and direction to data obtained from humans following exposure to real and simulated microgravity experiments. A parabolic flight is another way of simulating near zero gravity condition ( $1 \times 10^{-3}$  g) for 30 seconds. During repeated brief parabolic roller-coaster like maneuvers, scientist evaluate how humans and equipment function during intermittent forces that range from 1.8g to near-zero-g, similar to those experienced during liftoff and reentry of space vehicles. Depending on the mission, the simulation in parabolic flights can include up to 60 parabolic flights for 3 hours of cumulative weightlessness. Scientific information gleaned from the reduced gravity aircraft flights has translated into on-board exercise regimens as countermeasures to the lack of gravity's deleterious effects during space shuttle and ISS missions. Perhaps the closest operational analog of space occupancy is the undersea habitat, where aquanaut divers live and work on the ocean floor with a degree of isolation similar to that in space.

The new field of 'Bioastronautics' that focuses on biologic and medical effects of space flight on human systems is emerging and gaining momentum. Experimenting human beings under simulated microgravity condition in a controlled environment are the only way to study the impact of intended space flight on physiological systems and to study the behavioral impacts of isolation, confinement, and stress over long periods of time for a successful completion of future manned space mission.



## THE NEED FOR SPACE PHYSIOLOGY RESEARCH

**Dr. (Prof.) Dinesh Dubey**

*CO, 3 AFH, Amla, MP PIN: 460553*

Human beings are evolved and adapted to live in 1G environment of the earth. Terrestrial man started exploring space since the time Russian Cosmonaut Yuri Gagarin made his first maiden visit to space on 12 Mar 1961 and made one orbit around the Earth aboard the Vostok 1 spacecraft, launched by the Soviet space program. Fifty three years have passed after the first human space voyage. Various space agencies across the globe are now gearing up for extended duration human space flight and deep space exploration. Russia, European Space Agency and China completed 500 days space simulation experiment named MARS-500 between 2007-2011 for future endeavour to explore the red planet 'Mars'. The experiment was intended to observe valuable psychological and medical data on the effects of the planned long-term deep space mission. During the MARS-500 experiment, the effects of radiation, health problems associated with weightlessness were investigated. Recently in October 2014, US launched the longest Mars simulation experiment in Hawaii Island for the duration of 8 months, where three men crew and women crew confined themselves in a white vinyl dome. The study intended to simulate Human Mars expedition which US is aiming by 2030s. Recent scientific studies pointed out to the fact that with the current limits of technology, adventurers to Mars would start dying in 68 days. Another study indicated that the risk of radiation-induced cancer would limit any trip to space exploration to one year.

Cardiovascular, musculoskeletal and overall physiological deconditioning are the major concerns for short and long duration human space flight. Research on Space Physiology is in a nascent stage. The data

from actual space flight also suffers from proper scientific validation due to experiments conducted on less numbers of crewmembers. Therefore, most results reported as trends rather than true significant differences. This makes it difficult to draw any cause-effect conclusions. Combining data of several space flights are also not considered acceptable to the scientific community as several confounding elements like dietary intake and activity patterns of crewmembers have not been standardized across the different space missions.

To be able to do research with sufficient number of subjects and with the possibility of monitoring changes during a protocol, weightless is often simulated on the earth. This is done by means of lower body positive pressure, immersion, bedrest, bedrest with head down tilt, parabolic flights, or by suspension of the whole body or one or two limbs. Also, a lot of research is performed on animals, both during actual space flight and during simulations of weightlessness. Simulation studies have severe limitations as studies using animals can never be translated directly to humans and gravity is never reduced to over the whole body or. In case of parabolic flight, is eliminated for only 20 seconds or so. But simulation studies remain necessary, since they are relatively easy and cheap alternative and can raise and further explore hypothesis that can ultimately be tested during actual space flight.

**Dr. Unnikrishnan Nair S**

VSSC Project director of Human Spaceflight Project



## MEDICINE & PHYSIOLOGY IN SPORTS

**Dr. Sushil Chandra Mahapatra,**

Professor and Head, Department of Physiology  
AIIMS, Bhubaneswar.

### Brief Introduction of the Symposium:

In last two decades, there has been an evolution in sports medicine. Several researchers have worked on different domains of sports medicine, like strength, endurance, sports injury and psychology. Besides this, several groups have explored the changes at cellular and molecular level during exercise which has lead to the development of the new domain in sports science; known as the genetic medicine. Genetic medicine deals with the genotypic basis of sport phenotype. In this symposium, we shall try to provide an up to date review on sports medicine, which will be like a journey from the nostalgic past, towards the traditional present and the romantic future of sports medicine. Prevention is better than cure. This fact will be further enlightened by the eminent surgeon (with specialization in trauma), Dr. Prabeer Chandra Mohanty. After that Dr. Apurba Barman will shed some light on the post injury rehabilitation procedure. As positive attitude has a bi-directional relationship with sports, Dr. Ramanujam Sinha in his lecture will discuss its significance and implications. Finally, Dr. Amit Ghosh will explore the impact of genetic makeup and environmental interaction of sportsmen in framing the champion's sports phenotype.

### Sports Injury and Its Prevention

Dr Prabeer Chandra Mohanty

Professor and Head, Department of Trauma and Emergency  
AIIMS, Bhubaneswar

### Principles of Sports Injury Management

Dr. Apurba Barman

Assistant Professor, Department of Physical Medicine and Rehabilitation  
AIIMS, Bhubaneswar.

**Sports & Exercise as a Determinant of Mental Health**

Dr. Ramanjan Sinha

Professor and Head, Department of Physiology, AIIMS, Raipur.

**Is Elite Sportsman Born to be, or Trained to be Champion: Nature-Nurture Controversy**

Dr. Amit Ghosh

Assistant Professor, Department of Physiology, AIIMS, Bhubaneswar.

**Update in Respiratory Physiology**

**Prof. (Dr.) Arati Mohanty**

Professor, Department of Physiology, IMS and SUM Hospital, Bhubaneswar, Odisha – 751003, India

**Bronchial asthma** and **chronic obstructive lung disease (COPD)** are the two leading cause of morbidity and mortality all over the world. It possesses a high burden from healthcare cost of patients as well as healthcare infrastructure. Tobacco smoking remains as the most important cause of Bronchial asthma and COPD. Heavier the smoking more is the chance of development of COPD. Among the non-smokers indoor air pollution from smoke of biomass fuels and exposure to environmental smoke are the important risk factors. Chronic asthma and chronic bronchitis are considered as the risk factors for airway obstruction. So prevention and management of asthma and COPD constitute globally healthcare agenda in the current century.

Through this symposium little attempt is made to connect the classroom studies and clinical practice in the field of respiratory physiology. The knowledge of normal respiratory tract with its effects by smoking and pollution, its diagnosis at the grassroots level by spirometry will be discussed by different speakers. Last but not the least the effect of YOGA in the control and cure of different respiratory diseases will be discussed so that the quality of life will be improved and a healthy society can be created.



**PHYSIO-ANATOMY OF THE RESPIRATORY SYSTEM**

**Dr. Sandhya Gupta**

Assistant Professor, Dept. of Physiology,

I M & Sum Hospital, 8, Kalinga Nagar, Ghatikia, Bhubaneswar, Orissa, India. Pin: 751003

The respiratory system consists of the airways and the lungs. Functionally the airway of the respiratory system can be divided into two parts - the conducting airways, through which air is warmed, filtered and humidified as it passes into and out of the lungs, and the respiratory tissues, where gas exchange takes place. The lungs are encased in a thin transparent double layered serous membrane called pleura. A thin layer of serous fluid separates the outer parietal and inner visceral pleural layers for lubrication.

The lungs have a dual blood supply, the *pulmonary circulation* for gas exchange with the alveoli and the *bronchial circulation* to supply the parenchyma of the lung itself.

Innervation of the lungs occurs by way of the sympathetic and parasympathetic divisions of the autonomic nervous system. Parasympathetic innervation causes airway constriction and an increase in the respiratory secretions, whereas sympathetic innervation causes bronchial dilation and decrease in respiratory tract secretions.

Gas exchange begins with inspiration which is the active phase of breathing; the diaphragm contracts and moves down into the abdomen resulting in a negative pressure inside the chest. Gas then flows from higher to lower pressure. Expiration is a passive process during due to elastic recoil of the lung.



## MOLECULAR BASIS OF ASTHMA AND COPD

Dr. Manoj Kumar Panigrahi

Assistant Professor, Department of Pulmonary Medicine,  
All India Institute of Medical Sciences, Bhubaneswar,  
Odisha – 751019, India

Asthma and chronic obstructive pulmonary disease (COPD) are common airway disorders affecting a large number of people worldwide. Chronic airway inflammation is the pathological hallmark in both diseases. This inflammation leads to airway hyper-responsiveness and clinical symptoms of the diseases. Inflammation in asthma persists even during the stable state. The inflammation in asthma affects all airways but its physiological effects are most pronounced in the medium-sized bronchi while predominant small-airway involvement with architectural destruction of lung parenchyma is a notable feature in COPD. Although, both COPD and asthma are associated with chronic airway inflammation, there are differences in the inflammatory cells and mediators involved in the two diseases which in turn account for the differences in the physiological effects, symptoms, and response to treatment. Fundamentally, asthma is understood to be largely an allergic disorder whereas smoking remains the predominant factor causing COPD. Airway inflammation in asthma is a complex process mediated by several innate as well as recruited cells and cellular mediators such as cytokines, chemokines, leukotrienes, immunoglobulin E, prostanoids, nitric oxide, prostanoids and adhesion molecules. Mast cells and eosinophils play a dominant role in asthma inflammation. These inflammatory cells and their mediators function in a coordinated manner for the development and sustenance of airway inflammation. COPD is characterized by a specific pattern of inflammation involving increased number of CD 8+ cytotoxic Tc1 lymphocytes present only in smokers that develop the disease. These cells together with neutrophils and macrophages release inflammatory mediators and enzymes and interact with structural cells in airways, lung parenchyma and vasculature. Currently inhaled corticosteroid is used as generalized anti-inflammatory agent to suppress the airway inflammation. Understanding the molecular mechanism and pathways of airway inflammation is crucial in selecting principal therapeutic targets and to develop specific novel agents in future that can potentially eliminate the inflammatory process and possibly cure asthma.



## ROLE OF SPIROMETRY IN DIAGNOSIS OF RESPIRATORY DISEASES

Dr. Dipti Mohapatra

Associate Professor, PG, Department of Physiology,  
IMS & SUM Hospital, SOA University,  
Bhubaneswar, INDIA

**Spirometry** is the most common of the pulmonary function tests (PFTs), measuring lung function, specifically volume and/or flow of air that can be inhaled and exhaled. The spirometry test is performed using a device called a spirometer. Spirometry is easily and quickly performed in many settings so it is widely performed study and is important in initial screening and assessment of severity and type of respiratory disease. Besides, it also contributes prognostic information. It is usually done to distinguish between Obstructive and Restrictive diseases of the lungs and measure airflow obstruction to help make a definitive diagnosis. The important information provided by the spirometer are the FVC (Forced Vital Capacity), FEV<sub>1</sub> (Forced Expiratory Volume in One Second), FEV<sub>1</sub> /FVC (the ratio of FEV<sub>1</sub> to FVC), FEV<sub>6</sub> (volume of air that can forcibly be expired in 6 seconds). In normal cases FEV<sub>1</sub> and FVC is above 80%

predicted and FEV<sub>1</sub>/FVC ratio above 0.7. In obstructive lung diseases FEV<sub>1</sub> is below 80% predicted, FVC can be normal or reduced and FEV<sub>1</sub>/FVC ratio below 0.7. In restrictive lung diseases FEV<sub>1</sub> is normal or mildly reduced, FVC below 80% predicted and FEV<sub>1</sub>/FVC ratio normal - above 0.7.

**KEY WORDS:** spirometry, obstructive lung disease, restrictive lung diseases



## **ALLEVIATING RESPIRATORY DISEASE BY ALTERNATIVE METHOD – YOGA**

**Dr. Manasi Behera**

Asst Professor Physiology  
IMS and SUM Hospital, Bhubaneswar.

Breathing sustains life, but natural breathing brings health and happiness. It clears the mind and calms all the emotions and releases the vitalizing flow of energy within us. Every human society, be it rural or urban, industrial or technologically advanced, is affected extremely by pollution of the air. Atmospheric pollution is responsible for various respiratory illnesses like nasal allergy, asthma, chronic bronchitis and lung cancer. Yoga is a science practiced in India over the thousands of years. It is a method of learning that aims to attain the unity of mind, body and spirit through three main yoga structures; exercise, breathing and meditation. The essence of yoga therapy is both preventive and curative. Research studies report that many people with serious respiratory ailments have found a solution in yoga. It is claimed that yogic practices help in prevention, control and rehabilitation of many respiratory diseases. A vital scientific and therapeutic aspect of yoga is Pranayama. Pranayama is the breathing process or the control of the motion of inhalation, exhalation and the retention of vital energy. Few exercises of pranayama like Anuloma viloma, Kapalhati, Bhramari which are components of yoga, are the best remedies to tackle respiratory illness caused by air pollution and other naturally occurring respiratory diseases.

**KEY WORDS:** Yoga, Pranayama, Breathing, Respiratory diseases.



## **CENTRAL PAIN MODULATORY MECHANISMS**

Prof (Dr.) Ramanjan Sinha,  
Professor & Head, Dept of Physiology,  
All India Institute of Medical Sciences, Raipur, C.G.

## **THE LINK BETWEEN PALATABILITY AND ANALGESIA**

Dr. Manasi Bhattacharjee  
Assistant professor, VMMC and Safdarjung Hospital, New Delhi.

### **ABSTRACT :**

Palatability or the hedonic value of food is regarded as a modulator of pain perception. Palatable substances such as sucrose have long been known to relieve pain in animals, human neonates as well as human adults. The link between palatability and analgesia lies in the activation of the endogenous opioid system by the former.

The response to pain is highly variable, although pain per se is a ubiquitous sensation. This variability can be attributed to the top down modulation of pain perception. Endogenous opioids are the key players in this descending influence on pain.



There are numerous studies which affirm the fact that ingestion of palatable substances release endogenous opioids. First, palatable substance induced analgesia is reversed by opioid antagonist naloxone. Second, release of opioids following their ingestion has been documented by various biochemical and neuroendocrine methods such as the naloxone challenge test. Third, it has been demonstrated that ingestion of palatable foods potentiate the analgesic effect of exogenously administered opiate drugs and lastly an interesting observation that self administration of addictive drugs is lesser in animals receiving palatable food.

The implications of these findings are far reaching as this can form the basis of a natural way to moderate opiate dosage and addictive behaviour in addition to pain perception.



## ROLE OF VENTROMEDIAL NUCLEUS OF HYPOTHALAMUS IN MODULATION OF PAIN

**Dr. Rashmi Mathur**

Professor & Head, Department of Physiology  
All India Institute of Medical Sciences, New Delhi.

### ABSTRACT

**Introduction:** An initial analgesia followed by hyperalgesia to phasic noxious stimuli occurs after ingestion of sucrose ad libitum. **Aims & Objectives:** The present study was designed to explore role of VMH in the mediation of hyperalgesic effect of sucrose ingestion. **Methods:** Adult male albino rats received sucrose solution (20% p.o.) in addition to laboratory food pellets and tap water ad libitum. Their behavioural responses to various phasic and tonic noxious stimuli were recorded after 1, 2, 3, 5, 12 and 48 h during pre and post-sucrose fed states in both the control and VMH lesion rats. **Results:** Sucrose feeding to control rats reduced the TFL, SV and VA indicating hyperalgesia from 3h through 48h, while it increased from 15min to 2h indicating analgesia. On the contrary, VMH lesion decreased TFL, TTF, SV and VA, suggesting a hyperalgesic state. However, sucrose feeding to lesioned rats neither potentiated nor attenuated hyperalgesia. The effect is opioid mediated. **Conclusions:** Results suggest sucrose feeding for 48h ad libitum produces hyperalgesia to phasic noxious stimuli preceded by analgesia from 15 min. to 2h. VMH lesion produces persistent hyperalgesia. Secondly, sucrose ingestion by VMH lesioned rats does not affect their responses to pain, suggesting possible role of VMH in the mediation of sucrose-fed nociceptive responses.



## PAIN MODULATION IS OPIOID MEDIATED

**Dr. Kaushiki Mukherjee**

Scientist (DST), Department of Physiology, AIIMS, New Delhi

### ABSTRACT :

**Introduction:** Sucrose ingestion for 48 h leads to hyperalgesia. Withdrawal of it results in an initial hyperalgesia followed by eualgesia. **Aims & Objectives:** The present study was designed to explore role of opioids in the mediation of hyperalgesic/ eualgesic effect of sucrose withdrawal. **Methods:** Adult male albino rats received sucrose solution (20% p.o.) in addition to laboratory food pellets and tap water ad libitum till 48 h. Their behavioural responses to various phasic and tonic noxious stimuli were recorded after 4 and 10 h after sucrose withdrawal in control and VMH lesion states. **Results:** Sucrose withdrawal at 4 h reduced the TFL, SV and VA indicating hyperalgesia while increased the responses at 10 h indicating

analgesia. The tonic pain rating also decreased. On the contrary, in VMH lesion it remained decreased suggesting a hyperalgesic state. However, sucrose feeding to lesioned rats neither potentiated nor attenuated hyperalgesia. The effect is opioid mediated. **Conclusions:** Results suggest sucrose feeding for 48h ad libitum produces hyperalgesia which was attenuated after sucrose withdrawal. VMH lesion produces persistent hyperalgesia. Secondly, sucrose ingestion by VMH lesion rats does not affect their responses to pain after sucrose withdrawal, suggesting possible role of opioids in the mediation of sucrose-fed nociceptive responses.



## CHALLENGES AND NEW ADVANCES IN NANOMATERIAL RESEARCH

**Dr. Mrs. S. Seethalakshmi**

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ESIC MEDICAL COLLEGE&PGIMSR, CHENNAI, TAMILNADU

Drug delivery is an interdisciplinary area of research that aims at making the administration of complex new drugs feasible, as well as adding critical value to the drugs that are currently in the market. At present, one of the most attractive areas of research in drug delivery is the design of nanomedicines consisting of nanosystems that are able to deliver drugs to the right place, at appropriate times.

The term nanotechnology refers to the ability to measure, design and manipulate materials at atomic, molecular and supramolecular level in order to understand, create and apply structures and systems with specific functions attributable to their size. Nanotechnology classically refers to matter in the size range of 1–100 nm, but it is often extended to include materials below 1  $\mu\text{m}$  in size.

Nanotechnology is a new discipline of science and engineering that has led to innovative approaches in many areas of medicine. Its applications in the screening, diagnosis, and treatment of disease are collectively referred to as "nanomedicine"—an emerging field that has the potential to revolutionize individual and population-based health this century. It is now possible to provide therapy at a molecular level with the help of nanoparticles, treating diseases and adding to our understanding of their pathogenesis. Nanomedicine can be considered a refinement of molecular medicine, integrating innovations in genomics and proteomics on the road to a more personalized medicine. The impact of nanotechnology in medicine can mainly be seen in diagnostic methods, drug-release techniques and regenerative medicine.

Conventional drugs suffer from the major limitation of adverse effects, the result of the non-specificity of their action, and from a lack of effectiveness due to improper or ineffective dosages, e.g., in cancer chemotherapy and anti-diabetic therapy. Nanotechnology offers the possibility of designing novel drugs with greater cell specificity and new drug-release systems that act selectively on specific targets and protect the drug from degradation en route. This allows the administration of smaller but more effective doses, minimizing adverse effects. Nanotechnology can also be used to optimize drug formulations, increasing drug solubility and altering the pharmacokinetics to sustain the release of the drug, thereby prolonging its bioavailability. The diverse platforms of nanotechnology can be utilized to develop more sophisticated, cell-targeted therapies and to combine different drugs into a single nanotherapeutic agent for synergistic therapeutic benefits.

Nanomaterials have high ratio of surface area to volume as well as tunable optical, electronic magnetic and biological properties and they can be engineered to have different size, shapes, chemical compositions, surface chemical characteristics. These properties are incorporated into new generation of drug delivery vehicles, some of which are currently undergoing clinical investigation or have been approved by FDA for use in humans.



## APPLICATION OF NANOTECHNOLOGY IN MEDICINE

**Dr. Prithwijit Banerjee**

Assistant Professor (Pharmacology) at Government Medical College.

Nanotechnology has the real potential to revolutionize a wide array of medical and biotechnology tools and procedures so that they are more personalized, portable, cheaper, safer, and easier to administer. Below are some examples of important advances in these areas.

Quantum dots are semiconducting nanocrystals that can enhance biological imaging for medical diagnostics. When illuminated with ultraviolet light, they emit a wide spectrum of bright colors that can be used to locate and identify specific kinds of cells and biological activities. These crystals offer optical detection up to 1,000 times better than conventional dyes used in many biological tests, such as MRIs, and render significantly more information.

Nanotechnology has been used in the early diagnosis of atherosclerosis, or the buildup of plaque in arteries. Researchers have developed an imaging technology to measure the amount of an antibody-nanoparticle complex that accumulates specifically in plaque.

Clinical scientists are able to monitor the development of plaque as well as its disappearance following treatment. Early-stage Alzheimer's disease. Molecular imaging for the early detection where sensitive biosensors constructed of nanoscale components (e.g., nanocantilevers, nanowires, and nanochannels) can recognize genetic and molecular events and have reporting capabilities, thereby offering the potential to detect rare molecular signals associated with malignancy.

Multifunctional therapeutics where a nanoparticle serves as a platform to facilitate its specific targeting to cancer cells and delivery of a potent treatment, minimizing the risk to normal tissues.

Research enablers such as microfluidic chip-based nanolabs capable of monitoring and manipulating individual cells and nanoscale probes to track the movements of cells and individual molecules as they move about in their environments.

Research is underway to use nanotechnology to spur the growth of nerve cells, e.g., in damaged spinal cord or brain cells. In one method, a nanostructured gel fills the space between existing cells and encourages new cells to grow. There is early work on this in the optical nerves of hamsters. Another method is exploring use of nanofibers to regenerate damaged spinal nerves in mice.



## HERBAL NANOTECHNOLOGY IN DRUG DEVELOPMENT

**Dr. K. M. Aparna Mani**

PhD Research Scholar

Sri Ramachandra Medical College and Research

Institute, Porur, Chennai.

### Introduction:

Nanotechnology has emerged as an exciting approach in the drug development process and among the various nanoparticles, silver nanoparticles have been explored for its variety of medical applications. Among the various methods for synthesizing silver nanoparticles, phyto assisted synthesis of silver nanoparticles is an eco friendly and cost effective method. Phytochemicals have long since aided in the synthesis of new generation drugs with higher therapeutic value and lower toxicity. The added advantage of using plants in the generation of silver nanoparticles is that the alkaloids or flavanoids present in plants also act as capping agents, thereby conferring the silver nanoparticles with additional pharmacological properties.

**Aim of the study:** To synthesize silver nanoparticles using the aqueous extract of the unripe fruits of *Piper nigrum* and to evaluate its anti inflammatory activity.

**Results:** The synthesised silver nanoparticles were characterized using UV Spectroscopic analysis, SEM, FTIR analysis, AAS and HPTLC. The alkaloids and proteins present in *Piper nigrum* extract act as both reducing and capping agents. The synthesised silver nanoparticles were spherical and cuboidal with a size range of 40-100 nm. HPTLC studies revealed that 856 ng of piperine was found capping 1 mg of silver nanoparticles. The anti inflammatory activity of the synthesised silver nanoparticles was assessed using in-vitro assays for TNF $\alpha$ , IL-1 $\beta$  and IL-6 and in vivo experiments. The synthesised silver nanoparticles were also compared with the commercial silver nanoparticles in these assays. It was found that the synthesised silver nanoparticles showed enhanced anti inflammatory properties at very low concentrations.

**Conclusion:** The synthesised silver nanoparticles exhibited an enhanced anti inflammatory activity due to the synergistic effect of alkaloids of *Piper nigrum* extract and the silver ions.



## EFFECT OF RAMADAN INTERMITTENT FASTING ON SELECTIVE FITNESS PROFILE PARAMETERS

**Dr. Amit Bandyopadhyay,**

Assistant Professor, Department of Physiology,  
University of Calcutta

### **Abstract**

**Objective:** Regular diet, balanced nutrition and adequate rest are very important to achieve fitness and therefore sportspersons and athletes are very particular about these three things in their daily routine. For Muslims, the major religious period of the Islamic calendar is Ramadan when they undergo fasting from sunrise to sunset. This leads to irregularity in sleep and dietary pattern as well as improper nutrition during this holy fasting month. The present study was aimed to explore the effect of Ramadan intermittent fasting (RIF) on some of the selective parameters of fitness profile in sedentary male Muslims of Kolkata, India.

**Methods:** Fifty (50) sedentary healthy male Muslims (age range 20-30 years) who were religiously participating in the RIF were randomly sampled from Kolkata. Their personal demographic data, health status and consent to participate in the study were obtained through questionnaire. Selective fitness parameters were measured by using standard procedure in each subject on 7 occasions – 15 days before RIF, 1<sup>st</sup> day of RIF, 7<sup>th</sup> day of RIF, 15<sup>th</sup> day of RIF, 21<sup>st</sup> day of RIF, last day of RIF and 15 days after RIF.

**Results and conclusion:** Analysis of data by repeated measure ANOVA depicted occasional variation in the studied parameters during the month of Ramadan. Such variations were not statistically significant, but affected the performance in the studied population. It is therefore concluded from the study that RIF did not affect the fitness parameters during the RIF although significant occasional variation was noted in the studied parameters.

**Key words:** Ramadan, agility, flexibility, aerobic capacity, anaerobic power.



## HEALTH HAZARDS OF PRIMARY SCHOOL CHILDREN DUE TO MISMATCH BETWEEN CLASSROOM FURNITURE AND ANTHROPOMETRIC MEASURES

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Vidyasagar University, Midnapore -721102 , West Bengal

### Abstract

**Objective :** Bench and desk are used as classroom furniture in most of the schools. In a large number of rural primary schools, children are used to sit on the floor with folded legs. The present study was aimed to evaluate the health problems of the school children during adopting both type of sitting posture in the classroom as well as to find the degree of mismatch between school furniture and body dimensions of the children.

**Methods :** The study was conducted on 440 primary school children selected randomly from different schools of Medinipur Sadar subdivision of Paschim Medinipur District of West Bengal. Different anthropometric dimensions of the children were measured by using proper landmark and standard measuring techniques. The musculoskeletal problems of the children were evaluated by modified Nordic questionnaire and the perceived rate of discomfort (PRD) was assessed by a 10-point subjective scale. The results revealed that the prevalence of musculoskeletal problems were significantly higher ( $p < 0.05$  or less) in case of sitting on the bench than that of sitting on the floor. The physical dimensions of the furniture were measured from four randomly chosen schools and it was noted that the furniture dimensions were almost the same. The anthropometric measures, which were relevant to the design of desk and bench, were found to vary significantly ( $p < 0.05$  or less) among the studied schools.

**Results and conclusion :** From the quantitative analysis of degree of mismatch between furniture size and anthropometric dimension the children, it was noted that the percentage of mismatch in the seat height was very high. Similarly, greater percentage of mismatch was noted in case of seat to desk height also. Low to moderate degree of mismatch was observed in cases of seat depth and seat width. No mismatch was noted in seat to desk clearance. The perceived rate of discomfort was comparatively higher among the students sitting on the bench than that of sitting in the floor. It was concluded that the degree of mismatch between furniture and body dimensions might be related to occurrence musculoskeletal problems of the primary children in the classroom.

**Keywords:** primary school children, anthropometric measures, furniture mismatch.



## STUDY OF INFLUENCE ON HEART RATE VARIABILITY (POTENTIAL AUTONOMIC COMPONENT) IN DYNAMIC MODERATE EXERCISE

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M.L.N. Medical College, Allahabad

### Abstract

**Objective:** Regular dynamic or static exercises are boon and precious powers of Almighty to the human to practically imply onto the body to enhance heart rate, stroke volume, cardiac output and  $O_2$  extraction and disintegration and fragmentation of metabolic toxic wastes and their removal from the body. Analysis of heart rate variability (HRV) permits insight in the autonomic regulatory mechanisms. It is determined from ECG recordings in time series (R-R Interval) in time and frequency domains. At 1<sup>st</sup> glance, power in different frequency bands corresponds to sympathetic activity (0.04-0.15 Hz) and Parasympathetic (0.15-

0.4 Hz). This cross-sectional study was aimed to study the influence on heart rate variability indices in runners.

**Methods** : Study group of 20 middle aged males ( $40 \pm 1.5$  years) compared with age matched control group (n=19), HRV was assessed after 24 exercise sessions of moderate intensity exercise (during 8 weeks). The participants exercised 4 times each week at intensity of 60% of heart rate (through baseline at maximal exercise HR). The exercise session consisted 500 meters warm up running, series of stretches, aerobic exercise (20 min for 1<sup>st</sup> 3 session, 15 min for next 3) and 400 meters cool down walk & repeat of stretching.

**Results and Conclusion** : In the exercise group,  $VO_{2max}$  increased (12% absolute value), after training, but no alteration in HRV. The present results revealed that short duration, moderate aerobic training in middle aged males, is insufficient to alter HRV parameter.

**Key words:**  $VO_{2max}$ , heart rate variability, aerobic capacity, anaerobic power.



## PHYSIOLOGY FROM LABORATORY TO BEDSIDE

### **DIAGNOSIS TO TREATMENT : WHAT IS THE ROLE OF PHYSIOLOGIST?**

**Dr. Anil Kumar Pandey,**

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#### **ABSTRACT**

Physiologists investigate the functioning of organ/body systems to diagnose abnormalities, and find ways to restore function and/or reduce disabling consequences to the patient. The work involves direct interaction with patients in a range of areas. Physiologists use special equipment, advanced technologies and a range of different procedures in the course of their work to evaluate the functioning of different body systems. Cardiovascular Physiologists carry out crucial diagnostic, monitoring and analytical procedures for patients with known or suspected heart disease- ranging from babies in the womb to the elderly. For example in vascular disorders Physiologists use ultrasound and other non-invasive forms of blood-flow analysis, Pulse wave analysis and arterial stiffness to identify and measure disease and guide treatment.

Our aims must be to establish the right link with logical assumption in a multidisciplinary and integrated approach.



### **SYMPTOMATIC MYOCARDIAL ISCHEMIA : WHY EVALUATE AUTONOMIC PERFORMANCE?**

**Dr. Rita Khadka**

Associate Professor, Department of Basic and Clinical Physiology, BPKIHS, Dharan, Nepal

#### **ABSTRACT**

Myocardial ischemia is a condition in which coronary blood flow is diminished and oxygen supply to the cardiac muscle is reduced, which leads to acute chest pain known as angina pectoris. Patients may feel

pain radiating to the left shoulder and arm or in the neck or jaw. Not all patients presenting with anginal symptoms have objective evidence of coronary artery diseases (CAD) / myocardial perfusion defects on investigation. Some patients presenting with anginal symptoms have normal coronary artery, normal myocardial perfusion, and are free from other systemic diseases. There are several clinical and experimental studies, which have shown altered autonomic function in CAD patients. Assessment of autonomic activity by heart rate variability (HRV) in angina patients showed reduction in parasympathetic activity as suggested by reduction in HRV indices; rMSSD, pNN50, and HF power. Sudden cardiac death was found associated with reduced HRV in stable angina patients.

Assessment of HRV was found to be altered in other group of patients also who presented with anginal symptoms, however, they had no myocardial perfusion defects and other known systemic diseases that mimic anginal symptoms. In this group of patients, HRV was markedly reduced as compared to both patients presenting with anginal symptoms with myocardial perfusion defects and healthy subjects. Marked reduction in HRV in this group of patients was also found associated with sudden cardiac death. These patients seemed to be more vulnerable. Thus, it is important to evaluate autonomic performance of symptomatic myocardial ischemic patients.



## CLINICAL PROSPECTS OF EVENT RELATED POTENTIALS

**Dr. Abhinav Dixit**

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### ABSTRACT

Event related potentials (ERPs) are responses evoked due to mental workload when a subject is selectively attentive to the stimulus. They generally have longer latency, higher amplitudes and lower frequencies as compared to the short latency evoked potentials and are believed to reflect reception and processing of sensory information, selective attention and cognitive activity.

The most frequently used ERP is P300 representing a positive wave with an onset 300ms after presentation of stimulus and is helpful in sequential studies and in study of group differences in various disorders. P300 is a good differentiator of dementia from psychiatric illness with abnormal waves occurring during dementia. P300 abnormalities also occur in movement disorders and multi-system atrophy. The waveforms are also effected by various nutritional and metabolic parameters thereby increasing its prospective clinical applications.

Mismatch negativity (MMN) detects difference between a stimulus and memory trace of a preceding stimulus. It is useful in coma monitoring and outcome. Schizophrenics demonstrate a consistent decrease in MMN amplitude. MMN is also a valuable tool for cases of cognitive decline.

N400, a negative waveform 400ms after the stimulus onset represents the semantic context effect and is another clinically useful ERP. Abnormalities of N400 have been reported in patients with Alzheimer's disease, Schizophrenia and developmental learning disabilities.

With better methods for eliciting and recording ERP waveforms the clinical utility of these waveforms is increasing and opening a new frontier in non invasive diagnostics.



## **PHYSIOLOGY TO BED SIDE: SOMATO-SENSORY NERVE CONDUCTION STUDY APPLICATIONS**

**Dr. Dilip Thakur**

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Department of Basic and Clinical Physiology, BPKIHS, Dharan, Nepal

### **ABSTRACT**

The electro-diagnostic assessment of peripheral nerves includes two major components: nerve conduction study (NCS) and needle electromyography (EMG) studies. NCS is an extension of clinical neurological examination. It assesses the integrity and diagnoses the diseases of the peripheral nervous system. It can precisely localize the nerve, muscle and/or the neuromuscular disorder. NCS assesses peripheral motor and sensory functions by recording the evoked response to stimulation of (large diameter) peripheral nerves. Motor NCS requires stimulation of a nerve while recording compound muscle action potential (CMAP) from a muscle innervated by that nerve. Whereas sensory NCS requires stimulation of a mixed nerve while recording sensory nerve action potentials (SNAP) from a mixed or cutaneous nerve. Commonly examined peripheral nerves in upper and lower limbs includes median, ulnar, radial, common peroneal, tibial and sural. The obtained CMAP and SNAP responses are interpreted in terms of its latency, amplitude, duration, conduction velocity and F-waves (for motor nerves). These parameters are known to vary with demographic profile, anthropometric measurements of the population studied and laboratory conditions of the test. Abnormal findings include conduction slowing, conduction block, no response, and/or low amplitude response. The results of the NCS can assess the degree of demyelination and axonal loss in the segments of the nerve studied. Demyelination results in the prolongation of conduction time, while axonal loss generally leads to loss of nerve or muscle potential amplitude. Electro-diagnosis reached at the end of such studies is peripheral neuropathy, myopathy, carpal tunnel syndrome etc.



## **EVALUATION OF LEFT VENTRICULAR PERFORMANCE : TAKING PHYSIOLOGY FROM BENCH TO BEDSIDE**

**Dr. Rajesh Kathrotia**

Assistant Professor of Physiology, AIIMS, Rishikesh

### **ABSTRACT**

Left ventricular structure and function is an independent predictor of cardiovascular events. Echocardiographic quantification of left ventricular structure and function is widely used in clinical settings. It is an essential and integral part of cardiac evaluation of patients since last 4 decades. Echocardiography allows visualization of events during cardiac cycle and correlation of anatomical structures with their physiological functions. Introducing echocardiography in undergraduate teaching will enable students to view beating heart with motion of walls and valves in real time in long and short axis views. Simultaneous record of electrocardiography and phonocardiography can facilitate to time the cardiac events and enhance the interpretation of data so obtained. Echocardiography, which is a painless, non invasive technique, can enhance the understanding and knowledge of cardiac physiology of undergraduates in an interesting manner. Familiarity with echo as undergraduates can help the future physicians to better understand the utility and application of this technique. The clinicians and cardiologists are extensively evaluating patients by echocardiography, however without any Indian reference data for comparisons. Various studies in Asian subcontinent and small group of healthy population which we studied have shown smaller cardiac structure



as compared to Caucasians. American society of echocardiography (ASE) criteria if applied as reference may miss clinically significant abnormalities in our population. As physiologists dealing with normal healthy subjects, we can generate large data for reference. Echocardiography as a practical teaching tool will also benefit teaching staffs as they can acquire new skill which can be useful to generate reference normal data.

**Key words:** echocardiography, undergraduates, normal reference.



## **EVIDENCE BASED MIND, MEDICINE & MEDITATION INTRODUCTION TO THE SYMPOSIUM**

**Dr. Raj Kumar Yadav,**

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### **Symposium Introduction**

Human mind is full of surprises, and so is the medicine. Scientific revolution in one way has dramatically improved our life and living conditions, especially when health is concerned. We have treatments available for almost all the diseases and have been able to also replace body parts. In this aspect, being healthy and longevity remains the core of medical research and discussion.

Our heritage and legacy clearly indicates that secret to heal the body and being healthy is an inception concealed in the human mind. New age scientists and doctors agree that human body can heal itself, though at times with some help. This help comes from the efforts and positivity that commence from “mind”. The healing or curing capabilities of human body can be dictated by mind, and one such process that enables this diction is meditation. Placebo effect in clinical trials is a clear example of this where only a belief that one is being treated results in an improvement. Globally, world is now focusing largely on meditation research, and results are promising. Therefore, this is high time for us to build up scientific evidences in meditation, our own Indian heritage. We are trying to evolve evidence based Mind, Medicine and Meditation.



## **PSYCHONEUROIMMUNE EFFECTS OF MEDITATION**

**Dr. Dipti Magan**

NDMC, Delhi

### **Abstract**

Meditation, a major component of yoga-based lifestyle, has been implicated in relaxation, and is known to reduce stress and anxiety. A plausible mechanism of such relaxing effect is psychoneuroimmunology (PNI), which was first described by Robert Ader (1975). Psychoneuroimmunology conceptualizes that stress and the emotional state of an individual may play a significant role in increasing vulnerability to diseases. Such an effect is possibly due to modulation of behavior and the immune system as directed by the nervous system. Studies have shown the efficacy of meditation in reduction of various chronic diseases and relaxation induced by meditation reverses the negative impact of stress on the immune system. Studies have evaluated the changes in brain activity using electroencephalography (EEG) and neuroimaging techniques.

Meditation might play a vital role in resetting the imbalance between psycho-physical health by modulating the psychoneuroimmunological effects of stress. However, till date this multi-faceted psychoneuroimmune effect of meditation has not been completely elucidated.



## **OBESITY RELATED INFLAMMATION AND CARDIOVASCULAR DISEASES : EFFICACY OF YOGA BASED LIFESTYLE INTERVENTION**

**Dr. Kumar Sarvottam**  
AIIMS, New Delhi

### **Abstract:**

Obesity is characterized by subclinical inflammation which may manifest as various metabolic disorders. Vascular inflammation as evidenced by blood and tissue markers of inflammation is found in obese/overweight. These markers of inflammation correlate with modifiable cardiovascular risk factors.

Weight reduction is associated with favourable cardiometabolic outcome and reduced morbidity/mortality in obese/overweight individuals. Lifestyle intervention programs aiming to reduce weight have been the very important preventive approach in these individuals. Yoga based lifestyle intervention programs, even for short span of time have been found beneficial in obesity and obesity related complications.



## **INTERLEUKIN-6, VITAMIN D, AND DIABETES RISK FACTORS ARE MODIFIED EVEN BY A SHORT-TERM YOGA-BASED LIFESTYLE INTERVENTION**

**Dr. Ritesh Netam**  
AIIMS, New Delhi

### **Abstract**

In this pilot study, 34 overweight/obese (body mass index [BMI]  $\geq 23$  to  $<35$  kg/m<sup>2</sup> per Asian cut-off values) were enrolled, and received directly supervised intervention for 10 days. Thereafter, they were advised to follow this yoga-based lifestyle at home for one month, and were reassessed for study variables at Day 30.

There was a reduction from Baseline to Day 10 in weight ( $p=0.0001$ ), BMI ( $p<0.001$ ), waist/hip-ratio ( $p=0.035$ ), blood glucose ( $p=0.005$ ), and a significant improvement in lipid profile. There was a decrease in median fasting insulin ( $p=0.024$ ), homeostatic model assessment-insulin resistance ( $p=0.010$ ), and IL-6 ( $p=0.036$ ). A non-significant increase in 25-OH-vitamin D, and decrease in neopterin and vaspin was observed. Twenty subjects returned for follow-up assessments. At Day 30, weight-loss was sustained while systolic blood pressure also showed reduction ( $p=0.021$ ). Change in vitamin D levels were significantly and negatively correlated with change in weight, BMI and fasting blood glucose, and positively with change in high density lipoprotein. Change in body weight and BMI significantly and positively correlated with insulin. Change in IL-6 levels positively and significantly correlated with change in neopterin levels.

This study also highlights the challenges in compliance associated with the follow-up of subjects following an aggressive supervised intervention of 10 days.



## **CONCLUDING REMARKS**

**Dr. S. C. Mahapatra**  
AIIMS, Bhubhaneshwar

Dr SC Mahapatra is currently serving as Prof & Head, Dept of Physiology, AIIMS, Bhubhaneshwar. He has more than 28 years of teaching experience. He has supervised many thesis works of PhD/ MD/MSc

students. Voluminous publications & awards go to his credit. He is a founder –member of Integral Health Clinic at AIIMS, New Delhi. His keen research interest includes nutrition, yoga and gastrointestinal physiology.



### **Physiological perspectives of Acute Respiratory Distress Syndrome (ARDS)**

#### **CURRENT CONCEPTS OF ARDS**

**Prof. Shripad B. Deshpande**

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Acute respiratory distress syndrome (ARDS) is defined as acute respiratory failure due to presence of pulmonary infiltrates, decreased pulmonary compliance and hypoxemia. Until recently, ARDS was considered as the severe form of acute lung injury (ALI). However, according to the latest Berlin definition, ARDS has been classified into mild, moderate and severe forms based on the hypoxemic status and ALI is now considered as the mild form of ARDS. ARDS is also sometimes referred as adult respiratory distress syndrome to differentiate it from infant respiratory distress syndrome (IRDS) commonly seen in premature babies. In infants, respiratory distress is primarily due to immature lung development or the surfactant deficiency. Contrarily, in adults ARDS can arise due to multiple etiologies (including direct or indirect lung insults) surfactant insufficiency being a part of the syndrome. Toxic inhalation and pulmonary infections are the direct factors while sepsis, pancreatitis, trauma, ventilator-induced hyperoxia are some of the indirect factors for ARDS.

The pathophysiology of ARDS is quite complex. It involves interplay between pulmonary tissue injury (due to direct/indirect causes), surfactant degeneration, pulmonary edema, hypoxemia and acute inflammatory responses operating in a positive feed-back loop that eventually leads to multi-organ failure and death. In order to understand the pathophysiological mechanisms involved in ARDS, studies are focusing on the identification of biomarkers of ARDS, use of computed tomography techniques to understand the morphological changes in lungs and identification of genetic risk factors for ARDS.

In spite of marked efforts, the mortality induced by ARDS remains quite high. No specific therapy exists for ARDS till date. Hence, understanding the pathophysiological mechanisms and identifying molecular targets for ARDS arising due to multiple etiologies is the need of the moment.

#### **OLEIC ACID INDUCED ARDS MODEL**

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For understanding the pathophysiology of ARDS presently the following animal models of ARDS are in use viz, lipopolysaccharide induced injury (LPS, i.t. or i.v.), ventilator-induced lung injury (VILI), surfactant lavage induced injury, reperfusion injury, oleic acid (OA)-induced injury etc. Amongst these models, OA model is considered to mimic the ARDS condition as seen in humans. However, the animal studies using OA model for ARDS are inconsistent with respect to the dose of OA, administration route, experimentation time, parameters under study, ventilator usage and others. Since ARDS is an acute condition, the present study was undertaken to determine whether OA can induce ARDS acutely within 120 min. Further we used the alterations in respiratory parameters, hypoxemic status, cardiovascular parameters, pulmonary pathology,

pulmonary water content and survival time to grade the OA-induced changes. Earlier, OA (oleic acid) has been used to induce lung injury, either in bovine serum albumin (BSA) or ethanol. These vehicles have inherent effects on the physiological system. Considering this, we utilized bolus injection of OA without any solvents in the present study. Hence, this OA model of ARDS scores over other models reported. The OA model of the present study exhibited the important features for an animal model of ARDS proposed by the American Thoracic Society report. The severe ARDS with 75  $\mu$ l of OA can be considered as the representative of the critical human ARDS cases encountered in clinical set-up. OA model can be used to study different phases of ARDS and design suitable therapeutic strategies to prevent lethality in ARDS.



### **ARDS IN SCORPION ENVENOMING SYNDROME**

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Adult Respiratory Distress Syndrome (ARDS) develops in poisonous scorpion victims with acute respiratory distress, radiological infiltrates suggestive of non-cardiogenic pulmonary oedema; resistant hypoxaemia to conventional oxygen therapy necessitating ventilatory support and is often associated with Multi System Organ Failure (MSOF) and death.

Cardiogenic and non-cardiogenic factors are involved in the pathogenesis of acute pulmonary oedema following scorpion stings. Pulmonary oedema secondary to left-sided heart failure seldom occurs in the absence of previous lung injury. This may be explained by simultaneous and localized increase in pulmonary vascular permeability with evidence of an increase in tracheo-bronchial aspirate/ plasma protein concentration, light microscopic features of the lung compatible with ARDS, electron microscopic findings compatible with acute lung injury, and increased alveolo-capillary membrane permeability. Non-cardiogenic pulmonary oedema without left ventricular dysfunction as shown by clinical, radiological, and echocardiographic findings had been reported. Scorpion sting victim with pulmonary oedema with a normal wedge pressure, indicate the possibility of capillary leak syndrome with ARDS had been demonstrated using Scintigraphy. The clinical presentation of ARDS is essentially a constellation of symptoms and findings that would be expected to result from hypoxemia and pulmonary oedema initially. ARDS is a pulmonary manifestation of pan-systemic injury and MSOF.

The presence of MSOF can be inferred by the appearance of concurrent and otherwise unexplained pulmonary, CVS, CNS, renal, hepatic, and hematological functional abnormalities in a clinical setting. ARDS is commonly diagnosed first because of edematous lung injury has immediate life-threatening clinical manifestations. In contrast, other organs may maintain functional integrity despite extravasations of edematous fluid. Some of the subtle manifestations of extra pulmonary dysfunction include altered mental condition, hyperglycemia, ongoing volume requirements to maintain blood pressure, diminished urine output, thrombocytopenia, prolongation of Prothrombin time, Heme positive stools. These problems may be so overshadowed by respiratory failure as to attract little attention.

Scorpion venom may cause stimulation of the CNS, the autonomous nervous system, cardiovascular, electrocardiographic, hematological, and hormonal disturbances, along with pulmonary (cardiac and non-cardiogenic) oedema as demonstrated by earlier researchers.

The chemical composition and the functional activity of the surfactant are altered in ARDS. Surfactant deficiency could be the final common pathway in the pathogenesis of ARDS. The loss or insufficient

quantity of surfactant may explain the pulmonary oedema associated with scorpion envenoming, since surfactant is preferably formed from glucose and glycogen rather than from glycerol, and insulin is required for the formation of surfactant. 40% of our patients had pulmonary oedema. All the patients had circulatory failure, myocardial damage, and many other clinical manifestations. All these scorpion sting victims recovered after the administration of insulin-glucose infusion. None of the victims received ventilator support.

Insulin-glucose infusion and conventional therapy were given to patients with both ARDS and MSOF. Blood gases improved between 2 and 8 hours after insulin-glucose infusion resulting in normal biochemical profile, radiological clearance of the lungs, and clinical improvement. If surfactant damage or insufficiency is truly the final common pathway, and thus, a key step in the development of pulmonary oedema in scorpion envenoming and ARDS, therapeutic opportunities of surfactant replacement by insulin-glucose administration offer exciting, cheap, and effective possibilities for early intervention.

#### **Insulin dosage:**

Continuous infusion of regular crystalline insulin at the rate of 0.3 U/g of glucose and glucose at the rate of 0.1 g/kg/h with supplementary potassium as needed, as well as maintenance of fluid, electrolyte and acid-base balance.

The scorpion envenoming syndrome with myocardial damage, cardiovascular disturbances, peripheral circulatory failure, pulmonary oedema, and many other clinical manifestations may cause multi-system-organ-failure (MSOF). It is characterized by a massive release of catecholamines, angiotensin II, glucagon, cortisol, and inhibition of insulin secretion. Under these altered conditions in the *hormonal milieu interior*, scorpion envenoming essentially results in a syndrome of fuel-energy deficits and an inability to use the existing metabolic substrates by vital organs, causing MSOF and death. Administration of insulin-glucose infusion to scorpion sting victims appears to be the physiological basis for the control of the metabolic response when that has become a determinant to survival.



## **SCORPION VENOM-INDUCED ARDS VS OLEIC ACID MODEL**

**Ms. Aparna Akella,**

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**Background:** Indian red scorpion or *Mesobuthus tamulus* (MBT) envenomation produces lethality by inducing respiratory alterations and pulmonary edema. It is plausible that acute respiratory distress syndrome (ARDS)-like condition is produced after MBT envenomation.

**Aims and Objectives:** The present study was undertaken to compare MBT venom-induced ARDS with oleic acid (OA) model of ARDS.

**Materials and Methods:** The trachea, jugular vein and femoral artery of anesthetized adult rats (Charles foster strain) were cannulated. Lethal dose of MBT venom or OA was administered (i.v.) and the time-dependent changes in respiratory frequency (RF), heart rate (HR) and mean arterial pressure (MAP) were recorded. Minute ventilation (MV) and the  $\text{PaO}_2/\text{FiO}_2$  (P/F) ratio were also determined. At the end, lungs were excised for histopathological examination and determination of pulmonary water content physically.

**Results:** MBT venom induced hypoxemia, pulmonary edema and pulmonary pathology (alveolar damage, capillary damage, infiltration of inflammatory cells and exudation) that was comparable with OA model of ARDS. Contrastingly, MBT venom produced bradypnea and hypoventilation in spite of hypoxemia while OA induced tachypnea and hyperventilation. Similarly, the HR changes in MBT venom group manifested

as bradycardia while OA group exhibited tachycardia. The lack of hypoxemic effect in MBT venom group (unlike OA group) suggest for medullary involvement.

**Conclusion:** MBT venom produced ARDS analogous to OA model. However, it involved additional mechanisms (medullary respiratory centers) as compared to OA-induced ARDS.



## CURRENT TREATMENT STRATEGIES FOR ARDS

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Acute respiratory distress syndrome (ARDS) is a major cause of acute respiratory failure with high mortality. ARDS is a clinical syndrome inducing inflammation and increased permeability to the alveolar-capillary membrane leading to pulmonary edema, respiratory failure and death if not promptly diagnosed and treated. Despite recent advances in various diagnostic tools and antibiotics, there are no effective treatment protocols for the management of ARDS. The main aim of treating ARDS is to decrease lung injury and improve ventilation. The treatment protocol may be divided into non pharmacological and pharmacological therapy. Non pharmacological therapy is non-specific and aimed to provide symptomatic relief by adequate oxygenation and avoidance of complications. Pharmacological therapies are directed to decrease inflammation, pulmonary edema, restore tissue repair mechanisms and prevent complications. Data from our laboratory shows that administration of glucocorticoid (methyl prednisolone) and PGE1 analogue (miso前列素) protected the rats in the early phase of ARDS but failed to prevent lethality. Despite the signs of inflammation, the anti-inflammatory drug indomethacin failed to protect the rats. Rather it worsened the condition and decreased the overall survival. Antihistaminic (pheniramine) attenuated the pulmonary edema and increased the survival time in rats. Other drugs being used in ARDS are  $\alpha$  agonists, vasodilators, antibiotics, anticoagulants, statins, surfactant, nitric oxide, ketoconazole, lysofylline, pentoxifylline, prostacycline etc. But the involvement of complex mechanisms and multi-organ failure makes the outcome poor. Supportive care and treatment of the underlying cause is still the most effective treatment for ARDS. Recently it has been shown that mesenchymal stem cell can modulate immune response and also facilitate regeneration and repair of the injured lungs. Mesenchymal stem cell therapy and gene-based therapy have great therapeutic potential.



## **R-01 : A STUDY ON PATTERN OF ACUTE POISONING IN AN EMERGENCY DEPARTMENT OF A TERTIARY CARE HOSPITAL.**

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### **ABSTRACT**

**Aims:** To evaluate the pattern of acute poisonings in a tertiary care hospital.

**Objectives:** To study the socio-demographic, type of poisoning and mode of poisoning in an emergency department of a tertiary care hospital.

**Methods:** A retrospective observational study of 12 month duration was conducted in a teaching hospital from January 2013-December 2013. Data regarding demography, name of poisonous substance, were collected in the prestructured form and analysed using descriptive statistics.

**Results:** A total of 384 cases of poisoning were recorded. Among these incidence was more commonly seen in males(69%) compared to females(31%) with a ratio 2.22:1. Most cases of acute poisoning presented between 21-30 year age group(49.5%). Majority of cases were seen among rural people(64%), farmers(36.5%) followed by manual labourers(30.3%) were most commonly encountered. Suicidal tendency as a mode of poisoning accounted(73%). Most of the cases of acute poisoning were due to pesticides(62.8%) followed by snake bites(18.2%), drug overdosage(14.4%), corrosives(2.6%), kerosene(2%). Among pesticidal poisonings most commonly encountered was organophosphorus(OP)(34.6%) followed by organocarbamates(11.3%), pyrethroids(10.8%), aluminium phosphide(3.5%) and rat poison(2.6%).

**Conclusion:** Poisoning was most commonly seen among OP compounds. So proper educational and training interventions on pesticide handling and safety precautions, restriction on hazardous pesticides are needed to decrease pesticide exposure to farmers.

## **R-02 : ASSESMENT OF RESPIRATORY AND SYMPATHETIC CARDIOVASCULAR PARAMETERS IN OBESE ADULTS**

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**Background :** In obesity, as excessive adipose tissue accumulates, an altered metabolic profile occurs along with a variety of adaptations/alterations in cardiorespiratory structure and function even in the absence of co-morbidities.

**Objective :** To assess respiratory and cardiovascular sympathetic parameters in obese adult male and female subjects and compare the results with controls.

**Methods :** 50 obese (25 males, 25 females) and 47 non obese (24 males, 23 females) healthy adults aged 18-50 years were selected based on body mass index(BMI). Isometric Hand grip test and cold pressure test was performed to elicit sympathetic cardiovascular functions . Pulmonary function tests were done using computerized RMS medspiror.

**Results :** The results indicated significantly higher baseline diastolic blood pressure (DBP) ( $P < 0.001$ ) in obese adult correlating positively with BMI ( $r = 0.348$ ). Significantly

increased DBP response to applied cold stimulus and borderline response to isometric exercise in obese adult indicated autonomic instability. The dynamic lung functions were significantly decreased in obese subjects and correlated negatively with BMI.

**Conclusion :** Our data indicate that obese subjects have increase in sympathetic activity as evidence by increase in resting blood pressure. Bloodpressure response to an isometric exercise is impaired in obese subjects due to a lowersympathetic activation and pulmonary functions were reduced in obese group when compared with controls.

## **R-03 : A COMPARATIVE STUDY OF MAXIMAL OXYGEN CONSUMPTION (VO<sub>2</sub>MAX) DETERMINED BY TWO SUBMAXIMAL EXERCISE TESTS.**

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**Aim:** The aim of the study was to compare the predictive values of VO<sub>2</sub>max determined by two submaximal exercise tests: Bruce submaximal exercise test and Treadmill jogging test and to find correlation between these two tests.

**Method:** One hundred twenty five apparently healthy male subjects 18-25 years underwent first three stages of the original Bruce protocol in one session and exercise according to treadmill jogging test in another session in randomised order. VO<sub>2</sub>max was calculated by using appropriate regression equation.

**Results:** VO<sub>2</sub>max values from two tests (t test) revealed similar mean values of VO<sub>2</sub>max between the two tests ( $47.06 \pm 2.74$  vs.  $47.20 \pm 2.27$ ,  $t=0.64$ ;  $p=0.649$ ) i.e. not differed statistically. Concordance correlation coefficient showed an insignificant ( $p > 0.05$ ) concordance between the two tests ( $r=0.020$ , 95% CI=-0.152 to 0.191) with low precision ( $\rho=0.021$ ) but with high bias correction factor ( $C_b=0.98$ ).



**Conclusion:** In conclusion we can say that these two tests are comparable in terms of mean values of VO<sub>2</sub>max. Poor correlation coefficient between the two tests should be subjected to further study with subjects having wider age range and wide range in VO<sub>2</sub>max values.

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#### **R-04 :ANALYSIS OF BRAINSTEM AUDITORY EVOKED POTENTIALS IN HYPOTHYROID PATIENTS**

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AIM: The aim of the present study is to evaluate the auditory sensory processes in new hypothyroids.

##### **OBJECTIVES:**

- To analyse brainstem auditory evoked potentials (BAEP) in newly diagnosed hypothyroid patients
- To compare BAEP in newly diagnosed hypothyroid patients and normal controls.

**METHODS:** BAEP was recorded in 10 hypothyroid patients and 10 age-matched controls by Galileo NT evoked potential recorder. The electrodes were placed according to the 10-20 International System. For recording BAEP, 1000 click stimuli at 10 Hz with duration 0.1 msec were delivered at 60 dB above hearing threshold. Peak latencies of all the waves, inter peak latencies (IPL) of I-III, III-V and I-V were determined. Statistical Analysis was done using independent sample "t" test.

**RESULTS:** Prolongation in latency of right sided wave V & IPL I-III & I-V was seen in hypothyroid patients which was statistically significant( p values < 0.05). Increase in mean latencies of waves I, II, III, IV, V & IPLs I-III, III-V & I-V of both the ears were also seen in hypothyroid patients as compared to controls.

**CONCLUSIONS:** Latency of wave V & IPL I-III & I-V can be used as a parameter for early detection of auditory changes in hypothyroidism.

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#### **R-05 : A COMPARATIVE EVALUATION OF H-REFLEX AND MRI FOR DIAGNOSIS OF LUMBOSACRAL RADICULOPATHY**

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Abstract :

**Objective :** Lumbosacral radiculopathy was first described by Mixer & Barr in 1934 and since then it has been one of the most common causes of low back pain. In present study we evaluated and compared the significance of Soleus H-Reflex study and MRI of lumbosacral spine for the diagnosis of lumbosacral radiculopathy.

**Methods:** An observational cross-sectional study was performed on 20 patients (11 females & 9 males) clinically diagnosed as lumbosacral radiculopathy at orthopaedic OPD of R. G. Kar Medical College, Kolkata. Soleus H-Reflex study was performed at the Department of Physiology and they had undergone MRI of

R. Shreenivasan Prize

L-S spine. All collected data were analyzed by SPSS programme.

**Results:** 55% patients showed radiculopathy in their MRI while H-Reflex was abnormal in 80% patients. Out of these 80%, 40% showed unilateral absence, 35% bilateral absence and 5% decreased H amplitude. There was significant correlation between MRI and H-reflex study with a p value of 0.013. According to kappa coefficient assessment there was moderate strength of agreement between these two tests (Kappa-0.468). An interesting finding was that 5 patients out of 9 who had normal MRI; had abnormal H-Reflex result (55.56%).

**Conclusion:** 80% abnormal H-Reflex results in patients of L-S Radiculopathy makes it an efficient diagnostic tool. More than 55% abnormal H-Reflex in patients of clinically diagnosed radiculopathy but having normal MRI, keeps ample room for further research to find out if functional change can occur earlier before structural anomalies detected in MRI.

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## **R-06 : A STUDY OF VARIATION IN LIPID PROFILE DURING DIFFERENT PHASES OF MENSTRUAL CYCLE**

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### **ABSTRACT**

**Introduction-**Understanding variations in lipoprotein cholesterol levels throughout the menstrual cycle is important because there may be clinical implications regarding the appropriate timing of measurement and implications on the design and interpretation of studies in women of reproductive age. Our objective was to review the evidence comparing lipoprotein cholesterol levels throughout the menstrual cycle among premenopausal women.

**Method-** 30 women of reproductive age group were taken. Their lipoprotein cholesterol levels were observed using Lipid Profile Test in the laboratory and it was compared in different phases of menstrual cycle.

**Result-** The evidence suggests that total cholesterol and LDL-C tend to be highest during the follicular phase and to decline during the luteal phase, with HDL-C highest around ovulation.

**Conclusion-** Our finding showed that females of reproductive age group have lesser cholesterol level during luteal phase of menstrual cycle due to effect of progesteron. hence, we conclude that female of child bearing age group are at lesser risk for Coronay Heart Diseases(CHD) in comparison to post-menopausal females.

**Keywords-** Cholesterol, menstrual cycle, Progesterone, CHD

### **R-07 : EXTREMELY LOW FREQUENCY MAGNETIC FIELD (ELFMF) EXPOSURE INFLUENCES DESCENDING PAIN MODULATION SYSTEM IN SPINALIZED RATS**

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**Aim and objective:** To study the influence of ELFMF exposure on pain modulation status in complete spinal cord injured rats.

**Methods:** Adult male Wistar rats weighing 200-250g were divided into 3 groups; Sham-SCI, SCI and SCI+MF groups. Laminectomy was performed at T11 level (vertebral) in Sham-SCI group followed by complete transection of spinal cord for SCI group while ELFMF exposure (50Hz, 17.96 $\mu$ T, 2h/d) was given for 8 wks to SCI+MF group. Pain was assessed by determination of Fore-paw lick latency (FPL) and threshold of tail flick (TTF) while its modulation status was studied by recording EMG of TS and DNIC before SCI and post SCI-4<sup>th</sup> and 8<sup>th</sup> wk. Cresyl violet (CV) staining was done to assess the extent of injury.

**Results:** FPL and TTF were decreased significantly in SCI group of rats during post SCI- 8<sup>th</sup> week. However, MF group showed significant increase in threshold and its restoration during post SCI 8<sup>th</sup> wk. EMG analysis of TS showed no change in latency but significant increase in amplitude of the response post-SCI 8<sup>th</sup> wk, but SCI+MF group restored it. Descending inhibitory control has been lost both in SCI and SCI+MF groups. CV staining of spinal cord sections showed decrease in the lesion volume in SCI+MF group.

**Conclusion:** Our observation suggested significant hyperalgesia after SCI. The descending facilitatory component of the pain modulation system was activated while its inhibitory component was suppressed after spinal cord injury. However, MF exposure decreased hyperalgesia and caused inactivation of descending facilitation while it did not influence on inhibitory component.

### **R-08 : ELECTROPHYSIOLOGICAL STUDY OF FRESHLY ISOLATED ARTICULAR CHONDROCYTES VS. CRYOPRESERVED CHONDROCYTES**

Upasana Kachroo, Praghalathan Kanthakumar, Sathya Subramani

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**Background:** Cryopreservation of articular chondrocytes has recently gained ground because of its applications in cell culture, tissue engineering and reconstructive surgery. Questions may be raised as to the use of cryopreserved chondrocytes since this intervention may cause changes in chondrocyte phenotype and biology.

**Aims:** This study sought to compare freshly isolated and cryopreserved chondrocytes by recording ionic currents using patch clamp technique.

**Methods:** Goat articular chondrocytes were isolated from cartilage shavings by enzyme digestion. Cell aliquots transferred to liquid nitrogen after overnight gradual cooling to -80° C were then cryopreserved for a period of 7-15 days (2 study groups- Day 7-10 and Day 11-15). Percentage viability was checked upon thawing and cells subjected to patch clamp analysis. Ionic currents were recorded in whole cell configuration using depolarizing potentials ( $V_{\text{Hold}}$ :-80mV; Test pulses: -80mV to +70mV at 10mV increments).

**Results:** Outwardly rectifying currents were recorded in fresh chondrocytes (n=6) and in cryopreserved cells (n=9+6) Comparison of current densities at all potentials above the threshold, revealed no significant

R. Shreenivasan Prize

difference between fresh and cryopreserved chondrocytes ( $p > 0.05$ ) Currents were blocked by 10mM TEA<sup>+</sup> (a specific potassium channel blocker). Reversal potential for these currents was observed to be near the calculated equilibrium potential for potassium.

**Conclusion:** The results indicate that chondrocytes remain viable and maintain ion channel functionality even after 15 days of cryopreservation. Cryopreserved chondrocytes may be utilized as an alternative when the use of freshly isolated chondrocytes poses a limitation.

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## **R-09 : INTRAGASTRIC ADMINISTRATION OF GLUTAMATE LEADS TO THERMOGENESIS IN RATS**

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### **Abstract**

Mono sodium salt of glutamate (MSG) is the major contributor in the perception of umami. Dietary MSG plays role in many physiological functions like flavor preference learning, thermoregulation, activation of gut-brain axis and in body weight control. Animal studies have shown that the physiological implications of dietary MSG are intervened through distinct gut-brain signaling mediated via gastric vagal afferents. Glu receptors type 1 on gastric mucosal cells releases mucin and nitrite mono-oxide (NO), then NO stimulates serotonin (5HT) release at the enterochromaffin cell. Finally released 5HT stimulates 5HT<sub>3</sub> receptor at the nerve end of the vagal afferent fiber. Imaging studies in rats have also revealed activation of specific brain areas involved in thermoregulation after intragastric administration of MSG. Thermography in rats show heat generation from brown adipose tissue (BAT) after intragastric infusion of MSG. BAT thermogenesis is activated by the hypothalamus via the sympathetic nervous system due to its high innervations by adrenergic fibres. However precise changes in body, BAT and hypothalamic temperature have not been done in free animals after intragastric administration of MSG (0.12 M). In this study we investigated the effects of intragastric administration of MSG and saline on  $T_b$ ,  $T_{br}$  and  $T_{BAT}$  in freely moving rats and to study its underlying mechanism. Instantaneous rise in  $T_{BAT}$  along with  $T_b$  and a late rise in  $T_{br}$  were observed in the MSG fed rats when compared to saline (0.12 M) administration. The rise in  $T_{BAT}$  and  $T_b$  was attenuated by pretreatment of propranolol (20 mg/kg, ip BW) and granisetron (10µg/kg BW, iv). We propose that dietary glutamate leads to diet induced thermogenesis, mediated via gastric vagal branch.

## H-1 : EFFICACY OF ELF-MF IN AMELIORATING OXIDATIVE STRESS IN 6OHDA MODEL OF PARKINSON DISEASE IN RAT.

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**Running Title:** Magnetic field on oxidative stress in PD

**Keywords:** Parkinson's disease; oxidative stress; extremely-low-frequency magnetic field; 6-hydroxydopamine; liquid chromatography/ tandem mass spectrometry

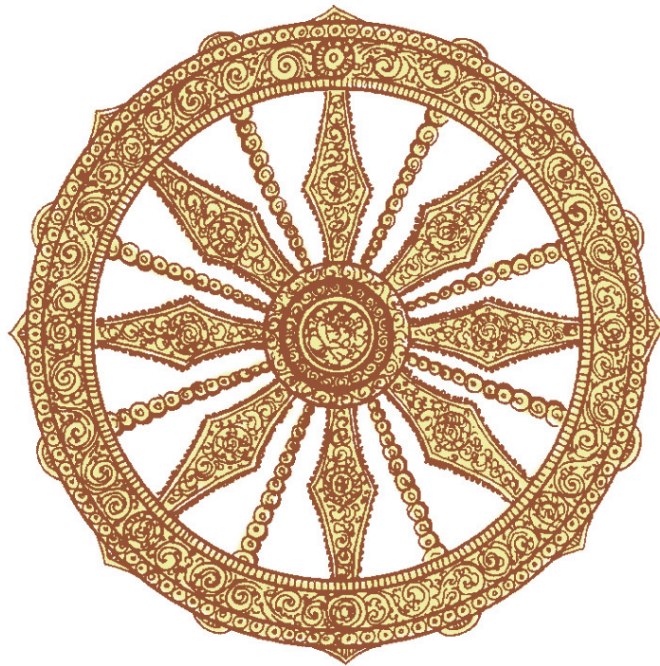
### ABSTRACT

**Background:** Oxidative stress is implicated in the pathogenesis of Parkinson's disease (PD). The present study aims to limit oxidative stress in the initial phase of PD by exposure to extremely-low-frequency magnetic field (ELF-MF) .

**Methods:** In unilateral intrastratial 6-hydroxydopamine rat model, we investigated the deficits in motor co-ordination (rotarod test), nociceptive behavior to thermal and cold noxious stimuli (tail flick latency and acetone test respectively) at day 7. The concentration of oxidative stress markers ( p-tyrosine and 3-nitrotyrosine) and neurotransmitter (dopamine) were estimated at the end of 7 days. The ultrastructural changes of mitochondria were evaluated by transmission electron microscopy. Male Wistar rats were divided into control, PD, magnetic field exposed ( MF), PD with Levodopa (PD+LD) ,PD rats exposed to magnetic field (PD+MF), PD rats with Levodopa exposed to magnetic field (PD+LD+MF). Magnetic field exposure (17.96iT, 50Hz) was provided post surgery for 7 days.

**Results:** The food intake, water intake, body weight, stay time on rotarod I (176.3±4.3 to 39.5±3.6 s at 10rpm) and the tail flick latency decreased significantly (p<0.001) from 3.57±0.42sec to 1.99± 10 sec in PD rats. Concentration of oxidative stress markers (3-nitrotyrosine, p-tyrosine) in the striatum and substantia nigra increased while the concentration of dopamine decreased on the ipsilateral side in the PD rats. Apoptotic changes in the mitochondria were observed in the PD and PD+ LD rats. MF exposure significantly improved the above mentioned parameters in the PD rats

**Conclusion:** ELF-MF ( 50 Hz, 17.9iT for 2h/dX7) significantly attenuated the oxidative stress; improved motor and non-motor symptoms and maintained dopamine concentration besides maintaining normal mitochondrial ultrastructure. The beneficial effect of ELF-MF in the progression of PD is mediated by attenuating oxidative stress . The effect of MF was potentiated when given in conjunction with levodopa treatment.



*Most people say that it is the intellect which makes a great scientist.  
They are wrong: it is character.*

**- Albert Einstein**

*Bad times have a scientific value.  
These are occasions a good learner would not miss.*

**- Ralph Waldo Emerson**



# FREE PAPER PRESENTATIONS

O01

### Assessment of Body Cell Mass in Indian Elite Players of Different Sports using Bioelectrical Impedance Analysis

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#### ABSTRACT

**Aims & Objective:** To assess the impact of different sports activity on Body Cell Mass (BCM) using Bioelectrical Impedance Analysis (BIA) of elite Indian male players.

**Method:** 79 male subjects, age ranging from 14-20 years were participated in the present study. The players were included from various sports discipline viz. Football (N=15), Gymnastics (N=15), Hockey (N=16) and Table Tennis (N=15). Eighteen age-matched boys were also evaluated as the control group. Whole body bioelectrical impedance analysis was performed using a multi-frequency analyzer (Maltron Bioscan 920-2, Maltron International, Rayleigh, Essex, UK). Physical characteristics, fat and fat free mass, minerals content and glycogen mass along with body cell mass (BCM) were evaluated.

**Results:** No significant difference was found in mean age of the subjects of different sports discipline. However, significant ( $P<0.01$ ) differences were observed in height, weight and BMI when compared among the groups. Body composition parameters except adiposity were found to be higher in hockey players as compare to their other counterparts. On the other hand, gymnasts were found to be smaller in size & have lower values in all the selected parameters. BCM was found to be highly correlated ( $P<0.01$ ) with potassium content, intra cellular water, fat free mass, glycogen mass, total body calcium and body weight.

**Conclusions:** BCM is related to the ability to extract and utilise oxygen by the working muscles and also to the improvement of muscular efficiency. The results of the present study is useful for the trainer to formulate the systematic and scientific training program to enhance sport performance as well as for future comparison.

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O02

### A Retrospective Study Of Drug Prescribing Pattern In Osteoporosis In A Tertiary Care Hospital

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**Aim-** To determine the prescribing rate and pattern of drugs in osteoporosis.

**Methodology-** A retrospective study was carried out in which case records of 100 patients diagnosed and treated for osteoporosis in one year period were analysed in the medical records section. Data was collected pertaining to the demographics, calcium and phosphorus levels before and after treatment, prescription rates and dosing patterns of drugs used in osteoporosis.



**Results-** The mean age of the patients was  $62.42 \pm 13.11$  years. Male: female ratio was 1:9. Pre- treatment calcium and phosphorus levels were  $8.91 \pm 0.60$  mg/dL and  $3.74 \pm 0.61$  mg/dL respectively. T- score was  $< -2.5$  in all 100 patients. Oral analgesics were prescribed to 80 patients, of which paracetamol was the most commonly prescribed drug (58.75%). Eighteen patients were prescribed bisphosphonates. Calcitonin nasal spray was prescribed in 45 patients whereas teriparatide was administered to 15 patients. 62 cases were prescribed vitamin D in a daily dose range of 0.25- 1 mcg. Calcium was prescribed in a dose of 1000 mg in 46.39% of cases.

**Conclusion-** There was an increase in plasma calcium and phosphorus levels and abatement of pain and stiffness symptoms following drug therapy.

### O03

#### Prognostic value of serum uric acid in myocardial infarction

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Department of pharmacology and Cardiology<sup>1</sup>, PGIMS Rohtak-124001 (Haryana).

**Aims / Objective:** - To study the effect of atorvastatin on serum uric acid (SUA) levels in patients with myocardial infarction (MI).

**Methods:** This prospective, controlled and open label study was conducted in department of Pharmacology and Cardiology at PGIMS, Rohtak. Patients with diagnosed MI were screened for SUA at the time of admission. Twenty patients with increased uric acid ( $>7$  mg/dl) levels were found to be eligible as per the inclusion and exclusion criteria and enrolled in the study. These patients received treatment for MI including atorvastatin on hospitalization as well as post discharge (for 6 months). The primary endpoint was reduction in uric acid levels at various time intervals (at the time of admission, then every month for 6 month). Secondary end points were incidence of unstable angina, re-infarction, heart failure and all-cause mortality.

**Results:** - Normal range of uric acid is 5-7 mg/dl. In patients with MI the mean value of SUA was 7.77 mg/dl. However, after six months treatment this value was mean 4.87mg/dl. There was 37.32 % decrease in serum uric acid levels which was statistically significant.

**Conclusion:** - serum uric acid found to be raised in acute MI patients and atorvastatin treatment reduces SUA

### O04

#### Role of transcranial Motor Evoked Potential during deformity corrective surgeries of spine: A retrospective study

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**Aim:** We retrospectively reviewed 207 corrective spine surgery cases to determine the role of transcranial Motor Evoked Potential recorded intra-operatively.

**Objective:** Deformity correction surgery of the spine has an inherent risk of development of new neurological deficits that can be detected by transcranial Motor Evoked Potential (TcMEP). The present study was done to retrospectively evaluate the role of TcMEP recorded intra-operatively during consecutive surgeries of spine.

**Method:** Retrospective analysis of annotated TcMEP records of 207 surgeries (Jan 2010 to August 2014) was done for occurrence of alarm using standard criteria and was compared with the clinical outcome post-surgery and at-least 4 week follow-up.

**Result:** Out of 187 good annotated records, alarms were sounded in 51 cases. Anesthesia changes were cause of alarms in 14 while in 12 cases it was related to the surgical procedure but recovered spontaneously within few minutes. Out of 25 cases in which signal did not recover spontaneously, surgical re-maneuvering led to signal recovery in 17 patients who woke up without any new neurological deficit while in 8 cases signal did not recover and patients had neurological deficit post-surgery. 7 cases recovered fully within 4 weeks post-op.

**Conclusion:** -TcMEP was found to be 100% sensitive and 100% specific in detecting, and predicting occurrence of neurological deficits during spine surgeries.

## O05

### A Physiological study of Autonomic Dysfunction in Bronchial Asthma

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**Aims:** To evaluate autonomic nervous dysfunction in patients with asthma.

**Objective:** To compare autonomic nervous system abnormality in patients with asthma and healthy controls.

**Methods:** The study consisted of 30 patients of bronchial asthma of 15-50 years of age. After taking informed consent the duration of asthma was noted in each of these patients and Five Non invasive test for testing Autonomic nervous system were performed i.e. Orthostatic test, 30:15 Ratio , Sustained Hand Grip test and Valsalva Manoeuvre.

**Results:** The study population considered of 17 Males and 13 Females and 16 Males and 14 females among control group. It was found that out of 30 patients 22 patients had abnormal autonomic tests. Most of them had more than one abnormal test. 22 patients had Bronchial asthma of more than 5 years , out of these 20 had abnormal tests and only 2 patients had normal tests ( $P<0.001$ ).similarly 14 patients having moderate asthma showed evidence of Autonomic Dysfunction ( $P<0.01$ ).46.66 % patients had only Parasympathetic dysfunction.

**Conclusion:** Bronchial asthma patients displayed definitive dysfunction of autonomic nervous system as compared with age and sex matched controls. With chronicity and severity of asthma more incidence of autonomic dysfunction is observed. Parasympathetic hyper responsiveness appears to be the main factor in the genesis of bronchial asthma.

**Key Words:** Asthma, Autonomic nervous, Orthostatic test.

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O06

### **A study of correlation between circulatory levels of c-reactive protein(CRP) in non pregnant women during child bearing age and their sleep wake cycle by Pittsburgh Sleep Quality Index(PSQI)**

Anshuman Pattanaik<sup>1\*</sup>, Arpita Priyadarshini<sup>2</sup>, Rama Raman Mohanty<sup>3</sup>

**Introduction:-** Sufficient sleep is essential for immunocompetence and for overall health. Some evidence from sleep restriction studies indicate that poor sleep is associated with an exaggerated inflammatory response indicated by increasing circulatory concentration of CRP. Exaggerated inflammatory activation could provide a link between disturbed sleep and adverse health outcomes. The present study is an analysis evaluated by the relationship between subjective sleep and inflammation among non pregnant women of child bearing age. Women of child bearing age may be at increased risk of adverse health outcomes later in life as a consequence of significant deranged sleep wake cycle experienced during this period.

**METHOD:-** This is cross-sectional study. In this study 30 non pregnant women of child bearing age were asked questionnaire of PSQI to assess their sleep wake pattern and their serum CRP level were measured. Association between their sleep wake pattern and CRP levels were analyzed. Those women who are under medication for any diseases were excluded in this study.

**RESULT-** Out of 30 non-pregnant women, 22 subjects showed poor sleep continuity and quality. Out of them 18 subjects have increased CRP.

**CONCLUSION:** Non-pregnant women who have poor sleep continuity and quality have higher levels of CRP than non-pregnant women with few sleep complaints. No association was found between sleep duration and circulatory levels of CRP.

Key words- PSQI, CRP

O07

### **Comparative Free Radical Scavenging Activity of Amantadine and Rasagiline**

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**INTRODUCTION :** Amantadine and Rasagiline are drugs used in Parkinson's Disease. Amantadine though initially used as an antiviral drug to treat influenza in the early 1960's was coincidentally discovered as treatment for Parkinsonism. Rasagiline an irreversible inhibitor of monoamine oxidase B is used as monotherapy in early stages of Parkinson's disease.

**OBJECTIVE :** To compare the antioxidant potential of Amantadine vs Rasagiline using DPPH assay.

**METHODOLOGY :** DPPH radical scavenging activity was done using the method following method.

**REAGENTS:-** DPPH-1mg in methanol

BHT (standard)-1.6mg/ml in methanol

Samples-desired concentration from 1mg/ml –max of 5mg/ml (in methanol/DMSO)

**PROCEDURE:** 3.7 ml of absolute methanol was allocated in all test tubes along with blank. Then 100µl of absolute methanol was added to blank. Then 100µl of BHT was added to tube marked as standard and 100µl of respective samples to all other tubes marked as tests. Then, finally 200µl of DPPH reagent was added

to all the test tubes at room temperature condition for minimum of 30minutes then, checked absorbance of all samples 517nm. The percentage inhibition was calculated. BHT was used as the standard drug in the study.

**RESULTS:** The Scavenging property of Amantadine was found to be 16.1%, 49.4%, 62.9%, 71.9%, & 89.9 % inhibition while that of Rasagiline was found to be 11.9%, 25.6%, 61.6%68.7% & 85.6% inhibition compared with that of standard BHT which had 58.6%, 88.9%, 96.1%, 97.9% & 99.4% inhibition at the following concentrations i.e. 200,400,600,800,1000 µg/ml respectively.

**CONCLUSION:** From this study we found that both the drugs have significant Antioxidant property, while Amantadine having better antioxidant property compared to Rasagiline, which could probably play a role in prevention of neuronal cells destruction in early stages of Parkinson's disease.

## O08

### Effect of Betadine ointment and Sodium Fusidate cream on experimentally induced burn wound in Wistar rats

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#### Abstract

**Aim:** To compare the efficacy of betadine ointment and sodium fusidate(with biopolymer) cream on experimentally induced burn wound healing in Wistar rats.

**Materials and Methods:** Wound healing activity was assessed by burn-wound model. This study was conducted using three groups of Wistar strain adult rats of either sex (n = 6). **Group I:** Control rats- No drug application. **Group II:** 25-30 mg of betadine ointment was applied at the wound affected area for 21 days. **Group III:** 25-30 mg of sodium fusidate cream was applied at the wound affected area for 21 days. Wound healing was assessed by wound contraction rate and complete epithelialization time.

**Results:** There was significant (p<0.001) increase of wound contraction rate in sodium fusidate treated animals on 4th , 8th , 12th and 16th day interval in comparison with control group, whereas betadine was found to increase the wound contraction rate significantly on day 4 and 12 when compared with control. Complete epithelization was observed significantly (p<0.001) early in sodium fusidate treated group when compared with control and betadine treated groups.

**Conclusion:** The present study revealed that the sodium fusidate cream has comparatively better burn wound healing potential than the betadine ointment (10%) in Wistar rats.

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O09

**Reaction times in Medical students with poor academic performance****Dr.Chandrashekhar Karpoor**, Professor and HOD, Gulbarga Institute of Medical Sciences, Gulbarga-585104

Reaction time provides an indirect index of the integrity and processing ability of the central nervous system. It is a simple, non invasive means of determining sensorimotor co-ordination and performance of an individual. Various factors like age, gender, fatigue, fasting, distraction, personal habits, exercise, punishment, stress, stimulant drugs, learning disorders, intelligence, brain injury, illness etc can affect the reaction times. Purpose of the study was to determine reaction times. Purpose of the study was to study the reaction times in medical students with poor academic performance in order to rule out the factors affecting the reaction time in poor performers and also to provide proper counselling for further improvement in their academic performance (scoring less than 35% marks in their 1<sup>st</sup> and 2<sup>nd</sup> internal examinations) were taken as study group. Among these 30 students, 16 students were females and 14 were males. Study group was compared with sex and age matched controls. Significant difference was observed with prolonged visual reaction time with respect to blue and red stimuli in poor academic performers as compared to controls. Auditory reaction time was also prolonged in poor performers but was not statistically significant.

**KEY WORDS:** Reaction time, Sensori-motor coordination, Poor academic performance, Counselling.

O10

**Impact Of Blood Lead (Pb) On Autonomic Functions And Susceptibility Of Orthostatic Hypotension In Battery Workers****Dr. Dileep Kumar Verma<sup>\*1</sup>, Dr. Pradeep Kumar<sup>2</sup>, Shyam Vinay Sharma<sup>3</sup> Prof S Tiwari<sup>4</sup>**

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**Aims and Objectives:** Acute and chronic lead (Pb) exposure leads to impairment of heart, vascular function including atherosclerosis and altered lipid metabolism. The aim of the present study was to elucidate the effect of occupational lead exposure on autonomic function tests in battery workers.

**Methods:** Sympathetic activity was assessed by systolic blood pressure response during lying to standing and diastolic blood pressure response during handgrip test and cold pressure test (CPT). The parasympathetic reactivity was assessed by deep breathing test (DBT), Valsalva maneuver (VM),

**Results:** Our data showed that during hand grip test the change in diastolic pressure (mmHg) was 11.53 and 7.24 in control and cases respectively. It was observed that during Deep breath test the change in E/ I ratio was 1.2056 and 1.3403 in case and control which is considered to be statistically significant. The Significant changes were also observed in Valsalva Manuver test (VM).. The significant changes during 30:15 ratio was observed in case and control group.

**Conclusion:** Our data suggest that the higher level of lead (Pb) is causes neuropathy autonomic nervous system higher level of blood lead may be one of the causes of orthostatic hypotension and other cardiac diseases and can be prevented

**Key Words:** Lead, Sympathetic, Parasympathetic, Battery Workers

## O11

### Thyroid autoantibodies in Type 2 Diabetes Mellitus

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**Background and Objective:** Thyroid disorders are very common in type 2 diabetes Mellitus but Studies to evaluate thyroid autoimmunity with type 2 diabetes are lacking. Therefore, this study is conducted to estimate Thyroid autoantibodies in Type 2 Diabetes Mellitus patients in Manipur.

**Method:** It is a cross-sectional study conducted in the Departments of Physiology in collaboration with Department of Medicine, RIMS, Imphal. 72 type 2 Diabetic patients without any complications as case and 50 subjects as controls were included in the study. Serum levels of TPO Ab and Tg Ab were measured by Elisa technique. Descriptive statistics and chi square test were used as applicable.

**Result:** Positive TPO antibody was found in 12 type 2 diabetic patients (16.7%) versus 4 (8%) in control group ( $P = 0.163$ ). Positive Tg antibody was found in 2 type 2 diabetic patients (2.8%) versus 4 (8%) in control group ( $P = 0.190$ ).

**Conclusion:** The findings indicate that the percentage of TPO Ab are found higher than Tg Ab among type 2 diabetic patients. However the thyroid antibodies are higher in type 2 diabetic patients but not statistically significant when compared to the control group.

**Key Words:** Type 2 DM, TPO Ab, Tg Ab.

## O12

### Estimation of Urinary Type-II Collagen C Telopectide (CTX-II) level in Knee Osteoarthritis patients.

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**Introduction:** Osteoarthritis (OA) is a chronic, degenerative disorder of unknown cause characterized by gradual loss of articular cartilage. It is the most prevalent disease in our society with a worldwide distribution and disabling locomotor disease characterized by degradation of articular cartilage.

**Objective:** To estimate the urinary level of type II collagen C telopeptide (CTX-II) among Osteoarthritic patients.

**Method:** This is a cross-sectional study conducted in the Departments of Physiology and Physical Medicine and Rehabilitation, Regional Institute of Medical Sciences, Imphal among osteoarthritic patients of Manipur during July 2013 to June, 2014. Urinary levels of C-terminal crosslinking telopeptide of type II collagen (U-CTX-II) were measured by ELISA kits.

**Result:** The concentration of uCTX-II was significantly higher in OA patients compared with controls. It was observed that the levels were found to be higher among the female patients.

**Conclusion:** These findings indicate that the bone resorption process is higher in osteoarthritic patients.

**Keywords:** Cartilage, Bone, Resorption, uCTX-II, Osteoarthritis, ELISA.

O13

**Evaluation Of Anti Cancer Effects Of Thiazolidinediones - An Invitro Study**Dr.Gowri <sup>1</sup> Dr.Punnagai <sup>2</sup> Dr.Darling chellathai <sup>3</sup><sup>1</sup>Assistant Professor , <sup>2</sup> Associate Professor , <sup>3</sup> Professor of Department of Pharmacology

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**Presenting Author's Name:** Dr.Gowri

**BACKGROUND OF THE STUDY :** PPAR  $\alpha$  and  $\gamma$  agonists like *Pioglitazone* , *Rosiglitazone* have shown Anti-oxidant properties in many studies , both In vivo and In vitro. In this study , the Anticancer effects of Thiazolidinediones on colon cell lines using MTT assay—(3-4,5-dimethyl(thiazol-2-yl)-3,5-dimethyl tetrazolium bromide) assay was elucidated.

**AIM :** To elucidate and compare the Anticancer potential of two PPAR  $\alpha$  and  $\gamma$  agonists using In vitro MTT assay on colorectal cell lines (HT-29 ) .

**METHODS :** We treated *HT-29* cell lines with two PPAR  $\alpha$  and  $\gamma$  agonists. *HT-29* Cells were incubated at 37°C and drug samples were added in various concentrations and incubated for 24 hours. MTT dye was added and incubated for 4 hours. 1 ml of DMSO was added. Absorbance at 570nm was measured with UV-Spectrophotometer using DMSO as the blank. IC50 (half maximal inhibitory concentration) was determined graphically according to % of cell viability and concentration of sample.

**RESULTS :** We found both the drugs have shown anticancer activity starting from low to high concentrations when compared with the control using MTT assay. The IC 50 value of Saroglitazar and Pioglitazone was found to be 15.6 mcg/ml .

**CONCLUSION :** From this study, we found that the drugs have significant Anti-Cancer property , which would probably play a role as cytotoxic agent in tumour cells.

O14

**Switching off PPAR- $\alpha$  abrogates chrysin mediated cardioprotective effect in ischemia-reperfusion model of acute myocardial infarction**

Neha Rani, Dharamvir Singh Arya

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**Introduction:** Chrysin (5,7-dihydroxyflavone), a naturally occurring flavonoid extracted from honey and propolis a PPAR- $\alpha$  agonist that has been shown to possess antioxidant and anti-inflammatory properties. The aim of this study was to investigate the role of chrysin against ischemia-reperfusion model of acute myocardial infarction in rats and its functional interaction with PPAR- $\alpha$ .

**Methods:**To document this interplay between chrysin and PPAR- $\alpha$ , we administered chrysin (60 mg/kg/day, p.o.) and PPAR- $\alpha$  antagonist GW9662 (1 mg/kg/day, i.p.) for 28 days followed by left anterior descending coronary artery ligation for 45 minutes and reperfusion for 60 minutes on the 29<sup>th</sup> day.

**Results:**Chrysin administration for 28 days significantly improved (P<0.05) hemodynamic status, myocardial architecture and decreased infarct size in ischemia-reperfusion challenged myocardium. This improvement in functional and morphological changes were corroborated with normalization of inflammatory (IKK-beta, NF-kappaB and TNF-alpha), apoptotic (TUNEL positivity, Bax, Bcl-2, and caspase-3 expression) and cardiac injury markers (CK-MB and LDH) along with upregulation of PPAR- $\alpha$  protein expression. In addition, chrysin bolstered NO levels and the antioxidant defense system as manifested by augmented activities of GSH,

SOD, CAT and inhibition of MDA activity. Surprisingly, co-treatment with GW9662 abrogated the chrysin-induced cardioprotection with significant amplification in infarct size, inflammation, apoptosis and oxidative stress markers.

**Conclusion:** For the first time, present study unravels that PPAR- $\alpha$  activation is crucial for ameliorating myocardial ischemia-reperfusion injury in rats.

## O15

### Pharmacotherapy in Geriatric patients with Cardiovascular disease in a tertiary care hospital

Aparna Manjunath

**Background:** Geriatric population (people aged  $\geq$ 60 years) in India is about 10%. Cardiovascular disease (CVD) is the leading cause of mortality globally and accounts for almost 12% of all deaths in India.

**Objectives:** Among elderly patients in a tertiary care hospital with CVD to ascertain pharmacological treatments at 0, 1 and 6 months.

**Methods:** We recruited 254 geriatric patients with CVD, who were followed-up at 6 months. We collected data on the demographic details of patients, medical conditions and treatment given. At the end of 6 months persistence to the prescribed medications and outcomes were assessed.

Categorical variables were compared using Chi-squared test. Continuous variables were compared using Student's t- test. For drug persistence at baseline, one and six months, Cochran's Q test was used.

**Results:** The mean age of the patients recruited was 65.04 (SD  $\pm$  6.08) years and 55.9% of the patients being males. 53.8% were lower middle class.

Most patients had diabetes mellitus (96%), hypertension (67.5%) and dyslipidemia (26.6%). 21.8% had IHD and 4.6% had a stroke. 93% of the patients were prescribed antidiabetic drugs, 63.5% were prescribed antihypertensive drugs, 44.5% were prescribed statins, 57.9% were prescribed antiplatelet drugs. There was a significant increase in 'persistence' levels at six months to all cardiovascular medications especially medications such as statins and antiplatelet medications.

**Conclusion:** Geriatric patients attending the outpatient department in our hospital were relatively younger. The most common CV risk factors were diabetes mellitus followed by hypertension and dyslipidemia. Pharmacotherapy and drug utilization data from this study will help us in assessing the quality of care given to the geriatric patients and promote rational use of medicines.

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## O16

### Prospective Study On Antimicrobial Utilization In The Treatment Of Neonatal Sepsis

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**Aim/Objective:** To determine the various antimicrobial utilization trends involved in the treatment of neonatal sepsis.



**Methodology:** A prospective observational study was carried out in neonates, who were diagnosed with sepsis in Kasturba hospital, between December 2012 and November 2013. After obtaining the institutional ethical clearance, data pertaining to the various aspects of neonatal sepsis was collected from patient files and analysed.

**Results:** There were 100 neonates diagnosed with sepsis, out of which 65 % were males and the rest 35% females. The proportion of neonates who received initial empirical therapy with “ampicillin plus amikacin” only regimen was the highest (60%), followed by “piperacillin and tazobactam combination with amikacin” (25%) and “ampicillin plus gentamicin” (5%). Sixty five culture positive samples were obtained, with *Klebsiella pneumoniae* being the most commonly isolated organism (27.69%). Combination of piperacillin and tazobactam with either amikacin or ciprofloxacin were the two most commonly administered initial definitive antimicrobial regimens (32.3% and 20% respectively). Inferential analysis using One-way ANOVA showed that there was no statistically significant difference between the various definitive antimicrobial regimens with respect to the duration of hospital stay (p-value 0.124).

**Conclusion:** Rational antimicrobial therapy and adequate supportive care can significantly reduce the morbidity and mortality in neonatal sepsis.

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## O17

### Cardiovascular Autonomic Responses In Normotensive Adults With Family History Of Hypertension

Dr. Swetha Matta, Final Year Post-graduate, Upgraded Department Of Physiology, Osmania Medical College, Hyderabad.

**AIM :** The aim of the study is to assess variation in blood pressure (BP) and heart rate variability (HRV) during rest and after exercise on treadmill in young adults with family history of hypertension (HRV).

**OBJECTIVES:** To compare BP variation and HRV in normotensives with family history of HTN and normotensives without family history of HTN.

**METHOD:** The present study was performed in Electrophysiology laboratory, Upgraded Department of Physiology, Osmania Medical College. 40 subjects with family history of HTN as study group, 40 subjects without family history of HTN as control group were selected between the age group 18-30 years. BP was measured using ambulatory BP monitor and HRV was analyzed by low frequency/high frequency ratio (LF/HF ratio) using software LABCHART version 8 provided by AD INSTRUMENTS. Both the parameters were recorded at rest and after subjecting to exercise on treadmill for 3 minutes, achieving desirable HR of moderate exercise.

**RESULTS:** Results were analyzed using paired t-test and ANOVA. There was a significant increase in baseline systolic BP in study group ( $P < 0.001$ ) compared to control group. Basal LF/HF ratio was significantly higher in study group ( $P < 0.001$ ) compared to control group.

**CONCLUSION:** A difference in basal systolic blood pressure and basal LF/HF ratio, found in offspring of hypertensive parents may be an early marker of cardiovascular change predisposing to HTN.

**KEY WORDS:** Family history of hypertension, blood pressure, heart rate variability, LF/HF ratio

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**O18**

**Gamma-Linolenic acid and rosuvastatin prevent STZ induced diabetic nephropathy**

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**Objective:** To study the role of Gamma-Linolenic acid (GLA) and rosuvastatin on kidney functions in STZ diabetic rats.

**Methods:** In albino rats of either sex, weighing 200-250g diabetic nephropathy (DN) was induced by streptozotocin (STZ) 50 mg/ kg, ip, single injection. Blood/urine sugar, body weight, urine volume, blood urea and serum creatinine levels were estimated initially (0 week) and at weeks 4, 8 and 12. Rats were divided in to 5 groups of 10 each. Group I- Control. Group II-STZ (50 mg/kg,ip) . Group III- GLA (50 mg/kg,po daily by gavage) 5 days prior to STZ & continued for 12 weeks+STZ. Group IV-rosuvastatin 2mg/kg,po daily 5 days prior to STZ & continued for 12 weeks+STZ. Group V – STZ +Insulin 4 units/kg,sc, twice daily for 12 weeks.

**Results:** GLA as well as rosuvastatin pretreatment failed to alter blood/urine sugar levels in STZ diabetic rats. GLA prevented reduction in body weight in diabetic animals. Actually body weight was markedly increased in GLA pretreated rats. Elevated blood levels of urea and creatinine were noted in STZ diabetic rats. In GLA and rosuvastatin pretreated groups blood urea and creatinine levels were within normal range, though towards higher side. GLA was more potent than rosuvastatin in reducing blood urea and creatinine levels.

**Conclusion:** GLA and rosuvastatin prevent deterioration of kidney functions in STZ diabetic rats.

**O19**

**Evaluation Of Handgrip Strength And Cardiovascular Variations During Different Phases Of Menstrual Cycle In Medicos.**

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**AIM:** To evaluate handgrip strength and cardiovascular variations during different phases of menstrual cycle in medicos aged 18-25years.

**OBJECTIVES:** 1.To evaluate handgrip strength and rate of fatiguability of muscles during different phases of menstrual cycle.

2. To evaluate cardiovascular variations during different phases of menstrual cycle.

**METHODOLOGY:** Study was conducted among 100 healthy adult female medicos. All were aged 18-25 years with normal regular menstrual cycles lasting between 26 to 32 days(mean 28 days),for atleast 6 months. A detailed medical history was taken. Handgrip strength and fatiguability was assessed by using handgrip dynamometer. Cardiovascular parameters include heart rate, systolic and diastolic blood pressure. Each

subject was evaluated for all the parameter in three phases of menstrual cycle consecutively for two cycles. Three phases of menstrual cycle were classified as Group 1-Menstrual phase, Group 2- Follicular Phase and Group 3- Luteal phase.

**RESULTS:** The handgrip strength was higher during follicular phase and least during menstrual phase( $p<0.001$ ). The rate of fatiguability was significantly high during menstrual phase. The mean heart rate and blood pressure was higher ( $p<0.001$ ) during luteal phase compared to other phases.

**CONCLUSION:** We conclude that these results indicate the cyclical variation in endogenous reproductive hormones affecting the handgrip strength in different phases of menstrual cycle and also provide support for the influence of these hormones on cardiac autonomic regulation in the premenopausal age group.

**KEY WORDS:** Menstrual cycle, Hand grip strength, Heart rate, Fatigue rate.

## O20

### Chronic ingestion of plastic boiled water to rats attenuates phenylbiguanide-induced cardio-respiratory reflexes

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**Aims and objectives:** Bisphenol A (BPA) is used in the manufacturing of polyethylene and epoxy resins. It is reported to be an endocrine disruptor and produce a number of toxic effects on various organs. Chronic exposure of the rats to BPA has been earlier reported to attenuate Phenylbiguanide (PBG)-induced cardio-respiratory reflexes involving decreased vagal afferent activity. Since BPA leaches out from plastics, it is expected that chronic exposure to plastic boiled (leached) (PBW) water will also produce changes similar to BPA. Therefore, the present study was undertaken to evaluate the effects of chronic ingestion of PBW on PBG evoked reflexes and were compared with BPA.

**Method:** Adult female rats (n = 6; in each group) were ingested BPA containing pellets (2 µg/kg body weight) / PBW/ tap water (*ad libitum*) for 30 days. Thereafter, the animals were anaesthetized and BP, ECG and respiratory excursions were recorded. Further, PBG was injected intravenously to evoke cardio-respiratory reflexes in these animals. BPA level in PBW was also estimated by HPLC.

**Results:** In rats receiving tap water, PBG produced bradycardia, hypotension and tachypnoea. In PBW/ BPA treated groups, PBG-induced reflexes were attenuated significantly. BPA concentration in PBW was estimated to be 6.6 mg/ml.

**Conclusions:** The present results indicate that PBW attenuates the protective cardio-respiratory reflexes similar to BPA.

## O21

### An Observation On Age Related Physical Decline (Arpd) In Elderly By Assessing Their Iadl (Instrumental Activities Of Daily Living And Adl (Activities Of Daily Living)

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**Introduction :** ARPD is progressive, downhill, relentless and universal decline in the structure and function of every organ system of human body with aging. ARPD is manifested in the form of decline in IADL (Instrumental Activities in Daily Living) and ADL (Activities of Daily Living). ADL is calculated as per the guidelines of Lawton and Body and ADL is measured as per guideline by Barthel ADL Index scoring system. As age advances the IADL declines so also ADL that is directly proportional to ARPD (Age Related Physical Decline).

**Material and Methods :** One hundred thirty one elderly of age group between 60 to 80 years with 58 females and 73 males were subjected for the study.

IADL is calculated by a questionnaire system pointing at each activity necessary to manage his or her living environment independently or whether he or she is dependent on others and ADL is calculated by the Barthel index of ADL by observing what the elderly does independently not by any help either physical and or verbal.

**Result:** The data have been tabulated. IADL, ADL have been compared in relation to age and gender.

**Conclusion:** IADL and ADL of elderly are indices of ARPD.

**Keywords:** IADL (Instrumental activities of Daily Living), ADL (Activities of Daily Living), ARPD (Age Related Physical Decline)

## O22

### The practice of Pranayama and Omkar Meditation by Mentally Challenged Young Adults can Change Their Visual Processing

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**Purpose:** To investigate if yogic practice affects the visual processing (VP) of mentally challenged young adults.

**Material and method:** 80 clinically diagnosed mentally challenged young adults attending a special school were randomly and equally allotted to control and Yoga group. Yoga group performed selected yogic practice for 30 minutes daily for 3 weeks under the strict guidance of their teachers and investigator. Control group was left with the school curriculum. VP was tested as per the guidelines of Woodcock-Johnson III Tests of Cognitive Abilities, for subcategory Visual-Spatial Relation (VSP), Picture Recognition (PR) and Planning, before (baseline) and after (follow-up) the study period.

**Results:** Both groups were comparable in their baseline scores. At follow-up, total scores of both the groups were high, but were significantly higher in Yoga group. In Planning subcategory significant improvement was found only in Yoga group. In the subcategories of VSP and PR mean scores of both groups were higher at follow-up but the improvement in Yoga group was highly significant as compared to control.

**Conclusion:** The yogic practice has beneficial influences on VP, especially the Planning subcategory which requires fine motor skills. It's achieved mainly by Motor Cortex and Basal Ganglia. Thus we hypothesize that regular yogic practice may positively influence these areas.

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## O23

### Impact of Early life stress on remote fear memory in rats.

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**Aim:** The impact of early life stress (early maternal separation stress), along with social isolation on remote fear memory in male Wistar rats.

**Objective:** To accomplish the aim of study, remote fear memory was assessed in behavioural task of fear conditioning.

**Methods:** Maternal separation and isolation stress (EMS) were applied to the rat pups during Stress Hypo Responsive Period (SHRP) (6h/daily, 10 days), after weaning social isolation stress (One rat per cage for 10 days) was given. The consequence on remote memory was assessed in adulthood. The fear conditioned rats were subjected to retention test on day 30 after the task. Percent freezing, exploration and grooming behaviour was assessed during all stages of fear conditioning task i.e. habituation, testing and retention.

**Results:** The remote fear memory was stronger in both control and EMS rats but there was a drastic impairment in fear memory i.e. differential fear memory became generalised fear memory. A day after fear conditioning, rats showed increased specific freezing to the conditioned stimulus compared to unconditioned stimulus i.e. differential fear memory. However, in the remote fear memory test, the fear memory had become generalised in both controls and EMS rats.

**Conclusion:** Our behavioral data suggests that specific fear memory formed immediately after conditioning will change to generalized fear memory, if assessed at remote time point.

**Key words:** remote fear memory, early life stress, remote spatial memory, specific fear memory, generalised fear memory, freezing.

**Acknowledgments:** NIMHANS for the financial support and student fellowship.

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## O24

### A Comparative Study Of Sural Nerve Conduction Velocity In Prediabetes And Diabetes

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**AIM :** To compare the sural nerve conduction velocity in prediabetes and diabetes

**OBJECTIVE:** The incidence of prediabetes is becoming higher and the risk of developing complications of diabetes is more. Diabetic neuropathy poses serious problems and the need to detect it at the earliest becomes a prior step for any clinician. The pathology of diabetic neuropathy seems to be multifactorial, including polyol pathway, glycation, reactive oxygen species, and altered protein kinase C activity.

**METHOD :** This is a cross sectional comparative study conducted on 42 prediabetic, 42 diabetic and 42 non diabetic men. Controls were age matched. Sural nerve conduction velocity was measured from both the sides.

**RESULT:** Nerve conduction velocity of sural nerve for diabetic ( $56.72 \pm 8.08$ ) and prediabetic ( $57.87 \pm 8.21$ ) were decreased compare with non diabetic ( $59.19 \pm 4.87$ ). The nerve conduction velocity of sural nerve in diabetic was significantly decreased when compared to non diabetic ( $p$  value=0.026). No statistically significant differences were observed between the prediabetes and non diabetic but the conduction velocity was reduced.

**CONCLUSION:** Nerve conduction examination primarily nerve conduction velocity can help in prompt evaluation of the diabetic neuropathy. Decreased nerve conduction velocity was observed in prediabetes when compared with non diabetic.

## O25

### **Nerve conduction study in Vitamin B<sub>12</sub> deficiency – the role of homocysteine and the effect of replacement therapy**

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**Aims and Objectives:** Vitamin B<sub>12</sub> deficiency can present with hematologic, psychiatric and neurological abnormalities. Such abnormalities may in actuality be a specific result of elevations in the metabolites associated with vitamin B<sub>12</sub> deficiency, one of them being homocysteine. In this study, the relationship between vitamin B<sub>12</sub> and homocysteine level and electrophysiological functions has been assessed.

**Methods:** Motor and sensory nerve conduction and somatosensory evoked potentials in upper and lower limbs were used for electrophysiological assessment. 50 patients with neurological between 18 and 50 years of age with Vitamin B<sub>12</sub> level <300 pg/ml were recruited in the study after written informed consent. Treatment regimen was hydroxycobalamin 1000– S intramuscularly daily for 7days followed by weekly for one month and then monthly administration. Recordings of all parameters were taken at the beginning of the study, 3, 6, 12 and 18 months duration.

**Results:** Peripheral neuropathy was seen in 30 patients. 19 patients had axonal, 9 had mixed axonal and demyelinating and one patient had purely demyelinating type of neuropathy. The sensory nerves were affected more commonly than motor nerves at the beginning of the study. There was differential improvement in nerve conduction. There was a significant correlation of the homocysteine values with amplitude of the sensory nerve action potential in the median nerve ( $p < 0.05$ ). There was a significant correlation of duration of disease with N20.

**Conclusion:** Vitamin B<sub>12</sub> deficiency may involve posterior column sensations. A high clinical suspicion is needed while diagnosing Vitamin B<sub>12</sub> deficiency as early treatment will lead to reversibility of some lesions. Homocysteine is the more important parameter correlating with electrophysiological parameters.

O26

### Study Of Serum Insulin Level And Estimation Of Insulin Resistance By Homa-ir Method In Patients Of Benign Essential Hypertension

Dr P.K.Patra , Dr P.Khodiya, Dr Nupur Srivastava

**AIMS AND OBJECTIVES** : To emphasize how common insulin resistance is in patients with essential hypertension , to reemphasize the need to initiate intensive efforts aimed to improve insulin sensitivity and treating all of the CVD risk factors in patients with essential hypertension, not just the blood pressure

**METHODS** : Sixty individuals suffering from benign essential hypertension were selected as the study group while a total of 20 healthy individuals were selected for the control group. Both groups were evaluated for fasting insulin levels by an Enzyme linked immunosorbent assay (ELISA) method at the time of entry into the study. The insulin resistance was calculated by HOMA-IR formula [Fasting insulin (IU/ml) x fasting glucose (mmol/l) /22.5.]

**RESULTS** : In the present study mean **serum insulin level** among the study group was *significantly more* than the control group (p = 0.0143) also the mean insulin resistance among the study group was significantly more than the control group (p=0.011).

**CONCLUSION:** This study clearly reemphasizes the need to initiate intensive efforts aimed to improve insulin sensitivity and treating all of the CVD risk factors in patients with essential hypertension, not just the blood pressure owing to the relationship obtained from the above tests.

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O27

### Role Of Simulated Microgravity On Vascularization

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**Aims & Objectives:** Reports on behavioral modification of endothelial cells under microgravity promoted the concept of angiogenesis modulation by using simulated microgravity as a physiological bioreactor. Recovery from injury could be improved by modulating the angiogenesis. Hence, the simulated microgravity was evaluated for the faster wound healing by endothelial cells.

**Materials & Methods:** Vascular growth, capillary like tube formation, endothelial cell proliferation and ring formation was assessed in vitro after stimulating the cells under simulated microgravity. Burn wound model was used for in vivo verification of the impacts of endothelial cells stimulated with simulated microgravity.

**Results:** It is found that the endothelial cells were not only viable after stimulation with microgravity, they were proliferating better than the cells with normal gravity exposure. The application of microgravity was also found to enhance the number of endothelial cell ring formation. Both tube length and number of tubes were found to be significantly higher in microgravity-stimulated endothelial cells in matrigel. Both the media and cells were found to expedited the process of wound healing as evaluated by the decrease in wound surface area.

**Conclusion:** Simulated microgravity appears to be a helpful means for better vascularization and, in turn, can be useful in the process of wound management.

## O28

### **Effect Of Limb Dominance On The Nerve Conduction Velocity & Cognition Study In Healthy Medical Students**

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**Aims & Objectives:** In recent years, electrodiagnostic studies play a major role in the assessment and diagnosis of patients with various neuromuscular disorders. However, very less attention in research is towards the limb dominance. The present study was planned to assess the effect of limb dominance & cerebral dominance on motor as well as sensory nerve conduction velocities.

**Materials & Method:** In the present study, 50 right handed and 50 left handed healthy medical students decide to be as volunteers. The subjects were selected by purposive sampling, age group ranging from 18 to 25 years. The median nerve conduction velocity was measured by using Clarity Medicare's OCTOPUS-2. Edinburgh Handedness Inventory was used to determine limb dominance, & brain dominance questionnaire by using Luciano Maviani, Cognition test was done using PGI memory scale.

**Results:** In our present study, there was found no any statistically significant difference(  $P < 0.05$ ) in the velocity between dominant hands and nondominant hands and cognition test. However some variations were noted in relation with the sensory nerve. The cognition score was found slightly higher in left handed participants.

**Conclusion:** We may conclude that limb dominance may partially affect nerve conduction velocity & cognition functions.

## O29

### **Contribution of preoptic area thermo transient receptor potential vanilloid type IV (TRPV4) channel in thermoregulation in rats**

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**Objective:** To study the effect of microinjection of transient receptor potential vanilloid (TRPV4) channel agonist, (GSK1016790A) in the preoptic area on brain and body temperature in awake rats

**Method:** The study was conducted in 4 male Wistar rats. Under thiopentone sodium anesthesia (40 mg/kg BW) a bilateral guide cannula (24G) with indwelling styli was implanted with their tips aimed at 2 mm



above the preoptic area (POA) as per De Groot's atlas. A radio transmitter TA10TAF-40 (Data Science International, USA) for the telemetric recording of body temperature (Tb) was implanted in the abdomen. A K-type thermocouple wire was inserted near the hypothalamus to measure the brain temperature (Tbr). Tbr was recorded at 15 second interval through a fluke digital thermometer. Tb was recorded telemetrically at 15 second interval. The temperature was measured from 10.00 to 16.00 h and injection was given at 12.00 h. Temperature data was averaged at 15 minute epochs. TRPV4 agonist, (GSK1016790A, (0.2µg/0.2µl)) injection was given bilaterally at the POA at a rate of 0.1 micro liter /minute using an injector cannula. The site of injection was confirmed histologically. The statistical comparison was made between pre and post injection record at every 15 minutes using paired t-test.

**Result:** The body temperature recorded in five rats range between  $37.04 \pm 0.2^{\circ}\text{C}$  to  $37.74 \pm 0.26^{\circ}\text{C}$  and brain temperature  $36.413 \pm 0.31^{\circ}\text{C}$  to  $36.87 \pm 0.21^{\circ}\text{C}$ . The injection of TRPV4 agonist, (GSK1016790A, (0.2µg/0.2µl)) into preoptic area produced a prompt fall in body and brain temperature. Tbr significantly decreased from  $36.83 \pm 0.12^{\circ}\text{C}$  to  $36.491 \pm 0.08^{\circ}\text{C}$ , 12:00 to 12:15h, ( $p < 0.005$ ),  $36.825 \pm 0.19^{\circ}\text{C}$  to  $36.465 \pm 0.13^{\circ}\text{C}$ , 12:15 to 12:30 h, ( $p < 0.005$ ),  $36.866 \pm 0.35^{\circ}\text{C}$  to  $36.31 \pm 0.23^{\circ}\text{C}$ , 12:30 to 12:45 h, ( $p < 0.05$ ),  $36.729 \pm 0.19^{\circ}\text{C}$  to  $36.203 \pm 0.31^{\circ}\text{C}$  12:45 to 13:00 h, ( $p < 0.005$ ),  $36.654 \pm 0.19^{\circ}\text{C}$  to  $36.128 \pm 0.39^{\circ}\text{C}$ , 13:00 to 13:15 h, ( $p < 0.05$ ),  $36.707 \pm 0.18^{\circ}\text{C}$  to  $36.126 \pm 0.51^{\circ}\text{C}$ , 13:15 to 13:30 h, ( $p < 0.05$ ) and Tb significantly decreased from  $37.587 \pm 0.44^{\circ}\text{C}$  to  $37.212 \pm 0.3^{\circ}\text{C}$ , 12:00 to 12:15 h, ( $P < 0.05$ ),  $37.442 \pm 0.4^{\circ}\text{C}$  to  $36.943 \pm 0.3^{\circ}\text{C}$ , 12:15 to 12:30 h, ( $P < 0.05$ ).

**Conclusion:** The TRPV4 channel agonist injection in the preoptic area (POA) brings about fall in body and brain temperature by stimulating warm sensitive neurons.

### O30

#### Chronic and repeated radiofrequency electromagnetic radiation exposure affects basolateral amygdala

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**Aims and objectives:** The effect of chronic and repeated radiofrequency electromagnetic radiation (RF-EMR) exposure on basolateral amygdala (BLA) morphology and impulsiveness were evaluated in rats.

**Method:** Male Wistar rats (6-8 weeks old) were used and the study was done in two stages. Stage-I; BLA morphology ( $n=18$ , 6/group), stage-II; novel arena test ( $n=36$ , 12/group). Groups: Control; remained in the home cage, Sham exposed; exposed to mobile phone in switch-off mode, and RF-EMR exposed; exposed to 900 MHz RF-EMR (1 hr/day, power density- $146.60 \mu\text{W}/\text{cm}^2$ ) from a mobile phone for 28 days. Stage-I; on 29<sup>th</sup> day animals were sacrificed, brain was dissected out and Golgi-Cox staining was done to study the dendritic arborization of BLA pyramidal neurons. Stage-II; on 29<sup>th</sup> day animals were tested in a novel arena. Data was analyzed using ANOVA, Tukey's tests. P-value  $< 0.05$  was considered statistically significant.

**Results:** In the RF-EMR group, no change was found in total number of dendritic processes but dendritic intersections were significantly reduced (at 40, 60 and 80  $\mu\text{m}$  zones). Total dendritic branching points and branching points at 20-40 and 40-60  $\mu\text{m}$  zones were reduced in RF-EMR group. RF-EMR exposed rats made more entries to bright arena and travelled more distance in the same arena. Total entries were also increased in RF-EMR group.

**Conclusion:** Chronic and repeated RF-EMR exposure, to an extent affects BLA dendritic arborization and induced impulsiveness-like behaviour in rats.

## 031

### Assessment Of Cardiovascular Risk In Natural And Surgical Menopause

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**Aims & Objective:** Menopause is associated with increased cardiovascular disease (CVD) risk. Arterial stiffness, a biomarker of vascular aging, increases the risk for CVD. The study was aimed to determine whether hysterectomy (surgical menopause) is associated with arterial stiffness in healthy postmenopausal women.

**Methods:** We conducted a cross-sectional prospective study amongst natural postmenopausal women (n=64; 58.2  $\pm$  3.1 year, Mean age  $\pm$  SD), women with Surgical menopause (n=31; 54.2  $\pm$  4.2 year, Mean age  $\pm$  SD) and Premenopause (n= 32; 37.09 $\pm$  5.8 year, Mean age  $\pm$  SD). Arterial stiffness and pulse wave velocity was measured by Periscopy <sup>TM</sup>.

**Results:** Carotid femoral pulse wave velocity (cfPWV) and Brachial Ankle Pulse wave velocity (baPWV) were significantly higher in surgical menopause and Natural Menopause compared to women with Premenopausal group (1104.4  $\pm$  234.6, 1775.8  $\pm$  604.12 and 1061.03  $\pm$  362.23, 1573.2  $\pm$  544.6 cm/second respectively versus 867.04  $\pm$  170.8, 1262.4  $\pm$  221.3cm/second P<0.005). cfPWV and baPWV were higher in surgical menopause group compared to natural menopause but it was not significant. After adjustment for age, menopause duration and blood pressure, surgical menopausal status remained a significant predictor of arterial stiffness.

**Conclusions:** These results indicate that surgical menopause is associated with greater arterial stiffening in estrogen-deficient postmenopausal women. Large artery stiffness may be an important mechanism by which hysterectomy increases the risk of cardiovascular risk in postmenopausal women.

**Keywords:** Arterial stiffness, Menopause, Periscope

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O32

**Effect of LBNP induced preload reduction on Valsalva maneuver**

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**Aims and Objectives:** It is known that low intensity Lower Body Negative Pressure (LBNP) selectively unloads the cardio-pulmonary baroreceptors. Preload reduction prior to Valsalva maneuver (VM) is likely to influence the cardiovascular response to it. We investigated the effect of preload reduction on Valsalva maneuver by using low intensity LBNP.

**Methods:** Eleven healthy male subjects (age  $23.4 \pm 6$  years) performed VM at 40 mm Hg for 15 seconds (VM40). VM was repeated at 20 mm Hg for 15 seconds starting at 16<sup>th</sup> second of a 30 second low intensity (-20 mm Hg) LBNP exposure. Continuous beat-to-beat blood pressure and Lead II ECG was recorded. Baroreflex sensitivity for both maneuvers (BRS-VM40 and BRS-LBNP+VM20 respectively) was derived using slope of regression curve between RR interval and Systolic BP.

**Results:** Valsalva ratio of both maneuvers were found to be similar ( $1.6 \pm 0.36$  and  $1.8 \pm 0.37$  respectively,  $p=0.2$ ). Also, BRS-VM40 ( $4.956 \pm 3.179$  ms/mmHg) and BRS-LBNP+VM20 ( $5.052 \pm 2.163$  ms/mmHg) ( $p=0.9$ ) were found to be similar. Cardiovascular response to VM was similar to preload reduction using LBNP.

**Conclusion:** Low effort Valsalva maneuver is potentiated by preload reduction using LBNP. Thus it is suggested that preload reduction may be further investigated to assess BRS in subjects who are unable to perform VM at standard effort.

O33

**An *in vitro* study of serotonin induced contraction in colon and rectum of neonate and adult rats**

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**Aims:** To understand the characteristics and to investigate the possible mechanisms involved in gut contractility in neonatal rats.

**Objective:** In neonate the contractile characteristics of gut are not clearly known. Thus, present study was undertaken to evaluate contractile responses of colon and rectum in neonatal albino rats produced by serotonin (5-Hydroxy tryptamine agonist). **Method:** Adult (6-8 months) and neonate rats (10-17 days) of Charles Foster strain were used. Isometric contractions were recorded from isolated longitudinal strips of rectal and colonic tissues using organ bath preparations.

**Results:** In both adult and neonates, serotonin ( $0.01-10\mu\text{M}$ ) produced significantly ( $p<0.05$ ) greater contractile responses (g/g wet tissue) in rectum as compared to colon. In adult rat colon serotonin did not produce significant contractile response (g/g wet tissue) as compared to control experiments ( $p>0.05$ ). The contractile response of serotonin ( $10\mu\text{M}$ ) in adult rat rectum was significantly ( $p<0.05$ ) blocked by ondansetron ( $10\mu\text{M}$ ) pretreatment but not in adult colon. However, the blocking effect of ondansetron was not observed in both colon and rectum of neonate.

**Conclusion:** Thus, present results indicate that neonate has different serotonin receptor subtypes as compared to adult rats because serotonin induced contractile response were not blocked by ondansetron. It may be due to under development of the gut.

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## O34

### Cell phone use and misuse in young adults

Sumangala M. Patil

**Aim:** students as one of the groups most affected by constant cell phone use. Our aim is to find out the possible adverse effects in young adults who use cell phones.

**Objective :** to assess the extent of mobile phone use in medical students and its adverse effects on memory, sleep.

**Method :** we selected 120 medical students who were using cell phone > 2hrs /day. Questionnaire was given to each student. Which consists of detail information about their cell phone use during class, mini lectures and in the night time. Students were asked to give up their phones and electronic media for 24 hours.

**Results :** our results showed that cell phone usage during studying and sleeping, correlates typically with those associated with adolescence, such as focus and retention, poor self-worth, and fatigue. 49% of students report having used a cell phone during designated class time, 67% who report having used a cell phone at night. When students had to give up their phones and electronic media for 24 hours. The results showed that one in five people experienced changes in their bodies or emotions that are signs of possible addiction.

**Conclusion :** Our analyses revealed that use of the mobile phone during lectures and normal sleeping hours may contribute to daytime sleepiness and cognitive and learning abilities of young adults is affected.

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## O35

### Sodium valproate ameliorates dendritic arborization of frontal cortical pyramidal neurones in pentylenetetrazole induced chronic epileptic rats

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**Introduction:** Epilepsy, a chronic neurological disorder characterized by seizures can often lead to cognitive disturbances. Frontal cortex plays a key role in cognition and chronic epilepsy result in loss of frontal cortical neuronal dendritic arborization.

**Aims and Objectives:** To study dendritic arborization of layer three pyramidal neurons, using Sholl analysis in normal control, chronic epileptic and sodium valproate treated rats.

**Methodology:** Adult male Wistar rats (n=30) were randomly divided into three groups i.e. Group I: vehicle-

control, Group II: positive control (1% carboxymethyl cellulose) and Group III: standard drug treated (sodium valproate 200mg/kg body weight). To induce kindling pentylenetetrazole (35mg/ kg) was administered intraperitoneally, every 48 hours for 30 days. At the end of the experimental period, animals were sacrificed and brains were processed for Golgi-Cox staining. Frontal cortical pyramidal neurons were imaged using Motic Images Plus 2.0 and converted into stacks of images and stitched. The Simple Neurite Tracer plugin for the NIH ImageJ software suite was used for tracing and Sholl analysis of the neurons.

**Results and Conclusion:** Our result shows a decrease of dendritic arborization of frontal cortical pyramidal neurons in chronic epileptic rats, as compared to normal. A significant increase of dendritic arborization in sodium valproate treated rats, compared to chronic epileptic rats. Sodium valproate could be helpful in to minimize the cognitive loss in chronic epilepsy.

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### O36

#### The Study Of Influence Of Some Maternal Parameters On Neonatal Maturity

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Conception & motherhood are the most precious & unique **experience** for women in lifetime. Preterms have greater risk of developing respiratory distress, intracranial haemorrhage, sepsis, retrolental fibroplasia & other conditions related to physiological immaturity. Neonatal maturity in turn affected by multiple maternal factors.

**AIIMS & OBJECTIVE:** To study the effects of Maternal age, Parity & Socioeconomic status on short term foetal outcome in form of Neonatal maturity.

**METHOD:** The study was done in collaboration with **Obstetric** wing of **LLRM Medical College** & associated **SVBP Hospital Meerut**. The Patients that attended antenatal clinic & booked cases delivered in Obstetric deptt retrospectively were included in study. (100 singleton pregnancy)

Patients suffering from chronic diseases as malnutrition, maternal infections, cardiopulmonary & renal dysfunction hypertensive disorders, multiple pregnancy & diabetes were excluded in the study.

**All the observations in study were evaluated statistically by Chi-Square test.**

**RESULT & CONCLUSION :** Out of 100 cases, 13 were preterm (Premature) & 87% were matures (AGAs) The critical maternal age is 17-20 years & >36 years for prematurity. Primiparae had higher incidence of prematurity 18.60% as compared to other parity group.

Hundred % matures & AGAs are seen in Socioeconomic class 1 & then progressively increasing trend seen with maximum permeability of 15.56% in class 5.

### O37

#### Effects of tobacco smoking on immunity

Arpana Bhide, Abhijit Chaudhury

**Aim:** To find out the effect of tobacco smoking on the innate immune mechanism of the body.

**Objectives:** To determine the total leucocyte count(TLC), differential count of neutrophils and phagocytic index of neutrophils in healthy adult male smokers of 30-50 years of age.

To compare the above values with that of non smokers.

**Materials and methods:** The study was carried out in 60 adult men in the age group of 30-50 years of which 30 served as controls and other 30 were chronic smokers. After screening for inclusion and exclusion criteria, 5 ml of venous blood was collected and taken immediately for evaluation. TLC and differential leucocyte count(neutrophils) were done using the standard procedures which are well established . Phagocytic index which is the number of neutrophils positive for ingested microbes per 100 neutrophils was also calculated. This is an index of neutrophil functioning.

**Results:** Statistically significant decrease in phagocytic index was found in smokers when compared to non smokers. An increase in TLC and neutrophil percentage was found in smokers which was not statistically significant.

**Conclusion:** Tobacco smoking adversely affects capacity of neutrophils to ingest microbes and so has suppressive effect on innate immune mechanism.

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## O38

### Comparative Study Of The Effect Of *Moringa Oleifera*, *Vitex Negundo* And Donepezil On Memory

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**AIM:** The present study was sought to explore the beneficial effects of *Moringa oleifera*, *Vitex negundo* and donepezil on memory.

#### OBJECTIVES:

1. To evaluate the effect of *Moringa oleifera* and *vitex negundo* on memory.
2. To compare the efficacy of *Moringa oleifera*, *Vitex negundo* with donepezil.

**METHOD:** A total of 24 adult male *Wistar albino* rats weighing  $180 \pm 20$  g were screened and grouped into control, test 1, test 2 and test 3. The test group rats were administered with aqueous extracts of *Moringa oleifera* (2500 mg/kg body weight), *Vitex negundo* (1000 mg/kg body weight) and donepezil (3 mg/kg body weight) per day orally for 15 days. These rats were then subjected to T-maze test and the performance of the test were recorded and compared within the groups. The results were statistically analyzed using one way ANOVA.

**RESULTS AND CONCLUSIONS:** The results of the study revealed that *Moringa oleifera* had a significant role in increasing memory. In conclusion, extracts of *Moringa oleifera* and *Vitex negundo* have significantly increased memory in the test groups when compared to the control group. On comparing the test groups, test 3 (donepezil treated) gave a better result than the test 1 (*Moringa* treated) within a short period of time.

**KEY WORDS:** *Moringa oleifera*, *Vitex negundo*, Donepezil, Memory and T-maze.

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**O39**

**Asthma exacerbations and its relation to meteorological parameters and air pollutants in Bangalore – A retrospective ecological time-series study**

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**Short running title:** Ambient air quality on asthma

**Abstract**

Existing literature have shown a significant association between the occurrences of asthma exacerbations with the pollutant levels in the city during that time, from studies conducted abroad. There is very limited evidence in India, especially Bangalore, for impacts of meteorological changes and pollution on asthma hospital admissions in adults. This study quantitatively analyzed the relation between acute exacerbations of asthma and related admissions to the hospital with the air pollution and the meteorological conditions during that time. Data regarding the daily hospital admissions in about 13 tertiary care centers in Bangalore, Karnataka and air pollutant levels and the meteorological conditions prevailing during each day over a year were collected from the Karnataka State pollution control board and meteorology departments respectively. An average daily asthma admissions of  $4.84 \pm 2.91$ , with clear seasonal variation was observed. Autocorrelations between meteorological parameters and pollutants was present. Multiple linear regression analysis revealed that average temperature ( $p=0.005$ ) and nitrogen dioxide ( $\text{NO}_2$ ) ( $p=0.034$ ) were the two factors that were affecting the number of admissions. After Quasipoisson regression analysis using multi-pollutants and meteorological variables it was seen that particulate matter and  $\text{NO}_2$  had significant lag effect for up to five days ( $p<0.05$ ) and rainfall for 1 day ( $p<0.001$ ). Through this study we have found that it is the temperature, rainfall, the season and the levels of  $\text{NO}_2$  and particulate matter increase asthma exacerbations in Bangalore.

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**O40**

**Study Ofautonomic Functions On Different Ethnic Groups Of Assam**

Arpana Hazarika

Introduction-cardiovascular autonomic function is different in different ethnic groups which may be attributed to racial,climate factor and dietary habits

## Free Paper Presentation

**AIMS AND OBJECTIVES**-To establish relation of autonomic function on cardiovascular activity of different ethnic groups

**MATERIALS AND METHODS** : The study was done on 200 cases among medical students and staff of Jorhat Medical College. Apparatus-sphygmomanometer, stethoscope, cardiograph, handgrip dynamometer

**FOR PARASYMPATHETIC FUNCTION**

1-Deep breath test

2-Valsalva test

**FOR SYMPATHETIC FUNCTION**

1-Standing test for orthostatic hypotension

2-Hand grip test

**Conclusion**-A significant decrease in Valsalva ratio was found in Ahoms and people of Plains tribe with  $P < 0.05$ . Parasympathetic activity was decreased in these communities and sympathetic activity increased leading to cardiovascular activities and death

**Address-**

Arpana Hazarika, Associate Professor Jorhat Medical College, Jorhat, Assam

## O41

### Evaluation Of Anti Cancer Effects Of Dpp Iv Inhibitors - An Invitro Study

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**Presenting Author's Name:** Dr.Amritha C A

**BACKGROUND OF THE STUDY** : DPP IV inhibitors like *Sitagliptin* , *Vildagliptin* have shown Anti-oxidant properties in many studies , both In vivo and In vitro. It has also been characterized as an apoptotic agent on Pancreatic cells. In this study , the Anticancer effects of DPP IV inhibitors on colon cell lines using MTT assay—(3-4,5-dimethyl(thiazol-2-yl)-3,5-dimethyl tetrazolium bromide) assay was elucidated.

**AIM** : To elucidate and compare the Anticancer potential of two DPP 4 inhibitors using In vitro MTT assay on colorectal cell lines (HT-29 ) .

**METHODS** : We treated *HT-29* cell lines with two DPP IV inhibitors. *HT-29* Cells were incubated at 37°C and drug samples were added in various concentrations and incubated for 24 hours. MTT dye was added and incubated for 4 hours. 1 ml of DMSO was added. Absorbance at 570nm was measured with UV-Spectrophotometer using DMSO as the blank. IC<sub>50</sub> (half maximal inhibitory concentration) was determined graphically according to % of cell viability and concentration of sample.

**RESULTS** : We found both the drugs have shown anticancer activity starting from low to high concentrations when compared with the control using MTT assay. The IC<sub>50</sub> value of Sitagliptin was 31.2 mcg/ml and Vildagliptin was 125 mcg/ml.

**CONCLUSION** : From this study, we found that the drugs have significant Anti-Cancer property , which would probably play a role as cytotoxic agent in tumour cells. Sitagliptin was found more potent than vildagliptin in tumour cell lines.



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**O42**

**Comparison of body mass index in relation to their place of residence among elderly population in Mangalore.**

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**AIM & OBJECTIVES:** To compare the association of body mass index among the elderly population living in old age homes and those living along with their family members in Mangalore.

**METHODS:** 160 elderly individuals above 60 years of age were selected at random from old age homes and families (80 in each group) in Mangalore. Body mass index was calculated. Based on the BMI, the individuals were grouped into underweight, normal, overweight and obese category.

**RESULTS:** The percentage of underweight was significantly ( $p < 0.01$ ) higher among the elderly population living in the old age homes when compared to their counterparts staying with the families. Further, the percentage of overweight was found to be significantly ( $p < 0.01$ ) higher in elderly living with their family.

**CONCLUSION:** Awareness has to be created among the elder people as well as their families on the importance of moderate physical exercise and weight reduction to prevent obesity and its associated diseases. National nutrition plans for older adults living in long-term care institutions should be considered as an important necessity.

**Keywords:** BMI, elderly, family, old-age homes.

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**O43**

**Effect of listening to Indian Classical Instrumental Music on Autonomic Functions and Serum Cortisol levels in young healthy medical students.**

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**Objective:** Indian Classical Music is well known for its relaxing and anxiolytic effect. The present study was conducted to evaluate scientifically the effect of listening to Indian Classical Instrumental Music on Autonomic Functions and Serum Cortisol in medical students who are continuously exposed to academic stress.

**Method:** A total of 60 female medical students in the age group 18-23 years were selected and divided randomly into music (n=30) and non music (n=30) group. Music group was allowed to listen to a pre-

recorded Indian Classical Instrumental Music for 20 minutes, 5 days a week. Control group was not exposed to listening to the music. Their autonomic functions were assessed by parasympathetic reactivity tests (heart rate response to valsalva manoeuvre, and E:I ratio) and sympathetic reactivity tests (blood pressure changes due to sustained hand grip and cold pressor test) at 0, 6, 12 & 24 weeks of the study. Their serum cortisol level was estimated at 0 & 6 weeks of the study. The intergroup comparison was done by unpaired t test and intragroup comparison was done by repetitive measure ANOVA.

**Results:** On comparison between the two groups, music group showed significant improvement in parasympathetic reactivity as depicted by increase in valsalva and E:I ratio; and reduction in sympathetic reactivity due to handgrip and cold pressor test. A significant fall in serum cortisol was also observed at six weeks of the study period ( $p < 0.001$ ) in music group.

**Conclusion:** The result obtained demonstrates beneficial effect of listening to pre-recorded Indian classical instrumental music on autonomic functions and serum cortisol levels. Thus it can be used as a cost effective and easily available tool in the management of stress and anxieties of professional courses.

## O44

### Peripheral Blood Leukocyte Counts As A Determinant Of Level Of Pulmonary Function In Obstructive Airway Disease Patients Attending Rims, Manipur.

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#### **Abstract:**

**Objective:** Systemic inflammation is associated with impaired lung function and inflammation is a part of Obstructive Airway Disease (OAD). COPD and bronchial asthma are the two most common OAD. Keeping this in view, the study was undertaken to determine the relationship between peripheral blood leukocyte counts and the level of pulmonary function in OAD patients.

**Method:** A cross-sectional study enrolling 40 COPD & 25 asthmatic patients of both sexes. Lung function was studied by computerized spirometer (Helios 402). Blood leukocyte counts (absolute neutrophil count, absolute eosinophil count, absolute basophil count, absolute lymphocyte count and absolute monocyte count) of all the patients were determined.

**Results:** Mean  $FEV_1$  in COPD group was  $1.11 \pm 0.89$  and mean  $FEV_1$  in asthma group was  $1.74 \pm 0.87$ . Majority of COPD patients were smoker (45%) whereas non-smoker (48%) for asthma patients. With the decline in the lung function i.e. increase in the severity of airway obstruction, a significant fall in  $FEV_1$  was seen in both the groups. Significant inverse correlations were seen between the neutrophil count and  $FEV_1$  in COPD group and between the eosinophil count and  $FEV_1$  in asthma group.

**Conclusion:** Peripheral blood leukocyte counts can be considered as an important and indirect determinant of level of pulmonary function in OAD patients.

**Key words:** OAD, COPD, asthma, leukocyte counts, Spirometer,  $FEV_1$

**O45****To study the effect of obesity on Heart rate variability in young adults.**

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Dr. Sachin Mulkutkar, Associate Professor

Dr. Surendra S. Shivalkar, Associate Professor

Dr.(Mrs.) Surekha D Kaundinya, Professor and Head

**COLLEGE:** Department of Physiology, Grant Government Medical College, Mumbai

**INTRODUCTION:** Heart rate variability is cardiac beat to beat variation that occurs mainly due to variation in cardiac activity during respiratory cycle at rest. Various studies have shown that obesity is a major predictive factor in development of cardiovagal imbalance. This study was undertaken to determine the relation between obesity and cardiac autonomic functions in young adults by using HRV.

**MATERIALS AND METHODS:** This study consisted of 60 male subjects, 18-40 years which were divided into 2 groups. The control group consisted of subjects whose BMI was between 18-22.9 kg/m<sup>2</sup> and obese group with BMI >30 kg/m<sup>2</sup>. Basal Blood pressure and 12 lead ECG was recorded. HRV was done with MEDICAID STUDENTS PHYSIOPAC and analysed with KUBOIS software VERSION 2.1. Data was analysed using statistical software STATA 11.2 using paired 't' test. Significance of p value was taken as 0.05.

**RESULT:** There was a significant ( $p < 0.05$ ) decrease in parasympathetic and significant ( $p < 0.05$ ) increase in sympathetic activity in obese adults.

**CONCLUSION:** Our study showed that the sympathovagal balance has shifted towards sympathetic predominance in obese adults as compared to adults with normal BMI.

**KEYWORDS:** Heart rate variability, obesity

**O46****Bmi Versus Cardiovascular Changes At Rest And On Exercise In Young And Middle-old Age Groups**

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**Method:** 120 individuals in the age range 14 to 75 years of age were taken for this study .They included 78 males 43 females .we grouped these individuals into two groups based on their age, as young and middle-old .these two groups were subdivided into underweight, normal, overweight, obese based on their BMI. Also the middle-old age group was by itself divided into hypertensive and non-hypertensive, diabetic and non-diabetic to know the influence of these factors on the different variables during exercise. The individuals were asked to undergo the stress test on a treadmill according to Bruce protocol. The test was terminated on achieving the max predicted heart rate or on complaints of fatigue, leg discomfort or chest pain. The max time each individual could exercise on treadmill was also recorded .heart rate, BP, RPP, METs was recorded at rest, at the end of exercise, and during recovery. Along with this a baseline ECG was taken during rest and during exercise. Percentage of max predicted heart rate was calculated.

**Outcome:** it was found that on doing stress test HR was increased in all groups. But the increase was significantly more in young individuals especially in underweight and normal groups. Both systolic and

diastolic B.P. was also increased in all groups, but the increase was more in middle old group and subjects with higher BMI. METs increased on doing stress test in all groups, but increase was more in younger age groups and lower BMI groups. RPP was increased on doing stress test; the increase was more in younger group and lower BMI.

## O47

### A Comparative Study Of Thyroid Dysfunction Found In Type-ii Diabetes Mellitus Patients

**Aims and Objectives-** To study the pattern of thyroid dysfunction in patients with type 2 Diabetes mellitus.

**Methods-** It was a cross sectional study done on type 2 diabetes mellitus patients. 50 cases and 50 controls were included in the study. Diabetic patients on medication that alter thyroid functioning, patients with previously known thyroid dysfunction & pregnant women were excluded from the study. Detailed history was taken, physical examination and required investigations were conducted on patients who satisfied inclusion & exclusion criteria. Investigations done were RBS, TSH, FT<sub>3</sub> and FT<sub>4</sub>. Differences between various parameters were considered statistically significant when the p value was <0.05.

**Results-** The mean age of the study group was 57.64(+/-11.63) years having equal number of males and females. The prevalence of thyroid dysfunction in this study was 14% in which 20% of females had thyroid dysfunction while only 8% of males had thyroid dysfunction.

**Conclusions:** Our study shows that the prevalence of thyroid dysfunction is high in type 2 DM patients especially in females. Our study emphasizes the need to check TSH levels periodically in all type 2 DM patients.

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## O48

### Study Of Thyroid Hormone Levels In Patients With Chronic Renal Failure

Dr. Dipti Mohapatra\*, Dr. Arati Mohanty, Dr. Manasi Behera, Dr. Nibedita Priyadarsini

**Aim and objective:** The present study was conducted to estimate the thyroid hormone levels i.e. T<sub>3</sub>, T<sub>4</sub> & TSH and to study thyroid dysfunction in patients with chronic renal failure (CRF).

**Material and method:** 30 male patients aged between 40-70 years with serum creatinine >5.5mg/dl and serum urea >55mg /dl and dipstick test positive for protein with symptoms of chronic renal failure were taken in the study. Serum level of T<sub>3</sub>, T<sub>4</sub>, TSH were analyzed by using CLIA method and the data obtained from these patients were compared with data from normal individual of same group using students t test.

**Result:** It was found that the mean T<sub>3</sub> and T<sub>4</sub> decreased significantly and the TSH increased significantly in the cases compared to controls and there were 10% cases (CRF patients) with hypothyroidism compared 0% in controls. There was no hyperthyroidism both in cases and control

**Conclusion:** The patients with CRF had a significant change in their thyroid hormone level indicating thyroid dysfunction in them. The thyroid hormone level in these patients were found to be low suggesting the existence of hypothyroidism in these patient.

**Key words:** thyroid dysfunction, chronic renal failure, TSH, hypothyroidism

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## O49

### **Oxidative Stress In Undialyzed Chronic Renal Failure Patients**

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**AIM:** Incidence of chronic renal disease (CKD) is on rise in general population. Renal damage is progressive in nature unless it is retarded. Among adverse prognostic events the role of oxidative stress was studied with inconsistent and conflicting results. The present study is aimed to detect any evidence of increased oxidative stress, its possible association, with severity of the condition.

**OBJECTIVE:** Evaluation of oxidant and antioxidant level in undialyzed CKD patients of both sexes along with serum creatinine level.

**MATERIALS & METHODS:** Serum level of malonaldehyde (MDA) and activities of Superoxide dismutase (SOD) and catalase were evaluated in 80 volunteers including 40 undialyzed CKD patients.

**RESULTS:** When compared with healthy volunteers, CKD patients showed increased oxidative stress, evident by increased level of serum MDA and SOD activity and decreased catalase activity.

**CONCLUSION:** The present study confirms the presence of increased oxidative stress in CKD patients and greater trend with its degree of rise in serum creatinine levels. Decrease in catalase levels point to some compromise in antioxidant mechanism as well. It is hoped that bringing down the oxidative stress by suitable means may open therapeutic option to slow down the progression of the disease.

## O50

### **Evaluation Of Antifungal Activity Of Ethanolic Extract Of '*Andrographis Echioides*' – An *Invitro* Study**

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**Background and Objectives:** *Andrographis echioides* is a medicinal plant included in Indian material medica as a remedy for fevers, skin infections. This study is conducted to find out the antifungal activity of the ethanolic extract of the whole plant "*Andrographis echioides*" using standard disc diffusion method.

**Methods:** Pulverized whole plant of *A.echioides* was subjected to soxhlet extraction using organic solvent of ethanol. The antifungal activity of *A.echioides* extract was done using standard agar disc diffusion

method using Sabouraud Dextrose agar (SDA) medium against five strains of fungi. Amphotericin B is the standard positive control and Negative control was DMSO. 20µl of varying concentrations (1000 µg, 750µg, 500 µg) of the extract sample were tested. The antifungal effect was determined by measuring the diameter of the zone of inhibition.

**Results:** The ethanolic whole plant extract showed the maximal antifungal activity against *candida albicans*, *Aspergillus flavors*, *Penicillium spp.*, *Aspergillus niger*, *Trichophyton* in 1000µg concentration of the sample showing the zone of inhibition of 6,7, 9, 6, 7 mm respectively.

**Conclusion:** The ethanolic extract of *Andrographis echinoides* has shown to have good antifungal activity against in high concentration (1000 µg). In comparison to the positive control drug the antifungal activity of this plant extract is equal. This extract has also good antifungal effects in 500 µg concentration.

## O51

### Association of Blood Group with Obesity

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**Introduction:** The frequency of ABO phenotypes in different populations has been extensively studied. Different blood groups have been shown to be particularly associated with various diseases.

**Aim of the study:** The purpose of this study is to establish whether ABO blood group is related to obesity in an individual in young adult population of eastern part of India.

**Materials and Methods:** After Permission from Institutional Ethical Clearance one hundred seventy four (174) obese and three hundred twelve (312) age matched healthy subjects were enrolled in the study. Blood group was estimated by slide agglutination method ABO blood group distribution in patients was compared with control group.

**Result:** The distribution of ABO blood groups in obese versus healthy control group was A in 20.11 versus 22.76%, B in 33.33 versus 35.26%, O in 36.21 versus 37.18%, and AB in 10.34 versus 5.13%. The analysis showed significant difference in frequency of AB (OR=2.13, 95%CI=1.06 – 4.3) blood group between healthy controls and obese individuals.

**Conclusion:** Our results suggest that odds of obesity are significantly higher for people with AB blood group compared to people with other blood groups (at 0.05 significance level). Further genetic studies with larger sample size are required to establish our results.

**Keywords:** ABO blood group, Obesity

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## O52

### Assessment of Sympatho-Vagal Modulation during Conscious Paced Breathing

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**Background:** The oscillations in heart rate are expressed as heart rate variability (HRV). HRV analysis is widely employed method to assess cardiac autonomic activity. Respiration is the most consistent modulator of the HRV.

**Objective:** The objective of the study was to observe sympatho-vagal modulation during the conscious paced breathing at rate which is similar to the spontaneous breathing rate of an individual.

**Methodology:** Thirty one healthy volunteers (age  $32 \pm 3.7$  years) participated in the study. Standard lead II electrocardiogram (ECG) and respiratory movements were recorded at rest in sitting position and during the Conscious Paced Breathing (CPB) for 5 minutes each. After the baseline recording, subjects' Spontaneous Breathing (SB) rate was calculated, and then they were instructed to do paced breathing at their spontaneous respiratory rate using Human voice based instruction system. During the CPB, inspiration and expiration duration was kept at a ratio of 1:1. HRV analysis was done for assessment of sympatho-vagal modulation.

**Results:** The frequency domain analysis in HRV showed the significant reduction ( $P=0.026$ ) in normalized value of low frequency component of HRV during CPB (mean = 41.29 n.u.) as compared to SB (mean = 50.41 n.u.). Significant augmentation ( $P=0.021$ ) in normalized value of high frequency component of HRV during CPB (mean = 53.93 n.u.) versus SB (mean = 42.83 n.u.). As expected with this observation the LF/HF ratio also showed significant reduction ( $P=0.041$ ) during CPB (mean = 1.13) as compared to SB (mean = 1.81). The total power did not show significant change.

**Conclusion:** In conclusion, conscious paced breathing decreases sympatho-vagal balance at same frequency of spontaneous breathing. Further research is required to investigate the cause of modulation of sympatho-vagal balance.

## O53

### Effect of Preksha Meditation on Brain waves of adults

P. S. Shekhawat and Y. S. Khangarot

**Introduction:** Since last many years, researches have been conducted to analyze the effect of meditation on changes in human physiology. The fact that different conscious states are accompanied by several neuro-physiological states and the electrical activities in the brain measured would reflect those changes explains the use of EEG for such studies. Spatio-temporal patterns of EEG activities could be traced to analyze the relation between meditation and its underlying neurophysiological changes.

**Methodology:** Ten normal healthy male volunteers, in the age group of 20-30 years, were recruited for the present study. They were non smokers and were not on any medical treatment prior to this study. On the day of test, the subjects reported at our laboratory in the morning after overnight fast. Total 21 electrodes were placed to the scalp of subject. The recording of EEG was started after 5 minutes of electrode attachment. Post test was done after one month practice of Preksha Meditation. Intra-group comparison was made with the aim to evaluate the net effect of practice module by using Sadler's 'A' test.  $p < 0.05$  was taken as significant difference.

**Results:** A statistically significant Increase in alpha waves in frontal and occipital region was found where as significant decrease in Beta waves was recorded after one month intervention period. When the values of alpha waves in both regions of brain (i.e. right and left) compared synchronization was found in the emission of alpha waves. Both the hemisphere of the brain show almost same quantity of waves.

**Conclusion:** A considerable increase in alpha activity in most regions of the brain, indicate that the brain becomes focused following Preksha Meditation, thus reflecting higher level of mental consciousness. The

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reduction in the beta activity signifies lesser anxiety. Above all, the characteristic changes observed in this experiment established that all subjects showed a specific state effect of meditative practice.

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## O54

### Teratogenic Effects Of Ondansetron: A Study On Developing Chick Embryo

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#### Teratogenic Effects of Ondansetron: A study on developing chick embryo

**Objective:** To observe the effect of ondansetron (anti emetic drug) on chick embryos with reference to their growth, developmental defects.

**Methods:** An experimental study was performed to assess any abnormal growth pattern if any by ondansetron. For this two batches of 100 fertilised eggs were utilised. One batch of 50 was used as control group and other as experimental group. Ondansetron was injected on day 2 of incubation.

Chicken eggs were dissected out on day 19 of incubation and were carefully observed for any congenital abnormalities. The embryo thus dissected out were subjected to measurement of CR length, change in weight of egg, volume of embryos were compared in two groups. The embryos were also examined for any congenital anomalies.

**Results:** No major malformations were seen. Decrease in weight and Crown Rump lengths was lower in experimental group compare to their control counterparts. Values for volume of embryo were almost same in two groups.

**Conclusion:** Ondansetron in our study came out to be safer drug but even though irrational use should be avoided. More quantity of drug may have adverse effect.

## O55

### Cardiac Autonomic Modulation In Cancer Patients As Assessed By Time Domain Measures Of Heart Rate Variability

**Shilpa N. Bijoor**<sup>1</sup>, Subbalakshmi NK<sup>1</sup>, Sourjya Banerjee<sup>2</sup>

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**Aim & Objective:** To find out the cardiac autonomic control in cancer patients compared to healthy subjects employing SDNN and E: I ratio. **Method:** 48 cancer patients and 48 healthy subjects (control) were studied. In them E: I ratio, SDNN, Heart rate (HR), Body mass index (BMI), Blood pressure were measured. E: I ratio, SDNN and HR was measured from one minute lead II electrocardiogram in supine position. Data was



analyzed by Mann-Whitney test and unpaired t test. p value less than 0.05 was considered significant. **Results:** E: I ratio and HR was lower in cancer patients compared to control (p = 0.0001, 0.0003 respectively). SDNN did not differ significantly between cancer patients and control (p=0.059). BMI, age, blood pressure did not differ significantly between cancer patients and control. **Conclusion:** As E:I ratio is a measure of fluctuation in parasympathetic activity and resting HR is mainly under vagal tone, it could be concluded that in cancer patients cardiovascular parasympathetic control is impaired compared to healthy subjects.

**Keywords:** E: I ratio, SDNN, heart rate, vagal activity, cancer.

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## O56

### Comparative Analysis Of The Effect Of Cigarette Smoking On Lung Function Prior To Onset Of Clinical Respiratory Symptoms.

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**AIMS AND OBJECTIVES :**

1. To compare the different variables like FEV1, FVC and FEV1/FVC ratio among asymptomatic smokers and non-smokers coming for pre-operative routine spirometry.
2. To find out any deterioration of lung function among the smokers prior to onset of respiratory symptoms.

**METHODS:** Male patients aged between 20-50 years without any respiratory symptoms, coming for pre-operative routine spirometry are included in this study after obtaining proper informed written consent. Only males are included in this study because of low prevalence of smoking among women. Depending upon the smoking habits, they are divided into two groups :- smokers (n=20) and non-smokers (n=20). Subjects who have smoked more than 100 cigarettes and currently smoke cigarettes are classified as smokers and those individuals who have never smoked are classified as non-smokers. Exclusion criteriae are: cardiovascular disorders, recent breathlessness or chest pain, neuromuscular diseases, patients awaiting cardiovascular or thoracic surgery, unable to follow verbal instructions. This is an observational, cross-sectional study. The data is compared between smoker and non-smoker groups using independent t-test.

**RESULT :** Absolute value of FVC, FEV1 and percent predicted value FVC and FEV1 showed statistically significant difference between smokers and non-smokers with a p value of 0.004, 0.003, 0.001 and 0.004 respectively.

**CONCLUSION :** There is significant deterioration of both absolute and percent predicted values of FEV1 and FVC among smokers prior to onset of clinical respiratory symptoms in comparison to non-smokers.

**O57**

### **Brainstem auditory evoked potentials (BAEPs) in hypothyroidism**

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**Aims and Objectives:** To study and compare brainstem auditory evoked potentials (BAEPs) in hypothyroid women and, age and sex matched controls.

**Method:** Total 60 women of age group 30-50 years were divided into 30 controls with normal thyroid profile and 30 cases who were newly diagnosed hypothyroid women attending medicine OPD of the institution. Thyroid profile (total T3, total T4 and TSH) was done by ELISA method. The tuning fork tests were done with 512Hz tuning fork and women with positive Rinne's test and negative Weber's test were included in the study. The BAEPs were recorded in both the ears by RMS BERA -32 Supersec (Recorders and Medicare System) Private Limited.

**Results:** In hypothyroid group, results revealed prolonged absolute latency of wave I, III ( $p < 0.05$ ) and V ( $p < 0.05$ ) and increase in inter peak latency I-III, I-V and III-V; and a significant decrease in amplitude ( $p < 0.05$ ) of wave I and V in both the ears as compared to control group.

**Conclusions:** The results of present study suggest a causal relationship between hypothyroidism and hearing loss. The site of lesion in auditory system is in retrocochlear sites, probably in superior olivary nucleus, lateral lemniscus or inferior colliculi.

**Key words:** BAEP, hypothyroidism

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**O58**

### **Assessment of Sympatho-vagal Modulation During Pranayama: To Investigate Underlying Cardio-vascular Mechanisms**

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**Aims & Objective:** The breathing exercises are known to modulate cardiac sympatho-vagal oscillations. We investigated sympatho-vagal modulation during slow breathing pranayama to decipher underlying cardiovascular mechanism.

**Methods:** Twelve healthy volunteers (age  $30 \pm 3.8$  years) participated in the study. Electrocardiogram was recorded for 5 minute each: before, during and after pranayama. Heart rate variability analysis was used for assessment of sympatho-vagal modulation. Alternate nostril breathing was performed at the constant breathing frequency of five breaths per minute and fixed respiratory pauses (inspiration: pause: expiration: pause in 4:2:4:2 ratio).

**Results:** High frequency (HF) component of frequency domain decreased significantly whereas low frequency (LF) and LF/HF ratio significantly increased during pranayama. Analysis of dominant peak in power spectrum showed that before pranayama (resting condition) the power of LF was distributed in the range of 0.04 -0.15Hz. However, during pranayama LF was found to peak at 0.08 Hz similar to respiration frequency. Mean

LF and total power during pranayama increased significantly from 710 to 5562 ms<sup>2</sup> (p= 0.0001) and 2122.8 to 7197.8 ms<sup>2</sup> (p=0.001) respectively. Also SDNN, the time domain parameter, increased significantly.

**Conclusion:** Slow frequency respiratory maneuver induces significant oscillations in sympathetic frequency range. It may be mediated through ANS or direct mechanical coupling. Further studies are required to validate findings.

The authors acknowledge support from CCRYN, Department of AYUSH, MoHFW.

## O59

### EEG as a tool for Emotion recognition: A Study

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**Introduction:** - EEG is long used tool to detect electrical activity of brain and to diagnose various epileptic disorders. Now emphasis is on detecting various emotional states with the help of EEG.

**Objectives:** - To detect different emotions based on EEG waveform changes occurring during different type of emotions.

**Methodology:** - This study was conducted on thirty healthy volunteers from faculty, senior resident and support staff of AIIMS Patna. Few intense emotion audio-visual clips of one to five minute duration were selected from Indian movies. They were classified into four groups Happy, Sad, Anger and Fear based on reviews from 100 people. A baseline EEG was taken with the help of RMS 32 lead EEG machine using International 10-20 system of electrode placement. An audio-visual clip of particular emotion was shown to them with continuous EEG recording. Whole procedure was repeated with another set of emotional clip. The raw EEG signals are pre-processed and decomposed into four different frequency bands (alpha, beta and gamma and delta) and analysed for classification.

**Results:** - We were able to differentiate between four different emotions with an accuracy that ranges from 40-50% using 32 electrodes and we reached an average classification accuracy of 43% for happy emotion, 48% for anger, 43% for fear and 47% for sadness.

**Conclusion:** - EEG if used with other techniques like HRV can be used to classify emotions much more accurately.

## O60

### Hand Grip Strength, Endurance Time, Heart Rate And Blood Pressure Changes In Smokers.

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**Aim:** To assess the autonomic function test in smokers.

**Objectives:** To assess the autonomic function test in smokers and compare them with nonsmokers.

**Methods:** We measured the BMI, hand grip strength, endurance time and blood pressure and assessed their relationship to smoking in light and heavy smokers and compared them with nonsmokers. Statistical analysis of our findings using students T- test and ANOVA were done.

**Results:** In light smokers endurance time increased significantly. BMI was significant amongst the groups.

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The systolic blood pressure change, handgrip strength and endurance time between smokers and non-smokers, on comparison were found to be significant.

**Conclusion:** Smoking leads to altered sympathetic activity leading to increased heart rate and Blood pressure at rest, during exercise and after exercise. The effects on health will help recommend cessation of smoking.

Keywords: Smoking: nicotine: autonomic function: blood pressure: ageing.

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# **POSTER PRESENTATION**

## P001

### **Study of relationship of BMI with prehypertension among the Medical students of Agartala Government Medical College.**

**Arpita Mohanty, Aghore Debbarma\***

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**Aims and objective:** To assess the prevalence of prehypertension and its possible relationship between BMI, among the Medical students of Agartala Government Medical College.

**Introduction and background:** Subjects with systolic BP between 120 and 139 mm Hg or diastolic BP between 80 and 89 mm Hg are considered to have prehypertension. Prehypertension has recently been observed as a potent cardiovascular risk factor. Though prehypertension has a strong familial predisposition, the pathophysiological mechanisms that cause its progression have not yet been fully elucidated. The prevalence of prehypertension among adults in the United States was approximately 31%, while it is ranging from 22.4 to 35.5% in different cities of India. BMI (body mass index) were found to be positively related to the increased prevalence rate of elevated blood pressure among younger individuals, aged 18-44 years.

**Methodology:** A cross sectional study was taken up recruiting 200 healthy medical students of both sexes of Agartala Government Medical College. Predesigned and pretested proforma was used for data collection. Each student recruited was taken through the procedure in a complete manner, such as age, standing heights, weight, BMI [formula = weight (kg)/ {height(m)}<sup>2</sup>]. BMI of participant were referred to WHO classification. Blood pressure was measured in the extended right arms, with the subject in sitting position with a minimum of five minutes of rest using standard mercury sphygmomanometer with appropriate cuff sizes. Three BP readings were recorded consecutively with at least 15 minutes interval and the average of three readings was taken. This procedure was repeated, to measure the BP, for another two days. Finally, the minimum value among the three day readings was taken as the blood pressure of the subject.

**Result and observation:** Students participated were between the age of 18 – 24 years. 61 % of participating Medical students had normal BMI (18.5-24.99), 18 % were overweight, 19 % had BMI of underweight category and 2 % of them were obese. The study had the mean BMI of 21.6864 with standard deviation (SD) of 3.55884. 48% of Medical students had prehypertension. Prehypertension by SBP with overweight BMI was positively correlated statistically (P= .003).

**Conclusion:** The Purpose of the study was to assess the possible relationship between BMI and prehypertension and to locate the degree to which obesity is associated with the risk for prehypertension. 75% of obese had prehypertension and 25% of them progressed to hypertension by SBP and 50% of obese suffered from Hypertension by DBP.

**P002****A prospective study comparing the clinical efficacy and safety of timolol gel forming solution and travoprost 0.004% eye drops in primary open angle glaucoma.****Ambika S, Hema N.G, Hemalatha K**

Department of Pharmacology, Mysore Medical College and Research Institute, Mysore – 570001, Karnataka, India

**Abstract:**

**Aims:** Glaucoma is the leading cause of irreversible blindness worldwide and is second only to cataract as the most common cause of blindness. There is a lack of research comparing the efficacy of drugs which decrease aqueous production to drugs which facilitate aqueous drainage. Thus, I undertook this study to compare the efficacy and safety of one drug which decreases aqueous inflow to one which increases aqueous outflow in cases of primary open angle glaucoma.

**Objectives:** 1) To compare and evaluate the clinical efficacy of topically applied timolol gel forming solution versus travoprost 0.004% eye drops in the treatment of primary open angle glaucoma. 2) To document any side effects to both timolol gel forming solution and travoprost 0.004% eye drops.

**Methods:** This is an open labelled, randomized study carried out at K.R Hospital, Mysore during January 2013 to June 2014, with the informed consent of the patients after obtaining approval from the ethical committee. Forty one patients of POAG were treated with timolol gel forming solution once daily at night and another forty one patients of POAG were treated with travoprost 0.004% eye drops once daily at night for 3 months. Ocular improvement and effect of the drug was assessed by a follow up study done once in a fortnight for 3 months, where in intraocular pressure, visual field and visual acuity were measured. Adverse drug reactions to both the drugs were monitored.

**Results:** Baseline IOP's in the travoprost group was (26.4±1.5mmHg) and the timolol group was (25.7±1.5mmHg). After 3 months of treatment, IOP's were significantly lower (p<0.000, t-test) with travoprost (17.4±1.4mmHg) than with timolol (19.5±1.9mmHg). Both the drugs were well tolerated. Ocular redness was the most common adverse event in travoprost group and ocular itching was the most common adverse event in timolol group.

**Conclusion:** Travoprost provided greater mean IOP reduction than timolol gel forming solution. Both the drugs were well tolerated.

**Key words:** Primary open angle glaucoma, Timolol gel forming solution, Travoprost, Efficacy, Side effects

**P003****Review of recent advances in anti-ageing drugs**

Anand Jadhao

**Background:** It has been a very ancient will of man to find cure of chronic disordered condition called as 'ageing'. Ageing itself leads to various age related diseases including cancer. If somehow ageing process stopped or delayed this defective condition can be avoided. After intense prolong research caloric restriction found to be fully effective against ageing. Surprisingly, the most effective interventions proposed to date converge on only a few cellular processes, in particular nutrient signalling, mitochondrial efficiency, and autophagy. In this review we are trying to give idea about recently developed different types of anti-ageing drugs.

## Poster Presentation

**Aim:** Review recent advances in different classes of anti-aging drugs with therapeutic aspect

**Methods :** Relevant article were identified through PUBMED and GOOGLE SCHOLAR search using terms: anti-aging, life prolongation, Sirt -1, caloric restriction. Review article and meta-analysis were also used

**Conclusion:** Caloric Restriction mimetic drugs looks promising in anti-aging therapy. New developing artificial compound are more potent in induce CR like condition, more safe with good tolerability. Poly phenols, the naturally occurring compound shows additional antioxidant activity with Sirt 1 activation preferable over traditional anti oxidative compounds. Autophagy induction and energy conserving pathway seem new way to prolong life span effectively. Overall new developing anti-aging drugs have potential to change the future.

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## P004

### **Assessment of cardiovascular fitness of school going adolescents of Doiwala block of Dehradun**

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**Aims and Objectives:** As Uttarakhand comes in one of newly created state and adolescents make up about 40% of total population of the state. As the health status of a population is determined to some extent by physical fitness of the adolescents. This study is a preliminary effort in this direction to assess cardiovascular physical fitness of school going adolescents.

**Method:** An observational & analytical study was conducted on 183 adolescent from two randomly selected schools of Doiwala block of Dehradun..

Inclusion criteria: Clinically asymptomatic adolescents, 10- 19 years, both male and female.

Cardiovascular fitness was measured by making the subject step up and down on modified Harvard step at a rate of 24 /minute for 3 minutes.

**Results & conclusions:** The mean age of children for the study was 15.22±1.86 years and mean height 157.07±9.00cms and weight 41.95±7.97Kg. The mean BMI was 16.88±2.18Kg/m<sup>2</sup>. The mean physical fitness score was 55.72±17.47. As all children in the study were neither sedentary nor athletic but physically active by lifestyle. Also as these children are from urban slums belonging to low socio-economic status, the poor cardiovascular fitness grading can only be explained by poor body composition, inadequate supplementation of diet and lack of proper physical exercise.

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**P005****Premenstrual syndrome: A cross sectional study**

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**ABSTRACT**

**Aim & objectives:** The aim was to understand the associated symptoms in premenstrual syndrome (PMS) amongst our medical students. The objective was to study the dietary habits and lifestyle in girls with PMS

**Methods:** A validated questionnaire was administered to 260 female MBBS students of year I and year II from different ethnicities at Melaka Manipal Medical College, Manipal. The questions pertaining to dietary habits, lifestyle and frequency of PMS symptoms were noted down. The responses were expressed in percentage.

**Results:** Among the total participants, 91.2% experienced muscle pain, 90.4% experienced abdominal pain, 89.6% experienced abdominal cramps and 84.6% had abdominal bloating. Anger was the predominant emotion, where 97.7% complained about anger, 92% complained about irritability and 87.3% complained about mood swings. During PMS all students reported some changes in their diet. 48.4% used pain killers to reduce symptoms, whereas 41.9% and 13.8% did exercise and yoga respectively.

**Conclusion:** Female students who suffered from PMS associated symptoms, found relief mainly with medications and routine exercise.

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**P006****League of Leadership – A novel concept in Physiology (Medical) teaching.**

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**Aim:** To enhance the quality of learning and outcome of medical studies especially physiology through a new team based brotherly and co operative approach and to promote the progressive thinking people in society.

**Introduction:** In current era of daily violence against doctors when protests by doctors, provision of COPRA, clinical malpractices and provision of MPA, all are present, we don't bother to think about the root cause of this situation. Today there is deterioration in the quality of knowledge a medical graduate is having after completion of MBBS. There are many reasons for this-

- Disproportionate seats in Post graduation.
- Lack of co operation and increased monetary orientation
- Decreased clinically oriented teaching
- Decreasing social contacts
- Dissolution of social institutions

## Poster Presentation

- Awareness in the society and high expectations from doctors
- Importance to physical luxury in society
- Increasing population

**Method:** League of leadership (LOL) is a novel concept to bring all the medical students with equal thinking potential in terms of their understandings, skills, thoughts towards society and many others, together under one group of brotherhood to provide them an atmosphere conducive for the proper growth of their thought process so that they can benefit the society. Such students will be given responsibility to lead a group of few students in terms of discussions regarding study material, practical or exam preparation.

**Result:** This will create a healthy atmosphere of creative competitiveness and co operation. This will lead to better understanding of subject.

**Conclusion:** Since this will increase the brotherhood it will in long run affect the society in positive manners.

**Key words:** LOL, Novel concept, Physiology teaching

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## P007

### **A Study of Reticulocyte Count and Hemoglobin Content of Umbilical Cord Blood Of Newborns With Mode Of Delivery In Sikkim.**

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#### **Abstract**

**Aims & Objective:** To study the effect of mode of delivery (cesarean section against normal vaginal delivery) on Hemoglobin content and Reticulocyte count in umbilical cord blood of newborns of Sikkim.

**Design & Setting:** This was a cross-sectional study conducted on 50 normal vaginal delivery newborns and 50 cesarean section newborns delivered at Central Referral Hospital, Tadong and STNM Hospital, Sikkim during the period March 2014- August 2014.

**Material and methods:** 100 cord blood samples were taken in an EDTA (Ethylene Diamine Tetra acetic Acid) tube under aseptic condition after clamping of the neonate's umbilical cord. Hemoglobin estimation was done by spectrophotometry. Reticulocyte count was done by manual method.

**Results:** In normal vaginal delivery newborns, the mean hemoglobin content of cord blood was 13.9( $\pm$ 2.5 S.D) and the mean Reticulocyte percentage was 2.5( $\pm$ 0.88 S.D). Similarly the mean Hemoglobin and Reticulocyte percentage of cord blood among cesarean section newborns were 16.3 ( $\pm$ 2.9 S.D) and 2.9( $\pm$ 1.03 S.D) respectively.

**Conclusion:** The levels of cord blood Hemoglobin and Reticulocyte percentage in normal vaginal delivery infants are lower than those in cesarean section infants.

Keywords: Cord hemoglobin, Cord reticuloyte, Cesarean section, Normal vaginal delivery.

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**P008****Gastro-esophageal reflux disease and dental erosion: are they related?**

Bikalp Thapa, Madhu Bhatt

**Aim:** To study gastro-esophageal reflux status and dental erosion status and explore a relationship between them.

**Objectives:** 1. To score severity of gastro-esophageal reflux. 2. To score severity of dental erosion, and 3. To correlate the two scores to demonstrate their relationship.

**Methods:** DeMeester's composite score was obtained by 24-hour esophageal pHmetry to grade severity of reflux. Dental clinical examination was done to find Tooth Wear Index (TWI) as per Eccles and Jenkin's system to grade severity of dental erosion. Correlation analysis was done between them using SPSS v22.

**Results:** The mean  $\pm$  SD DeMeester's score was  $16.94 \pm 9.57$ , and TWI was  $9.52 \pm 6.68$ . A highly significant positive Pearson's correlation was established between them:  $r=0.525$ ,  $p<0.001$ .

**Conclusions:** GERD and dental erosion often co-exist with their severity linked to each other. Therefore a physician treating GERD, or a dental surgeon treating dental erosion must be aware of the possibility of presence of the other for best treatment of either of the two diseases,.

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**P010****To Study the Impact of Physical Activity on Mental Health in Adolescents**

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**Abstract :**

**Background :** Mental health problems are more prevalent among Indian adolescents. Physical activity has been associated with psychological benefits in adolescents. It also assists in the social development of adolescence by providing opportunities for self-expression, building self-confidence, social interaction and integration.

**Objective :** This study aims to find out the impact and relationship of physical activity on mental health of adolescent subjects.

**Materials & Methods:** After getting IEC clearance, 186 School students aged between 10 and 19 years were recruited for this study. The self-report version of the structured Adolescent Health Questionnaire (AHQ) was administered to the students whose parents consented.

**Results:** Our study shows that BMI > 23 and low Physical Activity (< 5 days / week) were significantly ( $p<0.05$ ) associated with abnormal Mental Score in Univariate Logistic Regression. In addition to that, male adolescents had high abnormal Mental Score than females ( $p<0.05$ ).

**Conclusion:** Physical Activity improves mental health by alleviating symptoms such as low self-esteem and social withdrawal. This study emphasizes that the importance of physical activity to improve mental health in adolescent school children and to reduce the future risk of serious mental disorders.

**Key words:** Physical activity, Mental Health, Adolescents, Adolescent Health Questionnaire.

## P011

### Study of dynamic pulmonary parameters in different phases of menstrual cycle on apparently healthy undergraduate medical students of north indian population

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#### ABSTRACT

**Background:** The dynamic changes in the level of various hormones during different phases of the menstrual cycle are known to affect various functions of the body, apart from the reproductive system.

Present study was intended to demonstrate the variation in the dynamic component of pulmonary functions during different (menstrual, follicular and secretory) phases of the menstrual cycle in apparently healthy female medical students of north Indian population.

**Aims and objectives:** Role of progesterone in management of premenstrual asthma. Avoid wrong diagnosis of obstructive lung diseases by decreased pulmonary function test parameters in menstrual phase.

**Material & Methods:** This was a prospective, observational study performed in the Clinical Physiology lab, Motilal Nehru medical college, Allahabad.

Regularly menstruating female medical students were included in the study. Their dynamic lung function test parameters (FVC, FEV1, FEF25-75, FEF25%, FEF50%, FEF75%) were measured serially during various phases of the menstrual cycle on 2<sup>nd</sup>, 12<sup>th</sup> and 22<sup>nd</sup> day.

Pulmonary parameters have been recorded by spirometer SPIROEXCEL PC based pulmonary function test. During the menstrual phases, these parameters were compared.

**Result:** The dynamic pulmonary function test parameters were better during the luteal Phase of the menstrual cycle.

Data collection is still continuing and final results might be change thereafter.

**Conclusion:** we conclude that better lung function tests during luteal phase is due to progesterone.

**Key Words:** Menstrual phase, Lung functions, Progesterone, Premenstrual asthma,

## P012

### High blood pressure and testicular functions

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Reactive Oxygen Species (ROS) are ubiquitous reactive derivatives of O<sub>2</sub> metabolism found in the environment and in all biological systems. ROS are implicated in many intracellular signaling pathways leading to changes in gene transcription and protein synthesis and consequently in cell function. Within

the cardiovascular system, ROS play a crucial physiological role in maintaining cardiac and vascular integrity and a pathophysiological role in cardiovascular dysfunction associated with several clinical conditions, including hypertension. In physiological conditions, the rate of ROS generation is counterbalanced by the rate of elimination. In contrast, under pathological conditions, such as hypertension, ROS are produced in concentrations that cannot be controlled by the usual protective antioxidant mechanisms employed by the cells, leading to a state of oxidative stress. It is known that oxidative stress affects the testicular function by disruption of germinal cell epithelial division and differentiation along with the induction of germ cell apoptosis. Induction of apoptosis leads to testicular neutrophil recruitment and increases the generation of intra-testicular reactive oxygen species (ROS). ROS in turn, cause peroxidative damage to cell membranes and also activate germ cell apoptosis. The rate of phagocytosis by Sertoli cells is also enhanced by increased germ cell apoptosis so as to clear the dying and damaged germ cells.

Key words: blood pressure, testicular function

## P012

### A study of the relationship between serum lipid profile and blood pressure

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**Introduction :** Hypertension is defined as Systolic Blood Pressure  $\geq 140$  mmHg and/or Diastolic Blood Pressure  $\geq 90$  mm Hg. Recent studies show that persons with essential hypertension have major lipid profile abnormalities like increase in Cholesterol, Triglyceride, LDL, VLDL but decrease in HDL levels.

**Aims and objectives :** To study the relationship of serum Lipid profile to Blood pressure.

**Materials and Methods :** This study was done on 25 normotensive and 25 newly diagnosed cases of essential hypertensive individuals attending Medicine OPD between October'2012 to June'2014. The blood pressure was recorded and serum lipid profile was estimated.

**Results :** Serum cholesterol in hypertensives ( $266 \pm 19.86$  mg/dl) was higher than normotensives ( $174.7 \pm 13.59$  mg/dl), serum triglycerides (in hypertensives –  $175.8 \pm 37.15$  mg/dl, in normotensives –  $105.2 \pm 16.19$  mg/dl). VLDL and LDL were also raised in hypertensive group. HDL is higher in normotensive subjects.

**Conclusion :** There is a strong positive correlation between serum lipids and hypertension.

## P013

### Onset Of Coronary Artery Complications In Type 2 Diabetes Mellitus

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**Abstract**

**Introduction:** Coronary artery disease (CAD) in diabetics is high & its extent and severity is not uniform. **Aim & Objective:** To compare the angiographic changes (macrovascular complications) in non- diabetes and diabetes mellitus of different time intervals. **Materials & Methods:** 53 non-diabetic patients, 54 with type 2 diabetes of less than 5 years duration, 41 with 5 to 10 years of diabetes and 27 with more than 10 years who underwent coronary angiography for evaluation of CAD were recruited in this cross sectional study. Syntax score, Vessel score, coronary collaterals grading by Rentrop's score were done. **Results:** There was a significant increase in syntax score, vessel score and coronary collateral grade in patients with 5 to 10 years of diabetes mellitus compared to less than 5 years of diabetes duration ( $p = 0.019$ ,  $p = 0.007$ ,  $p = 0.008$ ). There was no significant difference in mean scores when compared with patients of 5 to 10 years and more than 10 years of diabetes duration. Also no significant difference observed in mean scores between non-diabetics and less than 5 years of diabetes patients. **Conclusion:** Significant macrovascular changes in coronary arteries are seen among patients with 5 to 10 years of diabetes.

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**P014**

**Comparative Study Of Mechanical Lung Function Measurements In Copd Patients :A Pilot Study**

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**Aims and Objectives:-** (a) Comparison of Airway Resistance by Spirometry and Maximal Inspiratory Pressures (MIP), Maximal Expiratory Pressures (MEP).

(b) Assessment of Respiratory Muscle Strength using MIP and MEP.

(c) Assessment of Airway obstruction using Forced Oscillation technique (FOT).

(d) To find correlation between two values i.e. decrease in  $FEV_1$  by spirometry and airway resistance by FOT.

(e) To test the specificity and sensitivity of FOT in comparison with spirometry.

**Methods:-** Equal number of COPD patients and healthy individuals of age group  $50 \pm 20$  are taken as subjects for this study. Subjects undergone spirometry test using a computerised machine MASTER SCREEN PFT by JAEGER. Vital Capacity (VC), Forced Vital Capacity (FVC), Forced Expiratory Volume at the end of 1 second of Expiration ( $FEV_1$ ) and  $FEV_1$  /FVC ratio are assessed and compared. MIP, MEP and FOT tests are carried out with a computerised machine SPIRO AIR by MEDISOFT. Maximal Inspiratory Pressures (MIP) reflects the strength of the diaphragm and other inspiratory muscles while the Maximal Expiratory Pressures (MEP) reflects the strength of abdominal muscles and other expiratory muscles. The increment in airway

obstruction in COPD patients may cause an increase in total resistance, which is obtained by FOT. This project is currently underway.

**Results:-**  $FEV_1$  and  $FEV_1/FVC$  ratio are used to assess the severity of disease. As expected, the  $FEV_1$  values are lower in all patients as compared to controls. MIP and MEP are lower in patients with COPD as compared to the healthy subjects and the increment in airway obstruction caused an increase in resistance at lower frequencies.

**Conclusion:-** The measurement of Maximal Inspiratory Pressures (MIP) and Maximal Expiratory Pressures (MEP) indicates state of respiratory muscles. The ability of FOT to measure respiratory impedance during spontaneous breathing could be useful for monitoring of airway obstruction, resulting in great benefits to patients with COPD.

Key words: COPD,  $FEV_1$ , MIP, MEP, FOT technique

## P015

### A study of Visual Evoked Potential in ophthalmologically normal diabetes mellitus patients.

**Aims and Objectives:** To find out whether VEP parameters are altered in ophthalmologically normal diabetic patients and whether any correlation exists between such alterations with duration of diabetes and  $HbA_{1c}$  level.

**Methods:** 30 male and female diabetic patients and as many age and sex matched non-diabetic controls were recruited in this hospital-based cross-sectional observation study and underwent detailed clinical and ophthalmoscopic examinations. Patients with retinopathy, optic media opacity, very low visual acuity, raised IOT, long-standing systemic hypertension, retinal detachment, optic atrophy, stroke, seizure disorder, multiple sclerosis were excluded. All patients and controls underwent mono-ocular checkerboard type pattern-reversal VEP bilaterally, following standard protocols. Mean latencies of P100 and N75 peaks and N75-P100 peak-to-peak amplitudes of VEPs were analysed using PC-based statistical software.

**Results:** P100 and N75 latencies were significantly prolonged ( $p=0.0012$ ,  $p=0.016$  respectively) in diabetics. Both P100 and N75 latencies were increasingly delayed with increased duration of diabetes. However correlation between  $HbA_{1c}$  level and VEP parameters were variable and weak.

**Conclusions:** Electrophysiological changes in visual pathway appear earlier than ophthalmoscopic evidence of diabetic retinopathy and magnitude of these changes are increased with advancement of diabetes. Thus VEP can be effectively utilised for earlier detection of visual pathway lesions in diabetics.

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## P016

### Effect of body mass index on gender-difference in lung functions in Indian population

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### **Abstract**

**Background and Aim-** Lung function tests have been known to be associated with a variety of factors such as age, sex, race, ethnicity, height, weight, chest circumference, waist circumference, waist hip ratio, body mass index, etc. Increasing trends of obesity in developing country such as India leads to changes in the parameters of pulmonary function testing. The present study is undertaken to see in what way body mass index contributes to changes in vital capacity, FEV1, FVC, FEV1/FVC ratio and PEFr and if there is any difference between patterns in males and females

**Methods-** 60 healthy subjects were included in the cross sectional study within the age group of 20-65years of age. Using Micro Medical Super Spiro, the parameters such as vital capacity, FEV1, FVC, FEV1/FVC ratio and PEFr were measured. The body mass index of each subject was calculated and Pearson's correlation coefficient was determined between body mass index and the lung function parameters.

**Results-** In case of males, PEFr was correlated weakly, though significantly with body mass index while in females, it was significantly correlated with vital capacity, FEV1, FVC and PEFr. Applying multivariate analysis we obtained odds ratio which also supported that females had a stronger correlation as compared to males.

**Conclusions-** Body mass index contributes independently to pulmonary function tests and the correlation pattern is different for males and females.

**Keywords-** Body mass index, vital capacity, pulmonary function tests, gender difference

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### **P017**

#### **Association between obesity and ECG variables in children and adolescents in Bhubaneswar.**

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**AIM:** To look into the association between obesity and ECG intervals in children and adolescents.

**METHOD:** A cross-sectional observational study of 500 students aged 5-18 years was performed. Anthropometric data, blood pressure and standard 12 lead ECGs were collected for each participant. ECG variables were measured.

**RESULT:** Overweight and obese groups demonstrated significantly longer PR interval and wider QRS complex. They also demonstrated significantly higher heart rates compared with control group ( $P < 0.05$ ). Gender was a possible factor affecting the ECG variables. PR intervals, QRS duration were significantly linearly correlated with body mass index.

**CONCLUSION:** The result of the current study indicates that in children and adolescents, obesity is associated with long PR intervals and wider QRS durations.

**KEYWORDS:** Obesity, Adolescents, Children, Electrocardiography, PR interval, QRS duration.



**P018****Comparison of cardiovascular response to physical exercise among high risk subjects and healthy controls**

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**Aim:** To assess the cardiovascular response to exercise in individuals at risk for developing future cardiovascular disease.

**Objectives:** To compare exercise induced pulse and blood pressure changes, in obese subjects and subjects with parental history of diabetes with that of healthy subjects.

**Materials and Methods:** 57 medical students were recruited and divided into 3 groups. Group I: healthy subjects (n= 21), group II: obese subjects (n= 16) and group III: subjects with parental history of diabetes (n= 20). Pulse rate and blood pressure were recorded pre-exercise and at various time intervals post exercise. Data was analyzed using t-test.

**Result:** The basal pulse was significantly higher in group II. The peak pulse attained during exercise was highest in group III. The basal pulse value was not achieved 20 min post exercise in groups II and III. The basal blood pressure was higher in group II and the change in diastolic blood pressure in response to exercise, attained statistical significance. The blood pressure changes in group III subjects were comparable to those of group I.

**Conclusion:** The higher basal pulse, blood pressure and the exaggerated response to exercise in group II signifies an enhanced sympathetic tone in obese. Hence, they may be more prone to early onset of hypertension.

**Key words:** exercise, pulse, blood pressure, obese, parental history of diabetes.

**P019****Effect Of Platelet Count In P.I.H.**

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**Aim and objectives:-** (1) To know the difference between platelet count in normal pregnant women and women with pregnancy induced hypertension.

(2) To know the relationship of platelet count with severity of disease.

**Method:-** Rees-Esker Method.

**Result:-** Total number of 100 patient were studied. platelet count was done in twice in relation to delivery. the mean platelet count at term in normal pregnant women was 2.1 lacs/cumm. In mild pre-eclampsia was 1.9 lacs/cumm. In severe pre-eclampsia was 1.4 lacs/cumm. The mean platelet count after 48 hour of delivery in normal pregnant women was 2.4 lacs/cumm., In mild pre-eclampsia was 2.1 lacs/cumm. in Severe pre-eclampsia was 1.8 lacs/cumm. low birth weight babies (<2Kg.) was 20% with increasing severity of PIH platelet count become low.

**Conclusion:-** Thrombocytopenia correlate with the severity of Hypertension. Hence platelet count as a marker of PIH.

**Key word-** Blood pressure, platelet, pre-eclampsia, outcome.

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## P020

### **Correlation of Blood Pressure with BMI, FMI AND FFMI in School Going Children of Rural Bihar: A Pilot Study**

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**Introduction:** The prevalence of non-communicable diseases is growing in India even among the rural population. As the seeds of these diseases are sown early in life, correlation of blood pressure (BP) with anthropometric indices of school going children was ventured in our study.

**Aims & Objectives:** To find out the correlation of BP with Body Mass Index (BMI), Fat Mass Index (FMI) and Fat Free Mass Index (FFMI) in school children.

**Materials & Methods:** A randomized cross-sectional observational study with 110 school going children (59 boys & 51 girls) aged between 13-16 years of Kishanganj, Bihar was done. Height, weight, fat % and BP of each of them were measured. BMI, FMI and FFMI calculated and statistical analyses were done using Microsoft Excel.

**Results:** In boys Pearson's correlation co-efficient (r) of SBP & MAP with BMI were 0.468 & 0.439; with FMI were 0.256 & 0.270; with FFMI were 0.184 & 0.129 respectively. In girls, correlations of SBP & MAP with BMI were 0.038 & 0.242; with FMI were 0.065 & 0.270; with FFMI were -0.146 & 0.018 respectively.

**Conclusion:** In boys SBP and MAP showed significant positive correlation with BMI. In girls MAP was most positively correlated with FMI.

## P021

### **Students perception on flash cards as learning tool in viva voce of Physiology.**

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**Introduction:** In the developing state like Chhattisgarh where students are predominantly coming from the tribal region faces difficulty while going through different books and reproducing the same at the time of viva voce.

**Aims and objectives:** The objective of the use of flash cards is to make the education in physiology more interesting, exciting and helping the poor and average performer to reproduce at the time examination in viva voce.

**Methodology:** The students facing challenges in linguistic area and presentation area are identified. They are exposed to the flash cards which are prepared as a project by another batch of the students under the guidance of expert. In a batch of 25 students five groups were formed and each group was given a set of flash card on the topic on which didactic lectures were delivered.

**Analysis:** It was observed that 84% of the students expressed they found it is very useful learning tool as it makes study more interesting, simplified and competitive. The remaining 16% students expressed it is useful but expressed interest in preparation of flash cards and mentoring or leading the group.

**Conclusion:** Flash cards can be used as effective learning tool for average and poor performer.

## P022

### A comparative study of conventional practical exam and Objective Structured Practical Exam in Physiology.

**Dr.B.Shruthi** Prof. of Physiology, Bhaskar Medical College, Moinabad, Telangana State

**INTRODUCTION:** Evaluation is an integral part of medical education which is closely linked with educational objectives. OSPE assures the use of all its domains and innovative technique with emphasis on the application of knowledge. **AIM:** To assess the 1<sup>st</sup> year medical students with OSPE and to prove it as an assessment tool that can be used in Physiology. **OBJECTIVE:** To compare OSPE and the conventional method of assessment. **METHOD:** 150 first year medical students were included and were assessed by the conventional method first, then with OSPE. It was conducted over 3 days. There were 4 procedure stations, with an examiner, check list, subject and 4 response stations where questionnaire was placed against graph, chart, and case. Each station was given 5 mins and was awarded 5 marks. **RESULTS:** All the aspects of the exam under hematology and clinical physiology showed higher marks obtained with OSPE ( $p < 0.0001$ ). **CONCLUSION:** OSPE is student friendly, more scoring that can assess all the domains of educational objectives. It can be used to train the students in OSPE all year long then slowly include it in the practical exam.

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## P022

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### P023

#### **Effect of duration and quality of sleep on glycemic control in Type 2 Diabetes Mellitus.**

Authors : Dr Bhanu Priya H,

Dr M S Kusuma Devi, Post graduate student, Professor. Department of Physiology,  
Bangalore Medical College and Research Institute, Fort, K.R. Road.

**Aim :** To examine the relationship between glycemic control in Type 2 diabetic DM subjects with duration and quality of sleep.

**Objective :** 1.To assess the duration and quality of sleep on glycemic control in Type 2 DM.

2.To compare the same in males and females Type 2 DM.

**Methods :** This study includes 40 Type 2 DM subjects with 20 males and 20 females. For each patient, data regarding age, gender, duration of diabetes, and use of medications were recorded. A detailed physical examination was performed, glycosylated hemoglobin (HbA1c) values and comorbid conditions were noted. Quality and quantity of sleep was evaluated by Pittsburgh Sleep Quality Index (PSQI) questionnaire.

**Results :** Mean age was 51.3 yrs, mean HbA1C was  $9.8(\pm 1.6)\%$ . The mean difference between preferred and actual sleep was  $2.4(\pm 0.9)$  hrs. The mean PSQI score is  $12.02(\pm 1.7)$  and is indicative of poor quality of sleep. There was significant positive association between HbA1C and PSQI ( $r=0.47; p<0.01$ ) and between HbA1C and sleep debt ( $r=0.6; p<0.01$ ).

**Conclusion :** A statistically significant association between both quality and quantity of sleep in Type 2 DM subjects with poor glycemic control and also high perceived sleep debt among females was found.

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### P024

#### **Blood pressure measurement and its regulation**

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**Abstract:**

There are three methods of measurement and recording of blood pressure viz. Oscillatory, Palpatory and Auscultatory. In the normal individual the constancy of the internal environment is being adjusted by the well-organised controlling system. Adjustment of blood pressure, according to the needs of the body, may be carried out by the several complex reflexes whose centres are lying in the cerebral cortex, formation reticularis, hypothalamus, medullary and spinal vasomotor centres. The (A) efferent and (B) afferent pathways constituting the above reflexes are lying within the sympathetic and parasympathetic nervous systems whose activities are modified by the hypothalamus and other centres.

Key words: blood pressure, blood pressure measurement, blood pressure regulation

**P025**

**Risk of Type II Diabetes Mellitus in alcoholics- A hospital based study**

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<sup>1</sup>Department of Physiology, Sikkim Manipal Institute of Medical Sciences.

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**Abstract**

**Introduction:** Excessive alcohol consumption increases the risk of Diabetes by damaging the pancreas and liver and by promoting obesity. Nearly 35% of the population of the age group greater than 21yrs is chronic alcoholic in Sikkim, which is much higher figure as compared to the national average. Furthermore, Sikkim recorded the highest prevalence of diabetes with the prevalence rate of 13.88%. For this reason, the present study is focused on finding the incidence of Type-II DM in alcoholics.

**Aims and objectives:** The present study aims to find the relationship between alcohol consumption and Type-II DM in patients admitted in Central Referral Hospital, Sikkim Manipal Institute of Medical Sciences-Tadong.

**Methodology:** Retrospective case analysis of patients (n=50; age>30yrs) with history of heavy alcohol consumption (e" 21 drinks/week, each drink of 60ml, for at least last five years) for the time duration of at least 6 months was performed. The subjects were divided into three groups on the basis of number of drinks per week: patients having 21-25 drinks, 25-30 drinks and more than 30 drinks per week. Parameters considered were, fasting and post prandial blood glucose, lipid profile and blood pressure. The collected data was analyzed using SPSS software and p<0.05 was considered significant.

**Result and Discussion:** Among the study population, 20 % of the alcoholics were Diabetics and 50% of these Diabetics were in the habit of drinking >30 drinks per week. There appears to be significant association (P=0.05) between heavy alcohol consumption and Type-II DM. A reduction in alcohol intake by heavy drinkers may reduce their risk of developing Type-II DM.

Though moderate alcohol consumption has been found to be associated with a lower risk of Diabetes Mellitus, introduction of alcohol consumption as a lifestyle measure for prevention of Diabetes cannot be advocated.

**Keywords:** Alcohol consumption, Type-II DM

## P026

### **Assessment Of Working Memory In Young Adults.**

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#### **Abstract**

**Aims & Objectives:** Working memory is the system that actively holds multiple pieces of transitory information in the mind, where they can be manipulated. It includes subsystems that store and manipulate visual images or verbal information, as well as a central executive that coordinates the subsystems. It includes visual representation of the possible moves, and awareness of the flow of information into and out of memory, all stored for a limited amount of time.

**Methods:** 250 healthy young adults were tested in 3 sessions. 20 set of mutually exclusive words were spoken to verbally, then written words and finally 20 visual objects were shown to the subjects for 30 seconds each followed by 1 minute of discussion for distraction. Thereafter, the subjects wrote as many words as they could recall.

**Results:** The mean test scores of each session were higher in case of females as compared to males; also they scored much higher values as compared to males. Verbal word testing can be a better method of assessment of working memory.

**Conclusion:** Working memory can be a central problem for many people with Attention-Deficit/Hyperactivity Disorder and learning disorders. This can be used as a reliable indicator of such disorders.

**Key words:** Working memory, attention deficit, learning disorders, verbal word testing, visual object testing, written word testing

## P027

### **Effects on serum lipids by replacing butter with ghee: randomized crossover study with healthy young adults**

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Funded by DBT nodal center, Tejpur University.

**Aims and Objective:** To examine the effect on serum lipids when butter is replaced with ghee in diets of healthy young adults.

#### **Method:**

**Design:** Randomized crossover study with two intervention periods of six weeks' duration separated by a five week washout .

**Setting:** Students campus hostels in the SMIMS at Tadong, Gangtok, Sikkim

**Subjects:** 46 healthy young adult volunteers with normocholesterolemia (serum total cholesterol <200 mg/ dL)

Main outcome measures: Serum concentrations of total cholesterol, triglyceride, low density lipoprotein, high density lipoprotein, and very low- density lipoproteins in response to dietary intake of butter and ghee.

**Results:** There was no significant change in Serum concentrations of total cholesterol, triglyceride, low density lipoprotein, high density lipoprotein, and very low- density lipoproteins in response to dietary intake of butter and ghee.

**Conclusion:** Despite concern about adverse effects of saturated fats on lipid profile, Present study did not show significant change on serum lipids in healthy adults.

## P028

### The levels of IgG subclasses in individuals of Bancroftian filariasis in an endemic area

Bonny Bhunia\*, Y.P. Bhandari, MVR Reddy, B.C. Harinath

\*Assistant Professor, Department of Zoology, Ch. Charan Singh P.G. College, Heonra, Etawah, UP.

#### ABSTRACT

Lymphatic filariasis is characterized by wide variety. Analysis of immune response in individuals living in filarial endemic area will be of interest to understand the immunological events associated with the disease development in filarial infected endemic population. The levels of IgG subclasses antibodies against *Brugia malayi* microfilarial excretory-secretory (Bm mfES) antigen were evaluated in 84 individuals belonging to different groups in an endemic area bancroftian filariasis. Microfilariae carriers showed significantly elevated levels of IgG4 and IgG3 antibodies compared to endemic normals. Acute filarial cases had higher levels of IgG4, IgG3 and also IgG1 antibodies. Among chronic filarial patients grade I cases showed significantly higher levels of filarial IgG3 & IgG4 antibodies.

**Key words:-** Bancroftian filariasis, *Brugia malayi* excretory-secretory antigens.

## P029

### “Random study of levels of serum C Peptide and Lipid profile in health individuals”

Dr. C.M. Kulkarni. Asso. Professor., Dr. Sumangala Patil. Professor., Prof. Kusal Das., Dr. Manjunath Aithala. Professor & HOD

Shri. B.M. Patil Medical College, BLDE University, Bijapur, Karnataka

#### Abstract:

**Back ground:** C peptide is substance that is produced when pro insulin an inactive molecule splits to form two molecules one molecule is insulin and other is C Peptide, C Peptide is produced at same rate as that of insulin thus C Peptide is useful marker of endogenous insulin productions

**Aim and objectives:** To find out levels of C Peptide and lipid profile to understand possibility of metabolic syndrome in advance

**Methods :** Estimate fasting serum C Peptide levels, fasting blood glucose and lipid profile by using standard biochemical methods in 125 apparently healthy subjects (both sexes).

**Results :** In our study it has been observed that C Peptide level is increased in 27% of study group, serum cholesterol levels are also increased in 30% of the individuals, LDL cholesterol levels are increased in 55% of individuals and increased in triglyceride levels in 21% of the individuals

**Conclusion:** It may be concluded from our study group that C peptide level and lipid profile may be considered as useful biomarkers to predict T2DM in advance possibly due to insulin resistance.

**Key words :** C Peptide, insulin , Type -2 diabetes mellitus, lipid profile, FBG

### P030

#### Blood Groups in Relation to Age of Menarche

Dr. Channabasavanna G H<sup>1</sup> Dr. K F Kammar<sup>2</sup>

Dr. Shaktiprasad Hiremath<sup>3</sup>, Department of Physiology, KIMS, Hubli, Karnataka.

**Aims and Objectives:** This study aimed to estimate the mean age of menarche among women attending Primary Health Centre's with good nutritional background and education.

**Materials and Methods:** A cross-sectional study was conducted on 500 women attending Primary Health Centre's. Data on blood groups of the cases and age at menarche were collected using confidential self-administered questionnaire.

**Results:** The mean age of menarche of women with Blood group A,B,AB and O were found to be 12.79,13.20,13.24 and 13.24 years respectively.

**Conclusion:** In conclusion the mean age at menarche of women with blood A in this study was 12.76 years which was found to be the earliest. There was a significant relation between age at menarche and blood types. Women with blood type "A" are genetically prone to stress and needs to be monitored during the time period of menarche. Strategies to combat co-morbid health effects should take into account early sexual maturation and its consequences as well as environmental factors that may predispose to early menarche.

### P031

#### Does BP and BP response differ to acute exercise in healthy non-hypertensive Indian males between 35-45 age group with and without family history of hypertension?

Chetan Yadav, Surinderpal Singh, Naveen P.

**Aim:** To compare resting BP and BP response to acute exercise in normotensive subjects with and without a family history of hypertension.

**Objective:** 1. To compare resting BP in normotensive subjects with and without a family history of hypertension. 2. To compare BP response to exercise in normotensive subjects with and without a family history of hypertension.

**Materials and methods:** The blood pressure response to exercise was measured before, during and for ten minutes of recovery time in 50 healthy adult males with family history of hypertension and an equal number without family history of hypertension.

**Results:** Both SBP and DBP in the hypertensive group was significantly higher at rest, during each stage of exercise and during recovery ( $p < 0.001$ ).

**Conclusion:** Family history of hypertension causes the blood pressure to be greater at rest and during exercise in as yet healthy normotensive males.



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## P032

### To study the bleeding time and clotting time in diabetic patients in comparison with Non diabetics

Dr D Joya Rani<sup>1</sup> , Dr Mohd Abrar Hassan<sup>2</sup>

**Introduction** – Diabetes, one of the most common non communicable disease, is taking a shape of epidemic, the prevalence of which has increased to an alarming extent in the past few decades. The disease is multifactorial in etiology and it involves multiple organs at a time with more inclination to Cardiovascular and excretory system. The etiopathogenesis involves vascular changes in both of these systems resulting in either renal failure or Coronary artery disease, the vascular changes could be narrowing of lumen leading to Ischemia or Aneurysms leading to bleeding disorders in vital areas. In both these situations there is change in hemodynamics. The changes in hemodynamic may be mostly due to increase in the viscosity of blood or decreased velocity of flow. This study is planned to rule out the role of viscosity in the pathogenesis of disease and as well to establish the role of bleeding and clotting time variations.

**Material And Methods** – This study was done in Department of Physiology at Osmania medical college on 60 subjects in the age group of 35 to 60 years divided in 2 groups. Group A -30 Diabetic subjects and Group B – 30 Age matched non diabetic control group.

Inclusion criterion for cases – Only Diabetics patients in group A.

Exclusion Criterion for cases – Diabetics of Group A associated with Hypertension and CAD, Group B Healthy subjects.

The subjects were analyzed for the following parameters

1. Blood glucose levels by glucose oxidase method
2. Clotting time by wright capillary tube method
3. Bleeding time by dukes filter paper

#### Observations and Discussion:

	RBS	CT	BT
Diabetes (Controlled)	160 -180mg%	2-3 min	4-5min
Non –Diabetics	110-120 mg%	4-6min	2-3min

It is observed that in Diabetes **there is decrease in clotting time and slight increase in bleeding time when compared to control group**, this shows that there is a relationship with increased activation of platelets and increased levels of Thromboxane A2 in diabetes, while the decrease in clotting time reduces the blood flow due to accumulation of clotting factors there by favouring intravascular coagulation for the pathogenesis of the disease . **The basic aim of this study is to show the potential risk of diabetes on hemodynamics of blood and as well the role of low dose Aspirin in controlling these changes if prescribed prophylactically along with antidiabetic therapy.**

Key words – Diabetes , Bleeding time , Clotting Time

1Associate professor at GMC 2 Professor at BMC

**P033**

Abstract Sleep:

We need to sleep at least six to eight hours a day, so that our brain activity becomes re zeroing condition. Because of sleep deprivation, especially in young adults, they are facing a lots of problems in their day to day life. Therefore, it is important to find out the causes of sleep deprivation in these age group by asking some relevant questionnaires like their life style, their work load , working with computer, mobile phone, face book, style of reading, food habit and exercise.

About eighty percent of class twelve standards are going for private tuition at 4.30 AM to 7.30 AM daily and rush to their school at 9.30 AM and remained there up to 3.30 PM. During the school hours the class teacher gives a heavy home work. Sixty percent of the students goes for another private tuition for different subjects and when they return home they have to complete the home work given from the school and they go to bed at 10 or 11 PM and they have to be ready by four o'clock in the morning being the sleep time of six hours or less giving rise to compulsory type of sleep deprivation

**P034**

**Associations of the electrophysiological parameters with demographic, clinical and laboratory parameters in rheumatoid arthritis (RA) patients.**

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**Aim and objectives :** To evaluate the involvement of peripheral nervous system by means of nerve conduction studies (NCSs) and to correlate these findings with the demographic, clinical and laboratory parameters of disease.

**Methods:** 100 RA patients (study group) diagnosed under ACR 2010 criteria were matched with 100 normal subjects (control group) with respect to age and gender. NCSs were performed on these groups for measuring latencies and amplitudes of median, ulnar, tibial and peroneal nerves, and they were compared statistically. Associations in between the NCSs findings and other extra-articular manifestations of RA along with the demographic profile of the patients were analyzed using correlation technique.

**Results:** NCSs values were found to be highly significantly different in study group without the necessity of signs and symptoms of neuropathy (p-value <0.01).

Age, duration of the disease and treatment, point values of RA, presence of joint deformities, subcutaneous nodules, CRP affected some of the parameters of NCSs significantly.

**Conclusion:** Subclinically neuropathy can be diagnosed with the help of NCSs and it is correlated with other extra-articular manifestations of the disease.

**P035**

**Can Hypertension be a Cause of Irritable Mood in Middle-aged Women?? : A Cross Sectional Study**

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#### ABSTRACT

**Background:** Hypertension in middle-age can lead to greater drop in mental functions later in life. Not many studies have been done to evaluate hypertension as a cause of mood disorders manifesting with irritability as a symptom. An attempt has been made to study and score irritability in hypertensive and normotensive middle-aged women and assess a possible association between hypertension and irritable mood.

**Objectives:** To test the hypothesis that irritability score is higher among middle-aged hypertensive females compared to the normotensive controls.

**Materials & Methods:** Study group consisted of 21 hypertensive females (mean SBP=152±8, mean DBP=924 mm Hg) and 22 normotensive females (mean SBP=1186, mean DBP=804 mm Hg) aged 40-60 years. Irritability was scored using Born-Steiner self-rating Irritability Scale. It has 2 components- Irritability scoring and visual analogue scale.

**Results:** Statistical analysis shows that irritability scoring is significantly higher ( $p < 0.0001$ ) in hypertensive middle-aged women (21.67 ± 8.6) compared to controls (9.456 ± 2). Visual analogue scale shows that irritability is causing a problem to oneself and in relation with family, friends and community. Also, the severity of irritability as a trait and transient state are both significantly higher in cases compared to controls.

**Conclusion:** Irritability is higher in hypertensive middle-aged females compared to controls. Haemorrhagic and ischaemic cerebrovascular changes in the supratentorial region & brain metabolism in hypertension reducing neurotransmitter activity may be the reasons for altered mood manifesting with high irritability score.

*Key words: Irritability, Hypertension, Females*

#### P036

#### A comparative study on spectral parameters of HRV in those practicing yoga, athletes and individuals with sedentary lifestyle of different age groups.

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\*Professor of Physiology MAMC Agroha \*\* Assistant Professor of Physiology MAMC Agroha, #Professor of Physiology PGIMS Rohtak

#### Abstract

Aim of the study was to compare autonomic functions among yogis, athletes and sedentary individuals. The study group comprised of 600 healthy male volunteers of 16 to 35 years of age and divided into two groups: Group A of age 16 to 25 years; Group B of age 26 to 35 years. Both groups were further divided into three categories, athlete, yoga practitioners and sedentary individuals. The basal recording of ECG in lead II was done for 5 minutes. The Polyrite-D ECG data was used for analysis of heart rate variability by frequency domain method. Two spectral components were recorded namely high frequency (HF) and low frequency (LF) component. HF component in absolute and normalized unit was found significantly high in Yogis and athletes. LF/HF ratio in yoga and athlete subjects was significantly decreased as compared to sedentary individuals in both the age groups. HF component in normalized unit was found high in yoga practitioners as compared to athletes of all age groups. This indicates that parasympathetic activity is

substantially greater in yoga practitioners. Yoga interventions are superior to athletic exercise in nearly every measured outcome.

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### P037

#### Comparison of time domain parameters of heart rate variability in SCA 1 and SCA 2 patients

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**Introduction:** Heart rate variability (HRV) is a standard parameter to explore cardiovascular autonomic regulation. Autonomic dysfunction has been reported in spinocerebellar ataxia (SCA) patients, but comparison of time domain parameters of HRV remains poorly reported in between SCA1 and SCA2 patients. It is also known that time domain parameters are robust indicator of parasympathetic activity. In this context we tried to examine the status of parasympathetic activity in SCA 1 and 2 using time domain HRV analysis.

**Method:** The time domain parameters of HRV for 5 min series of consecutive RR intervals were analyzed in genetically proven SCA1 (n=8, age=39.1±7.4yrs) and SCA2 (n=12, age=33.8±7.7yrs) patients.

**Result:** Time domain parameters of HRV in SCA2 were found to have lower SDSD (p=0.0287), RMSSD (p=0.0287), NN50 (p=0.033) and p<sup>NN50</sup> (p=0.0293) as compared to SCA1.

**Conclusion:** The results reflect a difference in SCA1 & SCA2. The results reflect the nature of CNS lesions pertinent to parasympathetic involvement. This higher parasympathetic autonomic dysfunction in SCA 2 than SCA1 may be important for management of these ataxias.

### P038

#### Prevalence of Pre hypertension amongst medical students in eastern Odisha

ABSTRACT

AIMS AND OBJECTIVES:

To evaluate prevalence of Prehypertension amongst medical students in eastern Odisha, & the impact of BMI on Prehypertension with gender variation among adolescents .

Study design : Cross sectional study was done by selecting ,clinically healthy 902 medical students (both MBBS & BDS ) , after written consent was obtained . Each participant's data was collected by questioner method followed by measurement of height , weight ,waist –hip ratio & Blood Pressure .Students with confirmed hypertension were excluded from our study

Results : The final cohort included 400 girls & 502 boys. Normotensive participants were slightly younger than pre hypertensive subjects , p <0.041 which was found to be statistically significant . BMI among male students was significantly raised in Prehypertension cases when compared with normotensives. Similarly, the waist-hip ratio among pre hypertensive male and female students showed a significant rise with p<0.001 as compared to normotensive counterparts. Obesity status among normal and overweight students did not show any significant difference .while, 5.09% of overweight/ obese students showed a

rise in baseline BP ( $p < 0.03$ ), as compared to overweight/ obese students with normal BP. There was a significant correlation between prehypertension and raised BMI with a  $p$  value  $< 0.000$  among male students, but on the contrary no significant correlation among female students was observed. Conclusion – From our study it was concluded that, male students with WHR  $> 0.93$  & female students WHR  $> 0.88$ , were more prone to prehypertension, and the difference was statistically significant. Early identification of prehypertension in this subgroup plays an important role in screening for metabolic syndrome and identifies modifiable factors required for prevention of cardiovascular accidents. As the study population included adolescents from different demographic areas, hence these results were more likely to be applicable to other areas. Keywords : Prehypertension, Adolescents, BMI, Waist –Hip ratio.

### P039

#### Smoking influences rate pressure product in young adults

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**Aim:** To assess the effect of cigarette smoking on rate pressure product (RPP) in young adults.

**Method:** Thirty smokers but otherwise healthy young adults and equal number of non-smokers of Malaysian origin, aged between 19 - 24 years were enrolled. Blood pressure (BP) was measured in supine position (after 5 minutes rest) and upon standing. RPP was calculated by multiplying heart rate and systolic BP divided by 100. Peak expiratory flow (PEF) was used to assess respiratory efficiency. Independent sample t-test was used to compare, where  $p < 0.05$  was considered statistically significant. Results were expressed as mean  $\pm$  standard deviation.

**Results:** The number of cigarettes smoked was  $08 \pm 02$  per day for a period of  $02 \pm 0.9$  years. RPP in smokers was  $90.5 \pm 12.6$ ,  $98.3 \pm 12.0$  at rest and upon standing respectively. The RPP in non-smokers at rest was  $80.4 \pm 12.2$  and  $88.0 \pm 17.3$  upon standing. Statistical significance was obtained for RPP, when smokers and non-smokers were compared at rest ( $p = 0.003$ ) and upon standing ( $p = 0.04$ ). PEF showed no statistical significance between both groups ( $p = 0.10$ ).

**Conclusion:** Smoking influences RPP in young adults by increasing the myocardial oxygen consumption.

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### P040

#### Impact of vitamin D deficiency on severity of asthma: A study from a Teaching Institution in South India

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## Poster Presentation

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**Objective:** To study the association between Childhood asthma and serum Vitamin D levels in children on inhaled corticosteroid(ICS) use and also to study the association between dose of ICS and vitamin D deficiency .

**Materials and Method:** It is a prospective case control study conducted in 82 subjects, aged 5-15yrs of which 51 were cases and 31 were controls, attending the Department of Pediatrics. The clinical findings and treatment history were documented in all the subjects. The severity of asthma was clinically assessed by GINA guidelines. The dose of ICS used per day was noted. Serum vitamin D levels were assessed using electro chemi luminescent method in all of the subjects. Stastical analysis was done using Chi square test.

**Result-** Despite several studies worldwide on serum vitamin D levels and childhood asthma, there are only a few studies in Kerala. Hence in the present study an attempt has been done to study the relation between the severity of asthma and vitamin D levels, in children aged 5 to 15 yrs of age.

The mean age in our group was 8.99 +/- 3.65 yrs. There was a male predominance in our study with more male children affected with asthma.

Among controls 32.3% are deficient in vitamin D. Among cases 56.9% are deficient in vitamin D Compared to controls, asthma patients 2.77 times risk for vitamin D deficiency. Vitamin D deficiency is significantly high in cases than in controls.

The p value showed statistical significance when the groups were divided into two groups (deficient <15ng/dl and >15ng/dl). Vitamin D levels showed a decreasing trend from control groups to severe persistent asthma group.

The association between ICS use and vitamin D levels were assessed and no significant association was found , but a decreasing trend was seen from low dose ICS to high dose ICS use group.

**Conclusion-**The global burden of asthma is more than 1 billion and the burden in India is high due to various psychosocial factors. prevalence of asthma is higher in developed countries than in developing countries. However, the disease burden in India is high due to multiple factors like increasing urbanisation, pollution, poor dietary intake, clothing, low maternal vitamin D levels, skin pigmentation, fiber rich diet etc.

A decreasing trend was seen from control group to severe asthma group. Also, a decreasing trend was seen from low dose ICS to high dose ICS use group.

A large population study need to be under taken in south Indian population, so as to have a definite conclusion regarding the association between vitamin D and asthma control and ICS use.

### P041

#### **A study of Examination Stress and its effect on White Blood Cell count in 1<sup>st</sup> year MBBS students at JJMMC Davangere.**

**DR. Harini.S PostGraduate in Physiology, DR.Bhagya.V**

**Department Of Physiology, JJMMC Davangere**

Stress is a response to a stressor such as an environmental condition or stimulus. It can reduce the

efficiency of healthy individuals, which has been shown in most of the physiological studies.

**Aims & Objectives:** The present study was carried out to assess the stress and its effect on White Blood Cell parameters during university examination in 1<sup>st</sup> Year MBBS students.

**Methods:** 20 healthy students of year 2013-14 batch were selected for the study. Examination of Total leucocyte count and Differential Leucocyte count were carried out Before and during exams.

**Results:** Compared with Pre examination results, Blood sample during exam showed significant decrease in Eosinophil, Monocyte, Lymphocyte & Basophil counts and significant Increase in Neutrophil count was also observed.

**Conclusion:** Any stressful condition can cause significant changes in Blood Cell Parameters which can affect an individual's health.

## P042

### Association of body composition with left ventricular architecture in young healthy non-obese adult.

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#### Abstract:

**Aims and objectives:** Left ventricular structure and mass is related to body composition. Fat mass as well as lean body mass are known to affect the left ventricular architecture. Our goal was to evaluate the relationship between body composition and left ventricular morphology in young healthy non-obese males and females.

**Methods:** This was the cross sectional study done on the hundred (51 male & 49 female) physical education college students. Left ventricular structure was analyzed by 2-D and M-mode echocardiography. Body composition was analyzed bioelectrical impedance analysis. Association between these parameters was studied using Pearson correlation.

**Results:** In males, Left ventricular posterior wall thickness at end-systole (LVPWs) showed significant correlation with weight, BMI, BSA and lean body mass. Left Ventricular Internal diameter at end-systole (LVIDs), Inter ventricular septal thickness at end-diastole (IVSd) and left ventricular mass showed significant correlation with BMI. Inter ventricular septal thickness at end-diastole (IVSd) also showed significant correlation with weight. However, no significant correlation was seen in females.

**Conclusions:** This study showed the some influence of body composition on adult heart size in males; however no significant influence was shown in females. Body mass index was shown to have prominent influence on left ventricular structure in males.

Key words: Body composition, left ventricular mass, left ventricular architecture

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### P043

#### **A Comparative Study Of Choice Auditory Reaction Time In Blind And Sighted Subjects.**

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**BACKGROUND:** Reaction time is the time interval between the application of a stimulus and the appearance of appropriate voluntary response by a subject. It involves stimulus processing, decision making, and response programming. Quick reaction time is very important in day today survival in blind. They have to respond to stimuli much more faster as dangerous stimuli come suddenly in absence of visual cues. Especially auditory stimuli are very important in blind for processing of distant stimuli, orientation, and alertness.

**AIMS & OBJECTIVES:** To study and compare the mean auditory choice reaction time (A-CRT) in visually challenged and sighted individuals.

**METHODS:** 30 blind participants & 30 healthy controls from various colleges in Mumbai were assessed. Digital reaction time apparatus manufactured by Bio-Tech (INDIA), Mumbai (maximum resolution time-0.0001sec) was used in this study. Unpaired t-test was used for analysis. Choice auditory reaction time response with 3 different type of sound (high, medium & low frequency) was recorded in both groups.

**RESULTS:** The mean values for visually challenged and normal subjects for auditory choice reaction time were  $0.43693 \pm 0.098636$  sec &  $0.54181 \pm 0.048349$  sec respectively. According to our study, There was statistically significant difference ( $p < 0.0001$ ) in average values of reaction time between blind and normal sighted persons.

**CONCLUSION:** Blind individuals commonly utilize tactual and auditory cues for receiving information and orientation (e.g., auditory pedestrian signals or Braille reading), whereas in sighted, vision is much more imp than auditory and tactile stimuli. Absence of visual stimuli is known to intensify the remaining senses. Increased reliance on audition (distant stimulus) together with more practice in using this modality to guide behavior is reflected in better performance of blind relative to sighted participants in auditory discrimination tasks. This is very important in day to day survival in blind subject. In congenital blind individual unimodal and cross modal plasticity i.e. enlargement of auditory cortex & auditory processing in visual cortex respectively is seen. Thus auditory stimulus processing is much faster than sighted individual. Hence A-CRT is significantly improved.

### P044

#### **A Comparative Analysis Of Fev1 And Chest Expansion Between Trumpet Blower Smoker And Healthy Smoker And Non-smoker**

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**Objective:** The present study was an attempt to measure and compare the Pulmonary Function Test (FEV1) by Spirogram between trumpet Blower Smoker and Healthy Smoker and Non-Smoker.

**Method:** 30 Healthy Smokers, 30 Healthy Non-Smokers and 30 Trumpet Blower Smokers, all between age group of 20-45 years had been included in the study.

The FEV1 and Chest Expansion were measured and statistical analysis done between the three groups.

**Results:** It was found that FEV1 of Trumpet Blower Smokers were nearly same or even better than normal Healthy Non-Smokers. FEV1 of Healthy Smokers was the worst.

It was also found that chest expansion of Trumpet Blower Smokers were better than Healthy Smokers and Non-Smokers.

**Conclusion:** Regular smoking is hazardous to life. The study shows that regular pulmonary exercise will definitely be helpful even in the case of habitual smoker. Details of the study will be presented during the time of paper presentation.

## P045

### Pulmonary Function And Biomass-fuel Use

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#### ABSTRACT

**Introduction.** Exposure to indoor air pollution from combustion of traditional biomass fuels (wood, charcoal, animal dung, and crop wastes) and coal is a significant public health hazard predominantly affecting poor rural and urban communities in developing countries. Large numbers of people are exposed on a daily basis to harmful emissions and other health risks from biomass and coal burning.

**Method:** This study was conducted in Cuttack involving 30 randomly selected adult subjects (10 male and 20 female). All the subjects were interviewed and were subjected to pulmonary function test.

**Results:** This study showed that biomass fuel use (especially wood) is an important factor for deterioration of pulmonary function (particularly in female). FEV1 ( $p < .05$ ), FEV1 % ( $p < .01$ ), PEFr ( $p < .05$ ) and FEF25–75 ( $p < .01$ ) values were significantly lower in biomass fuel using females than nonusers. Comparison of only biomass fuel use vs. only LPG (Liquefied Petroleum Gas) use and only wood vs. only LPG use has showed that LPG is a safer fuel so far as deterioration of pulmonary function is concerned. This study observes some deterioration of pulmonary function in the male subjects also, who came from biomass fuel using families.

**Conclusion:** This study concluded that traditional biomass fuels like wood have adverse effects on pulmonary function.

**Keywords:** Biomass-fuel, Pulmonary function, FEV1, PEFr, FEF.

## P046

### Effect of combination of crude extract of *Aegle marmelos* leaves and *Tamarindus indica* seeds on blood glucose level in streptozocin-induced diabetic rats

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#### Abstract

**Aim:** To evaluate the glycemic influence of the combination of crude extract of the leaves of *Aegle marmelos* and seeds of *Tamarindus indica* in streptozocin-induced diabetic rats.

**Method:** A total of 36 adult Wistar rats (150-250 g) were divided into six groups (n = 6 in each group). Fasting blood glucose levels were assessed at day 0 (before treatment) and subsequently on 15<sup>th</sup>, 30<sup>th</sup> and 45<sup>th</sup> day (after treatment) among the non-diabetic control (2% gum acacia; 1 ml/kg/day), streptozocin (35 mg/kg; *i.p.*) induced diabetic control (2% gum acacia; 1 ml/kg/day), glibenclamide (0.5 mg/kg/day; *p.o.*) and combined crude extract of *Aegle marmelos* leaves and *Tamarindus indica* seeds (350, 700 and 1400 mg/kg/day, *p.o.*) treated diabetic rats.

**Results:** There was significant decrease in blood glucose level in the diabetic rats treated with 350 mg/kg, 700 mg/kg and 1400 mg/kg of test drug as compared to diabetic control rats ( $p < 0.05$ ) and the anti-hyperglycaemic effect of test drug was pronounced in 350 mg/kg treatment group of diabetic rats in comparison with diabetic control group ( $p < 0.001$ ). There was more significant decrease in blood glucose level in diabetic rats treated with 350 mg/kg of test drug as compared to diabetic rats treated with glibenclamide ( $p < 0.05$ ).

**Conclusion:** The present study revealed that combination of crude extract of *Aegle marmelos* leaves and *Tamarindus indica* seed have potent anti-hyperglycemic activities.

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## P047

### A Study Of The Relationship Of Body Shape Index With Blood Pressure.

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Obesity is an independent risk factor for hypertension. A Body Shape Index (ABSI) is a recently proposed index, developed by Krakauer et al, which standardizes Waist Circumference (WC) for Body Mass Index (BMI) and height.

**AIMS:** To find correlation between ABSI and Blood pressure (BP) in both males and females.

**OBJECTIVES:** To know whether ABSI can be used as a new measure to assess the risk of hypertension.

**METHODS:** Subjects includes 40 healthy male and female subjects (20 each) in the age group of 25-40 years. As per WHO guidelines, WC measured and BMI estimated. ABSI was determined using Krakauer's index,  $ABSI = WC / (BMI^{2/3})(Height^{1/2})$ . Systolic (SBP) and diastolic (DBP) blood pressure measured using mercury sphygmomanometer.

**RESULTS:** A significant increase in ABSI in females found compared to male subjects ( $p < 0.0001$ ). In case of females, there was an insignificant positive relation between ABSI and SBP ( $r=0.303, p=0.188$ ) and ABSI with DBP ( $r=0.324, p=0.163$ ). In males, there was a significant positive relationship between ABSI and SBP ( $r=0.184, p < 0.05$ ) and ABSI with DBP ( $r=0.382, p < 0.05$ ).

**CONCLUSIONS:** ABSI more in females shows that, WC is more for their height and muscle mass but the significant relation with BP in men could be due to lifestyle and known benefits of oestrogen hormones in women.

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## P048

### Importance of administering various types of MCQs for stratification of achievers in formative assessment of medical students

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Various types of MCQs such as Single Response (SR), Multiple response (MR), Reason Assertion (RAQ) and Problem Based Questions (PBQ) are used as evaluation tools at premier Institutes around the world, to stratify & screen achievement of student learning objectives. In this context, the present study aim to compare the ability to discriminate among high, average & low achievers in formative assessments of medical students. To achieve this, four types of MCQs (n=40) in equal distribution were administered to first year MBBS students during Internal Assessment after completion of Physiology Course. The students were divided in three groups in terms of High (HA; n=26; marks obtained=60%-78%); Middle (MA; n=53; 43%-59%) and Low achiever (LA ; n=16; 24%-42%). The results revealed that performance of HA were significantly better ( $p < 0.001$ ) from MA & LA for all types of MCQs. Besides, MA performed significantly better ( $p < 0.01$ ) as compared to LA in all MCQ except RAQ. HA & MA also had significant correlation ( $r=0.4-0.5$ ;  $p < 0.01$ ) between total marks obtained and marks in the individual type of MCQs except for SR in high and RAQ in middle achievers. LA had no such correlation with any of the tools used except for MR ( $r=0.77$ ;  $p < 0.001$ ) indicating its effectiveness in minimizing the chance factor while attempting. Also, RAQ may be considered the suitable tool for differentiating MA & LA from HA.

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Key Words: Reason Assertion, MCQ, Multiple Response, Formative Assessment

### P049

#### **Assessment of effect of Sleep deprivation on audio-visual reaction time (task performance) in resident doctors having 20 to 30 yrs. of age.**

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**Aim-**To evaluate the effect of sleep deprivation on audio-visual reaction time in resident doctors having age group of 20 to 30 yrs.

#### **Objectives-**

1. Recording of AV reaction time.
2. Analyzing the change in AV reaction time.

**Methods-** Total 30 subjects were taken. Study was conducted during 24 hrs. duty period. The subject's measurements were taken at start (morning) of the study and 24hrs thereafter (next morning) with the HRT apparatus.

**Result-** On analyzing the data with "Wilcoxon matched pairs test", we got two tailed  $p < 0.0001$  for visual (both red and green color) and auditory (both low pitch and high pitch sound) reaction time, shows highly significant increase in reaction time.

**Conclusion-** This study concludes that 24 hrs. sleep deprivation significantly increases the audio-visual reaction time for both high pitch and low pitch sounds and red and green colour respectively.

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### P050

#### **Assessment of Balance in Female Bharathanatyam dancers and nondancers**

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**AIM:** To assess static and dynamic balance in female bharathanatyam dancers and nondancers

**OBJECTIVE:** To compare static and dynamic balance between dancers and nondancers

**METHOD:** 8 dancers and 12 nondancers in the age group of 18-23 years were assessed. Static balance was assessed by Balance Error Scoring System where subjects stood with eyes closed on flat surface and foam in three stances. Based on the performance error score was given. Dynamic balance was assessed by Star Excursion Balance test where subjects stood on one leg in the centre and used the other leg to reach in lines radiating in eight directions from the centre. These excursion distances were normalized to their leg lengths.

**RESULTS:** The T test for static balance was significant with  $p=0.01$ . Dancers had greater excursion distances in some directions but the T test was not significant.

**CONCLUSION:** Dancers performed fewer errors than nondancers and thus had better static balance which

is probably related to their training program. There was no difference in dynamic balance between dancers and nondancers which requires further evaluation.

## P051

### Characterization of Auditory Acuity in different phases of Menstrual Cycle

#### AUTHORS:

**Dr. Jyothi Vybhavi .V. S & Dr. Shivakumar Veeraiah**

**AIM:** To determine the Audiological status in different frequencies in Premenstrual & Proliferative phases of Menstrual cycle.

**OBJECTIVES:** 1. To perform Pure Tone Audiometry in Premenstrual and Proliferative phases. 2. To compare the results of Audiometry in Premenstrual and Proliferative phases.

**METHODS:** This prospective study involved 60 healthy female subjects with regular menstrual cycle with consideration of inclusion and exclusion criteria. Written informed consent was taken. For each subject, Anthropometric Measurements were taken, and Menstrual History Questionnaire was administered. Audiometric test was done for Hearing Acuity using ASHA 2005 Guidelines before and after menstrual period, respecting the limit of ten days before and after menstruation. Using appropriate tools, results were compiled and statistically analyzed.

**RESULTS:** Statistically significant increase in mean Body Mass Index was seen in premenstrual phase. Hearing threshold were compared between two phases and statistically significant decibel loss were observed in Premenstrual phase.

**CONCLUSION:** Results highlight significant decibel loss at all frequencies in Premenstrual phase, attributing to fluid and salt retention due to increased Ovarian Hormones.

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## P052

### Intra-individual variations of auditory evoked potentials under different mental states.

**Jyoti Arora\***, **Dr Jyotsna Gumashta**, **Dr S.K.Sadawarte**, Department of Physiology, PCMS&RC, Bhopal, M.P.

#### ABSTRACT:

**Introduction:** Various mental states like emotional, non- emotional, meditative, focused or unfocused affect out cognition and mental processing. Auditory evoked potential (BAEP) & Cognitive Event related potentials P300 were used to study the effects of meditation and other mental states on cognition.

**Methodology:** A study was carried out on a subject who had been practicing meditation on a regular basis to study the effects of various mental states on short latency potentials- Brainstem Auditory Evoked Potential (BAEP) and long latency potential- P300. P300 was elicited by using 'auditory odd ball paradigm' and BAEP was recorded by the standard procedure. The three potentials were recorded, (i) as baseline under normal mental states with eyes closed and free flowing thoughts about non-emotional events but not meditating, (ii) under negative emotional state and (iii) during meditation.

**Results: BAEP:** During Meditation: The absolute latency of V wave was decreased and amplitude was increased. The inter-peak latencies I-III & I-V were also decreased while mild reduction was seen in III-V inter-peak latency indicating the overall fast processing of the auditory stimulus. However no changes were noted in BAEP record during emotional disturbance.

**P300-**Latency and amplitude was decreased during meditation. Reduced latency is suggestive of improved attention and reduced amplitude suggestive of decreased cognitive reactivity to distracting stimuli.

During emotionally disturbed state, the P300 latency on left side was same as no meditation baseline state while P300 latency on right side was markedly increased indicating reduced ability of concentration and decision making. This may be due to emotional quality of stimuli assessed by representational hemisphere.

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### P053

#### **Effect of Body Mass Index (BMI) on Forced Vital Capacity (FVC) in young healthy males.**

Kalpojit Saikia, Shrabani Barman, Dibakar Dey

**Aims and objectives:** To investigate the correlation between BMI and FVC in young healthy males in the age group of 20 -29 years.

**Method:** It was a cross-sectional study where 80 male subjects among the MBBS and Post –graduate students of Silchar Medical College in the age group of 20 -29 years were recruited for the study. Height was measured by a stadiometer. Weight was measured using a standard weighing machine. Then BMI was calculated using Quetelet Index. Pulmonary function test was done using computerised spirometer, Medspiror. The pulmonary function parameter FVC was taken for analysis. Pearson's correlation test was used to assess the correlation between BMI and FVC in healthy young males.

**Results:** There was significant inverse correlation ( $r = -0.468$ ,  $p < 0.01$ ) between BMI and FVC among the subjects.

**Conclusion:** It can be concluded that with the increase in BMI there is decrease in FVC.

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### P054

#### **A comparative study of efficacy of Red clover versus Conjugated estrogen on vasomotor symptoms and sleep patterns in postmenopausal women**

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#### **Abstract**

**Objectives:** To compare the efficacy of red clover versus conjugated estrogen in postmenopausal women.

**Methods:** A prospective, open labeled, randomized, comparative study was conducted on 30 postmenopausal patients, randomly divided in two groups of 15 each to receive either of the following: Group A: Red Clover 80mg OD and Group B: Conjugated Estrogen 0.625mg OD for 12 weeks. End points of efficacy were Hot flash score for vasomotor symptoms and Pittsburgh sleep quality index (PSQI) for sleep quality. Both the efficacy parameters were assessed at baseline and then subsequently at 2, 6, 9 and 12 weeks.

**Results:** There was statistically significant reduction ( $p < 0.05$ ) in Hot flash score in both the groups over a period of 12 weeks. However, on comparing both the groups at 2, 6, 9, 12 weeks, no statistically difference was observed regarding the reduction in hot flash score, although more reduction was observed with Group B as compared to Group A. The reduction of score at 2 weeks in Group A Vs Group B was 5.9% Vs 9.7% whereas at 12 weeks it was 81.8% Vs 87%. Moreover, there was statistically significant reduction ( $p < 0.05$ ) in PSQI in both the groups over a period of 12 weeks. When both the groups were compared at 2, 6, 9, 12 weeks, no statistically difference was observed regarding the reduction in PSQI, although more reduction was observed with Group B as compared to Group A. The reduction of PSQI at 2 weeks in Group A Vs Group B was 6.7% Vs 15.7% whereas at 12 weeks it was 67.6% Vs 68.2%.

**Conclusion:** To conclude both red clover and conjugated estrogen were comparable in reduction of hot flashes and improvement of sleep disturbances.

Preferred presentation code: POSTER

Subject code: Endocrinology, Correspondence details: Dr Jyoti Kaushal, Professor, Dept of Pharmacology, Pt. B. D. Sharma PGIMS, Rohtak Ph: +919896149454 E-mail: kaushaljyoti@yahoo.co.in

## PO55

### Acute blood loss enhances baroreflex recruitment in humans

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**Aims and Objectives:** Baroreflex is a sensitive operator to modulate the gain of the system to regulate blood pressure. The contribution of baroreflex activation during mild loss of blood volume remains to be investigated. Thus, we planned to quantify the activation of baroreflex using blood donation as a model of acute blood loss in humans.

**Materials and Methods:** 16 healthy volunteer donors (age  $35 \pm 7$  years; weight  $75 \pm 9$  Kg) who donated standard 450 ml of blood were studied. Baroreflex activity was calculated by sequence method before, during and after blood donation. The baroreflex activation was quantified by counting number of sequences. Repeated measures ANOVA with Bonferroni post-hoc test was used for statistical analysis.

**Results:** There was a significant reduction in baroreflex sequences pertaining to Systolic Blood Pressure (SBP) and Mean Blood Pressure (MBP) during blood donation when compared to baseline (SBP baseline vs. during:  $7.88 \pm 15.08$  vs.  $45.88 \pm 25.46$ ,  $p = 0.012$  and MBP baseline vs. during:  $32.06 \pm 19.8$  vs.  $51.06 \pm 22.26$ ,  $p = 0.006$ ). There was no significant increase in number of sequences in diastolic blood pressure ( $30.12 \pm 12.98$  vs.  $40.71 \pm 18.40$ ). Additionally, there was no significant change in Baroreflex sensitivity before, during and after acute blood loss.

**Conclusion:** The acute blood volume loss causes increase in the recruitment of baroreflex responses with no significant changes in baroreflex sensitivity.

## P056

### **Assessment of prostate specific antigen, creatine phosphokinase, creatine phosphokinase MB isoform and total calcium in seminal plasma of infertile male.**

Kesab Rakshit, A.B.S Mahapatra, Achyut Ghosal, Sandip Jain, Jayanta Rout

**Introduction:** Fertilization in humans is dependent on viability of the male spermatozoa. Amongst several factors there have been conflicting reports on the role of PSA(prostate specific antigen), CK(creatine phosphokinase), CK-MB(isoform) and calcium concentrations in sperm function.

**Aims and objective:** To estimate PSA, CK, CK-MB and total calcium concentrations in male fertile and infertile subjects with respect to different seminal parameters namely sperm concentration(SC), motility(MT), rapid progressive motility(RP), volume etc.

**Materials and methods:** Seminal plasma concentration of CK, CK-MB, PSA and total calcium were measured in both groups along with normal seminal parameters(WHO guidelines) and by using standard protocol.

#### **Results :**

- The mean SC for infertile(N=19) and fertile(N=7) male were  $64.14 \pm 40.5 \times 10^6$ ,  $95.54 \pm 27.32 \times 10^6$  respectively( $p=0.094$ ).
- The mean MT in infertile and fertile males were  $60.9\% \pm 28.7$  and  $79.2\% \pm 6.07$  respectively( $p=0.497$ ).
- The mean PSA in infertile and fertile males were  $0.768 \pm 0.48$ mg/ml and  $1.435 \pm 0.16$ mg/ml respectively( $p<0.001$ )
- The mean CK and CK-MB in infertile and fertile males were  $3.02 \pm 5.39$ ;  $1.48 \pm 2.86$  and  $2.49 \pm 1.07$ ;  $1.00 \pm 0.45$  IU/ $10^8$  sperm cells respectively( $p=0.094$ )
- Statistically significant correlations was observed between PSA and MT( $\rho=0.535$ ;  $p<0.001$ ) negative correlations was observed between CK and SC{ $\rho=(-)0.849$ ,  $p=0.094$ } and also between CK-MB and other SC(SC,  $\rho=(-)0.791$ ,  $p<0.001$ ; MT,  $\rho=(-)0.671$ ;  $p<0.005$  and RP{ $\rho=(-)0.725$ ,  $p<0.001$ }.

**Conclusions :** PSA~MT and CK~SC correlations are very imperative facts when treating subjects with male infertility.

## P057

### **Sprint Interval Training Is Better Than Traditional Aerobic Exercise In Prediabetes: Randomized Controlled Trial**

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**Background:** Exercise is known to improve carbohydrate metabolism. However, traditional aerobic exercise requires more time and has less compliance. Sprint Interval Training is coming up as a time efficient newer alternative form of exercise with increased compliance and adherence.

**Purpose:** To compare Sprint Interval Training (SIT) & traditional aerobic exercise (AE) with respect to changes in glycated haemoglobin in Prediabetes.

**Study design:** Parallel assignment, Randomised controlled trial.



**Methods:** Sample size determined using openepi software. 160 males aged 25 - 40 years suffering from Prediabetes as per ADA criteria were enrolled and randomly allocated to SIT & AE groups. SIT group exercised at high intensity for 10 minutes a day, 3 days a week. They performed Sprint training in 1:1.5 ratio i.e one minute of all out sprint followed by one & half minute of cooling down, completing four such cycles per session. AE group exercised as per current guidelines i.e daily 30 minutes of moderate intensity exercise for 5 days a week. The assessment of glycated haemoglobin was done before intervention and 6 weeks after intervention.

**Conclusions:** SIT led to better improvement in glycated haemoglobin & can be suggested as a time efficient exercise protocol.

**Keywords:** Sprint Interval Training, Diabetes, Aerobic exercise.

## P058

### Effective modulation of radiation induced hematological changes by *Nardostachys jatamansi*

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**Aims and Objective:** Radiation is an established weapon in the diagnosis and the therapy of cancer. Radiation therapy destroys cells in the area being treated by damaging their genetic material. The present study aims at investigating the protective effect of *Nardostachys Jatamansi* root extract on radiation induced hematological damage in rats exposed to 3Gy Whole body Electron Beam Irradiation (EBR).

**Materials and Methods:** The present work is carried out using rat as experimental model after the institutional ethical clearance. EBR was performed at Microtron centre, Mangalore University. Treatment of rats with NJE (100mg/kg bodyweight) once daily for 15days prior to irradiation was done. After irradiation blood was collected for determining the RBC count, WBC count, hemoglobin, Platelet count and Packed cell volume using automated hemoanalyzer. The data were expressed as mean  $\pm$  S.D and was analyzed by one way ANOVA.

**Results:** The irradiated rats exhibited a significant decline ( $p=0.000$ ) in the hematological parameters such as RBC count, WBC count and hemoglobin concentration and was significantly modulated by NJE. Whereas, the platelet count and Packed cell volume was not affected by radiation.

**Conclusion:** Preirradiation treatment with NJE provided protection against radiation induced hematological damage by modulating the hematopoietic system.

**Key words:** Electron beam irradiation, Peripheral blood counts, Platelet count, Packed cell volume.

## P059

### Electroretinogram Changes In Young Adults With Myopia

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## Poster Presentation

**AIM:** The aim of the study is to evaluate the retinal function, especially ganglion cell functional changes in macula in individuals with high myopia using Pattern Electroretinogram (PERG).

**OBJECTIVES:**

- Recording Pattern ERG in individuals with low myopia.
- Recording Pattern ERG in individuals with high myopia
- Comparison of the results of the above two groups.

**SUBJECTS:** Total of 64 subjects were included in the study of 18-30 years age group of both the sexes. The subjects were divided into 4 groups according to their refractive error as

Group-1 (controls): 0 D to -0.75D

Group-2: -1.00 to -3.00D

Group-3 : -3.25 to -6.00D

Group-4: -6.25 to -10.00D

**METHODS:** Statistical analysis was done using ANOVA test & unpaired t-test. Axial lengths of both the eyes of 64 subjects were recorded using A scan ultrasonography.

Amplitudes & latencies of P50 & N95 waves of PERG were recorded using RETIMAX CSO EQUIPMENT following ISCEV GUIDELINES for PERG 2012 update.

**RESULTS:** P50 & N95 wave amplitudes were lower in high myopes than low myopes (group 2,3,4 compared to group 1) ( $p < 0.001$ )

-P50 & N95 wave latencies were prolonged in individuals in group 2,3,4 compared to group 1 ( $p < 0.001$ )

**CONCLUSION:**

Decreased P50 amplitude indicates a macular functional disorder in subjects with high myopia & decreased N95 amplitude shows ganglion cell dysfunction. Thus the PERG findings show that macular & ganglion cell disorder contributes to the decreased visual performance in myopia.

**KEYWORDS:** Myopia, Macular function, PERG-Pattern Electroretinogram.

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## P060

### Effect of liraglutide and sitagliptin in rodent models of anxiety and depression

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**Background:** Evidence supports a neurotrophic and neuroprotective role of GLP-1 receptor stimulation. Also, depression is characterized by an enhanced neurodegeneration and decreased neurogenesis.

**Objective:** To evaluate the effect of liraglutide (a long-acting GLP-1 agonist) and sitagliptin (a DPP-4 inhibitor) on the anxiety and depression-like behavior in rats or mice.

**Materials and Methods:** Anxiety-behavior was evaluated in open-field test and elevated plus maze (EPM) test while depression-like behavior was evaluated in forced swim test (FST) and tail-suspension test (TST).

**Results:** Liraglutide (200 µg/kg) administration reduced the peripheral square crossings by the rats in open field test as well as reduced closed arm entries in the EPM, suggesting that liraglutide caused a decline in exploratory behavior. In FST and TST models for depression, the duration of immobility with sitagliptin (6 mg/kg) was significantly ( $P<0.05$ ) reduced in comparison to control group suggesting its antidepressant effect.

**Conclusion:** Sitagliptin has anti-depressant effect in the animal models of depression while liraglutide did not have such an effect. Liraglutide showed anxiogenic effects in the animal models.

P061

### **Prevalence of HbE among the 1<sup>st</sup> year MBBS students of Silchar Medical College, Silchar, Assam.**

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**AIMS and OBJECTIVES:** 1.To find out the prevalence of HbE among the students of 1<sup>st</sup> MBBS of Silchar Medical College, Silchar, Assam.

2. To evaluate anaemia and its pattern in the students with HbE variants.

**METHOD:** Hb variant was analyzed by hemoglobin electrophoresis on Cellulose Acetate at pH 8.6 and complete blood count was done by Sysmex 5 part hematology analyzer and the RBC indices were obtained.

**RESULTS:** Out of 50 subjects studied, 15 showed abnormal hemoglobin and 35 showed normal hemoglobin type. HbE variants were detected in 13 (20%) subjects [ HbE trait =9 (18%), HbE disease =3 (6%) and HbE/  $\alpha$ -thalassaemia=1 subject]. There were 2 (%) subjects of  $\alpha$ -thalassaemia trait. 6 subjects showed decreased Hb value and all of them showed decreased MCV and MCH. Abnormal RDW was also found in majority of the cases.

**CONCLUSIONS:** Hemoglobin E variant is very common among the medical students of Silchar Medical College. So, it is important to screen out these Hb variants to prevent occurrence of more serious hemoglobinopathies in future generations.

**KEY WORDS:** HbE, anaemia, hemoglobin electrophoresis

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P062

### **A Comparative Study Of Efficacy And Safety Of Topical Calcitriol And Topical Calcipotriol In Stable Chronic Plaque Type Psoriasis**

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**Aims and Objectives:** To evaluate and compare the efficacy and safety of calcitriol and calcipotriol in stable chronic plaque type psoriasis.

**Materials and Methods:** 50 patients of chronic stable plaque-type psoriasis were randomly divided into two groups of 25 each. One group received calcitriol 3µg/g ointment and the other group received calcipotriol 50µg/g ointment twice daily for 12 weeks. Efficacy was evaluated by global improvement (on a 4-point scale) assessed clinically and by the subject, and dermatological sum score (DSS) at each study visit. Safety evaluations (on a 5-point scale) included clinical assessment of cutaneous safety and assessment of cutaneous discomfort by the subject.

**Results:** Both calcitriol and calcipotriol were significantly effective ( $p < 0.001$ ) in reduction of DSS but the difference was not statistically significant ( $p = 0.96$ ). Mean score of global improvement rated clinically was 2.20 for calcitriol and 2.16 for calcipotriol ( $p = 0.823$ ) and by the subject was 1.92 for calcitriol and 1.84 for calcipotriol ( $p = 0.726$ ). The difference between the two groups was not statistically significant. The mean worst score for cutaneous safety was higher in calcipotriol group compared to calcitriol group (0.28 vs 0.04 and 0.36 vs 0.04 by clinically and by the subject, respectively). The difference was statistically significant only by the subject ( $p = 0.03$ ) in favour of a better safety profile for calcitriol.

**Conclusion:** Both calcitriol and calcipotriol are equally efficacious in psoriasis, while cutaneous discomfort was less with calcitriol.

## P063

### Association Of Blood Group With Gender In Patients With Cholelithiasis:

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**Dr Wasima Jahan**, Professor & Head, Department of Physiology, Assam Medical College, Dibrugarh.

**AIM:** There are several studies on possible relationship of blood group to certain diseases. As cholelithiasis is common in this part of the region, this study was undertaken to find its relation with blood group.

**OBJECTIVES:** i) To find the blood groups of the patients with cholelithiasis.

ii) To find out whether there is any gender difference.

**METHOD:** A hospital based cross-sectional study was conducted in 62 ultrasonographically diagnosed cases of cholelithiasis from department of Surgery, Assam Medical College, Dibrugarh, after getting approval from the hospital authority.

ABO grouping and Rh typing were done by standard agglutination technique, results analysed statistically by using chi-square test.

**RESULTS:** Incidence of cholelithiasis was found to be more in females ( $n = 42$ , 68%) than in males ( $n = 20$ , 32%). Most common blood group among all the patients was B+ (42%) followed by A+ (27%), O+ (21%), AB+ (10%). Prevalence of BG among females were B+ (55%), O+ (21%), A+ (14%) & AB+ (10%), while among males A+ (55%), O+ (20%), B+ (15%), AB+ (10%).

Chi-square statistic was found to be 13.315, degree of freedom = 3 and  $p$ -value = 0.004 (significant).

**CONCLUSION:** Out of 62 cases of cholelithiasis, majority of the patients had blood group B+ followed by A+, O+ & AB+. In females blood group B+ and in males blood group A+ was found to be most common. Results statistically significant.

## P064

### **“A Relationship Between Bmi And Blood Pressure Among First Year Mbbs Students Of Mysore Medical College & Research Institute”.**

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**AIMS & OBJECTIVE:** To evaluate relationship between BMI and Blood Pressure among students of 1<sup>ST</sup> Year M.B.BS Students of Mysore medical college.

**METHODOLOGY:** A total of 126 students, 79 males and 47 females participated in the study conducted between June to July 2014 at Mysore Medical college. All students were divided into underweight, normal, over weight according to Western Pacific Regional Organization 2000 (WPRO) BMI classification. Hypertension was determined from the measurement of Blood pressure (BP).

Comparison of blood pressure among different groups was made by ANOVA.

**RESULTS:** Their mean age was calculated to be 18.6 years. Among students 23.8% were overweight and 22.2% were underweight while rest had a normal BMI. A consistent increase was seen in the prevalence of hypertension in Underweight, Normal, Overweight. Mean values of systolic BP (110.9, 114.3, 124.0 mmHg) and diastolic BP (76.2, 74.0, 78.4 mmHg) also increased with increasing BMI.

**CONCLUSION:** The present study tested the hypothesis that there is a Significant correlation between BMI with SBP, MBP & RRP.

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## P065

### **Sympathetic Milieu In Pediatric Age Group In Urban Population: Correlation With Age And Anthropometric Parameters**

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#### **ABSTRACT**

**OBJECTIVE:** Autonomic Nervous System (ANS) is primarily involved with homeostatic regulatory mechanisms. The subtle homeostatic derangements that originate well at childhood have their clinical manifestations during the adulthood. The aim of the study is to assess the sympathetic milieu in pediatric age group of both genders associated with age and anthropometric parameters.

**MATERIALS AND METHODS:** The study was conducted on 145 children of both the genders who were categorized in two groups as Group I (7-9 years, n=65) & Group II (10-12 years, n= 80). Resting sympathovagal balance is analyzed by five minutes of resting HRV recording and reactivity tests like orthostatic challenge, deep breathing and isometric hand grip were assessed and correlated with age and anthropometric parameters.

**RESULTS:** On analysis of frequency domain parameters, total power (TP) (P= 0.0017), low frequency power(LF) (P=0.0459) & high frequency power(HF) (P=0.0002) which indicates the sympathetic activity is more in younger age group with statistically significant difference. LF/HF ratio found to be more in older age group but there is no statistical significance.

**CONCLUSION:** Higher sympathetic activity is observed in younger pediatric age group and it has negative correlation with age and anthropometric parameters. However, it is interpreted with caution rather than to generalize this conclusion universally.

**KEY WORDS:** Sympathetic milieu, Sympathovagal balance, Orthostatic challenge

## P066

### Quality of sleep and its Impact on Neuro Cognitive Performance among Undergraduate Medical Students.

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#### ABSTRACT

##### OBJECTIVE:

Insufficient and poor sleep qualities results in behavioral dysregulation and affect the prefrontal cortex (e.g., attention, working memory, and other executive functions). In view of this, the present study was planned to correlate the Pittsburgh Sleep Quality Index (PSQI) with Neuro cognitive performance among undergraduate medical students.

##### MATERIALS AND METHODS:

We have included 41 healthy (M=22, F=19) volunteers, aged between 18-25 yrs. Subjects were selected by using simple random technique based on inclusion and exclusion criteria. After obtaining ethical clearance and informed written consent, anthropometric parameters, self-assessed PSQI and Neuro cognitive functions were recorded.

##### RESULTS:

The mean BMI was 22.53 (3.82) and age about 19.17(0.704) years. The major component of PQSI like Sleep latency, duration, quality, efficiency, disturbance, sleep medication and day time dysfunction were positively correlated with global PSQI. On the other hand use of sleep medication was negatively correlated with trial making B. These changes being were statistically significant (**P<0.05**).

##### CONCLUSION:

Our data suggests that the individual and sum of measured PQSI components have significant correlation with Neuro Cognitive Functions among undergraduate medical students. These findings suggest sleep

hygiene should be emphasized among adults, as it may provide an additional mechanism for intervention to improve neurocognitive outcomes.

**KEY WORDS:** Sleep, Cognition, Pittsburgh Sleep Quality Index.

## P067

### A Study Of Thyroid Stimulating Hormone (Tsh) In Relation To Obesity In Clinically Euthyroid Subjects.

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**Introduction :** Thyrotropin (TSH) induces adipogenesis and adipokine production directly, independent of the mediating influence of thyroid hormones on energy balance and may contribute to the evolution of obesity, independent of any involvement of the thyroid gland.

**Aims & Objectives :** To study the relation of serum TSH level with obesity markers: Body Mass Index (BMI) & Waist Hip Ratio (WHR).

**Materials & Methods :** The present study was conducted in the Physiology department, MGM Medical College, Kishanganj from October'2012 to June'2014, among the 100 medical and paramedical students . BMI, WHR & serum TSH levels were measured. Patients with present, past or family history of any thyroid disorders were excluded from the study.

**Results :** It was seen that there was no correlation between BMI and serum TSH level in females, whereas there was a moderate direct correlation between TSH level and BMI in males (  $\rho = 0.413$ ,  $p = 0.0028$ ) and a moderate inverse correlation between TSH level and WHR in females (  $\rho = -0.488$ ,  $p = 0.0003$ ).

**Conclusion :** The moderate direct association between BMI & TSH level in male explains a direct action of TSH hormones on obesity, but a longitudinal, long term follow-up study over a large population to come to a conclusion is needed.

## P068

### A Study On Pattern Of Poisoning In The Paediatric Age Group

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**AIM AND OBJECTIVE:** \_The reported incidence of childhood poisoning in India varies from 0.3 to 7.6%. So the study was done to know the pattern of poisoning in paediatric age group.

**MATERIALS & METHODS:** The study was conducted in Department of Paediatric, IMS & SUM Hospital, Bhubaneswar. Seventy one children up to 14 years of age of both sexes with H/O accidental, suicidal or homicidal poisoning were included in this study. After taking the detail history and doing the general and

systemic examination, blood examination for CBC, Hb, TLC, DLC was done. Gastric aspirate analysis, serum examination for urea, creatinine, Na<sup>+</sup>, K<sup>+</sup> and ECG was also done.

**RESULTS :** Out of 71 cases non-medicament poisoning were commonest 78.87%, medicament 16.90% unknown 4.22%, accidental 67.60%, suicidal 28.16% and homicidal 4.22%.

**CONCLUSION:** In this study out of total 6129 admissions to the paediatric ward the overall incidence of oral poisoning was 1.15%. In the present series among all the cases the commonest poisoning was due to nonmedicaments (78.87%) followed by medicaments (16.90%) and unknown(4.22%).

Key words: homicidal, suicidal, poisoning

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## P069

### **A Comparitive Study Of Impact Of Obesity On Peak Expiratory Flow Rate In Obese And Non –Obese Young Adult Females**

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**BACKGROUND:** Obesity can cause various deleterious effects on Respiratory function and impair health and quality of life; it is important risk factor for reduced airflow or lung function. Lower Peak Expiratory Flow rate (PEFR) value in obese subject is due to increase in the total peripheral resistance and airway resistance.

**AIMS AND OBJECTIVES:** The purpose of this study was to compare PEFR parameter in obese adult females and non-obese adult female subject, to evaluate the impact of obesity on Peak Expiratory Flow Rate in adult women.

**METHODS:** Pulmonary Function tests (PFTs) of normal, healthy, non-obese females and healthy but obese females, age group 18-30 years of Hubli city were determined and were compared. Criteria for obesity in our study taken were according to WHO criteria of BMI. The pulmonary function test was carried out with computerized Spirometer Eazy on-PC model. Peak Expiratory Flow rate was used as measure of lung function.

**RESULTS:** There was statistically significant lower PEFR in the obese group ( $p < 0.05$ ) than the non- obese control group. There was inverse relationship between Peak Expiratory Flow rate and obesity.

**CONCLUSION:** These data demonstrate that peak expiratory flow rate of obese adult females were significantly reduced when compared to the normal weight counterparts. Obesity had a significant impact on peak expiratory flow rate in young adult females.

**KEY WORDS:** peak expiratory flow rate; obesity; adult female; eazy on-pc model; body mass index



P070

**Association Of Depression In Diabetic Patients**DR MANASI BEHERA\*<sup>1</sup>, DR PUSPARANI DAS <sup>2</sup>, DR DIPTI MOHAPATRA<sup>3</sup>, DR NIBEDITA PRIYADARSINI <sup>4</sup>

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**ABSTRACT**

**Aims and Objective:** Mortality of diabetes increases when associated with depression. Screening for depression is recommended by national and international authorities. To have an estimate of the diabetic patients at risk of depression and to identify the risk factors for depression in diabetic patients.

**Materials and Methods:** The study was designed as a cross – section design. Two hundred and three patients were selected by convenience sample. Diabetic patients of both sex, 18 years and older, new to clinic or follow up were included. Patients with Psychiatric disease and mentally retarded patients were excluded. An interview questionnaire was used for data collection. The two – item version of patients' health questionnaire (PHQ -2) was used as a screening tool.

**Results:** Patients with PHQ-2 positive were constituted 45.8%. Depression was associated with female gender ( $p= 0.049$ ), long standing diabetes ( $p=0.035$ ), insulin use ( $p=0.024$ ), and with other medical disorders ( $p=0.006$ ).

**Conclusion:** Although all diabetic patients are at risk of having depression, female gender, long standing diabetes, insulin use and having medical disorders at higher risk.

**Key Words:** Diabetes, Depression, Screening, Mortality.

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P071

**Effect of isotonic exercise on QTc interval, and heart rate variability**

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**Aim:** To evaluate the effect of isotonic exercise on QTc interval and correlate the same with sympathovagal balance.

**Objectives:** To compare pre and post exercise duration of QTc interval and heart rate variability (HRV) between healthy controls, obese subjects and subjects with parental history of diabetes mellitus.

**Materials and Methods:** 56 medical students were divided into 3 groups, namely control, obese and parental diabetic history group based on a personal questionnaire and subjected to isotonic exercise. ECG was recorded for 5 minutes pre-exercise and up to 20 minutes post-exercise. Pre and post exercise QTc and heart rate variability was computed from the ECG record. Paired t-test and ANOVA was used to analyse data.

**Result:** QTc was prolonged post exercise in all 3 groups but did not attain statistical significance. LF: HF ratio increased post exercise in all groups but was not correlated with QTc.

**Conclusion:** Although statistically insignificant, physical exercise brings about detectable prolongation in the QTc interval in individuals irrespective of their cardiovascular risk status. Individuals may be more prone to suffer from arrhythmias in the post exercise period. Hence, QTc may be used as a marker to

predict untoward post exercise cardiac events. Moreover, drugs with arrhythmogenic potential must be avoided during exercise.

**Key Words:** isotonic exercise, QTc, heart rate variability

## P072

### **Nerve Conduction Study In Patients With Sickle Cell Disease.**

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**OBJECTIVE-**: To determine the peripheral nervous system involvement in patients with sickle cell disease through nerve conduction study.

**METHOD-**: Fifty one patients (M=33,F=17) with established sickle cell disease were taken in the present study for nerve conduction study. All were within the age group 15-45yrs.They were closely scrutinized for sign and symptom of clinical neuropathy. The control group contains 51 normal person within the same age group(M=35,F=15).A comparative study of nerve conduction velocity were done between sickle cell disease patients with neuropathy and without neuropathy and also compared with normal laboratory value . The study include the following things

- a) motor nerve conduction study
- b) sensory nerve conduction study
- c) F wave
- d) terminal latency

**RESULTS—** -In the present study motor nerve conduction velocity (MNCV meter/sec) and sensory nerve conduction velocity (SNCV meter/sec) in different nerves were done in sickling patients. The peripheral nervous system involvement was detected in 10 patients compared with laboratory value (51 normal persons). The mean MNCV was delayed in patients with neuropathy when compared with sickle cell disease without neuropathy and also with normal laboratory value ( $p<0.001$ ).Similarly mean SNCV was delayed in patients with neuropathy when compared with sickle cell disease without neuropathy and also with normal laboratory value ( $p<0.001$ ). It was observed that terminal latency of MNCV is prolonged ( $p<0.05$ ) in sickling patient with neuropathy.4(7.84%) patients have sensorimotor axonal neuropathy, 2(3.92%) patients have ulnar sensory neuropathy, 3(5.88%) patients have median sensory neuropathy. Sural nerve sensorial action potential was unobtainable in 6(11.76%) patients. Prolonged F wave latencies were observed in 4(7.84%).

**CONCLUSION-** The sickle cell disease, an inherited disorder is said to be having world wide distribution but its prevalence is restricted to some areas of few developing countries. In India sickle cell disease is common in Western Odisha . Recurrent vasoocclusive crisis is well established complication of sickle cell disease. The nerve roots and peripheral nerves may like wise be damaged due to vasoocclusive crisis. Nerve conduction study are recommended in routine examination to dignose early neuropathy in SCD patients without neurological symptoms. They can also be used to test the progression and effect of treatment in patients having sickle cell disease with neuropathy.

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**P073****Impact of academic examination stressor on blood pressure in first year medical students**

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**Background:** At BMCRI students of varied background seek admissions here and are exposed to excess workload, high level of competition, parental pressure and new environment at the outset.

**Aims and Objectives:** To determine the effects of academic examination stressor on BP before and during examinations.

**Materials and Methods:** Cross sectional study. 150 students were randomly selected from 2013 batch of year medical students. Demographic details with anthropometry measurements along with blood pressure were taken for each student prior to the exams. Data about stress was collected using the GHQ12 questionnaire. During the final exams BP was measured, GHQ 12 stress data collected from the same 150 students.

**Results:** BMI calculated for each student. Systolic and diastolic BP were increased during exams in both when compared to pre exam BP. 42% girls, 14% boys were moderately stressed before exams. 14% girls, 6% boys were severely stressed before exams. 22% girls, 32% boys moderately stressed, 56% girls, 28% boys were severely stressed during the exams.

**Conclusion:** Medical students have high stress levels especially during exams which leads to CVS reactivity. Need for stress management and coping techniques.

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**P074****Heart Rate Variability(hrv) In Normotensive Subjects With Family History Of Hypertension**

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**AIM:** The study is aimed to find out the early changes in the cardiac autonomic modulation by analyzing Frequency and Time domain measures of Heart rate variability among normotensive subjects with family history of hypertension.

**OBJECTIVES:** To compare HRV between subjects with family history of hypertension and subjects without family history of hypertension.

**METHODS:** 40 Normotensive male subjects between the age group of 18-25 years with family history of hypertension (either one parent or both the parents) were selected as study group and 40 Normotensive male subjects between the age group 18-25 years without family history of hypertension were selected as controls. The study was carried out in Electrophysiology laboratory of Physiology department in Osmania Medical College. Baseline blood pressure was measured using sphygmomanometer and height in meters and weight in kgs were measured and BMI calculated. Each subject was made to relax in supine position and ECG was recorded for 10 minutes in lead II using Power lab data recording system, AD instruments and analyzed by lab chart software. HRV was analyzed using frequency domain measures like Low Frequency

in normalised units(LFnu),High Frequency in normalized units(HFnu) and ratio of Low frequency to High frequency(LF/HF), and time domain measures like Standard deviation of NN interval(SDNN),Root mean square successive Differences between the intervals (RMSSD).

**RESULTS:** Statistical analysis was done using Unpaired t-test. There was a significant increase in frequency domain parameters like LFnu and LF/HF( $P<0.001$ ) and a significant reduction in HFnu in study group( $P<0.001$ ) compared to controls. Time domain parameters like SDNN and RMSSD were significantly reduced in study group( $P<0.01$ ) compared to controls.

**CONCLUSION:** Cardiac autonomic imbalance in the form of increased sympathetic activity and decreased parasympathetic activity was found in study group compared to controls.

Key words: heart rate variability, hypertension, LFnu, HFnu

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## P075

### **Nutritional Profile, Mineral Content and *In-vitro* Antioxidant Potency of *Capsicum annum L.* Cultivated in 24 Parganas [South], West Bengal, India**

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**Aim:** To quantitatively analyse the phytoconstituents along with proximate composition, mineral and vitamin content, and free radical scavenging activity of cultivated variety of green *Capsicum annum L.*

**Objectives:** Assessment of nutritional profile along with *in-vitro* antioxidant potential and free radical scavenging activity of both the aqueous (Aq) and hydro-ethanolic (H-eth) extracts of the sample.

**Methods:** Fresh tissue was analysed for the presence of proximate composition and vitamin content. Mineral content was determined using Inductively Coupled Plasma Atomic Emission spectrophotometer (ICP-AES). The Aq and H-eth extracts were screened on a comparative basis for the presence of *in-vitro* antioxidant potential including the total phenol and flavonoid content, along with Ferric reducing power and DPPH, Hydroxyl and Superoxide radical scavenging activity.

**Results:** The sample was found to be rich in carbohydrate and dietary fibre, while low to moderate in crude protein and fat content, with high calorific and nutritive values. Besides, it was also found to be abundant in antioxidant vitamins and almost all essential micro and macro elements. Interestingly, no trace of heavy metals was observed. The free radical scavenging activity, total phenol and flavonoid content of the Aq extract was significantly higher than the H-eth extract ( $p<0.05$ ).

**Conclusion:** *Capsicum annum* is a nutritionally enriched spice with higher antioxidant potency of its aqueous extract compared to the hydro-ethanolic extract.

P076

### Noise Induced Hearing Loss (NIHL) in traffic personnel and its correlation with duration of exposure to noise

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**Introduction:** - Exposure to sufficiently intensive noise for a long enough duration is known to damage the internal ear and decrease one's ability to hear. One of the commonest causes of noise pollution in the urban set up is generated by automobiles. NIHL is a sensorineural, bilateral hearing loss that affects hearing sensitivity in the higher frequencies, especially at 4 kHz.

**Aim:** - Present study was undertaken to study effects of noise exposure on hearing of traffic personnel in Jammu city.

**Material and methods:** - Cross-sectional study was conducted in the Department of Physiology in collaboration with Department of ENT, Govt. Medical College for a period of one year. 150 traffic police personnel working in different areas of Jammu city for not less than 1 year and maximum 5 years duration at a stretch were included in the study. Protocol was approved by IEC. Otoscopy (OS), Rinne's test (RT), Weber's test (WT), Absolute bone conduction test (ABC), Schwabach test (ST), Pure tone audiometry (PTA) were carried out. Sound pressure level (SP) in dB existing at the duty spots of the subjects was recorded. Data obtained was analysed by SPSS software (version 20) and  $p < 0.05$  was taken as significant.

**Results:** - RT, WT and ST were normal in all subjects. ABC was decreased in 8 subjects. PTA revealed NIHL in 33 subjects (22%); all had bilateral involvement except one. Majority had mild to moderate NIHL. 8 more subjects were detected to have sensorineural hearing loss but they did not show the characteristic notch of NIHL at 4 kHz. Significant NIHL was present in the subjects exposed to traffic noise for more than 3 years ( $p < 0.001$ ).

**Conclusion:** - NIHL was observed to have significant association with duration of exposure. Therefore, we suggest that duration of exposure of traffic police personnel to environmental noise, at a stretch, should be less than 3 years. The result also underscores the need for periodic check-up of these personnel.

Key words: - Noise Induced Hearing Loss (NIHL), Traffic police, noise exposure

P077

### Influence of Oryza Tocotrienol on neurobehavioral performances of rats

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**Aims & Objectives:** Tocotrienols, vitamin E analogs with unsaturated phytyl side chain, are natural compounds found in select vegetable oils. In vitro studies demonstrated tocotrienols' effectiveness in nanomolar concentration as antioxidant. The current study was planned to evaluate the influence of Oryza tocotrienol exposure on the neurobehavioral performances of rats.

**Materials & Methods:** Male Wistar rats (NIN) were treated orally with Oryza Tocotrienol for six weeks and their performances in Spontaneous Motor Activity (SMA), Rota-Rod, Open field explorative activity were recorded weekly.

**Results:** Animals did not show any significant difference in food intake, water intake, relative growth between the control and treatment groups. Oryza Tocotrienol treated group demonstrated maintenance of SMA scores while control group failed to do so over time. Similarly, better performances on the Rota-Rod were also noted for the treatment group compared to that of control group. Differences in thigmotaxic behavior, total ambulation, temporal and spatial patterns of explorative behavior of rats were noticed between the groups.

**Conclusion:** Oryza Tocotrienol appears to be performance enhancer for tested neurobehavioral parameters. However, this pilot experiment cannot affirm any conclusive result.

## P078

### “Intraocular Pressure Changes In Smokers”

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#### ABSTRACT

**Background:** Tobacco is one of the most abused drug of all ages. It is said to alter the Intraocular Pressure and hence vulnerable to cause ocular disease.

**Aim:** To study the Intraocular Pressure changes in smokers

**Materials and Methods:** A case control study was conducted at dept. of ophthalmology, Navodaya medical college in 20 healthy male smokers and 20 controls in age group of 20-50yrs.Smokers included with history of smoking 10-20 cigarettes per day for duration of >5yrs. Exclusion criteria involved any ocular pathology, hypertension, diabetes.IOP was measured using schiottz tonometer. Statistical analysis done by student t test.

**Results:** The mean difference in right eye smokers is  $17.08 \pm 3.06$ , right eye nonsmokers is  $13.70 \pm 2.66$ . The mean difference in left eye smokers is  $17.25 \pm 2.75$ , left eye nonsmokers is  $14.29 \pm 3.03$ . Thus it was observed that the mean difference in IOP changes amongst smokers was significantly increased in both right and left eye ( $p < 0.05$ ) when compared to nonsmokers.

**Conclusion:** It was observed that tobacco in the form of smoking increases intraocular pressure. Measuring intraocular pressure by schiottz tonometer is simple technique which can be done at periphery centres to detect high risk group for glaucoma

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**P079****Effect Of Mindfulness Meditation On Attention And Executive Functions In Elderly People**Naren Kurmi<sup>1</sup>, Bhagyalakshmi K<sup>1</sup>, Rekha DK<sup>1</sup><sup>1</sup>Department of Physiology, Kasturba Medical College (KMC), Mangalore, Manipal University (MU), Karnataka, India.**Abstract:**

**Aim & Objective:** This case control study was aimed to observe the effect of mindfulness meditation on attention and executive functions in elderly people. **Materials & Method:** 100 elderly subjects (>60 years) were randomly divided into study (meditating) (n= 50) and control (non-meditation group) (n= 50). Meditation group did mindfulness meditation for 45 day ( $\frac{1}{2}$  hr/day, for 6 days in a week). Before and after the study period, attention and executive functions of both groups were assessed by Trail making test type A and type B. Statistical analysis was done by using independent and paired Student's 't' test. p < 0.05 was taken as significant. **Result:** Between both groups, there were no significant differences in the base line scores for Trail making test type 'A' (p= .06) and 'B' (p= .91). After study period significant improvement were noticed in the scores of trail making test type A (p = .036) and type B (p = .002) for the study group. In control group there were no significant variations in scores of both tests. **Conclusion:** Mindfulness meditation could improve attention and executive functions in elderly people.

**Key words:** mindfulness, Cognitive functions, Trail making test, Ageing**Address of correspondence:**

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Email: [narenkurmi@gmail.com](mailto:narenkurmi@gmail.com) Fax no.: 0824-2428183**P080****Correlation Of Homa-ir With Anthropometric Parameters In Healthy Young North Indian Subjects**Naveen B. Porwal <sup>\*1</sup>, Shradha Singh<sup>2</sup>, Sunita Tiwari<sup>3</sup>, Sandeep Bhattacharya<sup>2</sup>, Kalpana Singh<sup>4</sup>

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\*Presenting author: **Naveen B. Porwal, Resident,**email; [drnaveenporwal9000@gmail.com](mailto:drnaveenporwal9000@gmail.com) mob 9532997791**INTRODUCTION:** Insulin resistance and associated metabolic abnormalities are increasingly being reported among young Indian population.**OBJECTIVE:** To determine the correlation of HOMA-IR (homeostasis model of assessment-IR) with waist circumference, waist hip ratio, sagittal abdominal diameter and waist height ratio and to find which is better predictor of insulin resistance in apparently healthy north Indian subjects.**METHOD:** 100 apparently healthy subjects (55 male, 45 female) aged between 18-25 years were included in the study. Blood sample were taken after overnight fasting for biochemical assay and serum was separated. Serum glucose was measured by Glucose Oxidase Peroxidase method and insulin was measured

by Electrochemiluminescence Immunoassay "ECLIA", and IR was calculated using HOMA model. Waist circumference, sagittal abdominal diameter, hip circumference, and height were measured by standard method.

**RESULTS:** There was moderate positive correlation between HOMA-IR and waist circumference ( $r=0.395$ ,  $p=0.0001$ ). However, significant positive & mild correlation between HOMA-IR and waist hip ratio was found ( $r=0.263$ ,  $p=0.008$ ). The correlation between HOMA-IR and sagittal abdominal diameter was also observed to be positive and moderate ( $r=0.65$ ,  $p=0.0001$ ). The correlation between HOMA-IR and waist height ratio is moderate and positive ( $r=0.39$ ,  $p=0.0001$ )

**CONCLUSION:** Waist circumference, waist hip ratio, and waist height ratio are good surrogate marker of insulin resistance among which waist circumference; sagittal abdominal diameter and waist height ratio are better predictor of insulin resistance in apparently healthy Indian subjects.

**KEY WORDS:** HOMA-IR, Insulin resistance, sagittal abdominal diameter

## P081

### Leucocytic Count, Glycemic And Lipid Profile In Chronic Alcoholics

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#### ABSTRACT

Alcoholism is a major public health problem and a threat to the public health in developing and developed countries. Alcohol is a psychoactive drug that provides high energy of about 7.1 Kcal/g but its calories are "empty" because alcohol does not provide vitamins and minerals. Depending on the age of the subject, its previous nutritional status and dose of alcohol ingestion, the consumption of alcohol can lead to different and opposite effects. For these reasons, the present study was undertaken to assess the effect of chronic alcohol consumption on leucocyte count, glycemic and lipid profile.

**Aim:** To assess the leucocyte count, glycemic and lipid profile of chronic alcoholics.

**Objective:** Alcoholism is a social stigma which is a threat to the physical and mental health of the drinker. Various studies are conducted in context with alcohol consumption with respect to its nutritive implication, blood pressure and cardiovascular status. The present study was conducted on chronic alcoholics with alcohol consumption for more than 30 years in the age group of 30-50 years to assess the effect of alcohol on leucocyte count, glycemic and lipid profile.

**Results:** The decrease in the mean value of total leucocyte count and increase in fasting blood glucose was statistically significant ( $p<0.001$ ) and ( $p<0.01$ ) respectively. The mean value of total triglycerides, total cholesterol, high-density lipoprotein and low-density lipoprotein was also raised and statistically significant.

**Conclusion:** The present review shows that the additional consumption of ethanol calories will promote metabolic changes in the form of alteration of glycemic and lipid profile, increasing the risk of cardiovascular disease and insulin resistance and decrease in total leucocyte count decreasing the ability to fight against infections agents and increasing the susceptibility to multitude of diseases.



P082

**Analysis Of Short Sleep Duration & Obesity In Medical Students**Dr. Nibedita Priyadarsini\*<sup>1</sup>, Dr. Kiran Dukhu<sup>2</sup>, Dr. Dipti Mohapatra<sup>3</sup>, Dr. Manasi Behera<sup>4</sup>**ABSTRACT**

**AIMS & OBJECTIVE:** Adequate sleep is a critical factor for adolescent's health & health related behaviors. The prevalence of chronic partial deprivation has increased dramatically in the past half century, in parallel with the rising epidemics of overweight & obesity. The aim of this study is (a) to assess the association of short sleep duration with obesity (b) to interpret if physical activity, sedentary behaviors or inadequate food habits underlie this association.

**METHOD:** A sample of 350 students aged 17-25 years from IMS & SUM Hospital was assessed. We measured anthropometric parameters, sleep duration, physical activity, food habits and television watching.

**RESULTS:** Adults average about 7-8hrs of sleep per day. Recent evidence shows an intriguing association between short self reported sleep duration ( $\hat{6}$ hrs) & increased risk of obesity. Shorter sleepers showed higher values of BMI, waist & hip circumference ( $p < 0.05$ ).

**CONCLUSION:** In medical students, short sleep duration is associated with higher adiposity markers. This association seems to be related to both sides of the energy balance equation due to combination of increased food intake & more sedentary habits.

**KEY WORDS:** Obesity, Body Mass Index, Short sleep

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P083

**Pulse Wave Velocity Evaluation In Patients Of Rheumatoid Arthritis**

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**Aims:** Rheumatoid arthritis is a chronic systemic inflammatory disease of undetermined etiology involving the synovial membranes and articular structures of multiple joints and is also associated with carditis, pleuritis, hepatitis, peripheral neuropathy and vasculitis.

**Objective:** The present study was undertaken to investigate arterial stiffness using carotid-radial and femoral-dorsalis pedis pulse wave velocity measurements using polywrite-4 channel machine.

**Method:** 25 patients, aged between 20-60 years, with rheumatoid arthritis according to the American College of Rheumatology and 25 control subjects matched for age and sex were recruited. The pulse wave velocity measurements carotid-radial and femoral-dorsalis pedis arterial segments were measured using polywrite-4 channel machine.

**Results:** In the pulse wave velocity evaluation, statistically significant increase in pulse wave velocity between femoral-dorsalis pedis and carotid-radial artery segments were observed in the Rheumatoid arthritis group as compared with the control group.

**Conclusions:** Intimal proliferation and thrombosis in medium sized vessels could be the cause of increased pulse wave velocity. Measurement of carotid-radial and femoral-dorsalis pedis pulse wave velocity may provide a simple and non-invasive technique for identifying patients with increased risk of vascular involvement in Rheumatoid arthritis.

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**P084**

**Vitamin- D Supplementation with Moderate Exercise Enhance Plasma Insulin level in Pre diabetes and Type 2 diabetes Patients**

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1) Department of Physiology, VMKV Medical College, Vinayaka Missions University, Aryanoor, Salem-636308, Tamil Nadu. 2) Department of Physiology, IRT Perundurai Medical College, Perundurai-638053, Erode District, Tamil Nadu

The **aim** of the study is to investigate the relationship between the supplementation of vitamin -D with moderate exercise (ME) on plasma insulin level in Indian subjects of Pre and Type 2 diabetes mellitus. Several observational studies suggest that vitamin-D plays a role in the pathogenesis of pre and Type2 diabetes. We investigate the effect of ME with Vitamin-D supplementation in the pathogenesis of diabetes

**Method:** The Plasma Insulin and vitamin- D levels were measured using Radioimmunoassay and ELISA. We measured plasma Insulin level in the Indian subject's of age group (30-50 years) of N30, before and after vitamin- D supplementation with ME for the following groups. Vitamin- D deficient with Pre diabetes mellitus (PDM), vitamin -D deficient with Type 2 diabetes mellitus (T2DM), vitamin- D deficient with non diabetes mellitus (NDM) and ME alone.

**Result:** We observed that, plasma Insulin level were significantly ( $P < 0.05$ ) increased after supplementation of vitamin- D with moderate exercise when compare to and ME alone.

**Conclusion:** This study suggests that Vitamin- D supplementation with moderate exercise may improve insulin secretion from  $\beta$  cells in Vitamin -D deficient with PDM and T2DM cases.

**Key words:** Vitamin-D, Pre diabetes, Insulin, Type 2 diabetes

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P085

### Maternal left ventricular performance in first trimester of pregnancy with & without anaemia in pregnancy in and around karimnagar.

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#### Abstract

**Aim:** To study & compare left ventricular performance in first trimester of pregnancy with & without anaemia.

**Objective:** 1.To evaluate iron deficiency anaemia in 1st trimester pregnant women.

2. To study & Compare the effect of the effect of anaemia on left ventricular function in normal pregnant women & pregnant women with anaemia in first trimester.

**Method:** The study was conducted at antenatal OPD of prathima Institute of Medical sciences hospital between Feb 2012 to Oct 2013. Forty four pregnant women were selected for this study & divided in to 2 groups. 22 normal pregnant women (control group) in 1st trimester (10-14 weeks of gestation) were compared with equal number of pregnant women with anaemia (study group) in 1st trimester, aged between 20-30 years. Selected pregnant women were informed about the course and aim of the study and signed consent was obtained. Doppler echocardiography was performed using MEGAS CVX & MEGAS GPX equipped machine in both control & study groups to evaluate left ventricular systolic and diastolic function. Stroke volume (SV), cardiac output (CO) and total peripheral resistance were calculated from the measured dimensions according to the American society of Echocardiography (ASE) guidelines. Haematological parameters were analysed by SYSMEX auto analyser. Data was expressed as Mean±SD. Analysis of Variance (One way ANOVA) was used for comparison between study and control groups & the data was analysed by t tests.  $P < 0.05$  was considered statistically significant.

**Result:** In this study mean values of haemoglobin concentration were significantly lower in study group & control group. Mean values of pulse rate & left ventricular parameters like end diastolic diameter (EDD), end systolic diameter (ESD), percentage fractional shortening (FS %), percentage ejection fraction (EF %) Cardiac output (COP), stroke volume (SV) were increased significantly in study groups when compared to the control groups.

**Conclusions:** Increased values of stroke volume, cardiac output & changes in left ventricular function reflect a hyperkinetic heart in pregnancy with anaemia. Reduction of Hb in study group as compared to control group significantly & negatively correlates with the left ventricular cardiac function. Anaemia and volume overload in pregnancy is a risk factor that may lead to some other cardiac problems.

**Keywords:** Anaemia; Pregnancy; Echocardiography; Left ventricular function.

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P086

### **Motor Hand Function In Children With Cerebral Palsy Following Sensory Stimulation**

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**Aims and Objectives:** To investigate the effect of local palmar vibration therapy in improving motor hand function of cerebral palsy children. Primary and secondary outcomes were assessed by Box and Block test and Modified Barthel Index respectively.

**Methods:** A single blinded, randomized controlled trial was designed. Twenty three cerebral palsy children (6-15 years) were randomised and allocated to treatment and control groups. Both groups received standard conventional therapy. The intervention group, in addition, received bilateral palmar vibration therapy.

**Results:** Interim analysis revealed no statistically significant difference in the quantum of change in hand function or activities of daily living between the groups. Intra-group analysis revealed significant improvement of hand dexterity of both dominant and non-dominant hands in the intervention group but only of the dominant hand in the control group.

**Conclusion:** The results of the interim analysis are suggestive of a beneficial effect of vibration therapy. Further, it reveals that the protocol used for the application of vibration therapy, has no effects of inter-hemispheric cortical inhibition on the non-dominant cortex. The findings of the interim analysis defend the appropriateness of studying the role of sensory stimulation as a mode of therapy, to enhance hand dexterity in Cerebral palsy children.

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P087

### **Validity of Cooper's 12-min Run Test for estimation of Maximum oxygen uptake in female university students**

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#### **Abstract :**

**Objectives:** Direct estimation of maximum oxygen uptake ( $VO_2$ max) is complicated, exhaustive, hazardous and thus restricted within well equipped laboratory. Enumeration of population specific indirect protocols for  $VO_2$ max prediction is necessary. The present study was conducted to validate the applicability of Cooper's 12 minute run test (CRT) for indirect prediction of  $VO_2$ max in female sedentary university students of Kolkata, India.

**Methods:** Ninety sedentary female university students were recruited randomly from University of Calcutta, Kolkata. They were randomly separated into study group (N=60) and confirmatory group (N=30).  $VO_2$ max of each participant was determined by indirect CRT method and direct procedure involving incremental bi-cycle exercise followed by micro-gas analysis with at least 4 days' gap between the tests.

**Results and conclusion:** The difference between the mean  $VO_2$ max values directly measured and indirectly predicted ( $PVO_2$ max) in study group was statistically significant ( $P < 0.001$ ). Limit of agreement analysis revealed poor confidence level for application of current method of CRT in the studied population.  $VO_2$ max value exhibited significant correlation ( $r = 0.88$ ,  $P < 0.001$ ) with distance covered in the run test. For precise and reliable estimation of  $VO_2$ max in the studied population a new equation  $Y = 19.55 X - 2.39$  ( $SEE = 0.208 \text{ ml.kg}^{-1}.\text{min}^{-1}$ ) has been computed. Application of this newly derived equation in the confirmatory group revealed insignificant difference between  $PVO_2$ max ( $32.2 \pm 2.9 \text{ ml.kg}^{-1}.\text{min}^{-1}$ ) and  $VO_2$ max ( $32.7 \pm 3.3 \text{ ml.kg}^{-1}.\text{min}^{-1}$ ). Our results suggest that CRT in its original form cannot be applied due to its poor agreement with the direct method but can be applied with the modified equation in this population to evaluate maximum oxygen uptake, especially when large numbers of participants are to be tested in the field.

**Key words:** Indian females, CRT, sedentary,  $VO_2$ max.

P088

### “A Simple and Non Invasive Method of Recording Rat Blood Pressure”

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**Background:** Measurement of Blood Pressure (BP) is an important entity in cardiovascular research in animals. NIBP (Non Invasive Blood Pressure) System is a simple and convenient method of measuring systemic blood pressure and cardiovascular parameters in rats, mice and other animals without the need for invasive surgery.

**Objective:** To establish, a non invasive, simple and economic blood pressure measuring system by using NIBP.

**Material and Methods :** The study was conducted on 5 male albinorats ( 6-8 weeks) weighing 120-180grams. Blood pressure was measured using NIBP (ADI) at 9:30 am everyday for six days in experimental Physiology laboratory of KGMU, Lucknow. Instruments used were -NIBP Controller., Pulse Transducer/Pressure Cuff for NIBP (Rat), Rat Restainers, Power lab, Lab Chart software & Tail warmer. The NIBP methodology consists of utilizing a tail-cuff placed on the tail of each rat to occlude the blood flow. Upon deaeration, one of several types of non-invasive blood pressure sensors, placed distal to the occlusion cuff, can be utilized to monitor the blood pressure. This elimination of blood flow was recorded by pulse transducer connected to NIBP Power lab. The generated data i.e. Systolic BP and pulse were automatically analyzed by advanced Lab Chart software inbuilt in the NIBP Power lab.

**Result:** Mean systolic blood pressure for six days was  $117 \pm 4.02$  to  $112.17 \pm 2.93$  mm of Hg, diastolic blood pressure was  $93.29 \pm 1.48$  to  $88.07 \pm 3.67$  mm of Hg and heart rate was  $280.83 \pm 26.37$  to  $260.83 \pm 11.13$  /minute which are well within the normal range of BP in rats.

**Conclusion:** The NIBP using tail cuff based technique to measure arterial blood pressure in rats is a new, time saving and simple technique. This technique allows researchers to accurately obtain Blood Pressure measurement.

### P089

#### **Effect of Anuloma – Viloma and Bhastrika Pranayama on cardiovascular and respiratory parameters in healthy volunteers**

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**Aim and Objective :** To assess the effects of slow and fast pranayama for 1 month on heart rate (HR), blood pressure (BP) and pulmonary function tests.

**Materials and methods:**

45 healthy male and female volunteers were recruited. After measurement of baseline parameters—HR, BP FVC, FEV<sub>1</sub>, MVV, PEFR—the subjects were trained in the technique of pranayama. The subjects performed anuloma- viloma and bhastrika pranayama for 1 month, at the end of which the same parameters were recorded. 6 subjects dropped out of the study.

**Results :** Analysis of data by paired t test showed significant decrease in HR, SBP, DBP (P<0.000) in the subjects. Significant improvement in FVC (P<0.000) , MVV (P<0.000) and PEFR (P<0.000) was observed in the subjects after 1 month of anuloma-viloma(slow) and bhastrika (fast) pranayama.

**Conclusion :**

Slow and fast pranayama for 1 month improves cardiac and respiratory function in healthy adults.

### P090

#### **Non Invasive Measurement of Systolic Blood Pressure in Rats: A Cost- Effective Technique**

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**Abstract**

*Background:* Non-invasive, simple and cost –effective instrument to measure blood pressure in rats is important in cardiovascular research.

*Methods:* The study was conducted on six albino rats weighing 180-250 grams taken from central animal house of King George's medical university, Lucknow. Systolic blood pressure was measured by the new device consisting of self-designed rat tail-cuff and sphygmomanometer.

*Result:* The new device was able to record the systolic blood pressure which was reproducible and reliable. There was no significant difference between the blood pressures recorded by the two devices on different days.

*Conclusion:* The device designed by us is cost-effective and the generated data will be accurate.

**Key words:** Non - Invasive Blood Pressure New Technique Rats

### P091

#### **Effect of combination of crude extract of *Aegle marmelos* leaves and *Tamarindus indica* seeds on blood glucose level in streptozocin-induced diabetic rats**

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### Abstract

**Aim:** To evaluate the glycemic influence of the combination of crude extract of the leaves of *Aegle marmelos* and seeds of *Tamarindus indica* in streptozocin-induced diabetic rats.

**Method:** A total of 36 adult Wistar rats (150-250 g) were divided into six groups (n = 6 in each group). Fasting blood glucose levels were assessed at day 0 (before treatment) and subsequently on 15<sup>th</sup>, 30<sup>th</sup> and 45<sup>th</sup> day (after treatment) among the non-diabetic control (2% gum acacia; 1 ml/kg/day), streptozocin (35 mg/kg; *i.p*) induced diabetic control (2% gum acacia; 1 ml/kg/day), glibenclamide (0.5 mg/kg/day; *p.o*) and combined crude extract of *Aegle marmelos* leaves and *Tamarindus indica* seeds (350, 700 and 1400 mg/kg/day, *p.o*) treated diabetic rats.

**Results:** There was significant decrease in blood glucose level in the diabetic rats treated with 350 mg/kg, 700 mg/kg and 1400 mg/kg of test drug as compared to diabetic control rats (p<0.05) and the anti-hyperglycaemic effect of test drug was pronounced in 350 mg/kg treatment group of diabetic rats in comparison with diabetic control group (p<0.001). There was more significant decrease in blood glucose level in diabetic rats treated with 350 mg/kg of test drug as compared to diabetic rats treated with glibenclamide (p<0.05).

**Conclusion:** The present study revealed that combination of crude extract of *Aegle marmelos* leaves and *Tamarindus indica* seed have potent anti-hyperglycemic activities.

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## P092

### To compare pulmonary function in wives of smoker and nonsmokers

PRANALI BHANDARE

**Aim:** Passive exposure to cigarette smoke in wives of smokers may result in decrease lung functions. Housewives of smokers get exposure to passive smoking significantly, so this study is to study and compare the pulmonary functions in wives of smokers, and nonsmokers.

### Objectives:

1) To compare lung function parameters in wives of smokers and nonsmokers.

**Method:** This is a pilot study. 50 healthy, nonsmoker and nonworking wives of smokers age group between 18-45 years were taken as passive smokers (case group) 50 healthy, nonsmoker and nonworking wives of nonsmoker of the same age group taken as control group Pulmonary functions in both the group recorded by using machine MEDGRAFICS, BREEZE SUITE. After giving proper instructions about the procedure, subject were ask to perform few practice test and then lung volumes with highest FVC

## Poster Presentation

recorded to extract the data. Pulmonary functions are compared in both the groups by using unpaired 't' test.. Result: There is significant decrease in values of PFT was observed in case group.

### Conclusion:

Significant decrease in values of PFT was observed in case group i.e. (FEV1, FEV/FVC, PEAK EXPIRATORY FLOW, AND FEV25-75%)

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## P093

### Cardiac Autonomic Dysfunction as assessed by Heart rate Variability after cortical ischaemic stroke: Does sidedness really matter?

#### Background and purpose:

Ischaemic stroke is known to damage the central autonomic pathway which in turn causes significant cardiovascular dysfunction and arrhythmogenesis. Heart Rate Variability (HRV) is a commonly used measure of studying cardiovascular autonomic modulation. Previously sudden cardiac death due to arrhythmias has been shown to be more commonly associated with right hemispheric stroke. Thus we compared the HRV of right with left hemispheric stroke patients.

#### Materials and methods:

It was a cross sectional study involving 27 patients (males = 20, females = 7) after stroke ranging from 3 months to a year. The cortical ischaemic stroke was verified by CT scan and or MRI. ECG was recorded and HRV parameters, as proposed by The Task Force, were analysed.

#### Results:

High frequency (HF) and Total Power was reduced in right sided stroke compared to left hemispheric. Sympathetic tone was higher on the right hemispheric stroke as reflected by a higher SDNN.

#### Conclusion:

Right hemispheric stroke is associated with an increased sympathetic tone .The increased sympathetic tone could lead to increased incidence of arrhythmias after right hemispheric stroke

**Keywords:** ANS, HRV, HF, SDNN.

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**P094****Utility of  $^{51}\text{Cr}$  (III) for repetitive blood volume estimation in rabbits**

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**ABSTRACT**

**Aim :** To develop a repeatable procedure for blood volume (BV) estimation

**Objective :** To assess the utility of repetitive determination of BV by trivalent chromium [ $^{51}\text{Cr}$  (III)] in New Zealand white rabbits.

**Methods :** After initial measurement of BV using  $^{51}\text{Cr}$  (III), a repeat measurement was done exactly after one hour using the same technique in 31 rabbits. Approximately 3150 cps of  $^{51}\text{Cr}$  (III) was injected to the marginal vein followed by 0.5ml of saline to wash the injected solution. One minute later, 1ml blood sample was obtained from auricular artery after dilution and radioactivity was counted in a gamma ray spectrometer. Results obtained were compared with the BV measured by the initial  $^{51}\text{Cr}$  (III) measurement.

**Results :** Mean BV values of initial measurement was 195.66±47.30ml or 89.81±17.88ml/kg body weight. Repeated mean BV values measured after 1hr was 181.98±53.16ml or 83.68±22.09ml/kg body weight. The average difference between the initial and repeated measurements was 10.93ml (95% CI -3.33, 25.19ml), which is not statistically significant (P=0.128).

**Conclusions:** Currently, there is a lacuna in the availability of measuring absolute BV rapidly and repetitively in clinical settings. In this context we put forward a method using  $^{51}\text{Cr}$  (III) for repeat BV measurements in rabbits which should find its application in clinical settings.

**P095****Effect of helmet on field of vision and auditory acuity.**

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**Introduction:** With increase in number of two wheelers , helmet is made compulsory by law in many states of india. However riders are reluctant to comply with this provision complaining that helmet leads to reduced field of vision and hearing.

**Aims and objectives:** To map field of vision in riders by perimetry.

To find auditory acuity by free field audiometry.

**Materials and Methods:** **The study was carried out in 37 normal subjects. Field of vision was mapped by Lister's perimeter before and after wearing helmet. Auditory acuity was found out by free field audiometry before and after wearing helmet.**

**Results:** Readings were compared by using paired t test. Temporal field of vision reduced significantly after wearing helmet while air conduction at high frequencies showed statistically significant decrease. (p< 0.001)

Conclusion: Complaints of riders regarding inconvenience caused by helmet were found to be valid. To overcome this problem changes in the design of helmet are necessary.

## P096

### Correlation Of Serum Leptin Level And Anthropometric Parameters In Young Adults

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**INTRODUCTION-** Leptin is an adipocyte hormone that inform the brain about the status of energy stores in the peripheral tissue. Leptin acts primarily on the hypothalamus to influence behaviour and metabolism. Serum leptin level can be affected by different anthropometric parameters such as body mass index(BMI), hip circumference(HC), waist circumference(WC), waist-hip ratio (WHR) and sagittal abdominal diameter(SAD).

**AIMS & OBJECTIVE-** To correlate serum leptin level with different anthropometric parameters (BMI, HC, WC, WHR, SAD) among 18-25yr old subjects.

**MATERIAL & METHOD-** A total of 100 subjects (55 male, 45 female) age between 18-25 year were enrolled in this study. Blood sample were taken after overnight fasting for biochemical assay. Serum were separated from blood samples by centrifugation method after coagulation. Serum leptin level analyzed by using RayBio ELISA Kit.

**RESULTS-** A positive correlation was observed between serum leptin and hip circumference ( $r=0.23$ ,  $p=0.02$ ), waist circumference ( $r=0.29$ ,  $p=0.003$ ), & sagittal abdominal diameter ( $r=0.56$ ,  $p=0.0001$ ), these correlations were statistically significant. Serum leptin did not show any significant correlation with body mass index ( $r=0.15$ ,  $p=0.12$ ) and waist-hip ratio ( $r=0.11$ ,  $p=0.26$ ).

**CONCLUSION-** This study conclude that serum leptin level show statistically significant positive correlation with HC, WC and SAD.

## P097

### Insight Into Dietary Supplementation Among Malaysian Medical Students

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**Aim & objectives:** The aim of the study was to understand the habit of dietary supplement consumption among Malaysian medical students. The objectives were to assess their knowledge about dietary supplements and understand their awareness about the importance of consumption of dietary supplements along with an appropriate healthy food intake.

**Methods:** A pre-validated questionnaire was given to 250 students in this cross-sectional study. The students between 18-23 years of age and of both genders formed the study group. The questionnaire was designed to understand the habits of dietary supplement consumption and its awareness. The responses were analysed and expressed as percentage.

**Results:** Out of the total participants, 98 students (39%) had the habit of consuming dietary supplements. Among the 39%, 63 (67%) were aware of benefits and side effects of these dietary supplements. 78 (80%) consumed vitamin C. Consumption of minerals was lesser i.e., 41 (42%) compared to vitamin intake. Females consumed mostly calcium and iron supplements.

**Conclusion:** Moderate number among the cohort of Malaysian students consumed dietary supplements. Those who consumed them thought it would be essential to meet the additional nutritional requirements. The females consumed them believing that they were important to maintain bone and menstrual health.

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## P098

### Establishment of systolic time interval in pregnancy (1<sup>st</sup> trimester)

Dr. Prem Lata Puri, MAMC, Agroha, Hisar

**Introduction:-** pregnancy is a physiological process which impose the functional strain on cardio-vascular dynamics of the body during normal pregnancy as it increases cardiac out put through out pregnancy and comes to pre-pregnancy level in about two weeks after post partum. Haemodynamic changes in pregnancy varies in different tri-mesters of pregnancy which may effect the systolic time interval (STI).The present study had been undertaken to establish the normal values of STI's in healthy pregnant women and in 1<sup>st</sup> trimester of pregnancy.

**Material and method:-** The pregnant women were taken from govt. medical hospital for women attached to the govt. medical college Amritsar and ESI hospital Amritsar. Twenty five women during 1<sup>st</sup> trimester of pregnancy (group A). Twenty five non pregnant women of the same age group served as the control (group B). Parameters used were QS<sub>2</sub> – Electro – mechanical systole, LVET- Left ventricular ejection time, PET – Pre-ejection period & PEP/LVET – Ratio was calculated.

**Observation:-** It was observed that mean heart rate in group B was 82.60 SD 6.875 and mean heart rate in group A was 62.20 SD 7.7974 and on comparison there was no significant changes observed in heart rate. It was observed that the mean standard deviation of systolic blood pressure in the group B was 113.68 SD 9.32 and diastolic blood pressure was 76.38 SD 6.78 and in group A the systolic blood pressure was 109.60 SD 8.226 and diastolic blood pressure was 75.60 SD 5.713. There was no significant changes observed in systolic blood pressure and diastolic blood pressure. Comparison of data of STI's among group B and group A were in group B:- QS<sub>2</sub> – 360.44 SD 25.747, LVET – 278.72 SD 13.672, PEP – 85.56 SD 6.197, PEP/LVET – 0.3076 SD 0.0251. The observed parameters in group A:- QS<sub>2</sub> – 388.08 SD 16.574, LVET – 292.56 SD 13.723, PEP – 95.52 SD 5.776, PEP/LVET – 0.3268 SD 0.122.

**Discussion :-** it has been observed that the myocardial functions are abnormal even through there is no clinical sign and symptoms of heart disease. The clinical sign and symptom of the diseases appear only when there is gross impairment of myocardium.

**Conclusion:-** Further studies are required to measure STI parameters weekly between 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> trimester to find out the time at which the period of pregnancy the cardiac functions are affected with complications.

## P099

### A study on associations between colour and emotions

Dr. Prerana Gaikwad , Dr. Anil Tambe, Dr. Neelam Mishra

#### Aim and objectives:

To study commonly experienced emotional responses triggered by colour stimuli

**Methodology:** The methodology was based on a questionnaire survey done on 100 students. The questionnaire comprised of 5 questions; each describing a certain emotional/ behavioural state. By going through each question the participants were brought to imagine corresponding emotional and behavioural states and mark off the associated colour/s out of three colour options given for each question. These three colour/s pairs were decided via referring to the established literature available on colour-emotion association.

**Result:** 79% recognized Red/Orange pair to be appetizing. 60% refused to eat blue coloured fruits. Red (45%) and black (53%) were both identified as vio-lent in their imaginations. Blue (49%) and white (51%) were found as colours which could calm down a person. Red was on no account imagined as a calm-ing colour (0%). Yellow was marked as the colour of joy (39%).

**Conclusion:** There are commonly experienced colour- emotion associations.

**Key words:** Colour, behavior, emotion, association

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## P100

### Efficacy of alpha-Tocopherol supplementation in patients with type 2 Diabete Mellitus

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**Abstract:Aim & Objectives-** Diabetes mellitus (DM) is a disorder ever increasing and is looming large as an epidemic in developed and developing countries. In present study, parameters of diabetes, lipid profile and oxidative stress markers like MDA (malondialdehyde) and GSH (glutathione) levels were investigated in type 2 diabetic patients. **Method-** written and informed consent to participants in this study was obtained from 100 type 2 diabetic patients attending IMS & SUM Hospital, Endocrinology Dept, Bhubaneswar. From them 50 randomly selected patients were supplemented with alpha-Tocopherol orally (intervention group) for 8 weeks and 50 age matched patients enrolled as control group, without taking any supplements. Parameters of diabetes, lipid profile, oxidative stress markers were measured at base line and at the end of 8wks by using specific methods. **Result-** In our study, hyperglycaemia correlated well with GSH and increased MDA levels in type 2 DM. Alpha-tocopherol supplementation significantly increase the GSH level ( $P < 0.05$ ) and lowered MDA level ( $P < 0.05$ ). **Conclusion-** Thus, this may reduce the risk of microvascular and macrovascular complications associated with DM2.

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**P101****Sequential changes in arterial stiffness in uncomplicated pregnancy**Priyanka Garg<sup>1</sup>, Dibashree Tamuli<sup>1</sup>, Garima Kachhawa<sup>2</sup>, Ashok Kumar Jaryal<sup>1</sup>, Kishore K. Deepak<sup>1</sup><sup>1</sup>Department of Physiology, All India Institute of Medical Sciences, New Delhi<sup>2</sup>Department of Obstetrics & Gynecology, All India Institute of Medical Sciences, New Delhi

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**Aims & Objectives:** Pregnancy is associated with several systemic cardiovascular adaptations. The aim of this study was to investigate the sequential changes in arterial stiffness in uncomplicated pregnancy.

**Methods:** 30 women with singleton pregnancy were recruited in their first trimester (age = 27± 4 years) and followed up till third trimester. The cardiovascular parameters were assessed by measuring the pulse wave velocity (PWV) for arterial stiffness and central systolic blood pressure, by using applanation tonometry. All measurements were made at three time points, i.e. in first trimester (T1, 11-13 weeks), in second trimester (T2, 20-22 weeks) and in third trimester (T3, 30-32 weeks). Repeated measures ANOVA and Friedman test were used for statistical analysis.

**Results:** There was sequential reduction in carotid-radial PWV from first to second and second to third trimester, with a significant decrease between T1 and T3 (Median; Interquartile range: 7.6; 6.9-8.4 vs. 6.0 ; 6.2-7.7, p=0.013). Additionally, Carotid-dorsalis pedis PWV was significantly reduced from T1 to T2 (n=26, 6.9; 6.4-7.5 vs. 6.3; 5.9-7.0, p=0.013). Central systolic pressure also reduced significantly from T1 to T2 and T1 to T3 (n=30, 97; 93-101 vs. 90; 85.5-95.0 and 97; 93-101 90; 85.5-99, p<0.0001).

**Conclusion:** The cardiovascular adaptation in uncomplicated pregnancy is reflected in sequential reduction in arterial stiffness and central blood pressure from first trimester to the third trimester.

**P102****A Comparative study of two evaluation methods – Conventional Versus Objectively Structured Clinical Examination**

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**Aim-** To compare the scores of medical students obtained by conventional method of assessment and OSCE.

**Method –** The study was conducted in the department of Physiology, L.T.M.M.C., Sion, on 98 first year medical students who were asked to perform two clinical examinations and were assessed simultaneously by both conventional method of examination and OSCE by two different teachers. Mean and standard deviation of marks obtained by both methods were calculated. Paired t-test was done to compare the means.

**Results-** A significant difference in marks was observed with one clinical examination whereas there was no significant difference in case of the second clinical examination. OSCE brought to focus common mistakes committed by students during clinical examination.

**Conclusion-** OSCE can help evaluate teaching methods and bring into focus the lacunae in teaching. It can be used for formative assessments.

**Keywords –** Conventional assessment, OSCE

### P103

#### To study the effect of obesity on blood pressure.

**Author:** Dr R.Anitha , Dr B.Srinivasa Rao

**Introduction:** Obesity is increasing at alarming rate throughout the world. The pandemic of obesity is so great that it has even spawned a new word GLOBESITY. Obesity can begin in any age group. Obesity or adipose tissue excess particularly in the visceral compartment is associated with Insulin Resistance, Hypoglycaemia, Dyslipidemia, and Hypertension.

The risk of Hypertension appears to parallel the degree of Obesity longitudinally, blood pressure levels have been observed to parallel body weight decreasing with weight loss and increasing with weight gain. The magnitude of the association between obesity and hypertension varies according to gender ethnicity and age. Overweight individuals 20 to 40 years old have a greater relative risk of hypertension than overweight individuals 45 to 65 years old. There is interaction of obesity and hypertension on cardiac function. The key determinant of weight induced increases in BP could lead to disproportionate increase in cardiac output which in turn accounts for hemodynamic contribution of new tissue. This again leads to increase in sympathetic activity. There is a strong linear relationship between BMI and BP and are associated with development of hypertension.

**MATERIALS AND METHODS:** The subjects for study were males and females in the age group of 21 to 60 years. The subjects were divided into four groups. Age groups of 21 to 30 years was one group, 31 to 40, 41 to 50, 51 to 60 were the other three groups. Obesity was taken into account according to the BMI.

#### The commonly employed measurements and calculations are:

Height using stadiometer

Weight using weighing machine

$BMI = \text{Weight} / (\text{Height})^2$

Blood Pressure using Sphygmomanometer

**OBSERVATIONS AND DISCUSSION:** It is observed that there is increase in both systolic and diastolic blood pressure in both males and females but the increase in systolic blood pressure is more in females than males and there is no difference in diastolic pressures in both. This study shows an increased relationship between BMI and BP and also gender and BMI.

Reduced NO availability, increased production of EDCFs, Insulin Resistance and increased RAS activity which is the cause for over activity of sympathetic nervous system and direct influence of increased adiposity are responsible for obesity associated increase in blood pressure.

Fat accumulation is of great significance for the establishment of a pro inflammatory and pro thrombotic state which indicates an altered vascular function predisposing to hypertension.

**Key Words :** BMI ,Obesity, EDCFs, NO, Insulin Resistance

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### P104

#### Effect of iron therapy in post-MI patients discharged with mild hospital acquired anemia (HAA)

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**Objectives:** Many AMI patients admitted with normal hemoglobin levels develop HAA during stay in hospital. Some surviving AMI patients may have mild HAA at discharge. Our aim of the study was to look into the role of iron therapy in post- MI patients with mild HAA during post- hospital period.

**Material and methods:** Study was conducted at Pt. B. D. Sharma PGIMS, Rohtak. Surviving MI patients with mild HAA getting discharged from hospital were screened following inclusion & exclusion criteria. 20 patients were registered for study and written consent was taken. Patients were divided randomly in 2 groups each had 10 patients. One group received iron therapy 100 mg orally two times a day after meals while other group received placebo. On every visit to Cardiology OPD patients were clinically examined, investigated for hemoglobin and quality of life was assessed. Number of mortality and re-hospitalization were recorded.

**Results:** Post-MI patients receiving iron therapy showed significant improvement in hemoglobin levels and quality of life. Requirement of re-hospitalization was significantly reduced; Mortality rate was decreased significantly as compared to those post-MI patients who did not received iron therapy.

**Conclusion:** Iron therapy in post-MI patients with mild HAA improves hemoglobin levels and provides better quality of life. Incidences of re-hospitalization and mortality are cut down.

## P105

### Age related changes in autonomic functions : A cross sectional study

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**Aims & Objectives:** To evaluate association of age with autonomic functions

**Methods:** A Cross-sectional study was conducted in 62 healthy volunteers in Department of Physiology LLRM Medical College Meerut. Volunteers were divided in to three groups as younger (15-45 years), middle (45-60 ) and elder age (above 60), Autonomic functions were tested in three domains viz. Cardio-vagal, adrenergic and sudomotor functions. Numerical data was summarized as mean and standard deviation and categorical data as count and percentage. ANOVA and Chi-square test were used to find difference among groups, P<0.05 was considered statistically significant.

**Results:** Mean  $\pm$  standard deviation of OHT among of younger, middle and elder age groups were  $8.80 \pm 2.28$  ,  $13.40 \pm 4.64$  and  $21.82 \pm 6.04$  respectively which shows increase with age and was statistically significant ( $p < 0.001$ ). Cardio-vagal responses indicated by DBT, Valsalva and 30:15 ratio of HR response to standing tests has shown statistically significant ( $p < 0.001$ ) decrease in mean response with increasing age. Sudomotor response appeared normal in younger and middle group but was interrupted in more than half of elderly people and this was statistically significant ( $p < 0.001$ ).

**Conclusions:** Sympathetic responses & para-sympathetic responses shown significant decline with increasing age. Sudomotor responses were also interrupted in elderly.

## P106

### Study of Peak Expiratory Flow Rate in Type 2 Diabetes Mellitus Patients.

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**Background:** DM being a systemic disease, also affects lung function probably because of glycosylation of connective tissues, reduced pulmonary elastic recoil and inflammatory changes. pulmonary complications of DM have been poorly characterized so these analysis conducted to determine abnormalities of lung function in diabetic subjects.

**Objective:** The objective of this study is to analyze the PEFr in Type 2 Diabetes Mellitus Patients and compare them with age and gender matched healthy subjects.

**Methods:** PEFr was recorded in 30 type 2 diabetes mellitus male patients who had no history or evidence of respiratory disease and 30 normal healthy male controls aged 40 – 60 years by using Wright's Peak Flow meter. HbA1c of all the patients was recorded by HPLC method. Peak Expiratory Flow Rate of diabetic patients and controls were compared by applying students unpaired t test.

**Conclusions:** PEFr was significantly decreased in diabetic patients compared with the healthy controls.

**Keywords:** Diabetes Mellitus (DM), Peak Expiratory Flow Rate (PEFR)

## P107

### Learning Style Preferences Among First Year M.b.b.s. Students.

**Author's name:** Dr. Mrs. Rajratna Ramteke, Dr. Neelam Mishra.

#### **Aim & objective:**

To determine learning style preferences in first year M.B.B.S. students

**Methodology:** The study was carried out on 92 {50 males (54.35%), 42 (45.65%) female} consenting first year M.B.B.S. students. Students have individual learning style preferences including visual (V; graphs, charts, and flow diagrams), auditory (A; speech), read-write (R), and kinesthetic (K; learning from touch, hearing, smell, taste, and sight). These preferences can be assessed using the VARK questionnaire. The responses were tallied and assessed for learning style preference.

**Result:** All students had multimodal preferences. Of 92 students; 32 (34.78%) had unimodal predilection, 24 (26.09%) had bimodal predilection, 12 (13.04%) had trimodal predilection and 24 (26.09%) had predilection towards all 4 modes. No significant difference in learning style preference between male and female students was seen.

#### **Conclusion:**

All students preferred multimodal instruction. It is the responsibility of the instructor to address this diversity of learning styles and develop appropriate learning approaches.

**Key words:** Learning modes ; Visual; Auditory; Read-write; Kinesthetic.



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P108

### Reduction In Lung Functions In Type 2 Diabetes In Indian Population And Its Correlation With Glycaemic Status.

**AUTHORS:** Dr.Rashmi Rani Dash, Dr. R.R. Mohanty ,MD (PHY), Dr. A.K. Baliarsingh , MD , DM

**INTRODUCTION :** The pulmonary function test are age old, time tested parameters for assessing respiratory health of a person and are important for clinical, diagnostic and prognostic values. This work is intended to study the effect of type -2 diabetes melitus on dynamic pulmonary function tests and its correlation to glycaemic status of diabetes. There is alarming increase in the incidence and prevalence of diabetes mellitus particularly in asian Indians. The prevalence of diabetes for all age groups worldwide was 2.8% in 2000 and is estimated to reach 4.4% by 2030. In type -1 diabetes lung function has been investigated in several clinical studies and evidenced reduced elastic recoil ,reduced lung volume diminished respiratory muscle performance ,decrease in pulmonary difussion capacity for carbon monoxide. But there are very few data concerning pulmonary function abnormalities in patients with type-2 diabetes mellitus [9] especially in Indian population. Several respiratory alterations have been reported in association with diabetes mellitus, including respiratory muscle dysfunctions, chest wall abnormalities and autonomic neuropathy .

**AIMS AND OBJECTIVES:** To assess the pulmonary function test in type -2 diabetes and its relationship with glycaemic status .

**MATERIALS AND METHODS:** The study group includes 50 type-2 diabetes patients, aged 30-60 years with diabetic duration of 1-10 years taken from Dept of Endocrinology, S.C.B. Medical College, Cuttack, using simple random sampling. Spirometric recordings were taken 3hrs after breakfast at 11 am. The study group were compared with 50 nondiabetic age and sex matched subjects taken from teaching and nonteaching employees of SCB medical college, Cuttack. Glycaemic status of diabetic patients were determined . Apparently healthy individuals with type-2 diabetes mellitus without any complications were included in study. The apparent health status of the subjects were determined by thorough clinical examination and history taking. Subjects with a history of smoking and alcoholism recent/remote history of cardiorespiratory diseases, history of respiratory allergy and with acute respiratory infection in the previous three months were excluded from the study.

**CONCLUSION:** Lung functions are negatively correlated with glycemic status & duration of diabetes. Reduction in dynamic lung functions and its negative correlation to glycemic status might be due to respiratory muscle weakness as indicated by highly significant reduction in MEP. Hence strict glycemic control and breathing exercises to strengthen the respiratory muscles may improve lung function in diabetics.

P109

### Phenytoin Induced Lymphadenopathy In A Patient With Seizure Disorder.

Dr. Ravi D.Mala<sup>1</sup>, Dr. Rajshekar K<sup>2</sup>, Dr. Pradeep<sup>3</sup>, Dr. Rajesh K<sup>4</sup>

**ABSTRACT :** Phenytoin is an anti seizure drug effective against partial and tonic-clonic seizures but not absence seizures. Hypersensitivity reactions to Phenytoin include morbilliform rash in 2-5% of patients and occasionally more serious skin reactions, including Stevens-Johnson syndrome and toxic epidermal necrolysis. Lymphadenopathy, resembling Hodgkin's disease and malignant lymphoma, is associated with long term use of Phenytoin.

Here we present a case of a 23year old male patient who was being treated with Phenytoin(Eptoin) 300mg/day on a diagnosis of seizure disorder who presented with generalized morbilliform skin rashes and lymphadenopathy and also associated with changes in liver function tests, which constitutes a syndrome known as anti-convulsant hypersensitivity syndrome.

The anticonvulsant hypersensitivity syndrome is a rare syndrome characterized by fever, rash, lymphadenopathy, eosinophilia, and hepatitis. It generally develops within eight weeks after the drug is first prescribed. Although its occurrence is rare, 1 in every 1000-10,000 exposures, anti-convulsant hypersensitivity syndrome is a serious adverse event often resulting in hospitalization and even death. Early recognition of this relatively rare reaction is essential to prevent serious and potentially fatal complications. Patients who develop enlarged lymph nodes while receiving Phenytoin should be evaluated carefully so that Phenytoin-induced lymphadenopathy may be differentiated from true malignant lymphoma and appropriate treatment may be given.

**Key words:** Anti-convulsant, Lymphadenopathy, Morbilliform rash, Phenytoin.

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**P110**

**Prevalence of ABO blood group and rhesus (Rh) factor in the population residing in and around Guwahati, Assam - a retrospective study from 2008–2013.**

REETA BAISHYA

**Aim & objectives** – To determine the prevalence of ABO blood group and rhesus (Rh) factor among the population in and around in Guwahati, Assam. As there is no such data available for Guwahati, Assam, so this study is necessary for –

- i) To facilitate quality blood transfusion.
- ii) To compare the data of this population with normal national studies and
- iii) For future genetic record.

**Materials and method** – A retrospective study was conducted at Blood bank of Guwahati over a period of six years from 2008 (January) to 2013 (December). Blood group of the blood donors was determined by commercially available standard monoclonal antisera by test tube method.

**Result** – “O” was the most prevalent blood group while “AB” was least, majority were rhesus positive. Data showed that among Rh+ve : 36.32% were O+ve, 28.83% B+ve, 26.27% A+ve and 8.57% were AB+ve.

**Conclusion** – Blood Group “O” was the commonest blood group in this population followed by B,A,AB respectively. More than 96 % of this population were Rhesus Positive.

**Key words** – Blood group, ABO, Rhesus (Rh), prevalence, population, Guwahati.

**Dr. REETA BAISHYA**

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**P111****A Study Of Heart Rate Profile In Response To Exercise In Obese Adolescents**

Renuka Sharma, Manasi Bhattacharjee, Arati Meher, Raj Kapoor

**AIM-** To study the Heart Rate Profile as an index of cardiovascular fitness.

**OBJECTIVES** - To compare the Heart Rate Profile of obese subjects with healthy controls.

**MATERIAL & METHODS-** 43 controls and 31 obese subjects performed moderate, exercise on the bicycle ergometer. Heart rate (HR) was recorded in the basal state, during exercise and post-exercise at one, two and twenty minutes. Statistical analysis was performed using unpaired t-test.

**RESULTS-** In the obese subjects, both the basal as well as the peak heart rate attained during exercise, was significantly higher than the controls. Heart rate recovery (HRR) is calculated as Peak Heart rate – heart rate at 1 minute, post exercise and was observed to be quicker in the obese. However, at 20 minutes, the obese subjects lagged significantly behind the controls and did not attain the basal values.

**CONCLUSION-** Higher heart rate, in basal state and post exercise, in obese subjects suggests a state of increased sympathetic activity. HRR (1 minute) seems to be an incomplete indicator and we suggest that a complete heart rate profile be recorded for at least 20 minutes post-exercise for an accurate evaluation of cardiovascular fitness.

**KEY WORDS-** Heart rate profile, HRR, obese, moderate exercise

**P112****A Study Of Interictal Eeg Wavepatterns Of Epilepsy Among Children...**

Rimpy Bhuyan, Wasima Jahan

**AIM:-** Present study was undertaken to determine the sensitivity of Electroencephalogram to detect changes during interictal period in children with Epilepsy.

**OBJECTIVE:-** 1) To study how abnormal EEG findings in the interictal period supports diagnosis of clinically suspected Epilepsy patients. 2) To study predominance of the type of waveform in different seizures.

**METHOD:-** Study covered 41 diagnosed patients of Epilepsy attending OPD of Neurology Department, AMC. "24 channel EEG Neuropage plus Encephalograph NP-3200" equipment was used. EEG was recorded through scalp electrodes following international 10/20 system. Activation procedure as hyperventilation was used. Background changes in frequency and voltage observed. Presence of transients or interictal discharges monitored.

**RESULTS:-** 41 Children (24 male, 17 female) with Epilepsy were divided into three age groups; **category[1]**:- 2 months to 5 years (11 cases); **[2]**:- 6 to 12 years (25 cases); **[3]**:- 13 to 18 years (5 cases). EEG abnormalities were detected in 28 cases (sensitivity 68.29 %). There were 38 generalised epilepsy cases with one absence seizure and 3 LRE (Localisation related epilepsy) cases. The wavepattern showed preponderance of sharp and slow wave in 20 generalised seizure cases, slow waves in 6, polyspikes in 1, spike wave in one LRE case. Hyperventilation was used in 4 cases. Sleep record was taken in 9 cases.

**CONCLUSION:-** Thus EEG remains the key investigation in evaluating Epilepsy patients, but a normal EEG does not exclude Epilepsy. GTCS with sharp wave morphology was found to be more common in study group. Age group -6 to 12 years and male sex found to be more prone to Epilepsy. Hyperventilation and Sleep improved the EEG yield.

**KEYWORDS:-** EEG; WAVEPATTERNS; INTERICTAL: EPILEPSY; CHILDREN...

## Poster Presentation

**AUTHOR:-** Dr.Rimpy Bhuyan,Postgraduate student 2<sup>nd</sup> year,Department of Physiology,  
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### P113

#### **ABO and Rh blood groups distribution in Sikkim: A hospital based study**

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##### **Abstract:**

Blood groups are genetically determined and distribution varies from population to population.

**Aims and objective:** To determine the blood group distribution in the sikkimese population and help in formulating better blood banking services.

**Patients and methods:** This hospital based retrospective study was conducted in the only teaching hospital of the state of Sikkim with the aim of determining the distribution of various blood groups within the population of Sikkim and its implications.

**Results:** A total of 5910 groupings were done within the study period, which showed a trend of O>A>B>AB with overall commonest blood group in the study population being O (33.5%) followed closely by A (33.23%). 25.2% were of group B, whereas AB was the least common at 8%. 5770 (97.6%) were Rh-D positive whereas 140 (2.4%) were Rh-D negative.

**Conclusion:** This will not only help in formulating better blood banking services, it also paves the way for further research in classifying the Sikkimese population into palae-mongolid group as suggested by the trend of the blood group distribution.

### P114

#### **P100 attributes of pattern reversal visual evoked potentials in patients of Primary Open Angle Glaucoma**

Ruchi Kothari, Pradeep Bokariya, Smita Singh, Ramji Singh

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**Background:** Visual Evoked Potential (VEP) is a non-invasive technique used to assess the functional integrity of the visual pathways. Primary open angle glaucoma (POAG) perhaps, the most common form of glaucoma in India is characterized by a triad of signs- increased intra-ocular pressure, visual field defects and cupping of the optic disc. It has been hypothesized that elevation of intra ocular tension present in

POAG causes pressure on the retinal nerve fibers bundles as they course into the optic nerve and is supposed to produce an alteration of the VEP.

**Objective:** To evaluate the attributes i.e. latency and amplitude of P100 wave of visual evoked potential to pattern reversal stimulation in a group of subjects with POAG with normal visual acuity at baseline.

**Materials & Methods:** This rural hospital based study was conducted in the Neurophysiology unit of the Department of Physiology of our institute. The study included 200 eyes of 100 patients of POAG (54 males and 46 females) and 400 eyes of 200 (124 males and 76 females) age matched controls recruited from the population in the age range of 40-79 years.

VEP recordings were performed with the transient pattern reversal method by an electronic pattern regenerator inbuilt in an Evoked Potential Recorder (RMS EMG EP MARK II).

**Results:**

The mean P100 latency of POAG patients in our study was significantly ( $p < 0.001$ ) longer than that of the controls in all the age groups. The mean amplitude of P100 in our POAG patients was significantly ( $p < 0.05$ ) diminished compared to that of control subjects.

**Conclusion:**

Agewise and gender wise case control comparison of PRVEP components in our study revealed that POAG group has demonstrated the VEP impairment. This finding supports VEP as a valuable objective non-invasive tool in glaucoma research and proposes that it may be used as an adjunct in follow up of glaucoma especially for patients who cannot perform a reliable field.

**P115**

**Influence Of Age, Neck Torsion And Placement Of Reference Electrodes On Vestibular Evoked Myogenic Potential Standardisation.**

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**ABSTRACT:**

**BACKGROUND:** Vestibular evoked myogenic potential is an otolith mediated short latency evoked potential recorded from tonically contracted sternocleidomastoid muscle in response to intense auditory click delivered via headphones. The VEMP arises from modulation of background EMG activity from tonic contraction of the muscle. VEMPs are a relatively innocuous technique for assessing otolith function.

**AIM:** 1. Our study aimed to establish age related changes in vestibular evoked myogenic potential  
2. To compare vestibular evoked myogenic potentials between two different methods of neck torsion.  
3. To find out the influence of reference electrode placement on VEMP response.

**MATERIALS AND METHOD:** A statistically adjusted sample size of 100 healthy subjects of age groups between 17 and 70 years without previous history of otological and neurological diseases were involved in the study. 80 Subjects were categorized into three groups; (20-40yrs),(41-60yrs),(61 and above) to study the age related changes and 20 clinically healthy individuals of (mean  $21 \pm 3.1$ ) years were studied for the placement of reference electrodes. Out of 80, in 24 healthy subjects of age groups between 17 and 24 years, VEMP response were recorded following different modes of neck tension. Auditory click stimulus

evoked VEMP response were recorded from tonically contracted sternocleidomastoid muscle by binaural and monoaural stimulation. The data analysis was done using SPSS-17.

**RESULT:** The latencies did not change with regard to the age, different modes of neck torsion or the placement of inverting electrodes at different sites. P13-N23 amplitude was significantly higher when the neck was lifted forwards and turned away from the source of stimulus ( $p < 0.001$ ). Similarly, the amplitude was greater when the reference electrode was placed at the sternum compared to wrist and mastoid. The amplitude decreases significantly after 50 years of age ( $p < 0.005$ ). The mean inter-amplitude difference (IAD) ratios between both ears were in the range of 0-45% and are significantly higher in the older age group. IAD ratio is significantly less with more tonic contraction of the muscle.

**CONCLUSION:** The decline in mean amplitude P13-N23 of VEMP as age advances is due to the physiological degenerative changes that involve the saccule, inferior vestibular nerve and the neural pathway. Lifting of head and simultaneous turning of head away from the source of stimulus produced a better vestibular evoked myogenic potential response. Similarly, the VEMP response was better when the reference electrode was placed at the sternum compared to wrist and mastoid.

**KEY WORDS:** vestibular evoked myogenic potential, sternum, sternocleidomastoid, bone conduction, auditory clicks.

## P116

### Stroke Volume Index Assessment by Transthoracic Electrical Bio-Impedance in Myocardial Infarction Patients: Comparison with Echocardiography.

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**Objectives:** Assessment and comparison of stroke volume index (SVI) non-invasively in acute myocardial infarction (AMI) patients by transthoracic electrical bioimpedance using the NICOMON apparatus and Doppler echocardiography.

**Methods:** SVI of one hundred AMI patients has been assessed and compared by ECHO and NICOMON, where ECHO is considered as a reference method. SVI by transthoracic electrical bio-impedance was measured by using an alternating current and measuring the bio-impedance across the thorax. Body surface area (BSA) & End diastolic volume (EDV), End systolic volume (ESV), measured by ECHO was used to calculate SVI. Various statistical methods like "t"-test & correlation coefficient (r) have been used where found suitable.

**Results:** Significantly higher value of SVI was found by NICOMON in comparison to that of ECHO ( $p < 0.001$ ) with a weak positive correlation ("r" value=0.24).

**Conclusion:** SVI measured by NICOMON showed weak positive correlation with Doppler derived SVI. So in hospitalized patients with AMI, NICOMON provides some information about

SVI but did not have prognostic utility in this patient population.

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**P117****A Study On Adherence To Anti-retroviral Therapy And Its Determinants Among Patients Accessing Art Centre In A Tertiary Care Hospital.****SANDEEP.B<sup>1</sup>, VASANT.R.CHAVAN<sup>2</sup>, RAGHUNANDAN.M<sup>3</sup>, MOHAMMAD ARSHAD<sup>4</sup>.**

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**ABSTRACT****Aim:** To evaluate adherence to anti-retroviral therapy (ART) and its determinants among ART patients.**Objective:** To study the demographic, psychosocial and treatment related factors of patients on ART and to assess adherence level to ART and factors influencing it.**Methods:** A cross-sectional, observational study was done among 270 patients on ART using a semi-structured questionnaire. Proportions and logistic regression were applied.**Results:** Among 270 ART patients, 52.6% were males, 28.9% were on Zidovudine/Lamivudine/Nevirapine (ZDV/LMV/NVP) regimen. 81.5% were adherent over previous 7 days and 88.9% over previous 4 days recall. Adherence increased over longer period of recall. On Bivariate analysis, being employed (OR=3.070), those disclosed their HIV status (OR=3.276), having family support (OR=2.280), patients only on ART (OR=7.885) or two to three medications (OR=6.895) were likely to report more adherence to ART. Patients in WHO stage 1 (OR=10.685) and stage 2 (OR=2.745) at present were more likely to adhere to ART than in stage 3 and those who never admitted to hospital (OR=4.311) were more adherent compared to those admitted more than once to the hospital due to HIV related illness in the previous 1 year.**Conclusion:** Several demographic, psychosocial and treatment related factors influence adherence. Hence, addressing these factors and providing adherence support services are main strategies for improving adherence to ART.**P118****Determinants of corrected QT interval (QTc) and QT dispersion (QTd) in healthy individuals: a regression analysis.**

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**Objective:** To find out the independent predictors of QTc and QTd after adjusting for various demographic, physiological, social and life style factors in healthy subjects.

**Methods:** A cross-sectional study was conducted in a tertiary hospital. Apparently healthy persons attending the hospital for routine health check up were subjected to a pretested questionnaire after obtaining informed written consent. Data on age, gender, socio-economic status, habit of daily exercise, smoking and alcohol status, BMI, Blood Pressure, serum potassium, lipid profile and ECG were obtained.

**Results:** QTc interval increased with advancing age ( $r = 0.180$ ,  $P = 0.026$ ) and higher socio-economic status ( $r = 0.183$ ,  $p = 0.023$ ) but did not correlate with serum potassium or lipid profile ( $p > 0.05$ ). Males had shorter QTc ( $345.97 \pm 1.72$ , Mean  $\pm$  SEM,  $P < 0.0001$ ) than females ( $357.72 \pm 2.22$ ) and subjects with daily habit of exercise had significantly shorter QTc interval than their counterparts ( $P < 0.008$ ). Backward stepwise multivariable regression analysis showed that heart rate ( $P < .0001$ ), gender ( $P < .001$ ) and age ( $P < .003$ ) independently predicted QTc interval and daily habit of exercise was a weak ( $P = .106$ ) predictor of QTc. QTd showed significant association only with serum triglyceride level.

**Conclusion:** QTc was prolonged with increasing age, faster heart rate and female gender; while raised serum triglyceride level was associated with prolonged QTd. Screening of these individuals will help in early detection of the risk of cardiac arrhythmias thereby reducing cardiovascular morbidity.

## P119

### **Effects of Mouth Piece and BMI on Auditory and Visual Reaction Time in Medical Students.**

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#### **ABSTRACT**

140 Medical students in age group of 18 to 22 years were taken for this study. They were explained the procedure and guidelines laid down by ethical committee were strictly followed.

Their BMI was measured by measuring their height and weight. Then their auditory and visual reaction times were measured after keeping a rest of 5 minutes between the two. Then after a rest of 5 minutes measurement of auditory and visual reaction time was repeated with mouth piece in mouth.

It was observed that both auditory and visual reaction times were higher in subjects with higher BMI. Also there was statistically significant decrease in reaction times with the use of mouth piece when compared with without mouth piece. Thus we can conclude that by using mouth piece the auditory and visual reaction time can be significantly improved.

## P120

### **A Study of Relationship between Seminal Fructose & male infertility**

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Professor, Department of Physiology<sup>3</sup>

Geetanjali Medical College Udaipur (Rajasthan)



**ABSTRACT**

**Background:** Fructose is secreted by the seminal vesicles which is the main source of energy & is responsible for motility of sperms. Lower level of seminal fructose has been observed in hypofunction of the seminal vesicles and has been a cause related to infertility in males.

**Objectives:** The present study was designed to find out relationship between seminal fructose concentration and sperm counts.

**Material and Methods:** The study was carried out on semen collected from 120 men of age group 25yrs to 55yrs. They were divided into three groups ,depending on sperm count, as normozoospermic (Group A ; n=50), oligozoospermic (Group B; n=50) & azoospermia (Group C; n=20). Collection of Seminal fluid and its analysis was done using the WHO standards along with estimation of fructose level and concentration of sperms.

**Result:** Data was analysed by comparing the fructose levels in group A and B using paired t-test & significant and group A and C using unpaired t-test. By this study it was concluded that there is a strong correlation between seminal fructose and sperm concentration.

**Conclusion:** Seminal fructose could be used as important marker in testing infertility cases.

**Keywords:** Seminal Fructose, Infertility, Sperm Concentration.

**P121****The effect of central obesity on pulmonary function tests among healthy non-smoker young adults**

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3. Dr. Diptakanti Mukhopadhyay, Associate Professor, Community Medicine, COM & SDH, Kolkata
4. Dr. Gautam Chaudhury, Assistant Professor, Physiology, BSMC, Bankura

**Aims & Objectives:** This study tried to find out the effect of central obesity on pulmonary function test among healthy non-smoker young adults.

**Methods:** 158 young adults (Mean age 18.89±.08 for girls, 19.2±.72 for boys) consisting of 90 boys and 68 girls were included in the study. Body fat percentage was measured by using Harpenden skin fold caliper and FVC, FEV<sub>1</sub> and FEF<sub>25-75</sub> were assessed by using RMS Helios 702 electronic spirometer. The study population was classified into normal weight and overweight-obese groups according to WHO guidelines. Student's t tests were applied to see the significant difference of FVC (L), FEV1 (L) and FEF25-75(L/s) among these two groups. Then the correlation between BMI , body fat percentage, waist circumference and waist-height ratio with FVC, FEV1 and FEF25-75 were seen.

**Results:** There was a significant difference in the FVC, FEV1 and the FEF25-75 values between the normal weight and the overweight-obese subjects both in males and females. Although waist-height ratio has the strongest negative correlation with pulmonary function test BMI, Body fat percentage, Waist Circumference also showed negative correlation with all spirometric parameters in both males and females.

**Conclusion:** Obesity, specially central obesity has effects on pulmonary function test among healthy non-smoking young adults.

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**P122**

**Study Of Blood Pressure Changes Between Sikkimese And Non Sikkimese Medical Students And Comparison With Body Mass Index.**

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**AIM:** To study the BMI profile with correlation of blood pressure among medical students of Sikkim Manipal Institute of Medical Sciences.

**OBJECTIVES:** Comparison of different parameters (weight, height, Body Mass Index, Systolic blood pressure, Diastolic blood pressure) between Sikkimese and Non Sikkimese Medical students.

**METHODS:** 104 Subjects (35 (34%) male & 69(66%) female) were studied for BMI and blood pressure. The data was analyzed using student *t*-test and Pearson product moment correlation coefficient.

**RESULTS:** No obesity was observed among Sikkimese group, whereas the mean BMI of Non-Sikkimese male fell in overweight category.

A positive correlation was found between BMI and BP among non sikkimese. Whereas no correlation was found among Sikkimese.

**CONCLUSION:** BP is positively associated with BMI in case of Non-Sikkimese and there is no correlation between BP and BMI among Sikkimese.

**KEY WORDS:** BMI, SBP, DBP, Hypertension, Young adult, Sikkimese, Non- Sikkimese.

**P123**

**Beware Of Rip Currents & Drowning ; While On Beaches**

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**Introduction** – While on beaches even if you are only in knee-deep water, may be swept off your feet by strong ocean waves and rip currents.( large volume of water returning back out to sea after onshore wave action) It is important to remember that rip currents do not pull people under water ;they pull people away from shore. At the depth of 1 meter the compressive force of water against chest cavity becomes so large that the inspiratory muscles cannot overcome external pressure and expand thoracic dimensions. This makes inspiration impossible without external air at sufficient pressure to counteract the compressive force of water at particular depth. This reality forms the basis of scuba. Aspiration (whether of salt or fresh water ) is usual in drowning(submersion resulting in death) and near drowning(known as nonfatal or submersion injury) and leads cardiac arrest within few minutes .Death or severe neurological impairment occur after submersion for more than 5 to 10 minutes, but much longer durations may be tolerated in hypothermic conditions. Alcohol affects vision, balance, movement, and reasoning and is a major risk factor for drowning.

**Methods** - If you get caught in a rip current – remain calm, and try to float or tread water. Don't swim against the current, as this is difficult for even experienced swimmers. Swim along the shoreline until you feel the current relax, or let the current carry you until it slows down. Then swim towards the shore at an angle. Since rip currents are narrow, it does not take much effort to swim along the shore out of danger's way. If you are unable to reach shore, wave your arms and yell for help. First requirement of

rescue is immediate basic life support includes sustain ventilation ,oxegenation,and circulatory support and CPR is provided if pulse and respirations are absent,efforts must be continued until core until core temperature reaches 32 degree C,subsequent management includes-ensure optimal ventilation and oxegenation,cardiovascular support,correction of blood ph and electrolyte abnormality(corrected through adequate ventilation ,oxegenation and glycemic control)Patient must also be assessed for hypothermia ,hypoglycemia,concurrent injuries,and medical conditions,Clinical manifestations are hypoxemia,pulmonary edema,and hypoventilation. Prevention includes supervision, personal flotation devices (life jackets),rescue efforts. (Retrieved from University of Delaware Sea Grant College Program, Oxford Text book of medicine, Exercise Physiology Book & CMDT)

## P124

### Evaluation of speed and co-ordination among wrestlers by reaction time analysis and agility test-A Cross sectional design.

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**Background:** Wrestling is a physical chess match featuring moves and counter moves, endurance, strength, intelligence, and quickness. Wrestling demands a high degree of muscular co-ordination skills, speed, great agility. The swiftness of these actions is of the greatest importance in the game. Agility is the physical ability which enables an individual to rapidly change body position and direction in a precise manner.

**Objectives:** 1) To assess the reaction time, and agility among wrestlers and healthy controls.

**Methodology:** 35 wrestlers aged between 18 to 25 years who were practicing regularly in Belgaum district stadium were recruited. 35 age and sex matched students of KLE University, Belgaum were enrolled as controls.

Audio-Visual Reaction time was done using Audio-Visual reaction time analyser. Agility was assessed by Illinois agility test.

**Results:** The data was analysed by using Student unpaired 't' test ( $p < 0.05$  was considered as significant). Audio-visual reaction time was significantly lesser in players than in controls. Mean agility was significantly lesser in players than in the controls.

**Conclusion:** Changes in Reaction Time may be an indicator of nervous system adaptation due to long-term training. The faster reaction time in the players may be due to improved concentration, alertness and better muscular co-ordination. The study also indicates that better Reaction Time may be useful in having a higher agility in the players. These changes may be useful in improving performance of the wrestlers.

## P125

### Gender wise Comparative study on Visual Reaction Time on Northern Indian Children

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## Abstract

### Introduction

Reaction time is the time interval between the application of stimulus and the response by the subjects. Visual reaction time (VRT) is the time elapse from the initiation of a stimulus until a response is achieved. Many studies revealed that reaction time task is a good indicator of sensor motor performance of an individual.

### Material Method

The present study was undertaken at Integral Institute of Medical Sciences & Research and Techno School, Lucknow, UP. The sample size was taken 104. Out of which 43 were female and 41 were male, equally distributed in four age groups. The age of study subjects was 6-21 years. The VRT for green and red light of each subject was recorded according to study protocol. The data was analyzed by using Statistical software SPSS of version 19.0.

### Results and Conclusion

The gender wise difference in VRT wise found highly insignificant for both color red and green ( $t=1.06, p=0.28$  and  $t=0.77, p=0.44$ ) while for age wise VRT was found significant for both color red and green color ( $F=291.843, p < 0.001$  &  $F=346.45, p < 0.001$ ).

**Key words:** Visual Reaction Time , Stimulus & Statistical significance

## P126

### Substance abuse and sperm count amongst patients attending semen analysis laboratory at tertiary care centre.

Dr. Sharad Mankar, Dr. Santosh Wakode, Dr. Rahul Khobragade, Dr. Neelam Mishra.

**Aim & objective:** To study relation between smoking, alcohol consumption & smokeless tobacco consumption and sperm count.

**Methodology:** The study was carried out on 250 consenting males attending the semen analysis laboratory of the tertiary care centre from January 2014 to August 2014. After recording the demographic data, history of tobacco use in the form of smoking and smokeless tobacco and alcohol consumption was taken. Semen samples were categorised into normospermia, oligospermia, and azoospermia.

**Result:** Proportion of azoospermic and oligospermic males was 10.8% (27) and 18.4% (46) respectively. Low sperm count was significantly associated with smoking (odds ratio 1.93, 95% Confidence Interval 1.08-3.44) ( $p$  value 0.02). Low sperm count was not significantly associated with Alcohol consumption & smokeless tobacco consumption.

**Conclusion:** Smoking is a significantly associated with low sperm count.

**Key words:** Smoking, alcohol, smokeless tobacco, sperm count.

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**P127****Comparison of salivary glucose and blood glucose in type II diabetics and healthy adults in fasting and postprandial states**

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**Aim:**To examine correlation between salivary and blood glucose in type II diabetics and healthy adults.

**Objective:**To estimate and compare blood and salivary glucose levels in both groups.

**Materials and Methods:**80 adults in age group of 30 - 50 years were included in study and divided into 2 groups - diabetics and healthy adults. Blood and saliva samples were obtained from subjects after overnight fast and 2 hours postprandial. Blood samples were analysed with hexokinase enzyme (automated analyser) and saliva samples with glucose oxidase enzyme (colorimeter). Difference in salivary glucose levels between groups was determined by unpaired t test and correlation between blood and salivary glucose levels by correlation test.

**Results:**Salivary glucose levels were higher in diabetics and difference ( $p < 0.001$ ) was significant. Correlation between blood and salivary glucose levels was not seen in both groups.

**Conclusion:**Salivary glucose levels are significantly higher in diabetics. Correlation between blood and salivary glucose levels was not seen. Further studies might contribute to using salivary diagnostics as mass screening method for diagnosing diabetes.

**P128****Birth weight and its effect on cognition in children aged 5 to 6 years**

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**Aim:** To compare the cognitive functions in children based on birth weight.

**Objectives**

1. To assess the cognitive functions of children at 5 to 6 years of age by performing a battery of cognitive function tests.
2. To compare cognitive performances of children born with appropriate for gestational age(AGA) , small for gestational age(SGA) and Large for gestational age(LGA)

**Methodology:** 71 children aged 5 to 6 years were analyzed, of which 44 were AGA , 21 were SGA and 6 were LGA children .NIMHANS neuropsychological battery for children ,consisting of tests for motor speed, speech ,attention, visuospatial ability and memory was employed. Height and weight was measured

**Results :** AGA children performed better in tests of cognition when compared to SGA children. While LGA children had scores which were similar to AGA children.

**Conclusion :** Birth weight is one of the important factors that affects the cognition of the child .Proper maternal health status, as well as adequate fetal and neonatal nutrition, enhances the overall growth and development of the child.

## P129

### Comparison of Mean Platelet Volume, Platelet Count, Total Leucocyte and Differential Count in Normoglycemics and Diabetics

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#### ABSTRACT

##### Original Article

**Introduction:** Diabetes mellitus is a global pandemic and a complex disease characterized by chronic hyperglycaemia, metabolic abnormalities, long term macro – microvascular abnormalities involving the blood vessels, eyes, kidneys and nerves. Platelet parameters such as high platelet count and mainly high mean platelet volume (MPV) have been reported in diabetic patients, contributing to the increased risk of vascular disease. Also recent studies have documented the role of platelet – leukocyte aggregates in diabetics contributing to the vascular injury.

**Objective:** The objective of our study is to study the simple variables of platelet count, MPV, total WBC count and differential count not only in diabetics, but also in the normoglycemics.

**Methods:** Current cross sectional study is being conducted in S.C.B Medical College, Cuttack, Orissa. A total of 60 cases were included in the study groups which were categorized as Group 1 and 2 based on the fasting plasma sugar levels as normoglycemics and diabetics respectively. The same samples were run for MPV, platelet counts, Total leukocyte and differential counts.

**Result :** A statistically significant correlation was seen between the rising plasma glucose, MPV, Total Leukocyte count and the differential counts. The platelet count however, did not show much statistical significance with rising glucose levels.

**Conclusion:** MPV, total leukocyte count and the differential count increased proportionally with increasing plasma glucose levels. The variation was significant in diabetic group.

**Keywords:** Diabetes mellitus, Mean platelet volume (MPV), Total Platelet count, Differential count

## P130

### Relationship Between BMI, WHR AND BP

Shaik Auliya Parveen, post graduate in MD physiology, Guntur medical college, Guntur.

TITLE: Study of relationship between BMI, WHR and BP in adults.

AIM: To study the relationship between body mass index (BMI), waist hip ratio (WHR) and blood pressure (BP) in adults aged 21-40 years.

#### OBJECTIVES:

1. To study relationship between BMI, WHR and BP in males.
2. To study relationship between BMI, WHR and BP in females.

3. To compare and evaluate the above mentioned parameters in males and females.

**METHODOLOGY:** 75 healthy voluntary adults were selected for the study with age matching. Depending on BMI, subjects were divided into three groups- normal(18.5-24.9 kg/m<sup>2</sup>), over weight(25.0-29.9 kg/m<sup>2</sup>) and obese(>30.0 kg/m<sup>2</sup>) with 25 subjects each. Then the parameters were noted using stadiometer for height, weighing scale for weight, measuring tape for WHR, sphygmomanometer for BP. Study was conducted in a duration of 3 months.

**RESULTS:** BP was significantly higher in obese and in whom WHR is higher ( $p < 0.005$ ). BP was within normal limits in normal weight, WHR subjects.

**CONCLUSIONS:** Hypertension and its related health hazards like cardio vascular accidents (CVA) can be prevented by weight management, lifestyle modification and regular physical activity.

Key words: BMI, WHR, BP.

### P131

#### Study Of Blood Pressure Changes Among Sikkimese And Non Sikkimese Young Adults With Different Body Mass Index.

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**Aim:** To study the BMI profile with correlation of blood pressure among young adult medical students.

**Objectives:** Comparison of different parameters (weight, height, Body Mass Index, Systolic Blood Pressure and Diastolic Blood Pressure ) between Sikkimese and non Sikkimese students.

**Method:** Design: Comparative study.

Setting: Dept. of Physiology, SMIMS.

Participants: 104 Medical students.

Main outcome measures: Weight, Height, BMI, SBP, DBP are assessed.

**Results:** No obesity was observed among Sikkimese group; whereas the mean BMI of Non-Sikkimese male falls in overweight category even their mean SBP is just below the baseline of Pre hypertensive stage. A positive correlation was found between BMI and SBP ( $r = +0.29$ ), BMI and DBP ( $r = +0.27$ ) among non sikkimese. Whereas no correlation was found between BMI and DBP ( $r = 0.00$ ) among Sikkimese.

**Conclusion:** Sikkimese students are maintaining healthier lifestyle than Non-Sikkimese student. Prevalence of Obesity and overweight is more among Non-Sikkimese so they are more prone to hypertension.

**Key Words:** BMI, SBP, DBP, Hypertension, Young Adult, Sikkimese, Non- Sikkimese.

### P132

#### Lung functions are compromised in glass bangle factory workers

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### Abstract

Exposure to glass factory smoke is associated with a number of respiratory problems which are both immunologic and non-immunologic in origin. This study was undertaken to assess pulmonary function among glass bangle factory workers. Lung function tests were carried out using a portable spirometer. Out of the 486 workers were included in the study, 106(21.8%) were symptomatic: chronic bronchitis (n=34), cough (n=38), bronchial asthma (n=13), post nasal drip (n=9), chest tightness (n=8) and dyspnea (n=4). The respiratory symptoms were more common among non-smokers (55.6%) than smokers (44.3%). Pulmonary function parameters had lower values in smokers than in non-smokers and in symptomatic than in asymptomatic subjects.

### P133

#### Endothelial dysfunction in patients with metabolic syndrome having Coronary Artery Disease

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**Aims and Objectives:** Metabolic syndrome (MetS) is a constellation of interrelated risk factors that lead to an increased risk for Coronary Artery Disease (CAD). Endothelial dysfunction is associated with both MetS and CAD. The aim of this study was to assess whether endothelial dysfunction plays a crucial role in patients of metabolic syndrome developing CAD.

**Methods:** 27 patients of metabolic syndrome were recruited (NCEP ATP III criteria, 2009) and grouped into CAD+ (n=13, age=59.2±7.6) and CAD- (n=14, age= 60.8±9.5) based on clinical diagnosis. Endothelial function was estimated by Flow Mediated Dilation (FMD) technique. Brachial artery diameter was measured by using B-mode vascular ultrasound at baseline and for 3 minutes after 5-minute arterial occlusion.

**Results:** The two MetS groups (CAD+ and CAD-) did not differ significantly in age (p=0.63) and baseline artery diameter (CAD+ vs. CAD-; 0.50±0.07mm vs. 0.46±0.10mm, p=0.17). Patients of CAD group had a significantly lower FMD as compared to those without CAD (5.23± 3.28% vs. 8.91±4.85%, p value = 0.03). Additionally, the time take to reach maximum post-occlusion arterial diameter was longer in CAD+ group but not significantly different from CAD- (Median; Interquartile Range: 80; 55-150 vs. 45; 40-82.5 sec, p=0.08). The increase in blood flow immediately after occlusion was not significantly different in the two groups (48.8±19.7% vs. 51.8±23.6% p=0.73).

**Conclusion:** Patients of metabolic syndrome with CAD have more Endothelial dysfunction than those without CAD. These results suggest that endothelial dysfunction plays an important role in the etio-pathogenesis of CAD in patients of metabolic syndrome.



**P134****Non - invasive Cardiovascular Functions in Proficient and Non- Proficient Healthy Subjects.**Snehasis Bhunia<sup>1</sup>, Santosh Kumar Sant-<sup>2</sup> Bonny Bhunia<sup>3</sup> ANG Hyder<sup>4</sup>

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**ABSTRACT**

Cardiovascular disease (CVD) is associated with the development of atherosclerotic process that begins in the arteries, representing vascular pathology, can be measured in the form of reflection index (vascular tone) and other non invasive cardiovascular parameters, leads to cardiovascular morbidity and mortality. Previous reports have described significant reduction on arterial stiffness and alteration on other related cardiovascular parameters in atheletes as well as in proficient individuals. No report so far is available on comparative analysis of non invasive vascular parameters such as reflection index (vascular tone) termed as RI, Large artery stiffness index (SI), Dicrotic index (DI), Heart rate (HR), and cardiac parameters such as Left Ventricular ejection time (LEVT), Diastolic time, Ejection slope, dp/dt max in proficient and non proficient healthy subjects.

The present study has been undertaken to analyze the differences of non - invasive cardiovascular responses in both proficient and non proficient healthy subjects.

Various non invasive cardiovascular parameters like RI, SI, DI, dp/dt max, LVET, pulse duration, diastolic time, ejection slope and also systolic, diastolic, mean and pulse pressure were studied by using PC based PPG analysis system.

In the present study no statistical significant differences were found on body weight and age, dp/dt max and ejection slope. in two groups (proficient and non proficient), but statistical significant differences were found on RI,SI, pulse duration, diastolic time, systolic (SBP), diastolic (DBP), Pulse (PP) and mean (MABP) pressure that would be attributed to increased parasympathetic tone in proficient as compared to non proficient subjects.

**Key words:** *Non invasive techniques, Cardiovascular parameters, Large artery stiffness index. Reflection index, left ventricular ejection time.*

**P135****A Study On Prevalence Of Perceived Stress And Abnormal Cardiovascular Parameters Among Undergraduate Medical Students In An Urban Medical College, West Bengal**Sanyal Soham<sup>1</sup>, Sanki Soumita<sup>2</sup>, Mahapatra A B S<sup>3</sup>,Das Anubrata<sup>3</sup>,Sen Sumitra<sup>4</sup>,Parui Sandip<sup>4</sup>

- Aims and objective:**
- 1) To study the prevalence of perceived stress among undergraduate medical students.
  - 2) To study the baseline cardiovascular parameters in the same population
  - 3) To find out relationship between (1) and (2) [if any].

**Methods:** After obtaining clearance from the institutional ethical committee, apparently healthy MBBS students were approached. Students who gave informed consent (n=30) were included in study. For determination of perceived stress, a self administered 10 point questionnaire (Cohen's Perceived Stress Scale-10) was used. BMI, waist hip ratio, blood pressure, heart rate were recorded. Sleep habit, addiction history, and menstrual history were also taken. IBM SPSS ver20 was used for statistical analysis.

**Results:** n=30. Age of subjects (mean±SD) 19.5±1.1 yrs. Among the subjects 19(63.3%) were males, 11(36.7%) were females. PSS score (19.97±6.1). According to PSS scale 21(70%) subjects showed moderate stress, where as 4(13.3%) subjects showed severe stress. Positive correlation was found between BMI and stress (p=0.58). Positive correlation between SBP and stress (p=0.045\*) and MABP and stress (p=0.019\*) were found. Very strong positive correlation between heart rate with stress (p=0.001\*) and addiction history with stress (p=0.008\*) were found.

**Conclusion:** Prevalence of perceived stress is quite high among undergraduate medical students in an urban medical college, Kolkata. A strong correlation also exists between perceived stress and overall cardiovascular health.

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**P136**

**“Nerve conduction velocity in nerves of upper extremity of young healthy males playing table tennis regularly”.**

Sonali Shesha, Vivekanand Waghmare, Dr S K Sadawarte, Dr Rekha Jiwane

**Aim:** To evaluate the effect of playing table tennis on the motor nerve conduction velocities in radial, ulnar and median nerves.

**Objectives:** To determine nerve conduction velocity in nerves of upper extremity of young healthy males playing table tennis regularly and comparing them with those who do not play table tennis or any other sports or regular exercise.

**Method:** The motor and sensory conduction velocities in median, ulnar and radial nerves were determined in 30 young adult males in the age range 20 – 30 years who are practicing table tennis regularly for more than 6 months and were compared with those of 30 young adult males in the same age range who did not indulge in playing table tennis or any other recreational sport or any kind of regular weight bearing training.

**Result:** The motor nerve conduction velocity in median, ulnar and radial nerves of dominant limb were affected significantly in table tennis playing group when compared to those of control group. There was no significant difference in conduction velocities in same nerves of the non-dominant limbs of both the group.

**Conclusion:** The decrease in conduction velocities of median, ulnar & radial nerves of dominant limbs in young males practicing table tennis regularly is indicative of development of peripheral neuropathy. Playing table tennis involves attaining and maintaining a peculiar posture that imposes high strain on the dominant limb particularly at the elbow and wrist joints. Various factors like high repetition of motions and extreme elbow and wrist positions affect the peripheral nervous system which may remain subclinical or asymptomatic.

**Key words:** nerve conduction velocity, table tennis player.Address:-

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## P137

### Haematological values in normal healthy pregnant and non-pregnant women

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# Mode of presentation: Paper

**Aim** – Anaemia during pregnancy is a serious condition contributing to increased maternal and foetal mortality and morbidity. Current study was designed to determine the variation in haematological parameters in pregnant and non-pregnant women.

**Objectives-** 1. Assess the level of important blood parameters (Hb, Hct, RBC count, MCV, MCH, MCHC) in healthy pregnant women and to study the distribution in 3 trimesters of pregnancy.

2. Compare the values with age–matched control( non-pregnant women).

**Method:** Cross-sectional study involving 180 pregnant subjects (18-42 yrs), attending Gynaecology and Obstetrics outpatient department, AMC, Dibrugarh. Subjects were divided into 3 groups, 60 in each trimester, and 60 non-pregnant age- matched controls. Parameters studied were haemoglobin concentration(Hb), total RBC count, blood indices, haematocrit.

**Results:** : Hct showed significant differences amongst the three groups and highly significant ( $P < 0.0001$ ) with control- 30.3 %(+5.4) & 34.4 %(+2.4). Hbc, MCV, MCH, MCHC were found to be significantly ( $P < 0.001$ ) lower in pregnant women than in non-pregnant women. There were significant changes( $P < 0.01$ ) between the trimesters in most of the parameters

**Conclusion:** : Haematological values were found to be significantly lower in pregnant women compared to that of control.The present study provides baseline data for basic hematological parameters in healthy pregnant population attending antenatal OPD in AMC&H, This would be of immense benefit especially in the antenatal assessment of pregnant women.

**Keyword :** Anaemia, Pregnant women, haematological parameters.

## P138

### Antibiotic resistance pattern of *Pseudomonas aeruginosa* isolated from hospital environment

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**Aim and Objectives:** This study was conducted to determine the occurrence of *P. aeruginosa* from hospital environment, its antibiotic resistance pattern and production of  $\beta$ -lactamases.

**Methods:** Seventy five *P. aeruginosa* strains were isolated from various hospital environmental samples, their antimicrobial susceptibility testing was done as per Clinical and Laboratory Standards Institute (CLSI) guidelines. ESBL, inducible AmpC  $\beta$ -lactamase, plasmid mediated AmpC  $\beta$ -lactamase and MBL production was detected by CLSI phenotypic confirmatory test, disc antagonism test, AmpC disc test and disc potentiation test respectively.

**Results:** Of all the isolates, 61.3% showed resistance to ceftriaxone, followed by ceftazidime (45.3%), cefotaxime (45.3%), meropenem (25.3%) and imipenem (12%). 37.3% of isolates were found to be ESBL producers. All the isolates were resistance to ceftazidime, of which, 34.7% of the isolates revealed the presence of inducible AmpC  $\beta$ -lactamase. 6.7% of the isolates were plasmid mediated AmpC  $\beta$ -lactamase producers. 26.6% of isolates were MBL producers.

**Conclusion:** As our study showed the presence of multi drug resistance *P. aeruginosa*, there is a need for continuous monitoring of hospital environment so as to prevent life threatening nosocomial infection.

## P139

### Evaluation of *In Vivo* Antioxidant Potential of *Alocasia indica* against Ethanol Induced Hepatotoxicity

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**Aims:** The present study was aimed at evaluating the protective role of hydro-ethanolic extract of *Alocasia indica* (*EtAI*) tubers against ethanol induced hepatotoxicity.

**Objectives:** Hepatotoxicity was evaluated by measuring the levels of liver marker enzymes, pro-inflammatory cytokines in serum, biomarkers of oxidative stress from tissue homogenates and morphological alterations in tissue sections through H-E staining.

**Methods:** Adult male wistar rats, weighing 150-200g, were randomly grouped (n=6) and treated with ethanol (1g/kg bw, i.p.), *EtAI* (500 mg/kg bw, i.p.), ethanol with *EtAI* (similar dose), and control (0.5 ml normal saline, i.p.) for 30 days.

**Results:** Ethanol administration significantly ( $p < 0.001$ ) elevated the levels of liver marker enzymes (AST, ALT, ALP), pro-inflammatory cytokines (IL-6 and TNF- $\alpha$ ), TBARS and consequently reduced the levels of total protein, GSH, along with the activity of SOD and CAT compared to control. Pre-treatment with *EtAI* significantly ( $p < 0.001$ ) restored the levels of above parameters towards normal. Histo-pathological studies also confirmed the hepatoprotective nature of the extract by preventing cellular damage caused in the only ethanol administered group.

**Conclusion:** The results of this study strongly indicate that *EtAI* has potent hepatoprotective action against ethanol induced oxidative damage probably by scavenging free radicals. Further investigation can lead to the development of phytomedicines of therapeutic significance against oxidative stress.

## P140

### A Study On Electrocardiographic Changes In Chronic Hypertension

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#### ABSTRACT

**Introduction:** Hypertension is the commonest disorder posing challenge to our societies. Chronic hypertensive patients frequently have cardiovascular disorders like left ventricular hypertrophy (LVH), systolic/diastolic dysfunction and heart failure. ECG is the first line tool to diagnose these changes.

**Aims & Objectives:** To study ECG characteristics among chronic hypertensives and controls.

**Materials & Method:** This study was conducted in Hi-Tech Medical College, Bhubaneswar from January to June 2014. The study included 40 people with chronic hypertension and 40 controls. Cases were selected from different OPDs depending upon inclusion & exclusion criteria. 12 lead ECG was recorded & compared for different parameters. ECG abnormalities were studied and compared between two groups.

**Results:** There was statistically significant increase in QT interval & QTc interval in chronic hypertensives than controls. There was increased occurrence of LVH, ST depression and T wave inversion in chronic hypertensives than controls.

**Conclusion:** This study shows that chronic hypertension is associated with QT prolongation. Most frequently occurring ECG abnormalities in chronic Hypertension are LVH, ST depression and T wave inversion.

**Keywords:** Chronic hypertension; left ventricular hypertrophy , QT prolongation, ST depression, T wave inversion.

## P142

### Evaluation of Effect of Cotton dust on pulmonary functions and incidence of Byssinosis in cotton mill workers.

Sujatha Talikoti

**Aims:** In developing countries where the severity and extent of the byssinosis are not well studied and preventive measures are virtually non-existent. Thus the present study was planned to measure the quantitative changes in lung functions in workers of ginning factory of Bijapur District, North Karnataka

**Objectives :** . This study is done to assess pulmonary functions{ FVC, FEV1, FEV1% and PEFr} and to find out incidence of byssinosis among the workers.

**Method :** 110 subjects were selected as experimental group and 50 same socioeconomic group as that of mill workers are taken. Different pulmonary function tests were conducted to study the prevalence of byssinosis among the workers exposed to cotton fibers.

**Results & conclusion:** prevalence of byssinosis was found to be 8.95% among workers directly exposed to cotton dust. Prevalence of Respiratory symptoms among these workers as follows chronic cough(19.40%),

## Poster Presentation

chronic phlegm (7.46%) and chronic bronchitis (11.94%). These symptoms increased with increase in duration of exposure and advancement of age and are more prevalent among smokers compared to non smokers.

It can be concluded from the present study that exposure to cotton dust results in decrease in pulmonary function parameters in workers at both dusty and non dusty section of mill .

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### P143

#### Hematological profile of carrier and cases of $\hat{a}$ - Thalassemia.

Sumitra Sen, A.B. Singha Mahapatra

**AIMS AND OBJECTIVE :** To study the hematological profiles of cases and carriers of  $\hat{a}$ - Thalassemia .

**METHODS :** A cross sectional study was done in the thalassemia control unit and Physiology department of RGKar Medical college , Kolkata. Thalassemia control unit collect blood

from Antenatal OPD, Thalassemia OPD and camps and tested by HPLC and complete hemogram by automated counter .50% of such points were selected by simple random sampling for the period of 1/4/13 to 31/3/14. All the cases and carriers detected from those points were selected and a second sample was taken for manual analysis .

**RESULT :** Hemoglobin A has a significant negative correlation with anemia ( $P=0.02917$  at  $P<0.05$ ) in  $\hat{a}$ -Thalassemia carriers. Hemoglobin F though have a partial positive correlation with anemia which is insignificant. Total count of Red blood cells, Hemoglobin percentage and Packed cell volume have a significant negative correlation with anemia . Significant difference between the results of manual and automated Hemoglobin estimation is there ( $P=0.00022$  at  $P<0.05$  ) .

**CONCLUSION :** Hemoglobin A has a significant correlation with anemia and significant difference between the results of manual and automated Hemoglobin estimation is there among cases and carriers .

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### P144

#### Spirometric Changes in Patients with Subclinical Hypothyroidism

SUNITA, JYOTI PRIYA

**Aims and Objective:** We evaluated the respiratory function of patients with subclinical hypothyroidism using simple spirometry.

**Material & Method:** Thirty diagnosed cases (3 male, 27 female with mean age of  $40 \pm 7$  years) of subclinical hypothyroidism (SCH) were compared with 30 age and sex matched euthyroid controls. Spirometry tests were performed in both the groups at the department of physiology and parameters like FVC, FVC%, FEV1, FEV1%, FEV1/FVC, FEF 25- 75, FEF 25-75% were compared and results were analyzed. Results were analyzed by calculating Mean $\pm$ SD, using Student's t test and Pearson correlation.

**Results:** The characteristics of SCH patients and control cases were similar with regard to age, sex, and body mass index (BMI). Serum thyroid stimulating hormone levels (TSH) were significantly higher in SCH patients than the controls ( $P < 0.001$ ). Spirometric evaluation of the respiratory function revealed significantly lower values of FVC, FVC%, FEV1%, FEF 25- 75, FEF25-75% ( $p < 0.05$ ) in subclinical hypothyroid patients when compared with euthyroid controls.

**Conclusion:** The present study highlights the importance of spirometry test in patients of subclinical hypothyroidism, as an important diagnostic procedure to screen asymptomatic patients for potential respiratory abnormality.

**Key words:** Respiratory function, Subclinical Hypothyroidism, Spirometry test

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## P145

### Correlation Between Indices Of Overweight/Obesity And Peak Expiratory Flow Rate (Pefr) In School Going Girls Of Sikkim

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**AIMS AND OBJECTIVES:** The study the correlation between the indices of overweight/obesity and Peak Expiratory Flow Rate (PEFR) in school going girls of Gangtok, Sikkim.

To investigate the association between BMI and PEFR.

**MATERIALS AND METHODOLOGY:** A cross sectional study of PEFR (by peak flow meter) was conducted among 50 overweight/obese with age matched 50 normal weight school girls aged 14-18 years in Gangtok. Socio-demographic status, height weight, waist (WC) and hip circumference (HC) and PEFR were measured. Body Mass Index (BMI), Body Surface Area (BSA), Waist to Hip ratio (W/H) and Waist to Height ratio (W/height) were calculated to differentiate overweight/obese and normal. Statistical analysis was done using student's t test and the values were expressed as mean $\pm$ SD.

**RESULTS:** The mean $\pm$ SD of overweight /obese group are: weight 59.03 $\pm$ 9.24kg, height 154.36 $\pm$ 4.68cm, BMI 24.66 $\pm$ 2.51kg/m<sup>2</sup>, BSA 1.59 $\pm$ 0.14m<sup>2</sup>, WC 82.57 $\pm$ 6.64cm, HC 98.6 $\pm$ 5.4cm, W/H 0.84 $\pm$ 0.03, W/height 0.53 $\pm$ 0.04 and in those PEFR is 4.24 $\pm$ 0.70L/min.

The mean $\pm$ SD of the normal weight group are: weight 46.33 $\pm$ 6.19kg, height 152.79 $\pm$ 6.74cm, BMI 19.78 $\pm$ 1.67kg/m<sup>2</sup>, BSA 1.4 $\pm$ 0.12m<sup>2</sup>, WC 68.66 $\pm$ 6.23cm, HC 88.05 $\pm$ 3.8cm, W/H 0.78 $\pm$ 0.05, W/height 2.06 $\pm$ 1.62 and in those PEFR is 4.58 $\pm$ 0.59L/min.

**CONCLUSION:** In case of overweight and obese the PEFR is significantly less as compared to the normal due to restrictive lung functions.

**KEY WORDS:** overweight, obesity, PEFR, Gangtok.

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**P146**

**Assessment of stress and its levels in students of a medical college in Mumbai-a cross sectional study.**

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**INTRODUCTION:** Stress has become very common in various fields. Medical field is thought to be stressful. Severe stress may be detrimental to medical students as it may affect their cognition, health as well as the ability to perform in the exams.

**AIM:** To determine the prevalence of stress and its levels in medical students.

**OBJECTIVES:** 1.To compare the prevalence of stress and its levels in males and females. 2. To compare the prevalence of stress and its levels in different years of M.B.B.S. 3. To determine the reasons of stress in medical students.

**METHODS:** Total 338 medical students were evaluated for the presence of stress and its levels (mild/moderate/severe) using the Kessler Psychological Distress Scale (K10).Gender difference was compared with stress using unpaired t-test and difference in the academic year was compared with stress using Kruskal Wallis one way analysis. Reasons for stress were determined.

**RESULTS:** The total prevalence of stress was 57.9% and the prevalence of severe stress was 10.6%. It was found that prevalence of stress was higher( $p < 0.5$ ) among females(mean= $22.60 \pm 7.11$ ) as compared to males(mean= $20.86 \pm 8.05$ ). It was also found that as the year of study increased, stress and its levels increased ( $p < 0.5$ ). The main reason for stress was found to be academic problems related to syllabus (48.6%) followed by hostel problems (18.9%).

**CONCLUSIONS:** The prevalence of stress was 57.9%, which is high and thus needs to be addressed. Females have higher stress than males, main source of stress in females being hostel problems. As the academic year increases, stress also increases. Thus, various programs need to be arranged along with counseling to combat this stress, especially in the final year.

**KEY WORDS:** K10 Scale, stress, medical students

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**P147**

**Changes In Pulmonary Function Tests In Type-2 Diabetes Mellitus Patients.**

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**ABSTRACT**

**INTRODUCTION:** We are today witnessing an epidemic of diabetes mellitus (DM), globally and nationally. There are 150 million diabetics worldwide. In India more than 3 crores have been affected. The World Health Organization (WHO) has predicted that there is going to be a 42% increase in type 2 DM from 51 to 72 million in developed countries and 170% increase from 84 to 228 million in developing countries by 2025. Practically every system is affected by complications of DM like angiopathy (micro, macro), retinopathy and nephropathy, but one of the systems most neglected in DM is the respiratory system, except for the recognition of increased in infection prevalence like tuberculosis. Several changes occur in DM, including



Non -enzymatic glycosylation of connective tissue, especially collagen, which could lead to loss of elasticity, altered perfusion characteristics & weakness of the respiratory muscles responsible for ventilation. Ventilation may be affected by myopathy and altered elastic recoil of lung tissue. Perfusion may be affected by changes in basement membrane and micro vascular angiopathy. This study will help add to the growing literature on changes in lung function in diabetes mellitus.. However the total number of studies with respect to lung function in type 2 DM is still very small and involved very small patient numbers. Hence this study was done to enrich earlier studies.

**AIM OF STUDY-** · To study the ventilatory function of individuals with type 2 diabetes mellitus patient by performing spirometry. · To compare the spirometric findings of persons with type 2 Diabetes mellitus with that of non-diabetic controls. · To correlate the abnormalities of spirometry with duration of diabetes mellitus.

**MATERIALS & METHODS-** This is a hospital based, observational, cross sectional, prospective study of the lung of conducted at Hi- Tech Medical Colleges & Hospital, Bhubaneswar, India by the Department of Physiology in collaboration with Department of Medicine on 100 patients with type II Diabetes Mellitus attending OPD of Department of Medicine in Hi-Tech Medical College & Hospital, Bhubaneswar who are non-smoking diabetic having no history of respiratory disease, and who gave informed consent were selected for this study, and underwent pulmonary function testing. Healthy, non-smoking, non-diabetics who were matched for age and sex were chosen as controls, and also underwent pulmonary function testing. Vitalograph 2120 (with Spirotrac IV software), calibrated daily, was used for all pulmonary function measurements according to ATS performance criteria. The subjects' details including age, sex, and height of the subject were recorded on the patient data sheet of Spirotrac software. The final spirometric reports were compiled, tabulated & analysed by SPSS Version 16.0 statistical software.

**OBSERVATIONS-** A total number of 100 cases were taken for analysis. There were 60 diabetics (Study Group) and 40 non-diabetics (Control Group). There were 25 males (33.8%) and 49 females (66.2%) in the study group. There were 21 males (37.5 %) and 35 females (62.5%) in control group. There was a tendency for all parameters to fall with longer duration of diabetes. Clearly, those with a longer duration of diabetes also were older, and the effect of decline in lung function with age was a greater contributing factor. Among the 11 male subjects, the mean HbA1c was 9.97 (range 7 – 14, SD 2.00). The 18 females who had a glycosylated haemoglobin estimation showed a mean HbA1c of 9.31 (range 7 – 12, SD 1.35). FEV1 fall in values was more pronounced among females than among diabetic males. Poor diabetic control was associated with poorer lung function. There was a rough association between greater declines in FVC and higher values of FBS and PPBS. A similar inverse association was noted between higher HbA1c levels and lower FVC and FEV1 levels. There was a mean decline of FVC of 200 ml among diabetic males. And a decline of 240 ml among diabetic females as compared to diabetic controls. There was a decline of FEV1 of 180 ml among men and 120 L among women. Regression analysis of the spirometric parameters yielded significant correlations only among males, and that too only between FBS and PPBS with FEV1 (percent predicted) and FEF 25-75 (percent predicted) Regression of these parameters yielded no significant differences among females. The mean Fasting Blood Glucose (FBS) among males was 229.88 (range 86 – 470, SD87.95), and among females 194.43 (range 70 – 408, SD 68.6). The mean 2 hr post prandial Blood Glucose (PPBS) among males was 303.4 (range 166 – 525, SD 97.14), and among females 273.85 (range 140 – 496, SD 79.83). In our study, we found a predominantly restrictive pattern, with 100% of males having a FVC less than 80% of the predicted value, while only 36% of females had FVC < 80% of predicted. An obstructive pattern, indicated by an FEV1/FVC ratio less than 70% was seen in 28% of men and 8.2% of women.

**INFERENCE-** Spirometric values were consistently lower in subjects with Type 2 diabetes mellitus than in non-diabetics. Males with diabetes tends to be affected more than females, attaining lower levels of their percentage of predicted values. Subjects with poorer diabetic control have worse spirometric function. There is also a scope for further intensive work in the same area, extending the study to a larger group, and including diffusion studies as part of the protocol.

P148

**Effects of acute, chronic and acute on chronic exposure of electromagnetic waves emitted from the mobile phone on cognitive functions.**

Sushma Sood, Dr.Satvir Singh, Dr. Ashish Arvind

**Aims & Objective:** To study the  $P_{300}$  in subjects exposed to mobile phones.

**Methods:** 50 subjects were included in study divided in two groups. Group I – who had been using mobile phones <30 min/day for a duration <5years, Group II – who had been using mobile phones >30min/day for a duration >5 years. All the subjects were tested for  $P_{300}$  in two settings- pre exposure and post exposure. All the subjects were exposed to mobile phone radiation by making a fixed handset device for 10 minutes.  $P_{300}$  was recorded immediately before and just after the acute exposure. The  $P_{300}$  was recorded on RMS EMG EP MAK II machine in controlled ambient atmosphere.

**Result:** In group I the increase in mean post exposure latency was highly significant (p value < 0.001) with significant decrease in amplitude (p value <0.05). In group II increase in post exposure latency was highly significant with non significant decrease in amplitude of  $P_{300}$ . While comparing group I & II for pre exposure results, increase in latency in group II was highly significant (p value <0.001) with non significant decrease (p value <0.05) in amplitude of  $P_{300}$ . For post exposure recordings, absolute latency of  $P_{300}$  was more in group II as compared to group I but the difference was non-significant (p value <0.05). Amplitude was non-significantly lesser in group II.

**Conclusion:** it was concluded from the study that the electromagnetic waves emitted from the mobile phones affects the cognitive functions of users. The effect was more in those who use mobile phones for longer duration and over a prolonged period of time.

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P149

**Utilization and Adverse reaction profile of Anti-diabetic drugs in a Tertiary Care Hospital in East Sikkim: A Cross-Sectional Observational Study**

Diabetes has become a major public health problem in India

**Aim:** To identify differences in drug utilization and to record adverse drug reactions(ADR) of anti-diabetic drugs.

**Method-**Cross-Sectional Observational, Hospital based study conducted from May 2013 –May 2014 with 310 patients with Diabetes. Data analysed by using SPSS version 20 and excel 2007

**Result:**

Mean  $\pm$  SD age  $59.85 \pm 13.8$  yrs

Mean duration  $9.52 \pm 6.5$  yrs

Average number of drugs / prescription was  $4.92 \pm 2.5$

Metformin alone and Metformin combination (66.7%) was the commonly prescribed anti-diabetic drug

Metformin + Glimepiride (23.9%)- 2 dose combination

3 dose combination, Metformin+Voglibose +Sitagliptin(6.8%) - highest

Life-style modifications (64.2%)

Total of 278 out of 310 patients, had an associated comorbid condition; most common being Hypertension alone (34.5%) and Hypertension together with other comorbid (CKD, CVA etc.) conditions comprised(73.9%) respectively .

Generic drugs (11.01%) and Essential Medicine list drugs -(49.8%)

Suspected adverse effect in 22 patients.

Mean  $\pm$  SD cost of total anti-diabetic medications was Rs.118.61  $\pm$  81.3 for 310 patients

For Hospital Inpatients, anti-diabetic drug consumption 0.291 DDD/100 bed days.

**Conclusion:**

Metformin (Biguanides) was the most utilized(66.7%) anti-diabetic drug. This study revealed that pattern of prescription was rational and largely compliant with ADA (American Diabetic Association) guidelines

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**P150****Body Mass And Fat Free Mass Indices In Chronic Obstructive Pulmonary Disease.**

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**AIM and OBJECTIVES:** 1) To observe the relationship of BMI & FFMI in COPD patients of different stages of severity.

**METHOD:** Thirty male COPD patients of age 40-65 years were evaluated for FEV1, FEV1/FVC using spirometry and classified into three groups (II-moderate, III-severe, IV- very severe) according to GOLD criteria. BMI and FFMI were analysed by bioimpedance technique. Exercise capacity was assessed by 6MWD test, systemic inflammation by TLC, neutrophil % and ESR.

**RESULT:** BMI was not statistically different among 3 stages of COPD. FFMI significantly reflected the staging of the disease ( $p=0.004$ ) presenting the highest value in stage II. 6MWD test was significantly associated with both BMI ( $r=0.452$   $p=0.006$ ) & FFMI ( $r=0.595$   $p=0.000$ ). TLC, neutrophil% were significantly correlated with FFMI.

**CONCLUSION:** FFMI seems to be more accurate in expressing variables of disease severity compared to BMI.

**Keywords :** COPD – Chronic Obstructive Pulmonary Disease, BMI – Body Mass Index, FFMI – Fat Free Mass Index, 6MWD – 6 Minute Walk Distance, FEV1 – Forced Expiratory Volume in 1<sup>st</sup> second, FVC – Forced Vital Capacity

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## **P151**

### **A Study Of Association Between Anaemic Status And Menstrual Cycle Abnormalities In Mbbs Pursuing Students**

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#### **INTRODUCTION:**

Anaemia is a global public health problem. Females are vulnerable to iron deficiency because of considerable changes in growth pattern, lifestyle, dietary habits, menstrual cycle and others. Studies have also showed that menstrual cycle abnormalities may also be associated with psychosocial stress, socioeconomic status, physical exercise, body weight, endocrine disturbances and others.

#### **AIM AND OBJECTIVES:**

To study the association between anaemic status and menstrual cycle in MBBS pursuing students

#### **MATERIALS AND METHODS:**

The cross sectional study was conducted over a period of six months at a tertiary care Medical Teaching Hospital & Research Centre on randomized sample size of 100 MBBS pursuing students of age group 17 to 25 years. A questionnaire was distributed among these girls to know regarding - details of menstrual cycle: age of menarche, duration of cycle, regularity of cycle, amount of flow, passage of clots, association of dysmenorrhea, number of pads changed every 24 hours. The anaemic status was analysed by hemoglobin level estimation by Salhi's method.

#### **RESULTS:**

In the present study we found that low hemoglobin is associated with menstrual cycle abnormalities.

#### **CONCLUSION:**

Diagnosis and management of these problems will not only improve the girls current health, sense of wellbeing and overall quality of life but may also lower her risks for future disease and ill health after proper advice about diet.

**P152****Effect of mechanical ventilation on serum electrolytes in preterm neonates with Respiratory Distress Syndrome**TAHASEEN BANU SHAIKH\*, S. C. HIREMATH<sup>1</sup>, K. F. KAMMAR<sup>2</sup>

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**Introduction:** Preterm babies are often associated with Respiratory Distress Syndrome. Most preterm babies with Respiratory Distress Syndrome are managed by mechanical ventilation. Volutrauma and barotrauma associated with mechanical ventilation may lead to inflammatory reaction in the alveoli leading to impairment of gas exchange. Also the pulmonary capillary endothelial injury from mechanical ventilation leads to extracellular volume expansion. This in turn may lead to mild increase in intravascular volume. Thus there may be dilution of serum electrolytes in the intravascular compartment leading to their variation from normal values.

**Aims and objectives:** To assess the serum electrolytes values in the ventilated preterm neonates.

**Materials and methods:** 18 preterm neonates who were diagnosed with Respiratory Distress Syndrome and managed by mechanical ventilation in the neonatal ICU were included. Their blood samples were analyzed for serum electrolyte values of sodium, potassium and chloride.

**Results:** The values for sodium (in mEq/liter), for potassium (in mEq/liter), for chloride (in mEq/liter) were  $135.09 \pm 6.11$ ,  $4.9 \pm 0.81$ ,  $108.18 \pm 7.9$  respectively. These values are within the normal range for the age specified.

**Conclusion:** We found no change in the serum values of sodium, potassium and chloride in the preterm newborns on mechanical ventilation due to Respiratory Distress Syndrome.

**Key words:** preterm; mechanical ventilation; respiratory distress syndrome; serum electrolytes

**P153****Comparative study between PFT in construction workers and normal subjects**Tanwi Bose<sup>1\*</sup>, Nirupama Ray<sup>2</sup>, R.R Mohanty<sup>3</sup>, Sanjeev Satpathy<sup>4</sup>, Manju Agarwal<sup>5</sup>1-P.G (1<sup>st</sup> Year), Dept. Of Physiology, SCB MCH, 2- Asso. Prof, Dept. Of Physiology, SCB MCH

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**Objectives:** Construction workers are usually exposed to heavy dust. We investigated whether chronic exposure to dust and cement had any adverse effect on respiratory system.

**Materials and Methods:** This cross-sectional study involving 30 construction workers selected from L & T company working at SCB Medical college and 30 normal subjects. The study parameters include FVC, FEV<sub>1</sub>, FEV<sub>1</sub>%, FEF<sub>25-75</sub>%, and PEF. Besides the same, the individuals' age, type of work, duration of work and other respiratory illness symptoms were recorded. The statistical significance was detected using Paired t-Test. SPSS 16 was used for the purpose.

**Results:** Subjects showed restrictive type ventilatory impairment. Significant correlation has been found between Pulmonary functions and duration of exposure to dust in older workers. Prevalence of respiratory symptoms was low but significantly associated with dust and dust exposure. Thus restrictive lung impairment mainly depends on high dust concentration as well as duration of exposure.

**Conclusion:** This study helped in achieving baseline information regarding respiratory status of construction workers of Cuttack. Most paint workers have restrictive pulmonary function impairment, which can be checked by using high-quality protective equipments as also by using masks to reduce dust concentration in work environment and also by workers' health education.

**Key words:** Pulmonary function, construction workers, FEV1,PEFR, restrictive lung function impairment

## P154

### Evaluation Of Eeg Findings In Patients With Migraine

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**AIM AND OBJECTIVES;** Migraine is a common disorder that imposes a large personal burden on sufferers and high economic costs on society. Sufferers have a significant level of migraine related disability in all aspects of their daily lives. The purpose of this study was to evaluate the EEG changes in a clinic-based sample of migraine patients.

**MATERIALS AND METHODS:** A total of 50 patients with migraine and 50 age, sex, and race matched controls were included in this study. Controls were selected from the community and had no evidence of migraine. They were subjected to standard scalp electroencephalography. The EEG was studied in the awake state at rest, during photic stimulation and during hyperventilation.

**RESULTS:** Migraine with aura was more common in females than the males,  $p < 0.005$ . Women were more as likely as men during hyperventilation, but more likely than men during photic stimulation to develop a migraine attack,  $p=0.001$

**CONCLUSION :** The presence of abnormal EEG patterns in migraine patients may help to initiate further researches to determine the pathogenesis of these EEG changes in migraine as well as the management and prognosis.

Key words: EEG, hyperventilation, photic stimulation, migraine

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## P155

### Item Analysis of Multiple Choice Questions (MCQs) in Department of Physiology, AIIMS, Patna

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This is an era of objectivity and Multiple Choice Questions (MCQs) are increasingly being used in evaluation of students in exams in educational institutions. Item analysis enables identifying good MCQs based on difficulty index (DIF I), discrimination index (DI), and distracter efficiency (DE). Present study has been

undertaken with an objective to evaluate MCQs (items) and develop a pool of valid items and also to revise/store or discard items based on obtained results. After 8 months of dedicated teaching 99 out of total 100 students of 1<sup>st</sup> MBBS, AIIMS Patna appeared in an internal examination of Physiology in July 2014. It comprised of 30 “single response type” MCQs. Each correct response was awarded 1 marks and each incorrect response was awarded 0, range of score being 0-30. One group consisting of higher marks was considered as higher ability (H) and other group consisting of lower marks was considered as lower ability (L) group. Out of 99 students, 39 were in H group and 27 in L group; rests (33) were in middle group and not considered in the study. Total 30 MCQs and 90 distracters were analyzed and based on this data, various indices like DIF I, DI, DE and non functional distracters were calculated. Score of 100 students ranged from 7 to 26 (out of 30). Out of 30 items, 15 had “good to excellent” level or difficulty (DIF I = 31- 60%) and 17 had “good to excellent” discrimination power (DI e” 0.25). Seventeen questions were selected for question bank rest were modified and will be given for next batch and then again will be analysed.

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P156

### **Prevalence of increased left ventricular mass among Systolic hypertensive male patients attending Cardiology OPD of a Tertiary Care Centre**

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Increased left ventricular mass (LVM) is important because of association with increased incidence of congestive heart failure, ventricular arrhythmias, myocardial infarction and sudden cardiac death. Among males, systolic hypertension can reflect the increased LVM.

**Aims & Objectives :** To search the prevalence of increased LVM among the male systolic hypertensives attending Cardiology OPD of KIMS. Scanty documentation of literature regarding these in this area.

**Methods :** Total 68 males systolic hypertensive patients – (JNC7), 18 - 75 years attending in the Cardiology OPD were evaluated for LVM by Echocardiography from 1<sup>st</sup>. June to 31<sup>st</sup>.August'14 taking IEC approval and patient's consent. Right arm B.p. were measured by mercury sphygmomanometer in sitting position after 10 minutes rest.

By echocardiography the left ventricular mass measured. Absolute LVM is 96-200 gms. ( Braunwald's Heart Disease, 9th. Edition) and any reading more than this considered as **increased LVM**.

**Result :** Among all, 88.24% had increased LVM. Increased LVM was 20.59% among 18 – 39; 55.88% among 40 – 65 and 23.53% among > 65 yrs.

**Conclusion :** It was seen that, 88.24% systolic hypertensives were having increased LVM on echocardiography. Among the three age groups, 40 – 65 yrs had the highest : 55.88%.

**Key Words :** Left Ventricular Mass, Systolic hypertension.

### P157

#### The relationship between short-term HRV indices and heart rate response to Deep Breathing Test in normal subjects

Traditionally, Deep Breathing Test (DBT) is believed to gauge the cardiac parasympathetic activity. Heart rate variability (HRV) measures the modulation of spontaneous cardiac sympathetic and parasympathetic activity. Our study explored the relation between DBT values and HRV indices? We hypothesised that at the 0.1 Hz breathing rate at which DBT is done, both sympathetic and parasympathetic activity may get modulated. If so, the DBT values will correlate better with those HRV indices that reflect the combined activity of both arms of cardiac autonomic activity than with those indices that reflect only parasympathetic activity.

**Objective:** The aim of the current study was to investigate the correlation between DBT values  $I-E_{HR}$  and E/I ratio, and the time and frequency domain HRV indices of SDNN, Total power, RMSSD, pNN50 and HF, in normal subjects.

**Methods:** Twenty two healthy male (aged 25-35 years) volunteers were recruited. ECG and respiration were recorded for 5 minute HRV analysis and during 1 minute of DBT. HRV indices SDNN, RMSSD, pNN50, HF power and total power were obtained using Nevrokard aHRV software version 1.1. Parameters  $I-E_{HR}$  and E/I ratio were also computed.

Statistical analysis was done using Spearman's correlation.

**Results:** The DBT parameters and the time domain and frequency domain HRV indices did not show any correlation.

**Discussion:** Even though all the normal subjects had  $I-E_{HR}$   $\approx 15$ bpm and E/I ratio  $\approx 1.21$ , there was variation in the absolute values for each subject. However, this inter individual variation did not show any significant correlation with the short term HRV indices. Thus, in our study population the DBT value did not predict the HRV indices. In conclusion, our study did not reveal any relationship between the inherent spontaneous cardiac autonomic activity and the DBT values.

### P158

#### A Comparative study of Mean platelet volume, platelet count and platelet distribution width in diabetic patients with impaired fasting blood glucose levels

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##### Abstract :

**Aims and Objectives:** Diabetes mellitus is associated with microvascular and macrovascular complications which occur as a result of abnormal platelet activity and morphology that depends on the duration and glycemic control of diabetics. The objective of this study was to compare Mean platelet volume(MPV), platelet count and platelet distribution width(PDW) between patients with impaired glycemic control and non diabetic population.

**Methods:** This cross sectional comparative study includes 70 patients having impaired fasting blood glucose with history of diabetes for >5years and 70 non diabetic subjects. Mean platelet volume, platelet count and platelet distribution width are recorded from anticoagulated venous blood sample analysed in an



automated blood cell counter. Fasting blood glucose is recorded using glucose oxidase peroxidase method.

**Results** : On comparison of platelet parameters, it showed MPV and PDW values were significantly higher in diabetics than in non diabetic controls(  $p = 0.0000$ ). There was no significant difference in platelet count between two groups.

**conclusion** : significantly higher values of MPV and PDW in diabetics indicates high turnover of platelets leading to increased production of larger and hyperactive platelets with increased thrombogenicity. This suggests that platelets may play a role in development of vascular complications in diabetics.

Key words : Diabetes mellitus, impaired fasting blood glucose, mean platelet volume, platelet distribution width

P159

### Study Of Chronic Stress During Pregnancy.

Vandali jyothi, Manjunath Aithala

**Aims** : Neilsen's study of chronic stress in Indian women reveals that 87% of women are severely stressed. As pregnancy is a time of physiological change, many women do feel stressed at some point. Short term stress is not detrimental to health as it can actually be beneficial in certain circumstances (as it can increase alertness and performance), but prolonged periods of stress (chronic stress) have been linked to negative health consequences and stress hormones are to blame. Recent well-controlled human studies indicate that pregnant women with high stress and anxiety levels are at increased risk for spontaneous abortion, preterm labour and for having a malformed or growth-retarded baby and may affect on lactogenesis also.

**Objective** : To assess the level of stress in 1<sup>st</sup> trimester of pregnancy and to estimate the pregnant women with chronic stress.

**Method** : After approval of protocol by the ethics committee, the study was carried out at the department of Physiology and antenatal clinic at Karimnagar. All the participants were informed about the course & aim of the study. An informed and signed consent was obtained. A proforma was obtained consisting of clinical and other details of the pregnant women. Total of 188 pregnant women were assessed for the level of stress by asking questionnaire as per Holmes and Rahe Stress scale. It was observed that 50 pregnant women were suffering with severe or chronic stress and 138 pregnant women were normal with mild stress.

**Results** : It is found that 73.4% of pregnant women were normal and had mild stress due to pregnancy, 26.5% had chronic stress during the first trimester.

**Conclusion** : Due consideration is required to manage chronic stress in pregnant women.

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P160

### Perception of students about peer physical examination (PPE) and use of mannequins for clinical teaching

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**Introduction:** Medical students learn the skills of clinical examination from the first year. The examination skills are learnt by practicing them on their fellow students. It is reported by the teaching faculty that the students do not volunteer to be the subjects for examination. The students deliberately absent themselves when they are designated to be the subjects.

**Objective:** To evaluate the Perception of students about Peer physical examination and use of mannequins for clinical teaching.

**Method:** First year medical students practiced the examination of cardiovascular system on the student volunteers. They also practice the skills of examinations on mannequins in our advance learning center. Students were administered the questionnaire at the end of these two sessions to understand their perception.

**Results:** Students who participated in the study opined that they were comfortable examining and being examined by their peers of the same gender (85%). They did not get emotionally disturbed while examining. They preferred PPE as they could get immediate feedback and felt it was a valuable learning experience (73.6%). Less than half of the students felt mannequins could be used as an alternative and about 24.3% were not sure about its value for clinical examination.

**Conclusion:** The students have strongly expressed that PPE is acceptable to them and provides good learning. This observation is contrary to the opinion of the faculty that students dislike PPE. Students were not clear about the value of mannequins in practice of clinical examination as they had limited exposure.

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## P161

### **Comparative Study Of Response To Experimental Cold Pain In Dysmenorrheic & Non Dysmenorrheic Women Across Menstrual Cycle.**

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P K Das Institute of Medical Sciences

**Aims** –To compare the pain threshold and pain tolerance in 31 dysmenorrheic and non dysmenorrheic women across menstrual cycle.

**Objective** -The evaluation of pain perception in humans is critical for studies of the mechanisms, methods of control and pain management. The knowledge of these factors contribute consistently to the professionals who deal with painful conditions can understand.

**Method-** This is a comparative and cross sectional Study. 31 dysmenorrheic women and non dysmenorrheic women between the age group of 18-26 years participated in this study. We performed Cold Pressor Test on 1st, 14th and 21st day of menstrual cycle denoting the menstrual phase, late follicular phase and luteal phase on the participants. Pain threshold & pain tolerance was measured in seconds using 2 separate stop watches. Pain threshold is the time after which the subject will start reporting pain. Pain tolerance is the time for which subject will tolerate the pain.

**Results** - Pain threshold and pain tolerance was significantly higher in dysmenorrheic women when compared to non dysmenorrheic women. Both the groups 1 & 2 showed the least pain tolerance on day

14,  $38.35 \pm 7.57$  and  $45.68 \pm 8.00$  respectively. Pain tolerance for both the groups was highest on day 1.

**Conclusions-** The present data obtained also showed that when we compared pain threshold were significantly higher in dysmenorrhic women compared to non dysmenorrhic women This finding may support an adaptation-levels model because they compare cold pressor pain with internal menstrual pain. It also highlights the existence of pain adaptation model.

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## P162

### Review Of Haemophilia Patients In Jharkhand

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**AIMS & OBJECTIVE:** To find the reason of discrepancy between expected and diagnosed cases of haemophilia A and B. To estimate the severity of the disability related to quantum of deficiency.

**METHOD:** Type of study: Retrospective study. Source of data: Rajendra institute of medical sciences and haemophilia society, Ranchi. Only those patients are included whose factor level were known irrespective of age and sex. A proper template of interested parameters was generated in Microsoft excel 2007 for further analysis.

#### RESULT:

Haemophilics – Total: 183. Male: 176. Female: 5.

Haemophilia A: 79.78% out of which male: 97.9% and female: 2%.

Haemophilia B: 16.93% and all of them are male.

Von-willebrand disease: 1.63% in which males are: 33.3% and females: 66.6%

Patients, developed inhibitor during treatment course: 1.63% and all of them are male.

#### CONCLUSION

Expected patients as per population of Jharkhand should be 5000 for factor VIII and 500 for factor IX. Incidence in India for Haemophilia A is 1: 5000 male live birth while burden of disease in India for Haemophilia A is 9% and for bleeding disorder 5% of global number of patients. Factors responsible for under diagnosis of Haemophilia in Jharkhand are lack of awareness among health personnel and general population.

## P163

### Analysis Of Cutaneous Adverse Drug Reactions Reported In A Tertiary Care Hospital

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**Aim & Objective:** To assess the pattern of cutaneous adverse drug reactions reported in a tertiary care hospital.

**Methodology:** A prospective observational study, as part of Pharmacovigilance Programme of India (PvPI), was conducted in Kasturba Hospital, Manipal to collect Adverse Drug Reactions (ADRs). Data of patients

reported with drug induced cutaneous reactions between July 2013 and June 2014, was collected using CDSCO forms and evaluated for type of adverse drug reaction, predictability, drug class involved, causality and severity. WHO scale, Hartwig and Siegel severity scale were employed for causality and severity assessment respectively.

**Results:** Of the 249 ADR cases reported, 130 (52.2%) were seen in males and 119 (47.8%) in females. Maculopapular rash 104 (41.8%) was the most common reaction followed by urticaria 34 (13.7%) and fixed drug eruptions 21 (8.4%). 208 (83.5%) were 'non predictable' as per Rawlins and Thompson classification. Antimicrobials 73 (29.3%) were the commonest drug class involved, followed by NSAIDs 36 (14.5%) and antiepileptics 36 (14.5%). 187 (75.1%) of ADRs were 'possible', 59 (23.7%) 'probable' and 2 (1.2%) 'certain' according to WHO scale. 208 (83.5%) were classified as moderate according to severity scale.

**Conclusion:** Early detection of adverse drug reactions facilitate treatment/dose modification and help reduce morbidity.

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**P164**

**Adverse drug reaction monitoring in patients on anticancer drugs in a tertiary care hospital**

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**Aim:** To study adverse drug reactions (ADRs) occurring due to anticancer drugs in a tertiary care hospital.

**Objective:** To monitor ADRs in oncology ward due to anticancer drugs, assess causality, severity, predictability and preventability of ADRs.

**Material and Methods:** A prospective observational study was carried out at Kasturba Hospital, Manipal from June 2013 till December 2013. Patients who developed ADRs during this period were included in the study. Details were collected from patient case records. Causality was assessed by WHO causality assessment scale. Severity, preventability analysis, predictability analysis was done using Hartwig and Siegel Severity Assessment Scale, Modified Schumock and Thornton criteria, Rawlins and Thompson classification respectively.

**Results:** A total of 300 ADRs were reported, of which 211(70.33%) were reported in females. Hematological 141(47%), gastrointestinal 69(23%) events constituted majority of ADRs. ADRs were most common with cisplatin 90(30%). All ADRs were categorized as "Possible". Majority 162(54%) of ADRs were of moderate severity. About 18(6%) ADRs were Serious in nature. Most of ADRs i.e. 297(99%) were predictable but only about 219(73%) of ADRs were preventable. In 4(1.33%) events, the offending chemotherapeutic drug was stopped.

**Conclusion:** Proactive measures taken to prevent ADRs will improve compliance of patient to chemotherapy and improve outcomes.

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### P165

#### **“Place Cells” And “Grid Cells”: Deciphering The Inner Navigation System Of Brain (Nobel Prized Discovery In Physiology Or Medicine In 2014)**

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### P166

#### **Effect Of Combined Oral Contraceptive Pills On Lipid Profile, Blood Pressure And Body Mass Index In Women Of Child Bearing Age**

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#### **Abstract**

**Objective:** To find out the effect of combined oral contraceptives pills (COCPs) on lipid profile, blood pressure and body mass index in females of reproductive age.

**Method:** This cross sectional study in which 30 married fertile women of child bearing age (14-49 years) participated in the study. They were divided in two groups: Group 1 (COCPs users at least for six months) and group 2 (age matched controls not using COCPs). Fasting levels of serum total cholesterol (TC), triglyceride (TG), high density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C) and very low density lipoprotein cholesterol (VLDL-C) were analyzed using chemistry analyzer in laboratory. Body Mass Index (BMI) and blood pressure (BP) were measured in all subjects. Various parameters were compared among oral and control groups by using SPSS version 10.

**Results:** Comparing females of group-1 vs group-2, there was significant increase of cholesterol, triglycerides, LDL-C, BMI, systolic BP and diastolic BP. A decrease in HDL-C is seen.

**Conclusion:** Combined oral contraceptive pills adversely affect the lipid profile in females of child bearing age. **KEYWORDS-** Oral contraceptive pills, Lipid profile,

### P167

#### **Nutritional Profile, Mineral Content and *In-vitro* Antioxidant Potency of *Capsicum annum L.* Cultivated in 24 Parganas [South], West Bengal, India**

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**Aim:** To quantitatively analyse the phytoconstituents along with proximate composition, mineral and vitamin content, and free radical scavenging activity of cultivated variety of green *Capsicum annum L.*

**Objectives:** Assessment of nutritional profile along with *in-vitro* antioxidant potential and free radical scavenging activity of both the aqueous (Aq) and hydro-ethanolic (H-eth) extracts of the sample.

**Methods:** Fresh tissue was analysed for the presence of proximate composition and vitamin content. Mineral content was determined using Inductively Coupled Plasma Atomic Emission spectrophotometer (ICP-AES). The Aq and H-eth extracts were screened on a comparative basis for the presence of *in-vitro* antioxidant potential including the total phenol and flavonoid content, along with Ferric reducing power and DPPH, Hydroxyl and Superoxide radical scavenging activity.

**Results:** The sample was found to be rich in carbohydrate and dietary fibre, while low to moderate in crude protein and fat content, with high calorific and nutritive values. Besides, it was also found to be abundant in antioxidant vitamins and almost all essential micro and macro elements. Interestingly, no trace of heavy metals was observed. The free radical scavenging activity, total phenol and flavonoid content of the Aq extract was significantly higher than the H-eth extract ( $p < 0.05$ ).

**Conclusion:** *Capsicum annum* is a nutritionally enriched spice with higher antioxidant potency of its aqueous extract compared to the hydro-ethanolic extract.

## P168

### Blood Pressure Changes In Low Birth Weight Male Adolescents

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**Aims & Objectives.** To examine the association between birth weight and blood pressure changes in cohort of 70 adolescent male children aged 12-16 years.

**Materials & Methods.** 70 male children born in nursing homes located in the vicinity of the institution having their complete birth records were traced. These were grouped into 35 cases (birth weight  $< 2.5$  kg) and 35 controls (birth weight  $\geq 2.5$  kg). Blood pressure was measured by auscultation using standard Mercury Sphygmomanometer as per American Heart Association Guidelines. Statistical analysis was done using Graph pad prism version 6 software. Comparison between groups was done using Mann-Whitney U Test.

**Results.** The Mean  $\pm$  SEM of SBP was  $131.6 \pm 1.376$  and Mean  $\pm$  SEM of DBP was  $84.29 \pm 1.512$  in low birth weight children (cases). The Mean  $\pm$  SEM of SBP was  $115.0 \pm 0.9852$  and Mean  $\pm$  SEM of DBP was  $68.94 \pm 2.071$  in normal birth weight (controls). A statistically significant difference was found between SBP in low birth weight(cases) vs controls, p value  $< 0.0001$ . Also, statistically significant difference was found between DBP in low birth weight(cases) and controls,  $p < 0.0001$ .

**Conclusion.** The present study shows a significant association between birth weight at term and both SBP and DBP in the adolescent age group. Our results support Barker Hypothesis according to which adverse influences during intrauterine life result in increased disease risk (hypertension) in adulthood.

P169

### Comparative Study Of The Effect Of *Acorus Calamus* And Levodopa In The Management Of Parkinson's Disease

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**AIM:** The present study was sought to explore the beneficial effects of *Acorus calamus* on Parkinsonism.

**OBJECTIVES:** 1. To evaluate the effect of *Acorus calamus* on *Parkinson's disease*.

2. To compare the efficacy of *Acorus calamus* with levodopa.

**METHOD:** A total of 30 *Wistar albino* rats weighing 180-200 g were grouped into control, test 1 and test 2. The test group rats were administered with aqueous extracts of *Acorus calamus* (100 mg/kg body weight) and levodopa (10 mg/kg body weight) per day orally as a single dose. Test 1 was treated with *Acorus* and Test 2 with levodopa. These rats were then subjected to different motor activity tests (rotarod, beamwalking, open field and gait analysis) and the performance of the test were recorded and compared within the groups. The result were statistically analyzed using one way ANOVA.

**RESULTS AND CONCLUSIONS:** The results of the study revealed that *Acorus calamus* had a significant role in the management of Parkinsonism. In conclusion, extracts of *Acorus calamus* and levodopa have significantly increased the motor activity in the test groups when compared to the control group. On comparing both the test groups, test 2 gave a better result than the test 1 within a short period of time.

**KEY WORDS:** *Acorus calamus*, Parkinsonism, levodopa.

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P170

### A study on prevalence of nephropathy in type 2 diabetes mellitus (DM) patients addicted to smoking and alcohol.

SHISHIR KUMAR MAHTO

**AIMS AND OBJECTIVE:** To study the association between smoking, alcohol consumption and prevalence of nephropathy in type 2 diabetes mellitus (DM) patients.

**METHOD:** This study has been carried out in 74 type 2 DM patients admitted in Rajendra Institute of Medical Sciences, Ranchi; of which 17 were addicted either to smoking or alcohol, 24 were addicted to both whereas remaining 33 had no addiction. Their renal function was assessed by estimation of 24 hour urine output, serum creatinine and blood urea nitrogen (BUN) levels. Estimated GFR (eGFR) was calculated using Cockcroft - Gault formula and subjects were categorized under different stages of chronic kidney disease.

**RESULTS:** We found in our study that smoking and alcohol abuse has a distinct additive effect on type 2 DM in etiopathogenesis of nephropathy. We observed that prevalence of nephropathy is significantly high in type 2 DM patients addicted to smoking and alcohol in comparison to those without any addiction (P = 0.0018; DF = 55).

**CONCLUSION:** Smoking and alcohol consumption significantly increase the prevalence of nephropathy in type 2 DM patients.

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## P171

### Normative Data Of Auditory Evoked Potentials : A Study Of P300 Latencies

**BACKGROUND AND OBJECTIVE:** P300 is a wave of event related potential that occurs when the individual consciously recognizes the presence of a change in the auditory stimulus. It occurs 300ms after a change in the stimulus. The objective of the present study is to measure the latencies of P300 waves Fz-AR P300, Cz-AR P300, Pz-AR P300, C3-AR P300 in normal young adults and to establish normative data for clinical and research purpose.

**MATERIALS AND METHODS:** The latencies of the P300 waves were recorded and analyzed in 18 normal subjects using Galileo NT Evoked potential recorder having P300 protocol. Auditory stimulus was given to the subjects and they were asked to listen attentively and to indicate any change in the stimulus. The resulting change in the brain activity was recorded.

**RESULTS:** Mean age of the subjects was  $21.8 \pm 4.2$  years. The mean latencies of Fz-AR P300, Cz-AR P300, Pz-AR P300, C3-AR P300 were  $358.49 \pm 19.71$  ms,  $360.11 \pm 20.77$  ms,  $367.68 \pm 27.88$  ms and  $359.57 \pm 20.05$  respectively.

**CONCLUSION :** The normative values for latencies of P300 in normal young adults have been established providing a parameter for the analysis and interpretation of this wave.

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## P172

### Correlation between vitamin D and diabetic risk factors in overweight/obese subjects in Indian population: a cross sectional study

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#### Abstract

**Background and Objectives:** Vitamin D is important for glucose metabolism by regulating release of insulin, expression of insulin receptor and glucose transport in various tissues. This study was planned to assess and correlate vitamin D with the diabetic risk factors in overweight/obese subjects.

**Methods:** This ongoing study included 66 overweight/obese subjects with no history of DM, attending lifestyle intervention program at Integral Health Clinic; Department of Physiology, AIIMS. We evaluated anthropometric data, blood glucose, lipid profile, serum insulin and vitamin D. Blood was collected at 8.00 am in the morning after overnight fasting.

**Results** Mean age, BMI and serum 25(OH) D were  $33.83 \pm 7.16$  yrs,  $30.02 \pm 3.31$  kg/m<sup>2</sup> and 11.00 (7.58- 16.11 ng/mL) respectively. Serum levels of vitamin D were significantly lower in overweight/obese subjects as compared to the normal subjects ( $P < 0.001$ ), 87.87% were deficient ( $< 20$ ng/mL) and 12.12% were insufficient



(20-30ng/mL) . Vitamin D level showed significant positive correlation with BMI, LDL, Insulin and HOMA ( $r=0.276$   $p=0.024$ ,  $r=0.253$   $p=0.040$ ,  $r= 0.259$   $p=0.036$ ,  $r=0.285$   $p=0.021$  respectively).

**Conclusions:** These results suggest that prevalence of low level of vitamin D is higher in Indians and it is well correlated with diabetic risk factors in overweight/obese subjects. Improvement in vitamin D level might decrease the risk of diabetes in overweight/obese subjects.

## P173

### Role Of *Ocimum Sanctum* On Parkinson's Disease

Sneha Girijavallabhan Kannamparathazhathethil, Shahala Mayanthiriyakath, Ahamed Shahal Muliyaathil, Rahmath Abdul Rahiman, Nisha Rajan Nariyattil, Edakkot Sreekumaran\*

**AIM:** Aim of the study was to evaluate the effectiveness of aqueous extract of *Ocimum sanctum* in the management of Parkinson's disease in rats.

#### OBJECTIVES:

- Induction of Parkinsonism with haloperidol.
- Oral administration of aqueous extract of *Ocimum sanctum* to the disease induced group.
- Comparative analysis of motor functions.

**METHOD:** Parkinsonism was induced in the test rats with a single dose of IP injection of haloperidol at a dosage of 1 mg/kg body weight. Progression of the disease was detected with rota rod, beam walking, open field and gait analysis experiments and it was comparatively analyzed with the normal control. After the rats turned completely diseased, they were grouped into control and test. Aqueous extract of *Ocimum sanctum* (300 mg/kg) was orally fed as a single dose to the test group and their response to the motor experiments were compared with the control group. The results were statistically analyzed using one way ANOVA.

**RESULTS AND CONCLUSIONS:** The results of the current study shows that *Ocimum sanctum* has a significant role in the management of Parkinson's disease. Therapy with oral administration of aqueous extract of *Ocimum sanctum* found to be efficacious in the management of Parkinson's disease and the associated symptoms.

**KEY WORDS:** *Ocimum sanctum*, Parkinsonism, Haloperidol.

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## P174

### Minimum lethal doses of isolated toxins and whole aqueous extracts of *Cleistanthus collinus* in rats.

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Water extract of *Cleistanthus collinus* leaves is a common suicidal poison in south India. Victims consume

either a boiled decoction (FLB, fresh leaves boiled) or fresh leaves blended and filtered (FLJ, fresh leaf juice). Mortality is about 28% and is stated to be higher with FLB than FLJ.

We used a combination of TLC, HPLC, IR spectra and NMR to identify the toxins, chemically characterize and quantify them in both FLB and FLJ. We show that there may be just 4 active principles of clinical interest in the extracts. 2 of them were identified as Cleistanthin A and Cleistanthin C. Two are yet unidentified. It is considered thus far that Cleistanthins A and B are the toxic principles responsible for death. We show that (a) Cleistanthin B is not present in either extract. (b) Cleistanthin C is reported in aqueous extract for the first time. Concentration of Cleistanthin C was very high in FLB, but was negligible in FLJ. Whether this difference accounts for the higher toxicity of FLB remains to be seen.

We administered different doses of FLB, FLJ, purified Cleistanthin A or C to anaesthetized rats by oral gavage and observed them for a week to determine lethality.

We report the minimum lethal dose (MLD100) with FLB, FLJ, purified Cleistanthin A and C in rats. There is not much difference in MLD100 for FLB and FLJ in rats. The concentration of Cleistanthin C in the MLD100 of FLB is sufficient to account for lethality of FLB. However, the concentrations of both Cleistanthin C and Cleistanthin A are insufficient to account for lethality in the case of FLJ.

## P175

### **Correlation Between Pefr With Wc, Hc And Body Surface Area In Young Subjects**

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**INTRODUCTION:** The knowledge of pulmonary function tests(PFTs) is a basic requirement to understand the respiratory physiology. The PEFR is an effort dependent parameter rising from the large airways within about 100–120 ms of the start of the forced expiration and it peaks at 10ms. Nevertheless it is a useful tool for quantitative and qualitative assessment of some aspect of lung function.

WC and WHR have been frequently studied for their correlation with lung function. Some workers in their study found significant correlation between PEFR and BSA both in males and females.

**AIM:** To find a correlation of PEFR with anthropometric parameters since such studies have scantily been reported from Odisha.

#### **METHOD:.**

The students between 17 to 25 years of age were subjected to the manoeuvre between 10 am and 1 pm in the department of physiology after light breakfast. Waist and hip circumference measurements were done using standardised methods. Correlation coefficient(r) was found by the use of SPSS software.

**RESULTS :** PEFR and BSA had a moderately positive correlation( $r=0.5$ ) when considered among total study population. HC did not show any correlation with PEFR. WC showed negative correlation with PEFR.

**KEY WORDS:** PEFR, WC, HC, & BSA

## P176

### **Evaluation Of Heart Rate Variability In Tension Type Headache And Its Correlation With Age, Sex, Duration Of Disease**

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**AIMS:** Tension-type headache (TTH) is the most common primary headache with of prevalence 30-78% in general population. Heart rate variability is an important tool to study autonomic functions. In the present study we evaluated heart rate variability (HRV) to quantify the extent of autonomic dysfunction in patients with TTH.

**OBJECTIVE:** The study objective was to assess HRV in TTH and compare with controls. HRV in episodic and chronic TTH was compared and further co-related with age, sex and duration of disease.

**METHODS:** HRV was recorded in 50 diagnosed patients of TTH selected as per International Headache Society Diagnostic Criteria (age 20-50 years) and age and sex matched controls. HRV recording and analysis was done using physiopac and HRV Analysis Software 1.1 Finland. The overall autonomic tone, parasympathetic and sympathetic functions and sympatho-vagal balance were quantified by using various parameters.

**RESULTS:** We found statistically significant difference ( $p < 0.05$ ) between patients and control group for the low frequency from frequency domain parameters and RMSSD, NN50, PNN50 from time domain parameters. No significant co- relation was observed for HRV in episodic and chronic TTH as well as for HRV with age, sex and duration of disease.

**CONCLUSION:** There is a paucity of studies on autonomic dysfunction in TTH. In the present study we found that autonomic dysfunction is present in TTH. Early recognition and treatment of this may improve quality of life of TTH patients.

## P177

### **Nerve Conduction Velocity: A Predictor Of Polyneuropathy In Newly Diagnosed Type II DM**

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**Introduction:** Diabetes neuropathy is a disabling complication of diabetes mellitus. The most common form is a chronic distal symmetric sensorimotor polyneuropathy [Diabetic Polyneuropathy (DPN)], which has a prevalence of about 50%. The clinical and economic burden of DPN stems from its central role in the pathophysiology of foot ulceration and lower limb amputation, reduction in quality of life, and susceptibility to falls and fractures. The routine evaluation of DPN is based on patient symptoms and physical examination. However simple screening methods are of limited value in early neuropathy, in the presence of neurological comorbidities. Nerve conduction studies (NCS) are the most sensitive and specific DPN detection method. Their use is recommended for quantitative confirmation of DPN and has the potential for early diagnosis and improved outcome.

**Aims and Objectives:** To find out appropriate time of administration of NCS for the diagnosis of DPN in early type II DM

**Materials and Methods:** A cross sectional study. Newly diagnosed type II DM patients and randomly selected healthy controls were included in the study group. NCV was measured in both upper and lower limbs, median, ulnar, common peroneal and posterior tibial nerves for motor and median, sural nerves for sensory were selected.

**Result:** NCVs of newly diagnosed type II DM were compared with randomly selected healthy controls. Number of newly diagnosed type II DM cases ( $n=20$ ), mean age (45-64) and control ( $n=20$ ) BMI ( $32.6 \pm 7.2 \text{ kg/m}^2$ ), mean Ht ( $162 \pm 10 \text{ cms}$ ), mean Wt ( $70 \pm 22 \text{ kg}$ ). NCVs were significantly slower in DM ( $n=4$ ) ie; 20% whereas NCVs were normal in control subjects.

**Conclusion:** As various studies have shown that diabetic polyneuropathy cannot be arrested. Intensive glycemic control, stringent life style and dietary modification slows the progression of DPN. So it is advisable to administer NCSs at the time of diagnosis and at regular intervals during follow up.

## P178

### The Effects Of High- Intensity Intermittent Exercise Training On Fat Loss In Young Women

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#### ABSTRACT

**INTRODUCTION :** Overweight and obesity levels have escalated worldwide . As overweight is associated with long term ill health and reduced life quality, it has been recommended that effective weight loss strategies to be developed<sup>1</sup>. Apart from caloric restriction weight loss strategy, it has been shown that exercise programmes like high- intensity intermittent exercise (HIIE) training on fat loss result in an increase in cardio-respiratory fitness<sup>2</sup> and preservation of fat free mass<sup>3 4 5</sup>.

**METHODS:** Subjects were randomly assigned to one of the three groups-HIIE(n=15), steady-state exercise(SSE; n=15) or control (CONT ;n=15).HIIE and SSE groups underwent a 15-week exercise intervention

**SUBJECTS:** Forty-five women with a mean BMI of 23.2+/-2.0 kg m(-2) and age of 20.2+/-2.0 years.

**RESULTS:** Both exercise groups demonstrated a significant improvement (P<0.05) in cardiovascular fitness. However, only HIIE group had a significant reduction in total body mass (TBM), fat mass(FM) and trunk fat. There was a significant fat loss (P<0.05) in legs compared to arms in HIIE group only. Lean compared to overweight women lost less fat after HIIE.

**CONCLUSION:** HIIE three times per week for 15 weeks compared to the same frequency of SSE exercise was associated with significant reductions in total body fat, subcutaneous leg and trunk fat in young women.

**KEYWORDS:** Cardio-respiratory fitness, caloric restriction, HIIE, SSE, TBM.

## P179

### Effects of the Hand Grip Test on Cardiovascular Autonomic Control in the Chronic Pain Patients

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**Objective:** Present study was conducted to understand the effects of Handgrip test (HGT) on cardiovascular autonomic control in chronic pain patients. **Method:** The patients visiting the pain clinic (SSL Hospital, Institute Of Medical Sciences, BHU) with chronic pain of more than six months duration were included in the study. Fifteen cases and twelve controls were included in the test. The ECG was recorded throughout the maneuver and the Heart Rate (HR) was calculated. Blood pressure (BP) was recorded at rest, at 1 min,

3 min and 5 min with simultaneous ECG recording. The data was analyzed with the help of sigma plot version 4 and graph pad prism version 6 software. **Results:**—Resting Diastolic Blood Pressure (DBP ;79.26±1.09 mm Hg), Systolic Blood Pressure (SBP ;129±3.65 mm Hg) and Heart Rate (HR ; 86.06±3.28 bpm ) in chronic pain patients (case) were found to be greater and significantly different than the age matched control groups ( DBP = 68.85±5.35mm Hg ,SBP = 119.57±2.13 mm Hg and HR = 62.00±4.81 bpm) respectively. The handgrip induced HR changes in the cases at 1 min 3min and 5min were significantly different than the control (P<0.05). The hand grip induced DBP changes and SBP changes observed in the cases were greater than control but not significantly different. **Conclusions:** Observations reveal that the basal level of sympathetic tone has increased and parasympathetic tone has decreased in the chronic pain patients, indicating the alteration in autonomic functions.

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## P180

### Sleep Quality Improvement using Cognitive Behavioural Therapy (CBT)

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In this work we aim to improve the sleep quality of subjects (students at IIT Kanpur) by employing a Cognitive Behavioural Therapy (CBT). Cognitive behavioural therapy that we used helped our subjects identify and replace thoughts and behaviours that cause or worsen sleep problems with habits that promote sound sleep. In this method, we taught how beliefs and behaviour can affect sleep and the subjects learnt in a systematic manner how to control and eliminate negative thoughts and worries that keep them awake and develop good sleep habits. We did it in three steps to be followed as sleep rituals by the subjects. In the first step we taught the patients to review the daily activities and to address the negative emotions. The second step was about practicing how to replace the negative thoughts with certain sleep rituals and meditation techniques. And the third step was about practicing Shavasana (a sleeping posture) and addressing the consciousness in the body, so as to enter into sleep. We saw changes in the sleep of the subjects practicing, many of them went into sleep even before completion of all the steps, signifying the effectiveness of the methodology. Improvement in the sleep was observed on the subsequent PSG analysis in comparison to the previous sleep pattern. Some of the sleep parameters that were observed were Apnea Hypopnea Index (AHI), RDI(Respiratory Disturbance Index), Sleep Efficiency, Sleep Latency, %NREM, REM Sleep, Oxygen Saturation, Sleep index, Spontaneous Arousal Index, which was taken after 7 continuous days of practice by the subjects.

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## P181

### Characterization and quantification of two fluorescent lignans in aqueous extracts of *Cleistanthus collinus*

#### ABSTRACT

*Cleistanthus collinus* leaf extracts are consumed for suicidal purposes in southern India. Victims prepare the aqueous extract either by making a boiled decoction of leaves or by grinding the leaves with water.

The boiled decoction is stated to be more toxic than the fresh leaf juice. Here, we have identified, characterized and quantified two fluorescent lignans, Cleistanthin A and Cleistanthin C in aqueous extracts of *C.collinus*. All clinical studies reported thus far name Cleistanthin A and Cleistanthin B as the toxins of clinical interest. We report for the first time that Cleistanthin C is present in significant quantities in the aqueous extracts. Since it causes death in rats (Neetu et al, poster) it is important clinically. Crystal structure for Cleistanthin A has been elucidated, and submitted to Cambridge crystallographic data centre (deposition number CCDC 1029294). Concentrations of Cleistanthins A and C were assessed in four different types of extracts, namely, the boiled decoction, fresh leaf juice processed immediately, fresh leaf juice processed after 4 hours, and fresh leaf juice boiled after 4 hours. It is shown that Cleistanthin C occurs at very high concentrations in the boiled decoction and its levels are very low in fresh leaf juice, even when boiled later. This probably is the reason for the higher toxicity of boiled decoction in humans.

## P182

### **Relation of spatial cognition with the spatial components of handwriting performance in children**

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**Objectives:** Amongst the various factors which are believed to affect handwriting, spatial cognition is one of them. In this study we assessed whether the spatial reasoning and spatial perspective taking ability is reflected in the spatial organizational scores of handwriting in children.

**Method:** Study was conducted in 88 healthy students between 7-11years of age. Students were administered General Mental Ability Test by Srivastava (GMAT), Paper folding test (PFT) for spatial reasoning and Perspective Taking and Spatial Orientation Tasks (PTSOT) for spatial orientation. A grade appropriate English paragraph was to be written in 5 minutes. Handwriting was assessed for its spatial organization by a prevalidated likert type scale.

**Results:** The handwriting scores were found to correlate with the total and verbal intelligence scores. Further on comparing the poor performers (below 10<sup>th</sup> percentile) with good performers (above 90<sup>th</sup> percentile) based on handwriting scores it was found that the poor performers had lower scores in GMAT (both verbal and non verbal) ( $p < 0.05$ ), PTSOT ( $p < 0.05$ ) and PFT ( $p$ : ns). The poor performers showed a negative correlation with the non verbal GMAT scores.

**Conclusions:** The spatial orientation rather than spatial reasoning skills seem to play a more important role in handwriting performance.

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## P183

### **Impact Of An Innovative Outcome-based Curricular Programme Of Physiology On Final Examination Performance In Physiotherapy Students**

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**Aim:**To study the impact of an innovative outcome-based curricular program of Physiology on final examination performance in Physiotherapy students.

**Objectives:** To evaluate the impact of an innovative outcome-based-approach in motivating independent study & to assess its influence on performance in the final-university-exam.

**Method:** The performances of I year Physiotherapy students of 2010-11 &2011-12 batches were evaluated. In the latter batch an outcome based approach was adopted by us. Students were administered assignments in Physiology on a monthly basis on each system. Adequate duration was given for completion. On the day of submission an interactive session was conducted by a faculty member on the same and doubts clarified. Assessment was done and feedback given, prior to the administration of the next assignment .In addition system-wise monthly viva-voce was introduced. To assess the influence of this venture, performances in the Final university-examinations for both batches were compared &analyzed using the percentage representation of the number of students finally passing the exam.

**Results:** In the 2011-12 batch it was noted that there was an increase of 7% in the final university-examination in the number of students who had passed when compared to the 2010 -11 batch.

**Conclusion:** Our outcome-based approach has shown a positive impact on student performance in external-examinations. Outcome-based-education an effective curricular innovation, helps teachers offer relevant learning-opportunities through planned tasks, draw inferences regarding learning skills and motivates students towards independent study.

## P184

### Treatment Adherence In type 2 Diabetes Mellitus – An Observational Study

**Authors:** Annalakshmi J, Chanda Kulkarni and Ganapati Bantwal

Diabetes mellitus is a complex chronic metabolic disorder requiring continuous medical care with multifactorial risk reduction strategies. We need to study extent of non-adherence and factors influencing non-adherence in type 2 diabetes for better patient outcomes.

#### Objectives

To evaluate extent of anti-diabetic medication adherence

To assess patients' knowledge, attitude and practices towards diabetes management

To identify factors influencing medication adherence

#### Methods

A prospective observational study was conducted among type 2 diabetic patients. Drug use patterns were studied. Two different sets of validated questionnaires were used to assess medication adherence and patients' Knowledge, Attitude and Practice (KAP). Adherence scores <sup>3</sup>4.8 and KAP <sup>3</sup>12.8 imply good adherence and knowledge. Multivariate regression models were constructed to identify predictors of non-adherence. Significance was set at  $p < 0.05$ .

**Results:** 306 eligible patients participated. 55.9% were males. 53.3 % had diabetes complications. 68.5% had poor glycemic control(HbA1C  $\geq$  7.0). 74.8% had good adherence (Score $\geq$ 5.0). 85.6% had good KAP scores( $\geq$ 12.8). 80.1 % had good family support. Poor KAP scores[OR=5.3, 95% CI=2.7, 10.4,  $p < 0.001$ ] and insulin use [OR=1.82, 95% CI=1.08, 3.06,  $p = 0.02$ ] were identified as significant predictors of non-adherence.

**Discussion :** Our findings suggest that insulin use, poor family support and poor knowledge could contribute towards non-adherence.

**Conclusion:** Diabetes needs long term management and poses significant adherence issues. We found that poor knowledge and poor family support contributes to non – adherence in geriatric diabetes. Patient and family education on diabetes management would improve treatment adherence, glycaemic control and prevent diabetes related complications.

## P185

### Correlation Between Body Mass Index And Handgrip Strength And Endurance Among Young Adults

Anupi Das

**AIMS AND OBJECTIVE:** This study was conducted to establish the possible correlation (if any) between body mass index and handgrip strength and endurance among young healthy adults.

**MATERIALS AND METHODS:** A population based cross sectional study comprising of 200 students (both male and female), age group-18-22 yrs was carried out in Deptt. of Physiology JMCH. Height, weight was taken to evaluate the BMI and handgrip strength and endurance were taken by using handgrip dynamometer.

**RESULT AND OBSERVATION:** Sample for study i.e 200 adults has been categorized into underweight, normal weight and overweight according to WHO classification. Statistical analysis for correlation was done by using Karl Pearson's Correlation Coefficient denoted by(r). Males had higher handgrip strength than females. Statistically significant correlation was found between BMI and handgrip strength & endurance in underweight & overweight subjects. Gender differences in correlation were observed in correlation between BMI & HGS and HGE.

**CONCLUSION:** The observed gender differences in correlation between BMI and HGS and HGE indicate that besides BMI several other factors like effort, strength, muscular contractility etc affect muscular strength & endurance.

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## P186

### Pharmacotherapy of Chronic kidney disease and determinants of short-term outcomes in a tertiary care hospital.

Rashmi K M

**Background:** Chronic kidney disease(CKD) has become a worldwide public health problem and is associated with an eight- to ten-fold increase in cardiovascular mortality



**Objectives:** Among patients with CKD, on drug treatment, a) To determine their etiology and demography, b) To assess pattern, rates of drug- use, outcomes and factors determining outcomes at 6 months.

**Methods:** We conducted follow-up study on 305 patients with CKD. Data on patient, disease characteristics, co-morbidities and treatments were collected. Baseline data were summarized using descriptive statistics. Categorical variables were compared using Chi-squared tests. For comparison of categorical variables at more than one time point, we used Cochran's Q test. The determinants of progression of CKD were assessed using a multivariable logistic regression analysis.

**Results:** The mean age $\pm$ SD was 52.98 $\pm$ 14.89 years and 73.1% were males. 55.4% patients were from lower middle socioeconomic background. Majority of the patients(72.1%) were in CKD stage 5. Diabetic nephropathy(50.2%) was the common cause of CKD.

Anti-hypertensives (84.6%) were most common drug class prescribed followed by multivitamins (65.2%) and proton pump inhibitors (64.9%). Anti-diabetic drugs were prescribed in 32.5% patients. There was no significant difference in prescription patterns of the drugs over a period of 6 months except for calcium supplements.

At the end of 6 months, death occurred in 5.9% patients, cardiovascular events in 4.9%, hospitalization in 27.5% and progression to higher CKD stage in 7.2% patients.

Increased serum creatinine[OR=1.29(1.04,1.60),p=0.017] and eGFR < 15 mL/min/1.73 m<sup>2</sup>[OR=38.23(3.92,372.06),p=0.002] were found to be predictors of progression of CKD.

**Conclusion:** We found that majority of CKD patients were in CKD stage 5. Diabetic nephropathy was the most common cause of CKD indicating the need for early detection of risk factors to prevent development and progression of CKD. Large multicentre studies are required for better understanding of the etiology, demography, long term outcomes and their determinants in CKD patients.

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## P187

### A study of the prescribing pattern of antimicrobials in Maxillofacial Surgery outdoor of a tertiary care teaching hospital.

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**Objective:** To study the prescribing pattern of antimicrobial agents in post-operative (tooth extraction) patients.

**Methods:** Prescribing pattern was evaluated by collecting the data of outdoor patients of the department over a period of three weeks. Relevant information was entered in a preformed proforma and analysed for various parameters.

**The results:** Total 152 prescriptions were analysed. Total drugs prescribed were 338 which included oral 337(99.7%), parenteral 00, and topical 01(0.3%). Average number of drugs per prescription was 2.22. The fixed dose combinations (FDC) of antimicrobials used were 05 (1.48%) and the essential drugs used were 326 (98.22%). Antimicrobial agents (AMA) prescribed were 186 (55.03%), analgesics were 148 (43.78%) and others, including H<sub>2</sub>- blocker (ranitidine) and multivitamin preparations were 04 (1.18%).

## Poster Presentation

Amoxicillin was maximally prescribed among the antimicrobial agents, i.e. 136 (73.11%) followed by metronidazole 42 (22.58%), ciprofloxacin+tinidazole 03(1.61%), amoxicillin+ clavulanic acid 02(1.07%), ofloxacin+ ornidazole 02(1.07%), ciprofloxacin, clindamycin and chlorhexidine 01 each (0.53% each).

**Conclusion:** Various antimicrobial agents (either as a single drug or FDC) are being prescribed for post-operative (tooth extraction) patients in OPD of the Department of Maxillofacial Surgery; and prescription of amoxicillin is most common.

## P188

### To study the rate pressure product (RPP) response to exercise in normal individuals.

Vatsala Shekhar

Rate Pressure Product (RPP), is a common estimate of myocardial oxygen consumption ( $MVO_2$ ), which itself is a good indicator of the coronary circulation to increased myocardial oxygen demand, which is seen during exercise or any other stress (8). Our aim was to perform a comparative study of RPP response to exercise in normal male and female individuals. The study was conducted in 70 healthy volunteers aged between 18 and 24 years. Resting HR and SBP was recorded and then the subject was asked to perform Harvard step test at rate of 30 cycle/minute for 5 minutes or until fatigue. After which, heart rate and blood pressure were measured and RPP was calculated at different intervals viz. before exercise, immediately after exercise and 5 minutes after exercise, using formula- :

$$RPP = HR \times SBP$$

The results were statistically analysed by applying "one way anova" for comparison within groups and unpaired "t-test" for comparison between males and females. RPP immediately after exercise was more than the resting RPP (mean difference  $13494.1 \pm 394.66$ ,  $p < .05$ ) and also RPP 5 minutes after exercise (mean difference  $4246.31 \pm 394.66$ ,  $p < .05$ ) in both males and females. But the change in males was higher than that in females (mean difference  $1168.16 \pm 322.24$ ,  $p < .05$ ). It was concluded that immediately after exercise, RPP increased significantly in both males and females, showing the increased myocardial oxygen demand during and after exercise. 2) 5 minutes after exercise, RPP decreased significantly, but still, remained significantly higher than resting level in both males and females. 3) RPP in males at all level remains significantly higher than that of the females.

**Key words:** rate pressure product, myocardial oxygen consumption, Harvard step test

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## P189

### Theory Classes: What Students Expect?

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**Aims:** To study the student's expectations from teachers in theory classes.

**Objective:** To understand the student's expectation from teachers in theory classes, so that teaching can be made more attractive and understandable.

**Method:** In the present study, set of questionnaires about the feedback of the classes were given to 1<sup>st</sup> year MBBS students after completing 5 months of course. Students have to answer them individually in a sheet of paper.

**Result:** Students have given both positive and negative feedback about the lecture classes these are compelled and positive points are continued to practice and negative constrictive points were taken into consideration and avoided their incorporated in the subsequent classes.

**Conclusion:** The study helps to understand the student's expectation from teachers in theory class, therefore teaching can be modified according to the student's expectations hence theory classes can be made more attractive and understandable. This will help to achieve Medical Council of India's (MCI's) goal of preparation of MBBS students to study medicine more effectively.

## P190

### Study of the prevalence of helicobacter pylori infection among patient with symptoms of peptic ulcer disease in Sikkim (hospital based study)

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**Objective:** To study the prevalence of antibodies against H. pylori among patient with symptoms of peptic ulcer disease attending STNM hospital (medicine OPD), Gangtok, Sikkim. **Design:** A hospital based cross-sectional study conducted from August 2013-August 2014.

**Materials and methods:** H. Pylori antibodies testing using SD BIOLINE followed by endoscopy was done on 200 patients with symptoms of peptic ulcer disease after taking due consent.

**Result:** Among the 200 patient with symptoms of PUD 107 (53.5%) were having acute gastritis, 81(40.5%) peptic ulcer disease, 10(5%) GERD and 2(1%) were having carcinoma stomach. Over all prevalence of H. Pylori among patient with symptoms of PUD was 40.5%. Prevalence was more common among females (41.2%) then males (40%) and by religion the highest prevalence was among the Hindus 41.3% and lowest was among the Buddhist 37.8%.

**Conclusion:** The prevalence of H. pylori is significantly low in the present study accounting to 40.5% as compared to other studies conducted elsewhere in India which may be due to dietary habit of the population as well as suitable climatic geographical location of Sikkim. However population based cross sectional study with larger sample size may be required.

Key word: Prevalence, PUD, H. Pylori, SD BIOLINE.

**P191**

**The role of physical activity on bone density and bone geometry amongst men in rural and urban areas of East Sikkim**

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**AIMS AND OBJECTIVE**

To understand the role of physical activity and inactivity on bone density, bone geometry and trabecular microstructure amongst men in rural and urban areas of East Sikkim.

**METHODS**

Four large and representative cohorts, three with young adult men and one with elderly men were used in this population based cross-sectional study. Data concerning physical activity was collected using standard questionnaire. Bone parameters were assessed using dual energy X-ray absorptiometry (DXA) for areal bone mineral density, peripheral quantitative computerized tomography (pQCT) for volumetric bone mineral density and bone geometry, and high resolution 3DpQCT for trabecular micro structure.

**RESULTS:**

In a large cohort of young adult men (age=18,n=2,384), history of physical activity was the strongest predictor of calcaneal bone mineral density which was higher in those who had seized to be active in comparison to those who had not always been inactive. In a cohort of young physically inactive men(age=19,n=367), previous sports activity was independently associated with cortical bone size of the tibia. Subjects, who seized their sports activity for upto 6.5 years previously still had larger cortical bone size of the tibia than always inactive subjects. In a large cohort of elderly men (n=498) we found that high frequency of competitive sports during the first three decades of life was independently associated with bone mineral density at several bone sites at the age of 75 years. In a large sample of young adult men (age=24,n= 829) the degree of mechanical loading due to type of present physical activity independently predicted trabecular volumetric bone density and trabecular number and the duration of previous physical activity independently predicted cortical cross sectional area in the tibia.

**CONCLUSION**

The findings in this study indicate that physical activity during growth plays an important role in the enhancement of peak bone mass and bone geometry even though physical activity is ceased, suggesting that physical activity during growth confers a lasting positive effect on bone and can contribute to the prevention of bone loss in men.

