

Not only do we get hyperglycemia comparable to that obtained by Katzman and Doisy, but we also get a very definite increase in the acetone in the blood. We also get a decrease in CO_2 -combining power and an increase in lactic acid. We may add that, aside from one result which appears anomalous, all attempts so far to obtain appreciable increases in urinary glucose and acetone have failed.

It is, perhaps, somewhat premature to interpret the significance of these results. However, as a tentative hypothesis, we may regard this anterior pituitary-like substance eliminated in the urine as being involved in carbohydrate metabolism, primarily, and in fat metabolism, secondarily.

The method of preparing the extract is as follows: To 3 liters of urine (we have used the urine of males from the ages 18-22) are added, very slowly, and with violent stirring, 90 gm. of benzoic acid dissolved in a minimum quantity of alcohol. The product is filtered and the precipitate is suspended in a volume of alcohol equal to the amount used for dissolving the benzoic acid. After considerable stirring at room temperature, the material is centrifuged, the supernatant liquid poured off, and the residue again suspended in alcohol—this time using one-half the original volume. The product is centrifuged. The supernatant liquid is poured off and ammonia is added to the residue until the suspension reacts just pink to phenolphthalein. The suspension is centrifuged and the supernatant liquid, which is the required extract, is poured off. The final extract should not be used unless it is at a pH 8-9. Our extracts are so prepared that 10 cc. of the final product is equivalent to 3 liters of urine.

7384 P

The Velocity of Blood Flow in Part of the Pulmonary Circulation.

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It is possible to time the velocity of the blood current in man, starting, for example, from the median basilic vein in the elbow and ending at the alveoli of the lungs. The intervening distance may be considered as a constant circuit, part of the pulmonary circulation. The time needed for blood to traverse this intervening distance was carefully noted in conditions of health and disease. This report, based on studies in man, describes the technique of the method em-

ployed, results obtained by this method, and its application in physiological and clinical problems.

The subject is recumbent in bed. His mouth having been freely rinsed with tap water, directly before the test, he is instructed to breathe rapidly, about 40 excursions per minute, and to hold his mouth wide open. At ordinary room temperature (70° to 72°F.) and under usual atmospheric conditions (753 mm. Hg.) a measured quantity of a non-toxic substance possessing an odor easily identified is quickly injected, within one second, into the right or left median basilic vein at the elbow and the arrival of the odor in the subject's breath instantly noted. The time required for the odor to complete this circuit is carefully clocked.

For intravenous injections the following substances have been utilized: guaiacol, sodium cacodylate, allyl sulphide, methyl salicylate, ether, and perfumes, more especially ingredients in the preparation of jasmin perfume, benzyl acetate and linalyl acetate. The sharpest results are obtained with perfume and ether. Our earliest use of ether, October, 1932, was suggested by the work of Burkhardt, Kümmell, and Küttner,^{1, 2, 3} who published results on the intravenous administration of ether as an anesthetic and commented on the prompt appearance of ether in the breath. At first we injected usually 1 to 1.5 cc. of ether, but at the site of injection thrombosis would be likely to occur, and in some subjects, those with cardiovascular disease, ether seemed to produce acute, transient, rather severe precordial pain. Other substances were therefore tried and the technique modified to eliminate these objectionable features. The more recent tests are free of untoward effect; they have been carried out with the following preparations: (a) 3 cc. of physiological saline solution containing 4% ether by volume, each cc. contains .04 cc. ether, (b) .15 cc. ether with .025 cc. benzyl acetate and .025 cc. linalyl acetate, (c) .5 cc. to 1 cc. of a solution made up of 1 cc. distilled water, .5 cc. benzyl acetate, .5 cc. linalyl acetate.

In normal subjects of both sexes in ages from 16 to 70 years, the average velocity in the majority of cases is about 6 to 9 seconds. Occasionally it is 3.5 seconds and in other cases 11.5 seconds. These figures in the same subjects under similar conditions are always less than the time required for the completion of the general circulation

¹ Burkhardt, *Arch. Exp. Pathol. u. Pharmacol.*, Bd. 61; *Muench. Med. Wochenschr.*, Nos. 33 and 46, 1909; No. 7, 1910; No. 15, 1911.

² Kümmell, H., *Keen's Surgery*, 6, 976; *Centralbl. d. Chir.*, 37, 1910 (Referat), and 12, 1911 (Referat).

³ Küttner, *Centralbl. d. Chir.*, 37, 1910.

as estimated by the saccharine method. In pathological conditions, as in normals, the blood flow through the partial pulmonary circuit is completed in about the same time, 6 to 9 seconds. The test was performed in patients with rheumatic, luetic and hypertensive cardiovascular disease free of or associated with various stages of congestive failure, in bronchial asthma, pulmonary neoplasm, nephritis, myxedema, arthritis. In several instances where there was clinical reason to believe that the flow in the lesser circulation was retarded, the rate of speed through this circuit was decreased, *i. e.*, 15 seconds or more.

The test is of use in estimating the speed of blood flow through the pulmonary circulation up to the alveoli. Respiratory changes, voluntary or involuntary, may be able to influence this speed. No data are available on this point. No details are at hand on the influence of changes in atmospheric pressure or of marked variations in environmental temperature. It appears that the rate of speed in this circuit is quite constant, 6 to 9 seconds, and that it remains undisturbed even in marked heart and lung alterations, often when the rate of flow in the general circulation is markedly prolonged. It may therefore be stated that, as a rule, retardation of the general circulation does not involve the rate of blood flow in that portion of the pulmonary circulation measured by the test described above. Retardation of the blood flow over this part of the lesser circulation may be governed by forces functioning independently of the general systemic circulation.

7385 C

Scalp Products and Hair Before Puberty as Culture Medium for Certain Pathogenic Fungi.

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A study of the growth of pathogenic fungi on a mixture of barber shop hair and scalp products of adults was reported.¹ In this paper the results of a study of the growth of pathogenic fungi on the hair and scalp products of children under 12 years, before and after extraction with ether, are reported.

¹ Williams, John W., *PROC. SOC. EXP. BIOL. AND MED.*, 1934, **31**, 586.