

*LETTER TO THE EDITOR*

**EFFECT OF YOGA AND RELAXATION TECHNIQUES ON  
CARDIOVASCULAR SYSTEM**

Sir,

**( Received on September 22, 2009 )**

In modern era human beings are facing many diseases which are directly related to our way of life which is full of stress and strain. For attainment of optimum physical and mental health, people are adopting various relaxation techniques, e.g. yoga, meditation etc. The word yoga is derived from a Sanskrit word “Yug” which means union of mind, body and spirit (1). Linkage between mind and body has now been scientifically established. Sedentary life style leads to many diseases like lack of quality sleep, constipation, depression etc. and yoga can be a key for it. Yoga is an auxiliary mean which acts synergistically with the conventional medicine. The yogic postures improve vital organ functioning by influencing the mind without giving fatigue to muscles. Yoga and relaxation techniques keep the body fit and strong plus gives a feeling of well being (2). Yoga helps in increasing oxygen supply to the brain (3), improving memory and concentration. It improves respiratory functions and has a positive effect on respiratory diseases like asthma (4), plays an important role in decreasing impact of various risk factors in many cardiovascular diseases (5). A greater scientific research is however still required to take yoga out from clouds of occult mysteries that shroud them. Keeping the above factors in mind, the present study was

conducted to find out the effect of yoga and relaxation techniques on cardiovascular system.

The present study was conducted in 57 cases of age group of 30–60 years that performed regular yoga asanas and relaxation techniques at ‘Shivanand Yoga Kendra, Ashram Road, Ahmedabad. The subjects included both males (34) and females (23). In test group (yoga group) 42 subjects were vegetarian and 15 subjects were non-vegetarian. A control group of different age group was also studied who were not performing yoga asanas and relaxation techniques. All the cases were examined twice; one before starting the yoga and relaxation practice and second after 4 1/2 months of continuous yoga and relaxation practice. Similarly, control group was also examined twice at an interval of 4 1/2 months. All the candidates except control cases performed yoga asanas and relaxation techniques daily in morning hours from 6 to 7.30 a.m. at yoga centre under the supervision of qualified yoga instructor for a period of four and half months. Yoga and relaxation techniques included following schedule: Surya Namaskar – 10 minutes, Sharir Sanchalan – 15 minutes, Asanas – 40 minutes, Meditation – 10 minutes, Bhajan Cassette – 15 minutes.

Written informed consent was obtained from all the subjects, and the protocol was approved by Ethical Committee of the Gujarat University. All the subjects from test as well as control group were assessed for cardiovascular system by measuring pulse rate and blood pressure. Radial pulse was felt and counted for one minute. Both systolic and diastolic blood pressures were recorded by a Sphygmomanometer. Data presented are mean±SD. One-way ANOVA and post-hoc by Tukey-Kramer test was performed to analyse the data.

Yoga group showed significant fall in pulse rate, systolic as well as diastolic blood pressure, whereas in control group the change was insignificant (Table I). Medical science is undergoing a quite revolution. Now it has been recognised that mental and spiritual factors play role in fighting illness (6). Yoga and relaxation techniques are becoming more and more popular among the people of the world, and could form the basis of prevention and cure of chronic psychosomatic problems.

Thus, yoga and relaxation therapies could be utilized for the development of resistance towards stress and strain of life.

These therapies improve and stabilize regulatory mechanisms of human body. They provide not only a sound body but also a sound mind. Yoga has eight components - yama, niyam, asana, pranayam, pratyahara, dharana, dyana and Samadhi. Yama and niyama provide constructive outlook in life and constant mental harmony. Pranayam increases physical efficiency and energy.

The results of present study show a significant lowering of pulse rate by yoga and relaxation techniques. Similar results have been noticed by (7–8). Yoga and relaxation techniques gradually diminish sympathetic dominance resulting in a decrease of pulse rate. Further, yoga and relaxation practices lead to reduction of stress induced sympathetic over activity by overcoming stress itself leading to lowering of pulse rate (8).

In the present study, both systolic as well as diastolic blood pressure fall significantly after 4½ months practice of yoga and relaxation techniques. Sundar and colleagues (9) observed on 25 cases that after performing 'Shavasana' yoga for six months, there was a significant fall in both systolic and diastolic pressure. There was

TABLE I: Weight, anthropometric profile and cardiovascular parameters of control and study group subjects before and after practice of yoga.

Parameters	Control group before (n=30)	Control group after (n=30)	Study group before yoga practice (n=57)	Study group after yoga practice (n=57)
Weight (kgs)	63.67±4.94	63.53±5.31	65.09±7.56	61.58±6.79 <sup>#</sup>
Pulse (per min)	74.53±1.57	74.13±2.29	75.65±2.27 <sup>y</sup>	73.93±1.96 <sup>###</sup>
SBP (mm Hg)	133.67±9.20	132.07±6.82	136.81±9.69	131.82±8.51 <sup>#</sup>
DBP (mm Hg)	88.2±5.74	87.47±5.25	91.89±7.22 <sup>x</sup>	88.42±5.75 <sup>##</sup>

Data presented are mean±SD.

<sup>x, y, z</sup> = in comparison to control group before; <sup>x</sup>(P<0.05) <sup>y</sup>(P<0.01)

<sup>#, ##, ###</sup> = in comparison to study group before yoga practice;

<sup>#</sup>(P<0.05) <sup>##</sup>(P<0.01) <sup>###</sup>(P<0.001)

significant reduction in doses of antihypertensive drugs. Similar results have been noticed by (7). Reduction in age related deterioration in cardiovascular functions due to yoga has been indicated in the study carried out by (10). As mentioned earlier, sympathetic dominance gradually diminishes

with yoga and relaxation practices, resulting in a better balance between the sympathetic and parasympathetic nervous activities. Moreover, decreased sympathetic tone caused by yogasanas leads to decreased peripheral resistance in blood vessels and hence falls in blood pressure.

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#### REFERENCES

1. Bharshankar JR, Bharshankar RN, Deshpande VN, Kaore SB, Gosavi GB. Effect of yoga on cardiovascular system in subjects above 40 years. *Ind J Phys Pharma* 2003; 47: 202–206.
2. Chakrabarty BK, Ghosh HN, Sahana SN. Human Physiology 2nd Edition. The New Book Stall, Calcutta, India (1984).
3. Khanam AA, Sachdeva U, Guleria R, Deepak KK. Study of pulmonary and autonomic functions of asthma patients after yoga training. *Ind J Physiol Pharma* 1996; 40: 318–324.
4. Luskin FM, Newell KA, Griffith M, Holmes M, Telles S, Marvasti FF, Pelletier KR, Haskell WL. A review of mind-body therapies in the treatment of cardiovascular disease part-I Implications for the elderly. *Alternative therapies in health and Medicine (United States)*. 1998; 4: 46–61.
5. Makwana K, Khirwadkar N, Gupta HC. Effect of short term yoga practice on ventilatory function test. *Ind J Physiol Pharmacol* 1988; 32: 202–208.
6. Malathi A, Damodaran A, Shah N, Patil N, Maratha S. Effect of yogic practices on subjective well being. *Ind J Physiol Phramacol* 2000; 44: 202–206.
7. Murugesan R, Govindarajulu D, Bera TK. Effect of selected yogic practices on the management of hypertension. *Ind J Physiol Pharmacol* 2000; 44: 207–210.
8. Sundar S, Agrawal SK, Singh VP, Bhattacharya SK, Udupa KN, Vaish SK. Role of yoga in management of essential hypertension. *Acta Cardiologica* 1984; 39: 203–208.
9. Telles S, Desiraju T. Autonomic changes in Brahmakumaris Raja Yoga meditation. *Int J Psycho Phys* 1993; 15: 147–152.
10. Vedanthan PK, Kesavalu LN, Murthy KC, Duvall K, Hall MJ, Baker S, Nagarathna S. Clinical study of yoga techniques in university students with asthma: a controlled study. *Allergy and Asthama Proc* 1998; 19: 3–9.

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