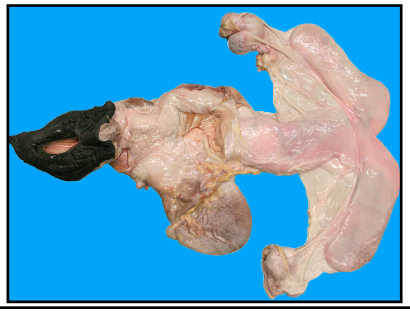
Animal Science/Dairy Science 434

Reproductive Physiology
Female Anatomy

John Parrish, Professor, UW-Madison

Female Reproductive Tract Anatomy



Learning Objectives

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

Equine - Horse

Male → Stallion



Female → Mare



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Bovine - Cattle

Male → Bull



Female → Cow



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Ovine - Sheep

Male → Ram



Female → Ewe

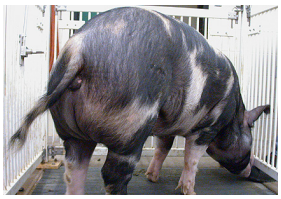


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Porcine - Swine - Pig

Male → Boar Female → Sow





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Avian - Chicken

Male → Rooster Female → Hen





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Canine

Female → Bitch Male → Dog



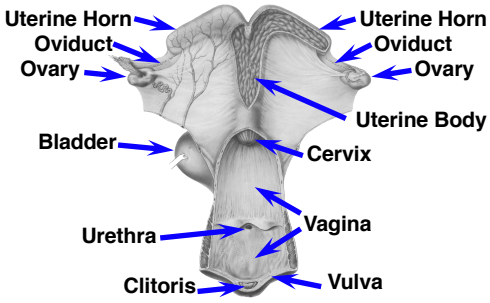
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Feline

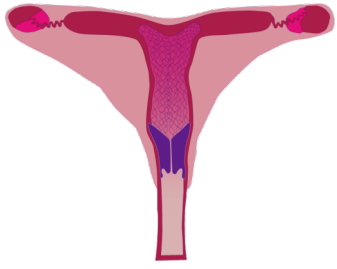
Female → Queen Male → Tom

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Mare Reproductive Tract



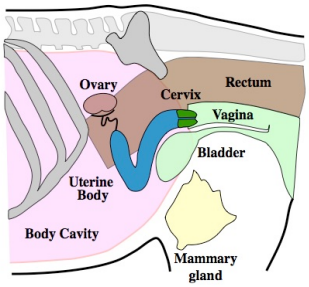
Updated:1/21/19



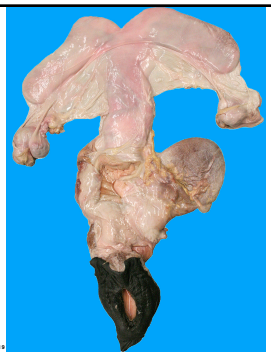


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In Vivo Diagram of Mare Reproductive Tract



Updated:1/21/19



Broad Ligament

- connective tissue sheet which supports and suspends the reproductive tract

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Broad Ligament

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

Ovary - Primary Sex Organ

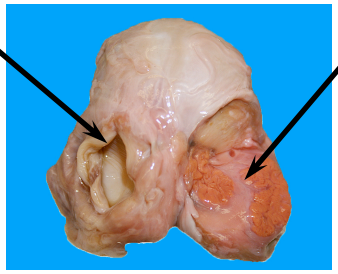
- Functions
  - »Hormonal
    - Estrogen
    - Progesterone
  - »Female gamete
    - Oocyte
- Shape – Equine
  - Kidney Bean



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Ovary

Follicle
- Estrogen
- Oocyte

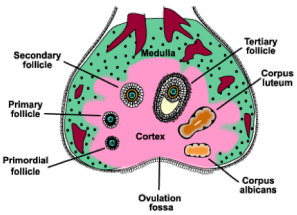


Corpus Luteum
- Progesterone

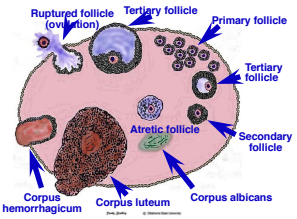
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Ovary Types

Equine

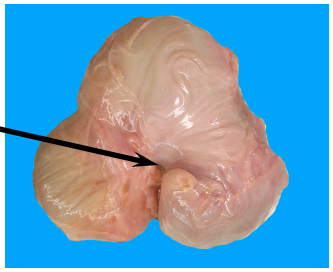


Bovine



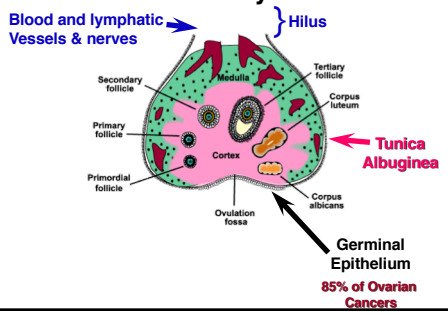
Equine Ovary

- Ovulation Fossa



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Ovary



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Primordial Follicle

- Flattened cells surround oocyte

Primary Follicle

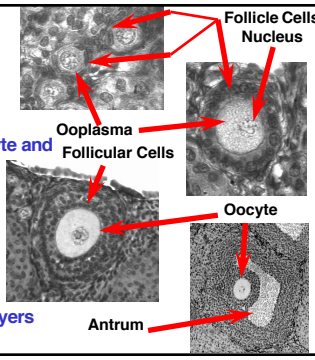
- Increase in size of oocyte and height of follicular cells

Secondary follicle

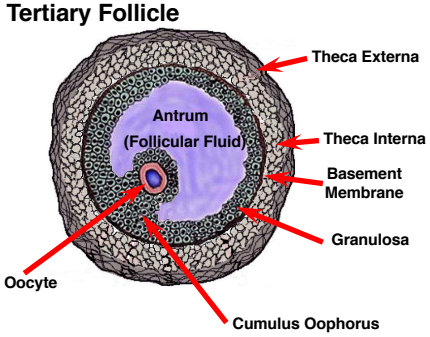
- Surrounded by several layers of follicular cells

Tertiary follicle

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

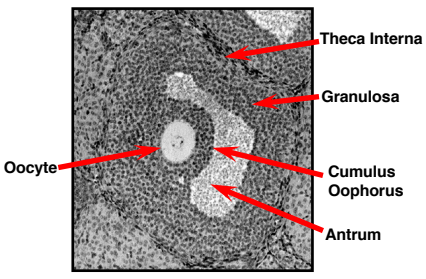


Tertiary Follicle



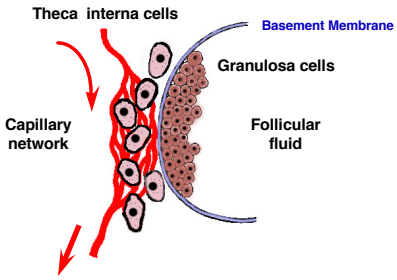
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Tertiary Follicle



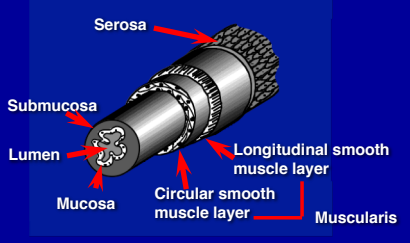
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Follicular Blood Supply



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



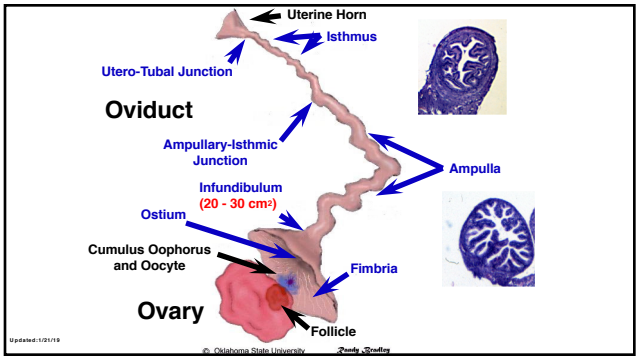
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Functions of Oviduct

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

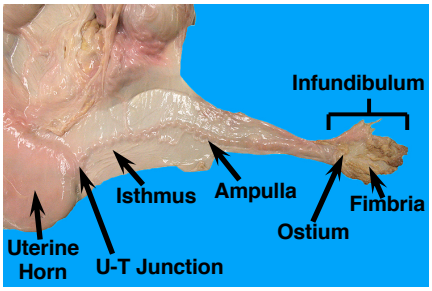


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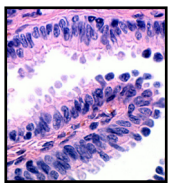
Updated:1/21/19

Equine Oviduct

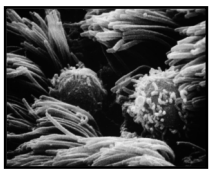


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Oviduct Histology



Mucosa
- Ciliated Columnar
- Nonciliated Columnar



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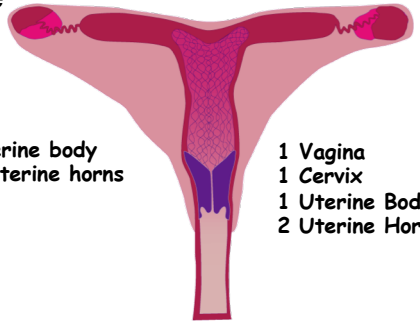
Functions of the Uterus

- 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

Updated:1/21/19

Bicornuate

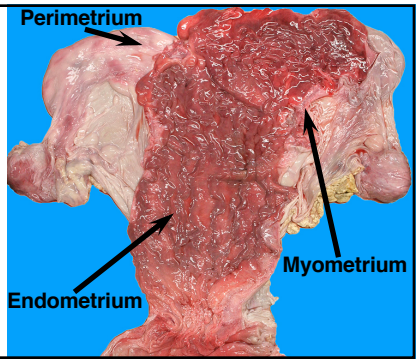
Mare



Large uterine body
Smaller uterine horns

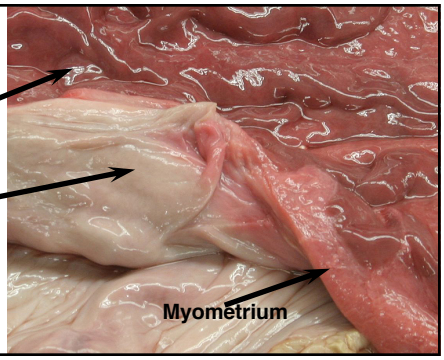
1 Vagina
1 Cervix
1 Uterine Body
2 Uterine Horns

Equine Uterus



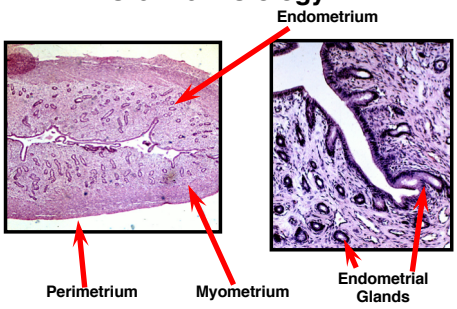
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Equine Uterus



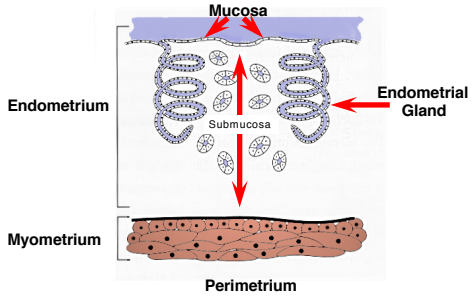
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Uterine Histology



Updated:1/21/19

Uterine Histology



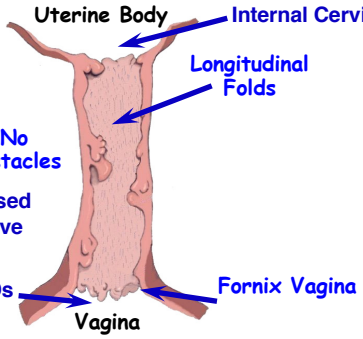
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Functions of the Cervix

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

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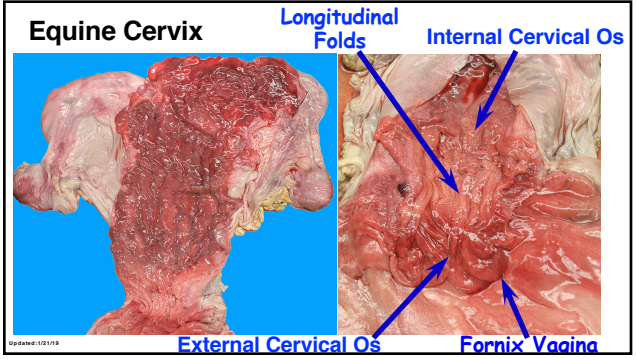
Mare Cervix



- Cervix is composed of thick connective tissue

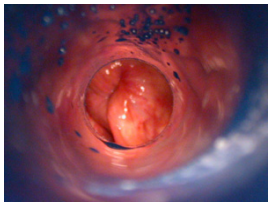
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Equine Cervix



Updated:1/21/19

Equine External Cervical Os via Speculum



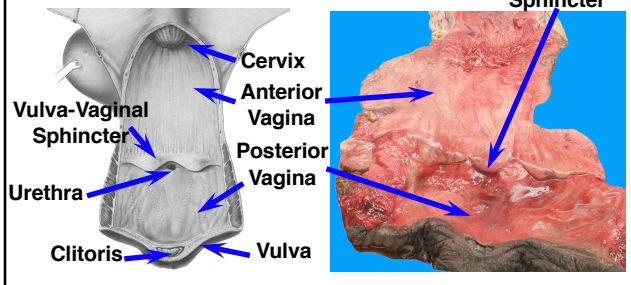
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Functions of the Vagina

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

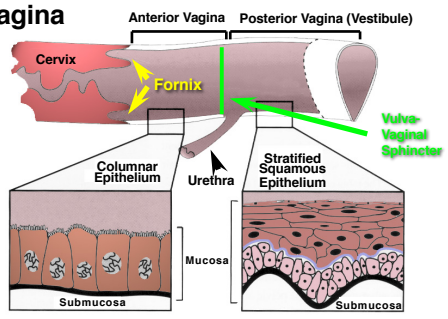
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Equine Vagina



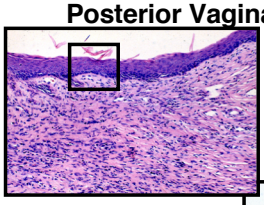
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Vagina

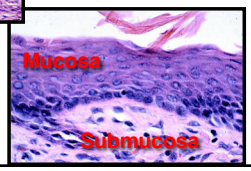


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Posterior Vaginal Histology



Stratified Squamous Epithelium



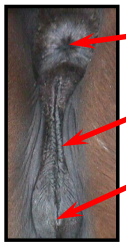
Updated:1/21/19

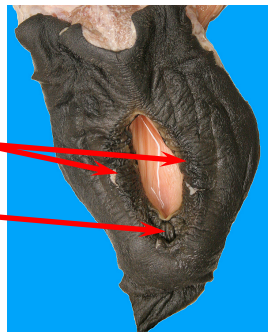
Function of External Genitalia (Vulva)

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

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Equine Vulva





Updated:1/21/19

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

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