Influence of the estrous cycle, ovariectomy and estradiol replacement upon the acquisition of conditioned avoidance responses in rats

Diaz-Veliz, Gabriela

Soto, Veronica

Dussaubat, Nelson

Mora, Sergio

The changes in the acquisition of conditioned avoidance responses (CARs) and the performance of some spontaneous behaviors were examined across the estrous cycle of female rats. CARs were facilitated during diestrus, impaired at proestrus and practically abolished at estrus and metestrus. Motor activity and head shaking were minimally affected with the stages of the cycle. Motor activity was increased at metestrus and head shaking decreased at estrus. At 14 days following ovariectomy, there was a significant enhancement of CARs which was antagonized by the daily administration of estradiol benzoate (10 ?g/kg) for three days. Ovariectomy also increased grooming behavior and estradiol replacement returned grooming to its basal level. The results suggest an inhibitory control of estradiol on CARs and grooming. The involvement of other hormones which also varied across the estrous cycle and its interaction with brain catecholamine systems, particularly dopamine, are discussed.