

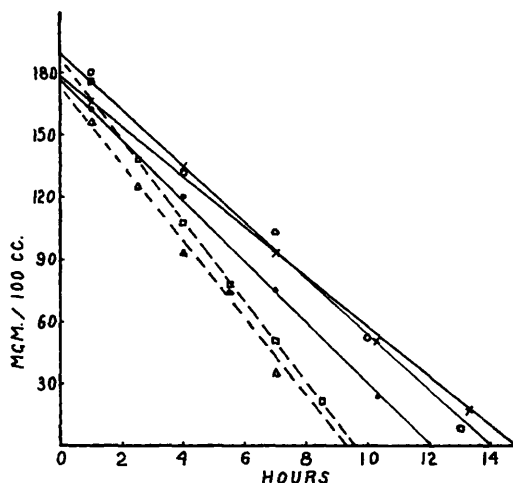


FIG. 1.

Blood alcohol concentrations after intravenous injection of 1.5 g of alcohol per kg in a dog. Three control injections are represented by crosses, open circles, and dots. Two injections with insulin 1 unit per kg are shown with open squares and open triangles. The best fitting lines between these points are extrapolated to the base line to estimate the time of disappearance of alcohol from the blood stream.

on each dog. Then the same procedure was repeated after administration of a single dose of 1 unit of regular insulin per kg, and in the animal which showed the greatest acceleration the insulin run was repeated so that we could be doubly sure of the results. The

results are presented in Table I, and those in the dog which had the 2 trials with insulin are shown graphically in Fig. 1. It is seen that 2 of the 3 animals responded to this dose of insulin by an increase in rate of alcohol metabolism of approximately 50%, while the slight increase in the third animal, although deviating from the average of the control values by a considerable margin over the range of these values, was far less striking. The same procedure was repeated with two other dogs, with the exception that the dose of insulin was reduced to 0.5 unit per kg. In neither animal did this smaller dosage of insulin produce any acceleration of alcohol metabolism.

Summary. Insulin in a dose of 1 unit per kg was found to be variably effective in accelerating the rate of alcohol metabolism, the effect being striking in 2 dogs, much less in another. This is in accord with the variable results reported by Widmark.⁴ Half this dose was entirely ineffective in 2 dogs. The failure of Gregory and coworkers⁷ to demonstrate this accelerating action of insulin in adequate dosage must be due to the possibility that their 6 dogs fell, by chance, into the group of animals which does not show a striking acceleration with insulin.

16739

Prolongation of Pseudopregnancy by Deciduomata in the Rat.*

B. M. PECKHAM AND R. R. GREENE.

From the Departments of Physiology and Obstetrics and Gynecology, Northwestern University Medical School, Chicago, Ill.

Astwood and Greep¹ have stated that the presence of deciduomata in the rat does not prolong the diestrus of pseudopregnancy. Ershoff and Deuel,² however, have presented

data showing pseudopregnancy in the rat to be prolonged as much as 7 days by production of deciduomata. More recently Kamell and Atkinson³ reported that deciduomata do not prolong pseudopregnancy in the mouse. The following data confirm those of Ershoff and Deuel.

* Supported in part by a grant from Ciba Pharmaceutical Products, Inc.

¹ Astwood, E. B., and Greep, R. O., *PROC. SOC. EXP. BIOL. AND MED.*, 1938, **38**, 713.

² Ershoff, B. H., and Deuel, H. J., *PROC. SOC. EXP. BIOL. AND MED.*, 1943, **54**, 167.

³ Kamell, S. A., and Atkinson, W. B., *PROC. SOC. EXP. BIOL. AND MED.*, 1948, **67**, 415.

TABLE I.
Prolongation of Pseudopregnancy by Deciduomata.

Group	No. of rats	No. of deciduomata	Pseudopregnancy (days)	Standard error	St. error of diff.* and probability
Pseudopregnant	18	8	13.33	0.220	± 1.043 and < 0.01
Pseudopregnant with deciduomata	10	8	20.60	1.287	
Pseudopregnant with deciduomata	11	4	18.55	1.290	± 1.340 and < 0.01
Pseudopregnant with deciduomata removed	17	4	14.25	0.680	

* Pooled variance. Snedecor *Statistical Methods*, University of Iowa College Press, 1947.

Methods and results. Daily vaginal smears were made from 18 female albino rats (150 to 250 g) of mixed strain. On the day of vaginal estrus (fully cornified smear) their cervixes were stimulated electrically† to induce pseudopregnancy. Vaginal smears were made until the next vaginal estrus. The first day of diestrus was considered day one and the first day of full vaginal cornification the last day of pseudopregnancy. The average length of pseudopregnancy was found to be 13.33 days. (Table I).

Ten similarly prepared rats were subjected to laparotomy on the fourth day of pseudopregnancy. Both uteri were stimulated by passing a suture transversely through the walls and lumen at 4 points in each, tying loosely and leaving the suture *in situ* as a marker. On the 8th day of pseudopregnancy at a second laparotomy, the number of deciduomata formed in each rat was determined. Daily smearing was continued as before. Each rat responded with eight deciduomata, the maximum number possible. The average length of pseudopregnancy in this group was 20.60 days (see Table I). The difference of 7.27 days is highly significant statistically.

To determine whether some factor other than the presence of deciduomata was respon-

sible for prolongation of diestrus an additional 28 pseudopregnant rats were treated as in the previous experiment except that at laparotomy on the 4th day *only one uterus (the right) was stimulated in 4 places*. On the eighth day the number of deciduomata formed in each was noted. Again all 28 rats responded with the maximum number, 4 deciduomata. The right uterus containing the deciduomata was then removed in 17 of the 28 rats. The average length of pseudopregnancy in the 17 rats in which the deciduomata were removed was 14.25 days (not significantly different from the length of normal pseudopregnancy). The length of pseudopregnancy in the 11 rats in whom the deciduomata were not removed was 18.55 days (not significantly different from the length of pseudopregnancy in the rats with 8 deciduomata).

As may be seen in Table I the difference of 4.30 days is statistically significant.

Our data demonstrate that the presence of deciduomata in the pseudopregnant rat significantly prolongs the period of diestrus. The mechanism involved is not known but the evidence presented here is not adequate to prove that it is a specific effect of the deciduoma, *per se*.

Summary. The presence of deciduomata prolongs the length of pseudopregnancy in the rat an average of 7.27 days beyond the normal duration of 13.33 days.

† A bipolar electrode attached to a Harvard inductorium was inserted in the vagina.