

minutes with the 1:10,000 dilution, and in 4 minutes with the 1:100,000 dilution of venom. The 1:10,000 dilution of lung powder caused clotting in 47 minutes, while the 1:100,000 dilution showed no clotting up to the end of the experiment. To test the activity of the lung powder, 0.5 cc. of the original 1% solution of lung powder was added to 2 cc. of the hemophilic blood, and a firm clot was formed in 6 minutes. The clot following the addition of venom was firm and contracted very rapidly after clotting began, even with the 1:100,000 dilution. The clot formed with the lung powder was soft and easily broken up, and there was no contraction. In spite of the fact that the clotting time of V.B. had decreased, it took 1½ minutes for the 0.5 cc. of the 1:10,000 dilution to produce clotting. This was due to the fact that in the previous experiment a fresh solution of the venom was made, and in 61 days since the preparation of the 1:10,000 venom dilution, there was deterioration of its coagulating properties.

Since the venom is intended for use as a local hemostatic and since venoms often contain bacteria, the effect of filtration through a Zeiss or a Berkefeld filter on coagulating power, was studied. In both instances, filtered solutions were sterile. While the toxicity (neurotoxicity) was reduced as tested on pigeons the coagulation power of the venom was not interfered with as far as could be determined on hemophilic blood. This confirms similar observation by Barnet and Macfarlane with the Russel viper.

8163 P

Time Curve of Insulin Action in the Depancreatized Dog.

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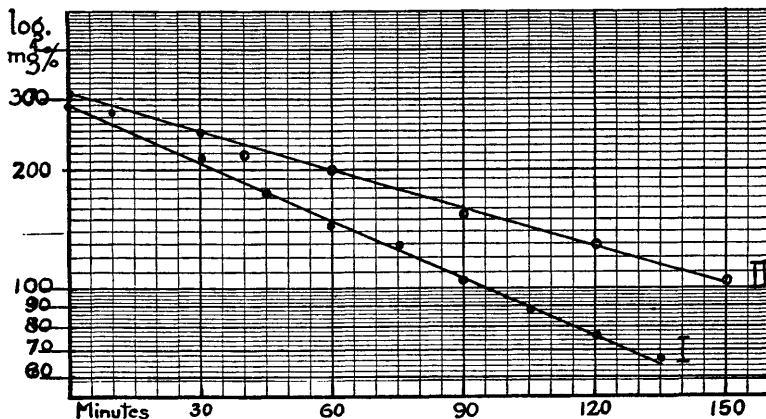
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Scott and Dotti¹ have made an extended study of blood sugar lowering effects of insulin given subcutaneously to rabbits. They have concluded that the results, when expressed as the fraction of sugar removed, are independent of the initial blood sugar while the absolute value of blood sugar after a given time interval or the absolute value of the fall in blood sugar is dependent on the initial value.

¹ Scott, E. L., and Dotti, L. B., *Arch. Int. Med.*, 1932, **50**, 511.

It is, therefore, the fraction removed and not any of the absolute values which is related only to the insulin dose. They have studied the effect after one given time interval which is empirically chosen. Observations taken at later time intervals cannot be used because the blood sugar under their conditions tends to return too early towards the initial level.

Elsewhere² we have stated that after pancreatectomy in the dog the blood sugar in response to intravenous insulin falls continuously for a much longer period of time than in the normal animal. The factor which tends to early return towards the initial level has been eliminated. Under favorable conditions (relatively refractory animal) and with large doses of insulin a continuous drop in sugar can be observed for more than 2 hours. If under these conditions the observations of Scott hold for the entire course of the curve, the results should show a linear relation between the logarithm of the blood sugar and the time. The graph, Curve I, shows an example of a time curve after 10 units of insulin given intravenously in a depancreatized dog. By intravenous administration we reduce materially the latent period and eliminate any effects resulting from a possible gradual absorption from the site of injection. In the diabetic dog the duration of action of insulin is markedly dependent on the dose. It is therefore only after large doses that curves having the requisite number of observations over a sufficient period of time are obtained. With smaller doses the points will also fall along a logarithmic curve but the time range of observation is limited.



² Berg, B. N., Gross, J., McAfee, J., and Zucker, T. F., *PROC. SOC. EXP. BIOL. AND MED.*, 1935, **32**, 1080.

We have so far obtained a large number of curves (over 50) with small doses, giving a blood sugar minimum at about 60 minutes. Due to the small number of points these curves are not conclusive. Twelve curves of 90 minute duration are satisfactory and 9 curves of 120 minutes or more all show good agreement with calculated values.

Curve II is plotted from data of Collens and Grayzel³ obtained on human diabetics after 1/20 unit of insulin per kilo is given intravenously. It will be seen that this also gives quite an acceptable linear relation between the logarithm of blood sugar and time. The conclusions which the authors draw from their observations, namely that on the basis of absolute values of change in blood sugar the action of insulin in the diabetic is more marked than in the normal would be considerably modified if the principles laid down by Scott and Dotti were given consideration.

8164 P

Chest Leads in Normal Children.*

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Chest leads in the electrocardiogram are now used for research purposes and often for the diagnosis of coronary artery thrombosis and rheumatic fever. Chest leads of normal adults have been published^{1, 2} but as yet no control records of children are available.

Seventy-one normal children, from 2 to 15 years of age, 36 males and 35 females, were electrocardiographed. Seven anterior chest positions were studied and form the basis of this report. Position 1 was 2 cm. to right of midsternal line; position 2 was over the midsternum; 3, was 2 cm. to left of midsternum; 4, —4 cm. to left; 5, —6 cm. to left; 6, —8 cm.; and position 7, —10 cm. to left of midsternum.

The chest electrode was placed over the 4th intercostal space in

³ Collens, W. J., and Grayzel, H. G., *PROC. SOC. EXP. BIOL. AND MED.*, 1931, **28**, 487.

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¹ Katz, L. N., and Kissin, M., *Am. Heart J.*, 1933, **8**, 595.

² Master, A. M., *Am. Heart J.*, 1934, **9**, 511.