

and inoculation to harbor fowl pox virus. The inference is clear, therefore, that *Culex pipiens* may serve in nature as an active agent in the spread of epidemics of fowl pox among chickens.

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Effect of Renal Vessel Ligation and Insulin on Sugar Tolerance of Phloridzinized Dog.

L. A. GOLDSTEIN, A. J. TATELBAUM, S. EHRE AND J. R. MURLIN.

From the Department of Vital Economics, University of Rochester.

Dogs were phloridzinized according to the Coolen method and the D:N ration in the urine determined on the day of experiment. In one or 2 instances when the D:N was not determined, the blood sugar was 40 mgm. % or lower. The dogs were then placed under amytal anesthesia and the tolerance curves run. One cc. of 50% pure glucose solution per kg. of body weight was used and was injected intravenously at a uniform rate. When insulin was used it was incorporated in the glucose solution in amount equal to one clinical unit per kg. of body weight.

After ligation of the renal vessels the tolerance curves naturally reached a much higher level than before. The rate of fall of the sugar level for the first hour following the peak of the curve, also, was much greater after ligation than before. Thus, in one experiment, before ligation the rate of fall was 150 mgm. % the first hour, and after ligation it was 270 mgm. % in the same length of time. When insulin was injected with the sugar the same result was obtained, *i. e.*, the rate of fall after ligation was more rapid than before, but the difference was not so great with as without insulin. In one experiment where insulin was given with the sugar by vein, the rate of fall in one hour was 145 mgm. % before ligation, and 195 mgm. % after ligation. It is clear that tying off the renal blood vessels and thereby raising the blood sugar level accelerates the rate of utilization of sugar (combustion or glycogen formation, or both) both with and without extra insulin. The smaller differences between the 2 reactions in the presence of extra insulin indicates a lower threshold of combustion, and elimination of the kidney factor (leakage) does not have so much influence on the rate of utilization.

Control experiments on normal dogs gave an identical tolerance

curve before and after ligation of the renal vessels, both when insulin was used and when it was not used. If insulin exerted any power to correct the action of phloridzin on the kidney, there should have been an effect on the tolerance curve similar to that of ligation of the renal vessels. This effect was not noted at any time, from which it may be inferred that insulin exerts its effect wholly on sugar utilization. If phloridzin acted to any considerable extent on the tissues of the body to diminish the power of utilizing carbohydrate when the blood sugar level is artificially raised, ligation of the renal vessels should not, of itself, cause a greater rate of utilization. Since a greater rate was invariably produced by a higher threshold of sugar, it may be inferred that the action of phloridzin is primarily, and probably entirely, renal.