

## CURRENT LITERATURE

**Investigation on the Influence of Diet on the Quantity and Composition of Intestinal gas in Humans** by *Askevold, F.* (1956): **Scandinav. J. Clin. & Lab. Investigation.**, 8 87.

To investigate the influence of certain food stuffs on the production of intestinal gas three experimental individuals were administered a liquid, cellulose free diet. This should theoretically afford least possible material for gas production in the intestine. The food stuffs investigated were carrots, cabbage, dried peas, potatoes, wholemeal bread, white bread, lean meat, fat meat and fish. These were given as additions to the basic diet. Finally two composite diets were administered, the one with fish and white bread as the chief ingredients, the other with fat meat, whole meal bread and vegetables.

Rectal gas was collected for eight days for each food stuff for each experimental individual. The gas was measured for volume and analysed for content of oxygen, carbondioxide, hydrogen and methane. The results show that the basic diet did not give the lowest values and that diet has no definite influence on the quality and composition of rectal gas and isolated high values for fermentation gases were found without relation to specific foodstuffs or other external factors.

A diet rich in both fat and vegetables may possibly give some increase in volume, partly due to increased peristalsis, and partly due to a real increase in the proportion of fermentation gases.

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**On the Mechanism of the Hypotensive Action of the Extract of *Juglans Regia* L.** by *Stroer, W. F. H.* (1956): **Acta Physiol. Pharmacol. Neerl.**, 5, 28.

Hypotensive activity was studied in 26 dogs and 27 cats, anaesthetised with sodium pentobarbital. All drugs were administered via the cannulated femoral vein and washed in with 5 ml. of a Locke solution. Blood pressure was recorded from the right femoral artery by means of a mercury manometer. In some animals respiratory responses were recorded by a pneumograph with a Marey tambour.

The extract used in the experiments was prepared in the following manner: the ground, dried leaves of *J. Regia* L., collected during July and in the first week of August were exhausted with alcohol 96 per cent and acidified with hydrochloric acid (2 gm. HCl 37% P. L. alcohol). The alcohol was

removed and the residue dissolved in water. The solution was filtered, the precipitate was washed and the filtrate and wash water were concentrated. From his acidified alcoholic extract 1 ml. corresponds to 4 g. dried leaves.

The alcoholic extract of the dried leaves of *J. Regia* L. contains a depressor principle which acts chiefly by means of the depressor reflex and other parasympathetic reflexes. It does not inhibit the carotid sinus reflex. Moreover, it exerts a direct vasodilating action of minor significance. The notable weakening or slowing of the heart rate after electrical stimulation of the cut end of the depressor nerve was not found.

The results can be explained by accepting that the extract causes a vasodilatation in the splanchnic area followed by a flow from the periphery to these blood depots.

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**The Effect of 3:5:3-Tribromo-DL-Thyronine in Myxoedema** by *Compton, N. and Pitt-Rivers, R. (1956), : Lancet 270, 22.*

DL-tribromothyronine possesses considerable activity in preventing thiouracil induced goitre in rats and has been found to be half as active as DL-Thyroxine. Clinical study of two patients with myxoedema was carried out. Therapy was started with a dose of 100  $\mu$ g. tribromothyronine intramuscularly and gradually increased to 1000  $\mu$ g. Progress was assessed clinically, by B. M. R., by blood cholesterol levels, and by weight changes. In both the cases normal metabolism was restored with 1 mg. daily dose of tribromothyronine and was thereafter maintained with 4 gr. thyroid daily. If this dosage is indeed equivalent to 1 mg. of tribromothyronine, it appears that 1 mg. of the drug is equivalent to 0.4 mg. of L-thyroxine (quantity contained in 4 gr. of desiccated thyroid). Previously published reports show that D-isomer is inactive and hence the activity of L-tribromothyronine is only slightly less than that of thyroxine itself. The authors conclude that demonstration of high thyroxine-like activity of non-iodine containing analogues of thyroxine in man must cause a reorientation of fundamental views of thyroid physiology.

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**The Influence of Phenacetin on Adrenal Activity** by *Noach, E. L., De Die, M. A. C. and Kuipers, E. (1956) : Acta Physiol Pharmacol. Neerl., 5, 8.*

In order to investigate whether the typical action of antipyretic-analgesics is mediated by the adrenal gland, phenacetin was chosen as a relatively non-toxic drug, which is easily voluntarily ingested by rats. It was found that doses which are much lower than the usual antipyretic dose gave a marked ascorbic acid depletion of the adrenal, mediated by an enhancement of the release of ACTH by the hypophysis. The action of endogenous

ACTH is not changed by phenacetin. The effect on adrenal ascorbic acid depletion has a linear log dose-effect relationship.

No other signs of activation of the adrenal could be shown in the same dosage range: other signs of increased ACTH-release, such as depletion of adrenal cholesterol, as well as manifestations of increased peripheral corticoid actions (increased liver glycogen content, decreased circulating eosinophils) were absent. However, the specificity of the action on adrenal ascorbic acid could be proven, as the ascorbic acid content of liver and kidney remained unchanged.

In adrenalectomised rats phenacetin caused a drop in the normal body temperature in dosages which did not affect the body temperature of intact animals. Thus, it could be concluded that the presence of the adrenals is not essential for the antipyretic action of phenacetin.

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**The Use of Ethyleneiminoquinones in the treatment of Human Cancer** by Wolf, H. J. and Gerlich, N. (1956) : **German Medical Monthly**, **1**, 137.

E 39 (The alkaxyl derivative of ethyleneiminobenzoquinone) like other cytostatic agents not only affects tumour cells but also normal tissue which has a high rate of cell proliferation (*e. g.* bone marrow). Leucopenia may be marked but neither thrombocytopenia nor anaemia have been observed. Results of E 39 treatment are the better, the less differentiated and the more immature the tumour cells.

Intravenous administration upto a total dose of 800 mg. has been found best and is well tolerated. Daily leucocyte counts are necessary to avoid profound leucopenia.

Indications for the use of E 39 include hopeless cases of cancer (palliation); treatment or prevention of extensive metastases; "chemotherapeutic protection" in conjunction with radical surgery; local treatment of pleural and peritoneal carcinomatosis and direct infiltration of inoperable primary neoplasms of large metastatic nodules.

E 39 produces no significant side effects and has shown considerable palliative effects in many of the 72 patients who have been treated with it via the I. V. route. Further clinical trials are needed to determine its ultimate place in the chemotherapy of neoplasm to define more definitely the indications for its use and to discover the best mode of administration for different tumours.

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**Some Observations on the Fate of Exogenous 5-hydroxy-tryptamine (Enteramine) in the Rat** by *Erspamer, V.* (1956) : *J. Physiol.*, 133, 1-9.

Subcutaneously injected 5-HT is very slowly absorbed in rats which may be due to local vasoconstriction at the site of injection. After subcutaneous injection 5-HT level in serum rises although less than after intraperitoneal injection but lasting for prolonged period. Platelets were also shown to be high in 5-HT content, maximum 5 hrs. after the injection, as they are capable of absorbing it from plasma rich in 5-HT. They can later release it and keep their intact form and they show remarkable tenacity in retaining absorbed 5-HT. Subcutaneously injected 5-HT is only partially recovered as urinary 5-hydroxyindoleacetic acid and this recovery even decreases with increase in dose.

**An Evaluation of Hypnotic Drugs in Psychiatric Patients** by *Imboden, J. and Lasagna, L.* (1956) : *Bull. Johns Hopkins Hosp.*, 99, 91.

Twenty-seven psychiatric in-patients have been studied in a controlled trial of hypnotic drugs. Two grams of trichloroethanol or chloral hydrate and 0.15 or 0.3 gm. of pentobarbital were significantly better than the placebo in inducing and maintaining sleep. By most criteria, 0.3 gm. of pentobarbital was the most satisfactory medication employed, despite the somewhat higher incidence of 'hangover' after this dose. The subjective evaluation by the patients tended generally to confirm the relative efficacy of different medications as judged by more objective criteria. An interesting finding, however, was the tendency for subjective reports by the patients to underestimate hypnotic effects, as compared with the objective reports of nurse observers. This understatement occurred more frequently in the reports of patients who were characterised as psychiatrically depressed.

**Mode of Action of Chloramphenicol VI. Relation between structure and Activity in the Chloramphenicol Series** by *Halm, F. W., Hayes, J. E., Wisseman, C. L., Jr., Hopps, H. E. and Smadel, J. E.* (1956) : *Antibiotics and Chemotherapy* 6, 531.

Inhibition of protein synthesis in sensitive micro-organisms can be regarded as a plausible explanation of the growth inhibitory effects of chloramphenicol. The detailed and primary mechanism of this action on molecular level remains unknown. The authors have tried to elucidate the essential structural requirements for antibacterial activity of the drug by a study of chemical variants and derivatives of chloramphenicol and they have arrived tentative rules :

(a) Antibiotic activities of compounds of this series are approximately proportional to the relative electronegativity of the substituent of the aromatic ring. The aromatic character of the ring appears essential for biological activity.

(b) The antibiotic is specifically dependant upon the steric configuration of the substituents attached to the two asymmetric carbon atoms of the propanediol moiety.

(c) Variations beyond narrow limits in the molar volume of the electro-negative head of the acylamide side chain abolish the antibiotic activity.

A generalised structure for biologically active members of the chloramphenicol series has been suggested and some possible mechanisms of action of these substances have been discussed.

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**Enzyme Inhibition By Allicin, The Active Principle of Garlic**, by Wells, E. D. (1956) : *Biochem. Jour.* **63**, 514.

Enzyme inhibition observed with crude garlic extracts is caused by allicin. With few exceptions SH-enzymes were inhibited and most other enzymes were not affected.

No inhibition of unpurified malt Beta amylase by 0.0005 M allicin could be detected after contact for 15 minutes. Powerful inhibition of SH-enzymes was observed with  $5.6 \times 10^{-5}$  M allicin for the succinic oxidase system;  $2 \times 10^{-5}$  M for triose phosphate dehydrogenase and  $5 \times 10^{-5}$  M for xanthine oxidase. It is therefore clear that some vital oxidation enzymes are inhibited in a concentration that would adequately explain the bactericidal action of allicin.

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