

Reproduction in the Canine and Feline

Animal Sciences 434
John J. Parrish

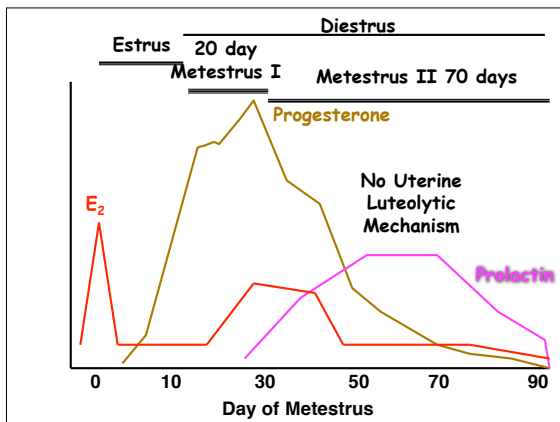
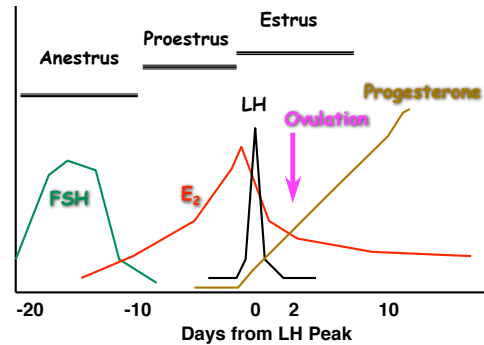
The Bitch

- Puberty - 6 mo.
- Monoestrus
 - » One estrus during breeding season
- Estrous Cycle
 - » Proestrus
 - » Estrus **Heat**
 - » Metestrus or Diestrus
 - » Anestrus

Estrous Cycle (Non-Pregnant)

- Proestrus (9 days)
 - » Vulva swollen
 - » Bloody discharge
 - » Attracted to male but does not mate
- Estrus (9 days, ovulation day 2)
 - » Accepts male
 - » Straw-colored discharge
- Metestrus or Diestrus (90 days)
 - » False pregnancy
- Anestrus (5 months)
 - » Sexual inactivity

Hormonal Changes



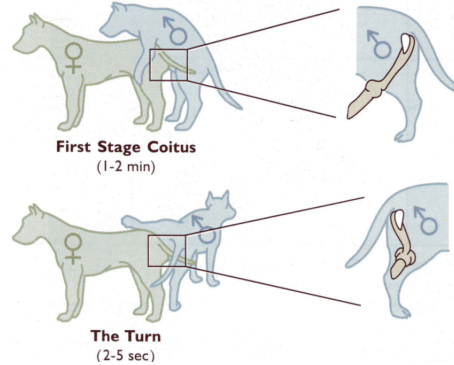
Estrous Cycle - Pregnant

- Proestrus (9 days)
 - » Vulva swollen
 - » Bloody discharge
 - » Attracted to male but does not mate
- Estrus (9 days, ovulation day 2)
 - » Accepts male
 - » Straw-colored discharge
- Pregnant Metestrus/Diestrus (50 - 60 days)
 - » Pregnancy
 - » Parturition (63 days from ovulation)
- Anestrus (5 months)
 - » Sexual inactivity

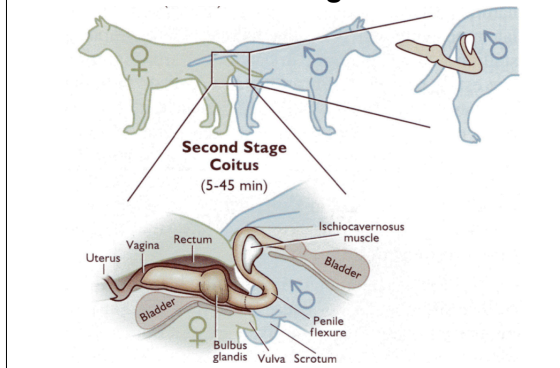
Mating

- Occurs during estrus
- Length of courtship by male is variable
 - » Licks vulva
 - » Bitch stands with tail to one side
- Mounting
 - » Male mounts without erection and penetrates
 - Os penis
 - » In vagina, male bulbus glandis engorges, thrusting
 - » Male dismounts and turns around but penis remains in vagina "the tie"
 - » Ejaculation
 - » Tie last 5 min to 1 hour

Canine Mating



Canine Mating cont.



Mating (cont.)

- Mate 2 times
 - » Days 11 and 13 after start of proestrus
 - Sperm lasts up to 7 days in female
- Infertility
 - » Often from mating not at appropriate time
- Hormonal detection of ovulation
 - » LH increase associated with progesterone >0.5 ng/ml
 - » Ovulation progesterone 2-5 ng/ml

Pregnancy

- 63 days (58-68)
 - » Range due to dating from breeding not fertilization
- Hormonal Changes
 - » Similar to not mated
 - » Progesterone maintained higher
 - » CL required to maintain pregnancy
 - No placental progesterone
 - » Placental relaxin
 - » Drop in progesterone triggers parturition
- Detection
 - » Adominal palpation at 3 - 4 weeks
 - » Ultrasound after day 16
- Parturition
 - » Hormones similar to other farm animals

Parturition

- Delayed Parturition
 - » Primary inertia
 - Does not show signs of parturition
 - Does not progress from stage 1 - stage 2
 - If green fluid, Caesarian
 - Give oxytocin in several small doses
 - » Secondary inertia
 - Uterine exhaustion
 - Oxytocin

Estrus Control

- Induction
 - » eCG
- Prevention
 - » progestins

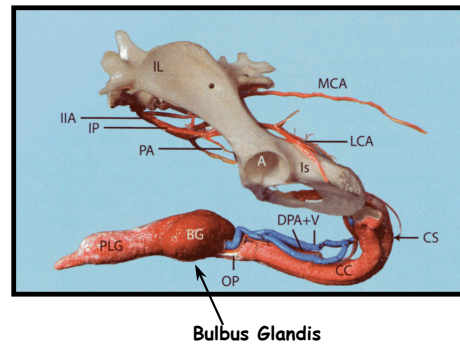
Disorders of the Bitch

- Cystic endometrial hyperplasia (pyometra)
 - » Uterus fills with fluid
 - Progesterone increases first
 - Contamination of uterus by vaginal bacteria
 - Toxemia results from absorption of fluid and endotoxins
 - » Thirst, vomiting, inappetence, shock, death
 - » 4-6 weeks after estrus
 - » Bitches >9 years that have not had a previous pregnancy
 - » Can be open or closed
 - » hysterectomy

Disorders of the Bitch

- False pregnancy
 - » Normal to some extent
 - » 60 days after estrus
 - » May lactate, gain weight, nesting behavior
- Mammary tumors
 - » Thought may be related to similarity to pregnancy and non-pregnancy

Dog Anatomy



Disorders of the Male Dog

- Hypersexuality
 - » Castrate
 - » Progesterone
- Cryptorchidism
 - » Normal descent at days 7-10 after birth
 - » Should be removed if retained for >1 yr.

Artificial Insemination

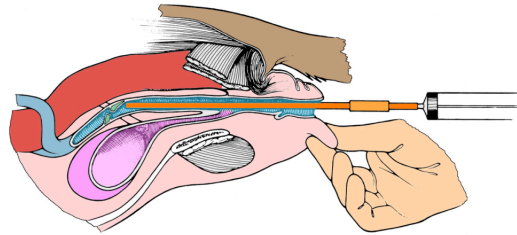
- Bitch does not accept the male
- Shipment of semen
- Minimize the number of breedings

Insemination of the Bitch

- Bitches ovulate around day 10 after they enter proestrus (discharge) or about 1 - 2 days of estrus.
 - » Ovulation can be detected by:
 - LH assay (peak LH value + one day)
 - Progesterone assay (>5 ng/ml)
 - Cytology of vaginal smear (>50% cornified cells)
- Remember oocytes in the canine are ovulated as 1° oocytes and must mature in the oviduct to a 2° oocyte before fertilization.
- Fresh or cooled semen, inseminate 2 days after ovulation detected and again 48 - 72 hr latter.
- Frozen semen, inseminate on day 5 - 7 after ovulation
- Uterine insemination better than cervical

Updated:

Artificial insemination in the Bitch



Updated:

Feline Reproduction

- Domestication?
- Female - Queen
- Male - Tom
- Puberty
 - 6 - 9 months
- Estrous Cycle
 - » Seasonal
 - January to September
 - House cats may cycle year round

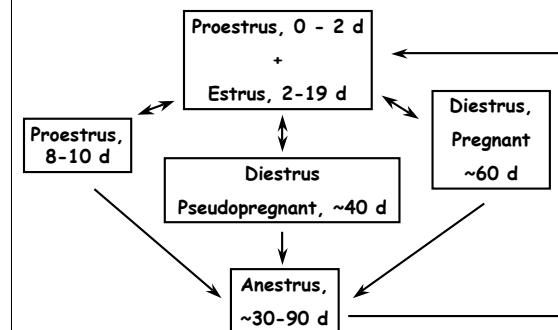
Estrous Cycle

- Pro-estrus
 - » 1 - 2 days
 - » Attracted to males
 - » Rubs head and neck on objects
 - » Vocalization, posturing and rolling
- Estrus
 - » Accepts male
 - » 4 - 6 days if male present, 10 days if no male
 - » Ovulation 27 hours after mating (induced)
 - » Affectionate to aggressive towards owners

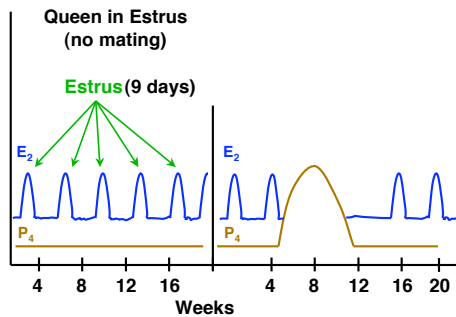
Estrous Cycle

- Proestrus if queen did not ovulate
 - » 8 - 10 days
- Diestrus after ovulation
 - » pseudopregnancy - 40 days
 - » pregnancy - 60 days
- Anestrus 3 - 4 months

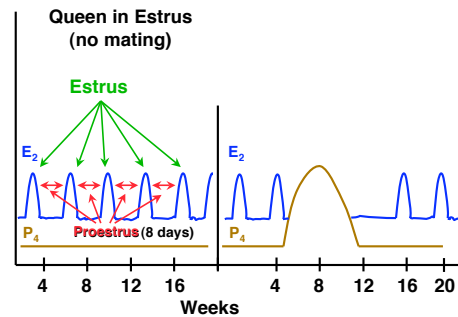
Estrous Cycles Options



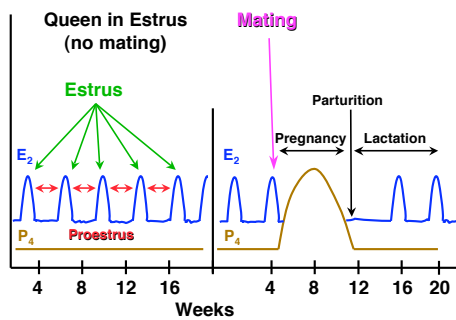
Hormonal Changes in the Queen



Hormonal Changes in the Queen



Hormonal Changes in the Queen



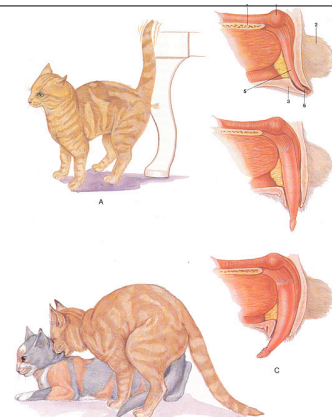
Hormonal Changes

- Proestrus
 - » Estrogen increases due to follicular development
- Estrus
 - » Estrogen high until ovulation
 - » Ovulation 27 hr after mating (vaginal stimulation)
- Diestrus
 - » No Cl if mating does not occur, so no diestrus
 - » Cl produces progesterone (63 days, peak day 20)
 - » If pregnancy does not occur or fails, CL life only 1/2 that seen in pregnancy.

Mating

- Queens call or vocalize (low moaning sound)
 - » Owners may think a sign of illness
- During mating
 - » Tom bites neck female
 - » With erection penis faces forward

Erection and Mating



Mating

- Queens call or vocalize (low moaning sound)
 - » Owners may think a sign of illness
- During mating
 - » Tom bites neck female
 - » With erection penis faces forward
 - » Only lasts 30 seconds to 5 minutes
 - » As male dismounts female gives a loud copulatory call and Tom retreats
 - » Mating occurs 6 - 7 times until queen declines
 - » May occur for up to 4 days

Cat Mating



Pregnancy

- 63 days
- Diagnosis
 - » Adominal palpation day 17 -25

Parturition

- Similar to other species in events and hormonal control
- Dystocia rare - caesarian
- Uterine inertia - oxytocin

Control of Estrus

- Ovariohysterectomy
- Induction of Ovulation
 - » HCG
 - » Vaginal Stimulation
- Prevention of estrus
 - » progestins

Disorders of the Queen

- Pseudo-pregnancy
 - » Mating to sterile male
 - » Vaginal stimulation or hormonal stimulation
- Cystic endometrial hyperplasia (Pyometra)
 - » Same as in bitch
- Failure to cycle
 - » Stress, poor nutrition, disease, inadequate light, cystic follicles

Diseases of the Tom Cat

- **Spraying**
 - » **Castration**
- **Cryptochid**
 - » **Descended at birth**
 - » **Treatment is castration**

Estrus Behavior in A Bitch

http://www.ansci.wisc.edu/jjp1/as434/powerpoint/fa07/dog_estrus4.mov