

It should be emphasized that these observations are not concerned with the biological value of hydrolyzed casein inasmuch as a condition of minimum endogenous nitrogen metabolism was probably not achieved in these dogs. Moreover, the period of observation was too short for such a study. The experiments are concerned only with the question as to whether amino acids injected intravenously this way are efficiently utilized by the body, particularly in the synthesis of tissue protein. It seems clear that if the amino-acids were retained as such that this would take place at approximately the same degree regardless of whether or not the mixture contained the 2% added tryptophane and cystine. That a high degree of retention occurred only with the complete mixture is evidence that synthesis of protein had probably taken place.

Summary. Adult dogs, fed only with sucrose, were immediately brought into N-equilibrium upon intravenous injection of a complete mixture of amino-acids combined with glucose. This appears to demonstrate a high degree of nitrogen retention particularly since nitrogen balance was attained with the administration of an amount of nitrogen but slightly in excess of the previous level of excretion. This was impossible if the mixture did not contain added tryptophane and cystine; under such conditions a large part of the injected nitrogen appeared in the urine. These observations would seem to indicate that the mixture of amino-acids used, as prepared by the acid hydrolysis of casein plus 2% tryptophane and added cystine, is efficiently utilized by the body, probably in the active synthesis of body protein.

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The Blood Diastase in Acutely Perforating Peptic Ulcers.*

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Meyer and Antman¹ recently reviewed the meagre literature on the blood and urinary diastase in peptic ulcers. The results were inconclusive. They reported 3 cases of high urinary diastase in patients with peptic ulcers involving the pancreas. One case was

* This work aided by the David May Fund.

¹ Meyer, K. A., and Antman, L., *Am. J. Surg.*, 1936, **33**, 307.

proved by autopsy; the other 2 cases were treated medically, the diagnosis being based upon the clinical picture and X-ray examination.

The fact that high diastase is as a rule associated with acute pancreatic disease has led to the idea that the situation of perforating peptic ulcers, especially in relation to the pancreas, might be indicated by the level of the blood diastase. This report is based on a study of 9 cases of acute perforating ulcers, all of whom came to operation or postmortem examination. The situation of the lesions was verified. The diastase was determined by Somogyi's method.²

TABLE I.
Blood Diastase

Case	Pre-operative	Post-operative	Involvement of Pancreas
1	214	130	Yes
2	200	150	"
3	600-402-150-90	No operation	"
4	198		"
5	84		No
6	107	73	"
7	67	40-40-76	"
8	31		"
9	59		"

With 80 to 180 as the normal range of diastatic values,² it can be seen that in the 4 cases in which the ulcer involved the pancreas the blood diastase was elevated. In 3 of the 4 cases the increase in diastase was moderate; while the fourth was high, coming within the range of the figures usually encountered in acute pancreatitis. Of the 5 cases in which the ulcer was not near the pancreas, 2 showed figures within the normal range, while 3 were definitely subnormal. According to Somogyi, low diastase is frequently associated with impaired liver function.² This may indicate some relationship between ulcer and biliary tract-liver disease.

We may tentatively say that a normal or low blood diastase rules out not only acute pancreatitis but a peptic ulcer perforating near the pancreas. A high diastase in a case of sudden sharp pain in the upper abdomen usually indicates pancreatic involvement. A moderate increase during the height of an attack, would tend to indicate a perforating peptic ulcer. A very high diastase, while usually associated with acute pancreatitis, may mean an ulcer acutely perforating in or near the pancreas, as one of our cases proved. This possibility must be taken into consideration in the diagnosis of acute pancreatitis, since the treatment is different.

² Somogyi, M., *PROC. SOC. EXP. BIOL. AND MED.*, 1936, **32**, 538.

Diastase determinations may therefore be of distinct help in the differential diagnosis of acute conditions of the upper abdomen, but it must be remembered that they only supplement clinical judgment.

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Effect of Insulin on Carbohydrate Tolerance of Nondiabetic Individuals.

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One of us (Somogyi)¹ has shown that in diabetic patients the continued overdosage of insulin, *i. e.*, the administration of quantities sufficient to cause hypoglycemias, gradually diminishes the carbohydrate tolerance of the patient and aggravates the diabetic condition. In this paper we call attention to the fact that insulin when administered to nondiabetic individuals, exerts a similar effect.

This observation was made on nondiabetic tuberculous patients, who were treated with insulin with the purpose of inducing an increase in their body weight. The procedure in this work differed from others described in the literature in 2 respects. In the first place, the amount of insulin used was very small. In 2 cases only 10 units were given daily, injected in 5-unit doses before the noon and evening meals, while the remaining patients received at the beginning 10, and subsequently 20 units daily, always administered in 2 equal doses. In the second place, the duration of the treatment in this experiment was much longer than in others reported; the observations extended in 5 cases over a period of 6 months, and in one case over 12 months.

In each case glucose tolerance test was performed a short time before the beginning of the treatment and a second test after insulin injections had been continued for approximately 6 months; in one case a third test was carried out after 12 months of uninterrupted treatment. In the tolerance tests uniformly 100 gm. of glucose was given orally and the blood sugar was determined at hourly intervals by the Shaffer-Hartmann method, using copper reagent No. 50 of Shaffer and Somogyi.² The blood samples were depro-

¹ Somogyi, M., *PROC. SOC. EXP. BIOL. AND MED.*, in press.

² Shaffer, P., and Somogyi, M., *J. Biol. Chem.*, 1933, **100**, 695.