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The free sugar in the liver and its significance for carbohydrate metabolism.

By K. F. CORI, G. W. PUCHER, G. T. CORI.

[*From the State Institute for the Study of Malignant Disease, Buffalo, N. Y.*]

Curves were presented showing the influence of adrenaline and iletin on the free sugar content of the liver and the blood-sugar. Further curves showed the influence of glucose ingestion on the free sugar of the liver and the relation of free liver sugar to glycogen synthesis with and without iletin. These curves show that the prolonged hyperglycemia after adrenaline injection is due to the fact that the sugar set free in the liver during the first hour diffuses into the blood stream very slowly. It was shown that iletin lowered the free sugar of the liver even during glucose absorption. Ingestion of glucose without iletin increases the free liver sugar. Glycogen synthesis without the administration of iletin has only been observed when the free liver sugar was above its normal value. (Normal value for animals starved for 24 hours is 0.3-0.35 per cent.) Glycogen synthesis under the action of iletin occurs from normal or even lower than normal free sugar levels. This data indicates a disturbance of the ferment equilibrium normally established in the liver and is one of the factors involved in the lowering of the blood-sugar observed after the injection of iletin.