

# **Release of Norepinephrine from the Cat Ovary: Changes after Ovulation**

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## **Abstract**

The distribution of intraneuronal constituents involved in norepinephrine (NE) storage, uptake, and release were used to estimate changes in NE secretion from the cat ovary after ovulation induced with eCG plus hCG. The content of NE and ATP, which are principally stored in small noradrenergic vesicles (isolated at a density of 1.041 g/ml in Percoll gradient), decreased after ovulation. However, the activity of dopamine  $\beta$ -hydroxylase, which is principally associated with large noradrenergic vesicles (isolated at a density of 1.033 g/ml in Percoll gradient), was only slightly decreased.  $Mg^{2+}$ -dependent ATPase, located in both large and small storage vesicles, decreased only in the small storage vesicles, suggesting that preferential secretion from small noradrenergic vesicles occurred. The hormonal treatment also affected the functional capacity of the vesicles, as evidenced by the decrease in uptake and storage capacity as well as the decrease in the stimulated release of  $^3H$ -NE observed after ovulation. The aforementioned changes are characteristically seen after a sympathetic discharge; thus they strongly support the notion that ovarian sympathetic activity increases during the ovulatory process, resulting in the postovulatory decrease in both the size and functional capacity of the intraneuronal compartment where NE is stored.