

## Module 4:Hormone-Behaviour Relationship

### Lecture 24: Gonads

The Lecture Contains:

 Gonads

 **Previous**   **Next** 

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#### Gonads

See video on web

Ovaries secrete estrogens and progesterone. Females have three types of estrogens— estrone (E1), estradiol (E2) and estriol (E3). They are responsible for maturation of the sex organs and development of secondary sex characteristics. They are also accountable for the growth of endometrium of uterus during menstrual cycle. Estrogen influences ovulation in women and affect their sexual behaviour. High level of estrogen indicates high fertility low level estrogen makes the women less fertile. Estrogens reduce LH and FSH secretion, thus dropping the level of testosterone. Progesterone affects development of endometrium, thus making the uterus wall ready for embedding fertilized egg.

Looking from the psychological perspective, animal studies show that estrogen enhances cognition, neurotransmitter function, brain plasticity, blood flow, and survival of nerve cells following toxic insults. Estrogen level positively affects working memory in females.

Testosterone is responsible for the development and maintenance of the sex organs and development of secondary sex characteristics in males. It also affects behaviour. Testosterone and catecholamines such as norepinephrine and dopamine help in the maintenance of dominant status. Defeat in males is marked by increase in the female luteinizing hormone, follicle stimulating hormone and oxytocin (Ebner, Wotjak, Landgraf, & Engelmann, 2000). Testosterone elevates competitiveness in females (Dabbs & Hargrove, 1997). Defeat, submission, and subordinate status are revealed in the form of low testosterone and high cortisol levels.

Besides the central nervous system and peripheral nerves a good number of hormones, neurotransmitters and neuropeptides influence stimulation or inhibition of sexual processes in human beings. The hormones affecting human sexual processes include androgens, estrogens, progesterone, prolactin, oxytocin, cortisol, and pheromones. The neurotransmitters and neuropeptides involved are nitrous oxide, serotonin, dopamine, adrenaline, nor-adrenaline, opioides, acetylcholine, histamine and gamma-aminobutyric acid.

◀ Previous   Next ▶