

drops were observed in the blood sugar level (frequently to points below normal) and marked changes were demonstrated in the D:N ratio. These changes were demonstrated both for alkaline and for acid perfusates, but were greater and more constant with acid perfusates given neutral.

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The influence of pancreatic extracts upon the carbohydrate metabolism of depancreatized dogs.

By C. B. F. GIBBS, HARRY D. CLOUGH, NEIL C. STONE and JOHN R. MURLIN.

[*From the Physiological Laboratory of the University of Rochester, Rochester, N. Y.*]

The experimental work reported dealt with the effects of extracts prepared in various ways from the pancreas of the dog, pig and ox upon the blood sugar, D:N ratio, respiratory quotient and clinical condition of depancreatized dogs.

A dog was given two days to recover from the operation and to become totally diabetic as shown by a D:N ratio of 2.8 or more. The dogs were fed ground beef in increasing amounts after the first day. The extracts were administered by stomach tube, intramuscularly, intravenously, subcutaneously and intraperitoneally.

Extract given by stomach tube caused no or very little fall in blood or urinary sugar. Injections of the extract into vein, tissue and peritoneum have been followed by abrupt lowering of the sugar in the blood and urine, the former at times even below normal and the latter has been made to completely disappear even when glucose had been previously administered. In the majority of cases the lowest level of blood sugar was reached in 4 hours from the time of injection whether the extract was given into vein, peritoneum, muscle or under the skin. Since harmful effects were experienced more frequently when the extracts were injected intravenously, intramuscularly and intraperitoneally than when given subcutaneously the last method was used most.

The first preparations used in this series of experiments were extracts of freshly removed, macerated dog's pancreas given

without further treatment. These proved exceedingly toxic causing extensive sloughing and ulceration of the tissues into which they were injected, and sometimes even caused the death of the dog. These wounds were sterile unless secondarily infected. Simple alcoholic extracts likewise produced toxic effects, particularly when only small volumes of alcohol were used and the trypsin was for this reason not wholly destroyed. Later these toxic effects were very largely eliminated by purification of the extracts.

Tables and graphs of experimental data were given showing abrupt falls in blood sugar, disappearance of urinary sugar and rise of the respiratory quotient following injection of extracts.

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Three months study of the influence of the anti-diabetic substance on a case of severe diabetes.

By C. CLYDE SUTTER and JOHN R. MURLIN.

[*From the Physiological Laboratory of the University of Rochester, Rochester, N. Y.*]

Anti-diabetic substance, prepared at the University of Rochester was given to a case of severe diabetes mellitus (adult) by the duodenal tube, by mouth and by subcutaneous injections. Accurate study was made to determine the potency of the pancreatic extract, the dosage required and the most efficient and practical method of administration.

Glycosuria had been present at least for five years and was progressively increasing. Acidosis was constant during the past year. At the time of beginning this study the elimination of urinary sugar was greater than the intake of carbohydrate.

The patient was placed in the Rochester General Hospital, July 6, 1922, and studied while on a weighed diet consisting of carbohydrate 29.5 gms., protein 69 gms., fat 107.48 gms., and total calories 1394. During this study the blood sugar averaged from 0.410 to 0.513; the urinary sugar averaged from 32 to 45 grams; and the acetone and diacetic acid was 2+.

Anti-diabetic extract was given fifteen times through the duodenal tube from July 12, 1922 to July 29, 1922 inclusive. The blood sugar was reduced, reaching its lowest, 0.241 on July 26,