

Estrus cycle

(Dr. Chinmoy Chatterjee)

Estrus cycle is the period in the sexual cycle of female mammals, except the higher primates, during which they are in heat—i.e., ready to accept a male and to mate.

One or more periods of estrus may occur during the breeding season of a species. Prior to [ovulation](#) the endometrium (uterine lining) thickens, in preparation for holding the fertilized ova. As the proliferation of uterine tissue reaches its peak, receptivity is highest—this is the estrous period. Some animals (e.g., dogs) are [monestrous](#), having only one heat during a breeding season. Others (e.g., ground squirrels) are [polyestrous](#); if not impregnated, they will come into heat repeatedly during the breeding season. Males can recognize a female in heat by smell; certain substances (pheromones) are secreted only at this portion of her cycle. The female's genital area may be swollen during estrus, and she may show by a variety of behavioral signals that she is ready to mate.

Hormonal and Ovarian Changes During the Estrus Cycle

Follicular Phase

- Follicles the dominate ovarian structure
- Estrogen the dominate hormone

Luteal Phase

- Corpora lutea the dominate ovarian structure
- Progesterone the dominate hormone

The 4 Stages of the Estrous Cycle

- Proestrus
 - follicle enlarges
 - estrogen increases
 - vascularity of the female reproductive tract increases
 - endometrial glands begin to grow
 - estrogen levels peak
- Estrus
 - allows male to mount
 - estrogen decreases
 - LH surge occurs
 - ovulation 24-48 hr after surge of LH
 - uterine motility high with contractions moving toward oviduct
 - sperm transport is optimal
 - cervical mucus volume increases
- Metestrus
 - estrogen low
 - corpus hemorrhagicum present
 - ovulation in cow
 - uterus
 - contractions subside
 - endometrial glands continue to grow and become coiled

- in cattle bleeding occurs
 - FSH increases, triggering growth of follicles
- Diestrus
 - progesterone high
 - FSH low but increases at some point to cause growth of pre-ovulatory follicle
 - Uterus
 - secretes fluid but the volume of fluid decreases over time
 - contraction stop
 - corpus luteum regresses at the end of this period if female is not pregnant