

feeding during adult life remains to be seen. Nevertheless, this method of infecting mosquitoes offers possibilities for the study of transmission, particularly with insects which can be brought to the laboratory in the egg or larval stage.

9686

Vascular, Metabolic, and Motility Responses of Uterine Tissue Following Administration of Oestrin.

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Within 30 minutes after the administration of oestrin to ovariectomized rabbits, a maximal hyperemia of the uterine vascular bed takes place.¹⁻⁴ Rhythmic motility of the myometrium does not commence until about the tenth hour after injection of oestrin, and increases progressively until about the twenty-fourth hour.^{5, 6, 2} In addition to these two effects, oestrin also raises the metabolic rate of uterine tissue.⁷⁻¹⁰ The present experiments were performed to ascertain to what extent the initial hyperemia, rise of metabolic activity of the tissue and motility are related to each other.

Two main groups of experiments were performed. In one, the O₂ consumption rate was measured in a group of untreated rabbits (3½ to 4 months of age), 5 of which were intact and the remainder of which (21 animals) were ovariectomized for periods ranging from 2 to 15 days. In the second group, the O₂ consumption rates were measured at intervals of 5, 10, 18, and 24 hours after a single

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intramuscular injection of 500 international units of oestradiol to rabbits ovariectomized for 9 to 11 days. The tissues were taken immediately after cerebral concussion. Each uterine horn was slit longitudinally throughout its length. Three segments were taken from each uterus, a tubal and a cervical piece from one horn and a section from the middle of the opposite horn. Oxygen consumption measurements were made in Fenn respirometers at a temperature of 37.5°C. After a 15-minute period of equilibration the chambers were closed and readings were made at 10-minute intervals throughout an hour. The hourly consumption of oxygen per milligram of dried tissue (QO_2) was determined for the various pieces of tissue dried to constant weight at 85°C.

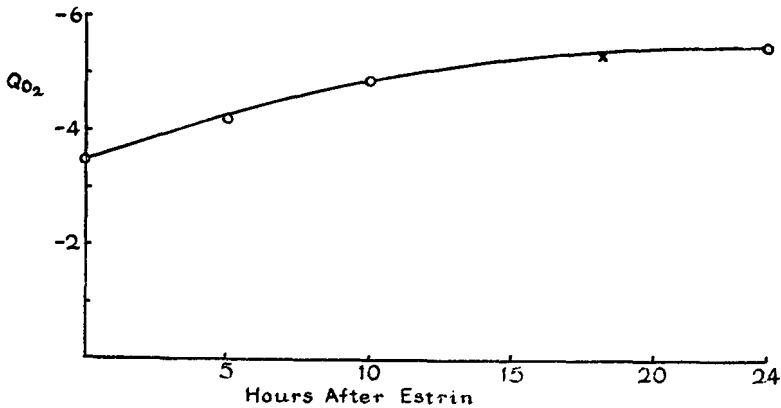


FIG. 1.

Effect of oestrin upon O_2 consumption of the uteri of rabbits castrated 10 days. Circles each indicate average of 6 animals. Cross denotes only 2 animals.

The effect of oestrin on the O_2 consumption is shown in Fig. 1. After 5 hours a rise of 20% takes place; at 10 hours it is 37%, and at 24 hours it is 60% higher than the initial level. At the end of this time the increase in O_2 consumption is about maximal, for oestrin administered as it was in these experiments. It should be noted that the time of onset of the initial hyperemia precedes any appreciable rise in metabolic activity of the tissue, and at the tenth hour, when the myometrium commences to become active, the metabolic effect is at least two-thirds complete. Clearly, therefore, the onset of rhythmic myometrial activity following the administration of oestrin depends upon a preliminary rise in the metabolic level of activity of the uterine tissue. Thus, the oestrous type of uterine motility signifies that a certain stage in the growth-response of the uterus to oestrin has been achieved.

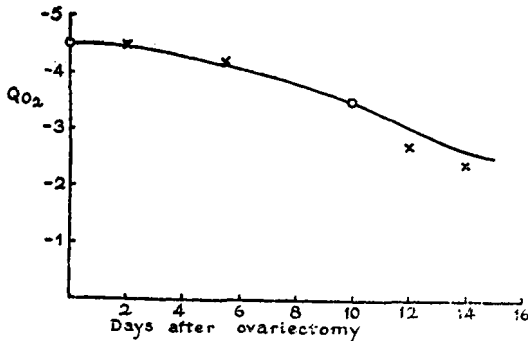


FIG. 2.

Effect of ovariectomy upon O_2 consumption of the uteri of rabbits $3\frac{1}{2}$ to 4 months of age. Five animals were used at 0 days, prior to castration, and 12 at 10 days after castration. The crosses denote only one animal in each case except at 2 days, in which 2 rabbits were used.

The effect of ovariectomy on the O_2 consumption of uteri of immature rabbits such as were used in these experiments is shown in Fig. 2. It was found that the rate of O_2 consumption was higher (28%) than was that of uteri taken from rabbits castrated for about 10 days. The removal of the ovaries at this age (and in those cases in which there are no grossly discernible graffian follicles) deprives the uterus, immature and undeveloped though it is, of a potent substance which activates the O_2 consumption of the uterine tissue. This agent is presumably oestrin.

9687

Susceptibility of Hedgehog and Agouti to Poliomyelitis.*

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In the present communication we wish to report the results of our continued efforts to find an animal susceptible to poliomyelitis, other than *Macacus rhesus*.¹ The hedgehog was selected because of its apparent susceptibility to a number of other viruses such as in-

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