# Estrogens involved in the modulation of behavioral response in female rats

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**Abstract**

*Background.* Observations on the influence of estrogens on motor and emotional behavior were the basis of this experimental study on spontaneous involuntary motility and emotional reactions in female rats, in which a menopause by ovariectomy was surgically induced and they received estrogen replacement therapy.

*Aims.* The present study aimed to analyze the motor behavior and certain emotional reactions in ovariectomized female rats, to which early and late treatment with estrogen was administered post surgery.

*Methods.* Twenty-four white Wistar female rats of 220-250 g were included in the study. They were divided into four groups of 6 animals each, as follows: group I - controls, group II - with ovariectomy, group III - with ovariectomy and treatment with hexestrolum diacetate 1250 μg/kg body weight at 7 days and 30 days post operatively, group IV - with ovariectomy and treatment with hexestrolum diacetate 1250 μg/kg body weight and 30 days post operatively. After 30 days following the last administration of estrogen the animals were placed in an „open-field" environment. The analysis included the number of crossings inside the marked area, the number of risings in the vertical, the duration (seconds) of stops in the center of the area, the number of defecations and that of quick movements of the paws.

*Results.* The rats of group III were the most mobile in terms of number of crossings and risings in the vertical when compared with those of group II and IV. In group III the duration of stops, which highlighted the orientation of the ovariectomized animals in „open-field", was quite similar to that in the control group. The smallest number of defecations and quick movements of the paws was found in group III. However, no statistical significance was found here in comparison to that in the other ovariectomized rats.

*Conclusions.* A decrease in the motor function, behavioral and psycho-cognitive disorders were found in female rats after an ovariectomy. Ameliorated modifications were however detected only in the animals which were treated early with estrogen following an ovariectomy.

**Keywords:** ovariectomy, female rats, open-field, estrogen.