

After 24 hours 40-70 per cent. of the nitrogen has disappeared, presumably by absorption, and of that left, in both stomach and intestine, 65-85 per cent. is in solution. The peptone in both stomach and intestine is midway between the di- and tripeptid stages. It remains at this stage until absorption is complete, which occurs in 48-72 hours. After 48 hours, in two cases out of three, only 14 per cent. of the ingested nitrogen remained in the tract.

Urea is constantly present in the intestine. It is excreted with the bile, which contained, in the samples analyzed, 1.7 per cent. of urea, in which form over 70 per cent. of the total bile nitrogen is found.

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Absorption and excretion of alimentary nitrogen.

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Beef and different forms of fish flesh were fed to a dog in nitrogenous equilibrium, the daily diet containing 3 grams of nitrogen, in the form of chopped meat, 65 grams of starch, and 26-27 grams of fat. The animal was catheterized 3, 6, 9, 12 and 24 hours after feeding, and the daily feces were separated by addition of lamp black to the diet. The rise in the rate of nitrogen excretion in the urine was taken as an index of the rate of absorption, the excretion of nitrogen in the feces as a measure of the completeness of absorption. The significance of the results is shown by the following figures:

Food.	Boiled Cod.	Fried Cod.	Boiled Beef.	Boiled Trout.	Boiled Eel.	Boiled Weakfish.	Boiled Mussel.	Boiled Salt-cod.	Boiled Litorina.
Nitrogen in urine during first 9 hrs. after feeding.	1.50	1.36	1.29	1.28	1.24	1.23	1.23	1.07	1.00
Nitrogen absorbed in 24 hrs.	1.98	1.80	2.58	2.55	1.91	2.53	2.40	2.58	2.37
Nitrogen excreted in urine in 24 hours.	2.51	2.48	2.76	2.35	2.20	2.34	2.22	2.29	1.90
Nitrogen retained.	-.53	-.68	-.18	+.20	-.29	+.18	+.18	+.29	+.47

The foods in the table are arranged in rank according to the

relative rapidity with which their proteins were digested, absorbed, and metabolized, as shown by the rate of nitrogen excretion during the height of digestion (figures in top row). From the nitrogen balance (figures in the bottom row) it is evident that the order would be practically reversed if the foods were ranked according to their ability to keep the body in nitrogenous equilibrium. It is apparent that rapid digestion does not necessarily further retention of protein. Presumably there is an optimum rate of digestion, which makes possible the fullest use of its products, and this rate may be exceeded. Rapid digestion can then cause imperfect retention. "Predigestion" has recently been shown by Voit and Zisterer to have this effect.¹

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The cause of cardiac cohypertrophy.

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In a series of twenty experiments in dogs in which cardiac hypertrophy was induced by the production of aortic insufficiency, it was found that all the chambers of the heart were heavier than normal. The largest increase was in the left ventricle, 48 per cent., but there was also found a very marked increase in the auricles which, relatively to their size, was almost as great as in the left ventricle. The cohypertrophy of the auricles has also been observed in man in cases of chronic interstitial nephritis and arteriosclerosis (Hirsch).

It was found experimentally that the increased work of the left ventricle after the production of aortic insufficiency is not associated with a change in venous pressure such as has been assumed to be the direct cause of hypertrophy of the auricles.

Tracings taken of the contractions of the right auricle along with a blood pressure tracing from the right carotid artery showed that the effect of the production of aortic insufficiency is to increase the force of auricular contraction. Similarly the increased work of the left ventricle produced by the compression of the thoracic aorta will also cause increased auricular contractions without any change in venous pressure.

¹*Z. f. Biol.*, liii, 457.