

include the intermediate. An experiment was conducted with the addition of quinolinic acid to beef liver and kidney homogenates and no evidence for the metabolism of the added quinolinic acid was observed.

Several other tissues of the rat were tested and found not to metabolize 3-hydroxyanthranilic acid to quinolinic acid in measurable amounts at the enzyme concentrations used (10-100 mg wet weight of tissue). Muscle, spleen, pancreas, brain and testis homogenates all metabolized small but significant amounts of substrate, but in no case were detectable amounts of quinolinic acid produced, and no spectrophotometric evidence for the formation of the intermediate compound was obtained.

Summary. A survey of various tissues of the rat, and of beef and pork liver and kidney was made for the presence of the enzyme sys-

tem that converts 3-hydroxyanthranilic acid to quinolinic acid. It was found that rat and pork liver homogenates quantitatively convert 3-hydroxyanthranilic acid to quinolinic acid. Beef liver also contains this enzyme system, but not all of the substrate metabolized could be accounted for as quinolinic acid. Rat, pork and beef kidney likewise contain the enzyme system but again not all of the 3-hydroxyanthranilic acid metabolized was found by the quinolinic acid assay. Spleen, muscle, brain, pancreas and testis of rats either do not contain the enzyme system or contain it in very small quantities. No evidence was obtained to indicate that the intermediate compound previously described had accumulated to account for the lower production of quinolinic acid by these preparations.

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Glucose Formation by Kidneys in Eviscerated Dogs.* (19110)

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Several investigators have offered evidence that the kidneys may be a source of blood-sugar (1-6). Cohn and Kolinsky (6) reported evidence of glucose production by the kidneys, finding the rate of disappearance of glucose from the blood of hepatectomized and nephrectomized dogs nearly double the rate

found in dogs hepatectomized without nephrectomy. In experiments here reported, (designed for further study of this question), evisceration was done, with and without nephrectomy, to eliminate possible effects of insulin production on the rate of disappearance of sugar from the blood in hepatectomized dogs.

Procedures. Ten mongrel male and female dogs, previously fasted 3 days with water allowed *ad libitum*, were eviscerated by the method of Markowitz (7) under nembutal anesthesia. Five dogs were bilaterally nephrectomized with the evisceration and in 5 the kidneys were left intact. Samples of venous blood were drawn for analysis immediately following operation and at 15-minute intervals during the next hour. Blood-sugar was de-

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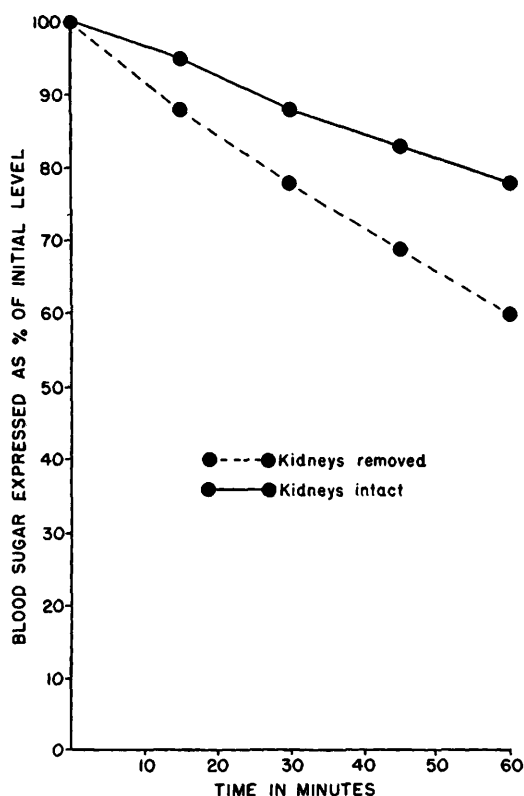


FIG. 1. Average values for blood-sugar levels in 5 dogs after evisceration with kidneys intact and in 5 dogs eviscerated and nephrectomized.

terminated in duplicate by the Nelson modification(8) of the Somogyi method.

Results. Graphs in Fig. 1 represent averages of the concentrations of blood-sugar at the intervals indicated, expressed as per cent of initial levels(9). The average rate of disappearance of glucose from the blood in the nephrectomized dogs was nearly double that observed in dogs with intact kidneys. Statistical tests, by the method of analysis of variance(10), indicated a highly significant difference ($p < .01$) between the disappearance rates.

Discussion. Results of these experiments are in accord with the findings of Cohn and Kolinsky and furnish supplemental evidence that the presence of the pancreas was not a factor influencing the blood sugar disappearance rate in hepatectomized dogs. The data indicate that in hepatectomized dogs the kidneys may produce an amount of glucose equivalent to half that which disappears from the blood immediately after operation.

Summary. In 5 dogs subjected to evisceration and bilateral nephrectomy the rate of disappearance of sugar from the blood immediately after operation was nearly double the rate observed in 5 dogs similarly eviscerated but not nephrectomized, indicating that in hepatectomized dogs the kidneys may be an important source of sugar supplied to the blood stream.

TABLE I. Disappearance of Blood-Sugar in Dogs After Evisceration, With and Without Bilateral Nephrectomy.

Dog No.	Preparation	Blood-sugar following evisceration, mg/100 cc—				
		0 min	15 min	30 min	45 min	60 min
1	Evisceration with kidneys intact	57	53	49	44	37
2		135	127	120	116	112
3		82	77	72	68	68
4		91	88	79	75	70
5		261	254	237	229	217
6	Evisceration with kidneys removed	96	83	71	66	55
7		58	50	42	31	25
8		93	79	71	65	58
9		73	64	59	52	46
10		81	78	69	66	60

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