Animal Science/Dairy Science 434

Reproductive Physiology
Female Anatomy

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Female Reproductive Tract Anatomy



Learning Objectives

- To be able to describe the female reproductive system in cattle.
  - »Structure
  - »Function

Equine - Horse

Male → Stallion

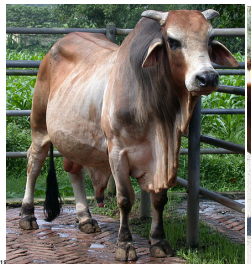


Female → Mare



Bovine - Cattle

Male → Bull



Female → Cow



Ovine - Sheep

Male → Ram



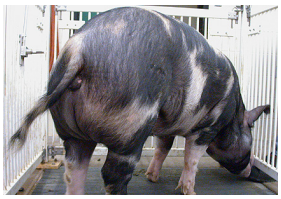
Female → Ewe



Porcine - Swine - Pig

Male → Boar Female → Sow





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Avian - Chicken

Male → Rooster Female → Hen





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Canine

Female → Bitch Male → Dog



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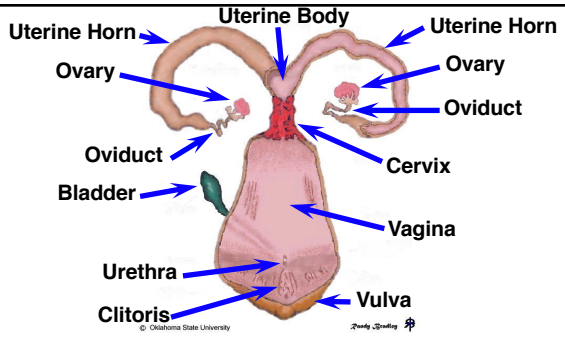
Feline

Female → Queen Male → Tom

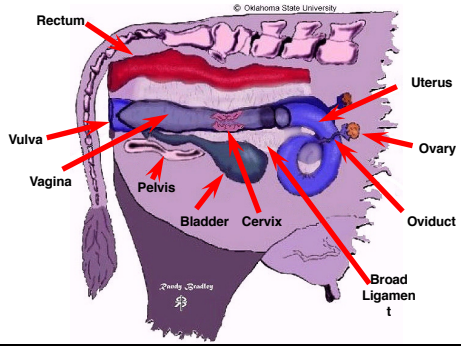




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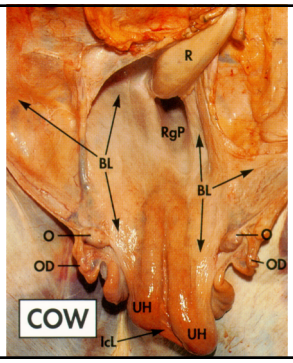


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Broad Ligament

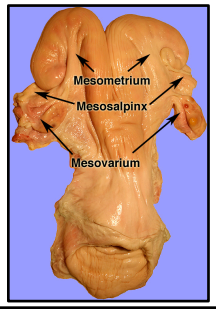


- connective tissue sheet which supports and suspends the reproductive tract

BL - *Broad Ligament*
UH - *Uterine Horn*
O - *Ovary*
OD - *Oviduct*

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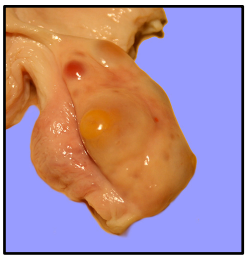
Broad Ligament



- Mesometrium
  - » Supports Uterus
- Mesosalpinx
  - » Supports Oviduct
- Mesovarium
  - » Supports Ovary

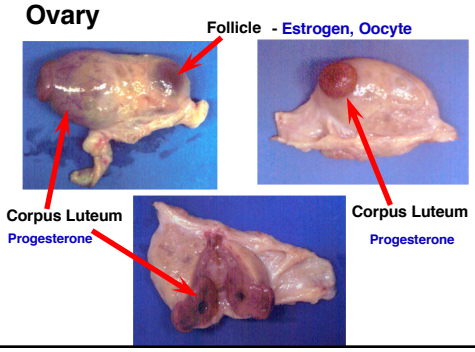
Ovary - Primary Sex Organ

- Functions
  - »Hormonal
    - Estrogen
    - Progesterone
  - »Female gamete
    - Oocyte



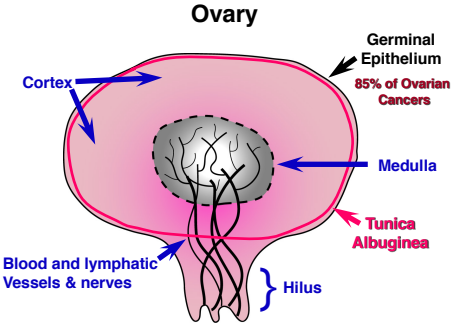
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Ovary

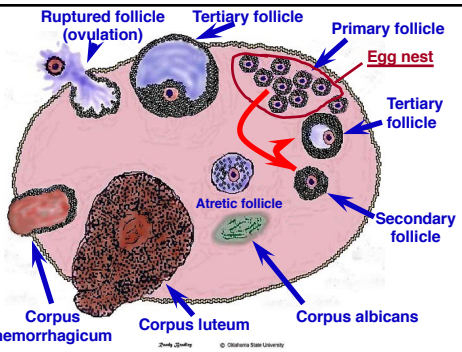


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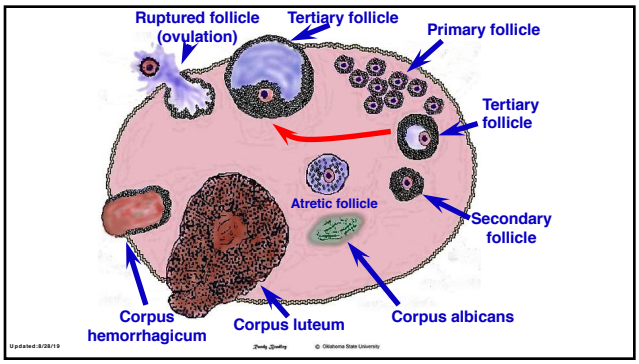
Ovary

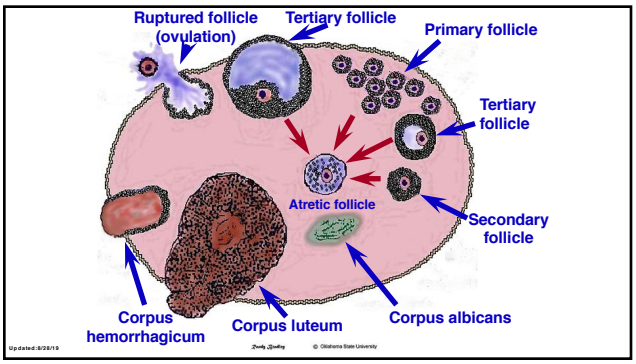


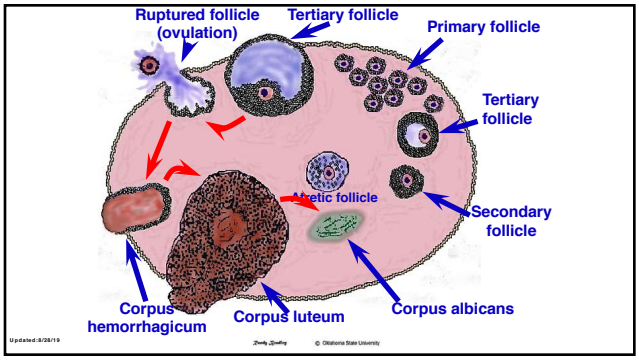
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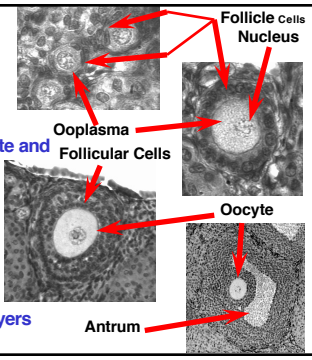


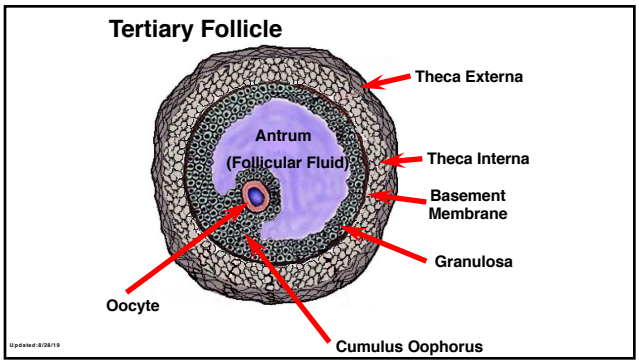
Primordial Follicle
- Flattened cells surround oocyte

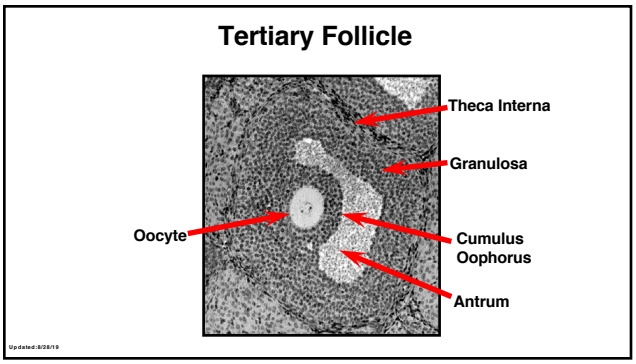
Primary Follicle
- Increase in size of oocyte and height of follicular cells

Secondary follicle
- Surrounded by several layers of follicular cells

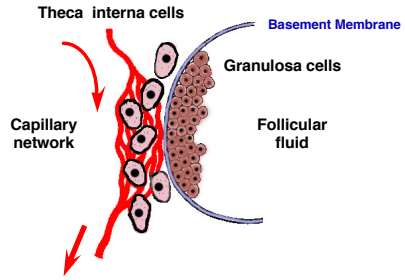
Tertiary follicle
- Fluid filled cavity
- Differentiation of cell layers in the follicle wall





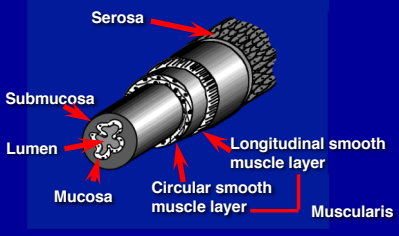


Follicular Blood Supply



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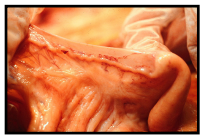
Secondary Sex Organ: A Series of Tubes to Convey the Oocyte/Embryo/Fetus to the Outside



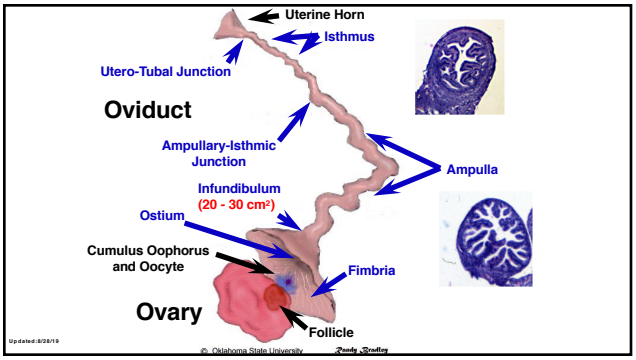
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Functions of Oviduct

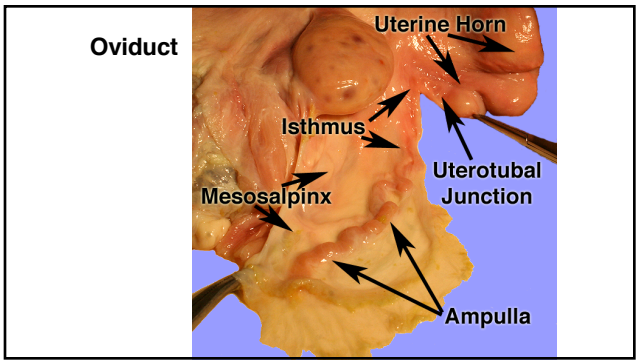
- Gamete Transport
  - »Sperm
  - »Oocyte
- Supports early embryo development
- Transport of embryo to uterus

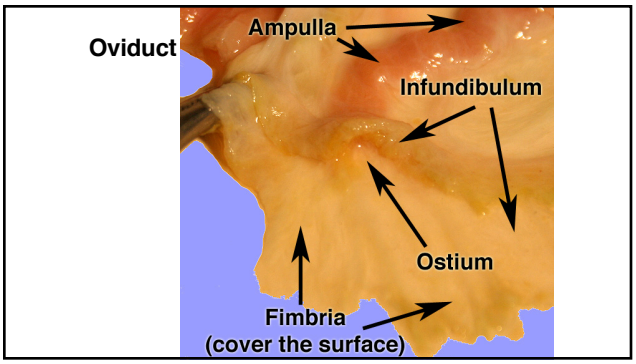


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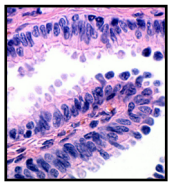


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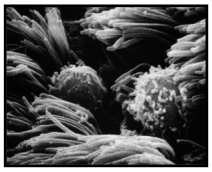




Oviduct Histology



Mucosa
- Ciliated Columnar
- Nonciliated Columnar

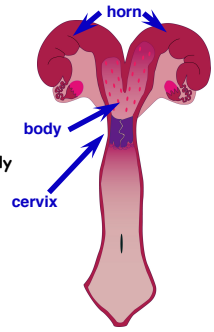


Functions of the Uterus

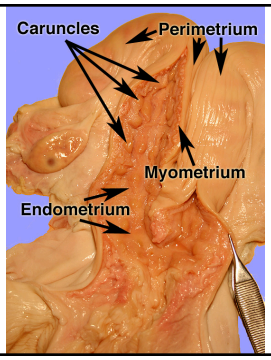
- Muscle contractions
  - » Transport sperm
  - » Expel fetus and placenta
- Absorption and phagocytosis
- Partially prepares sperm for fertilization
  - » capacitation
- Provides environment for embryo and fetal growth
- Hormone production
  - » Prostaglandin F2α production

Uterus (bovine)

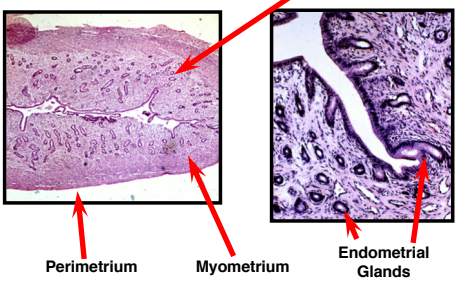
- **Bicornuate**
  - » poorly to moderately developed uterine horns
  - » uterine body
  - » one cervix



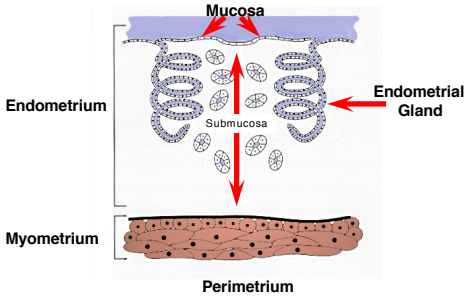
Uterus



Uterine Histology

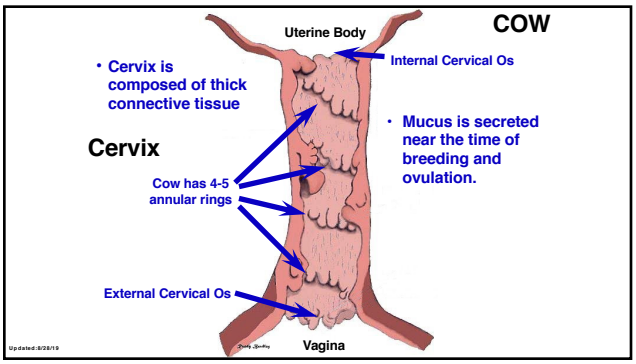


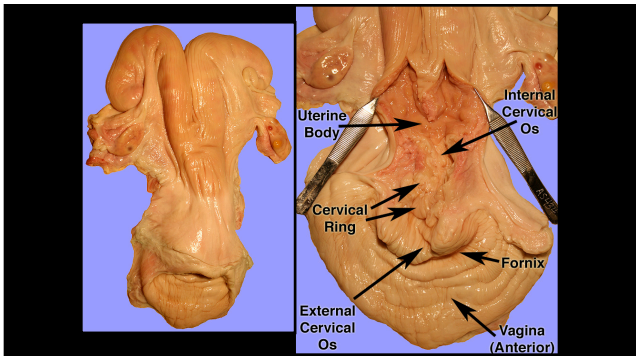
Uterine Histology

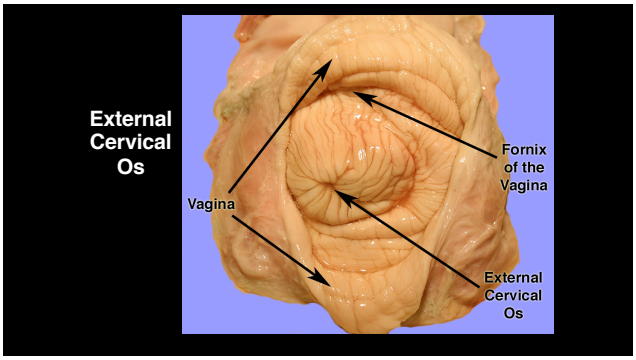


Functions of the Cervix

- Transport of sperm
- Barrier to sperm (species dependent)
- Reservoir for sperm
- Blocking bacterial invasion during pregnancy
- Birth canal

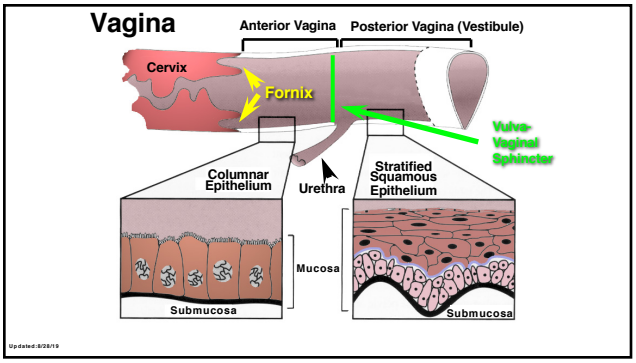




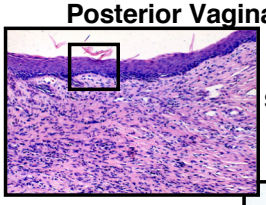


Functions of the Vagina

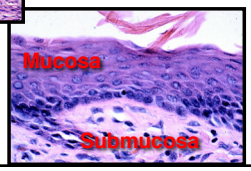
- Copulatory organ
- Glands secrete lubrication
- Birth canal
- Glands secrete pheromones



Posterior Vaginal Histology



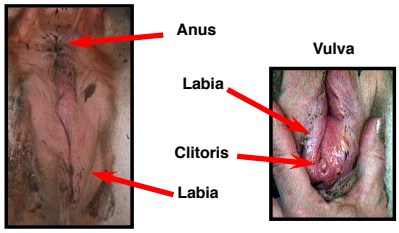
Stratified Squamous Epithelium



Function of External Genitalia

- Labia
  - »Closes entrance to vagina
- Clitoris
  - »Female sensory organ

External Genitalia of the Cow



Phenomena For Fertility

- vagina dentata - a vagina with teeth
- female bedbug - no vagina
- hysterectomy - if woman went to long without becoming pregnant then uterus would wonder in body causing hysteria and other distresses
- hyena - clitoris is very large and looks like the male penis; female also has a false scrotum (labia); female is the dominate sex and produces more testosterone than male