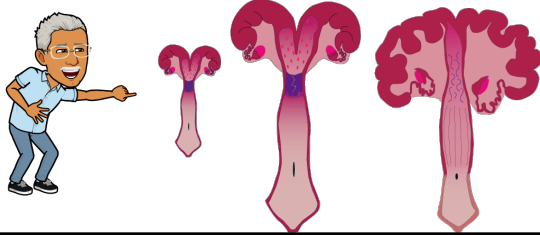


Animal/Dairy Science 434

Female comparative anatomy;
History of Reproductive Physiology



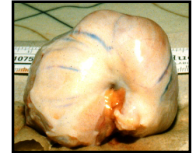
1

Ovarian Differences

Cow



Mare



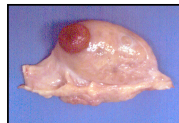
Sow



2

Cow, Sow, Ewe,
Human

Cow



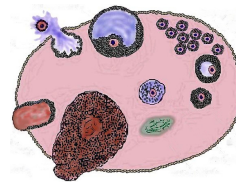
Sow



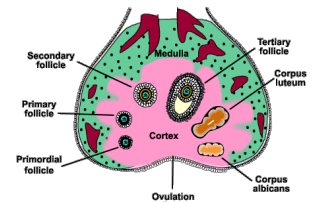
- Cortex on outside
- Ovulation can occur on any point of the ovary

3

Cow



Mare

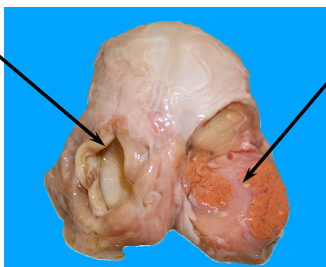


4

Ovary

Follicle

- Estrogen
- Oocyte



Corpus Luteum

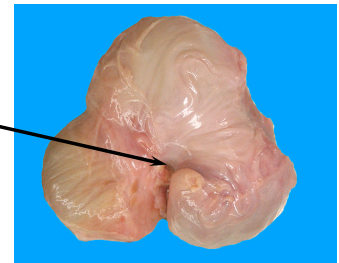
- Progesterone

Updated 3/6/20

5

Equine Ovary

- Ovulation Fossa



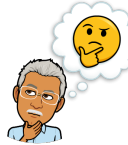
Updated 3/6/20

6

Quiz 2a

Remember to pause while you consider the answer to this question.

Why does a mare have only 1 baby and a pig has many?



7

Quiz 2a

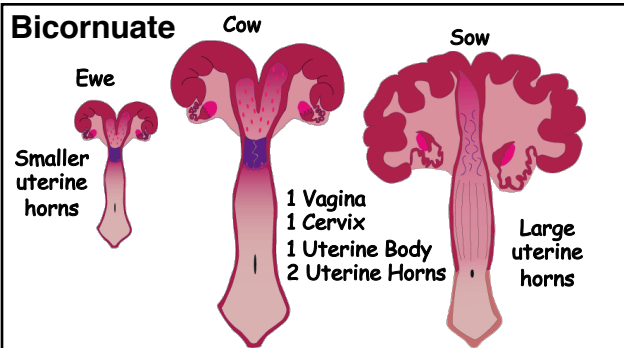
Remember to pause while you consider the answer to this question.

Why does a mare have only 1 baby and a pig has many?

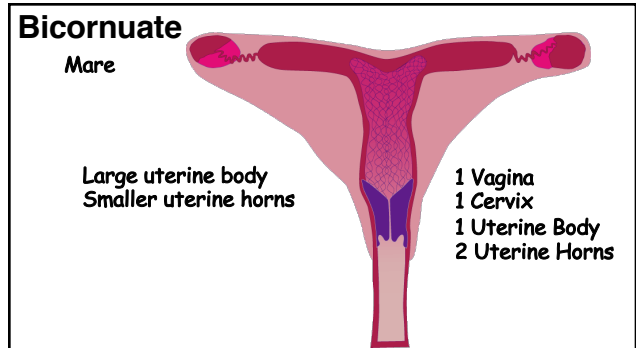
The mare generally only ovulates 1 follicle or at most 2 follicles at a time while a pig may ovulate up to 24.



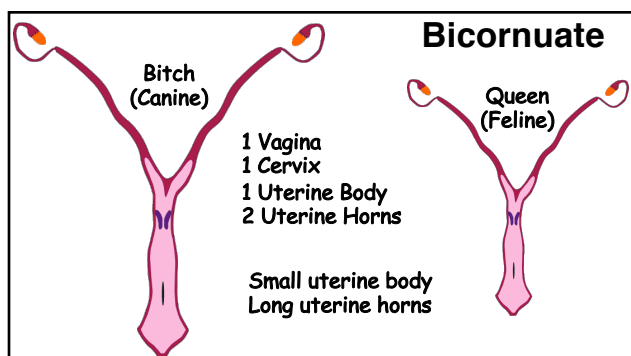
8



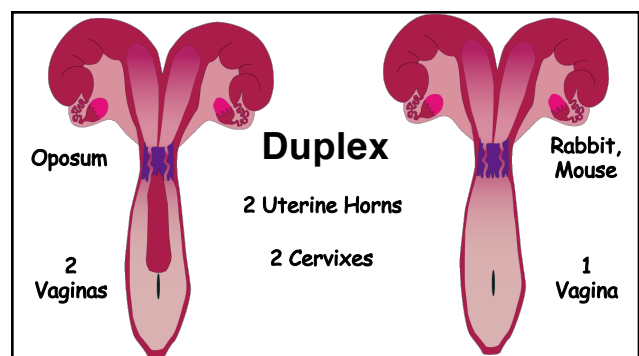
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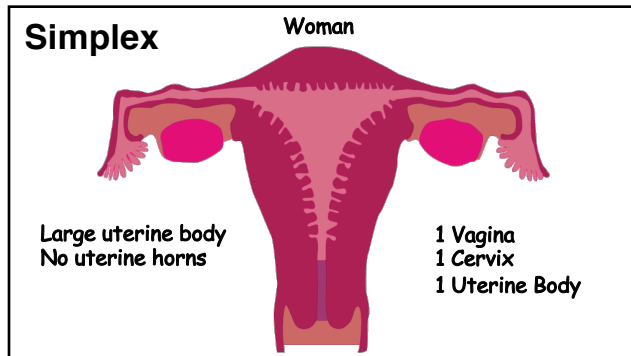
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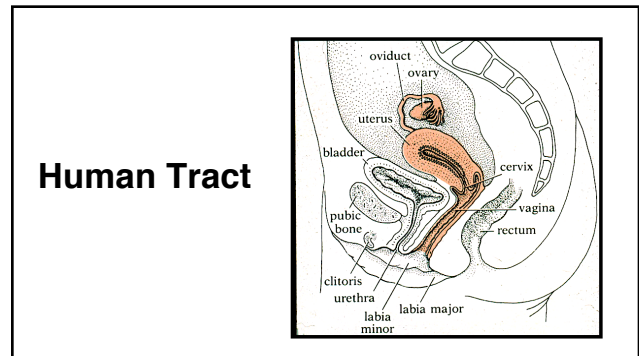
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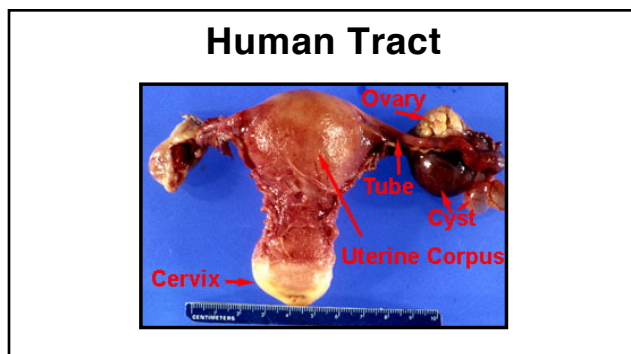
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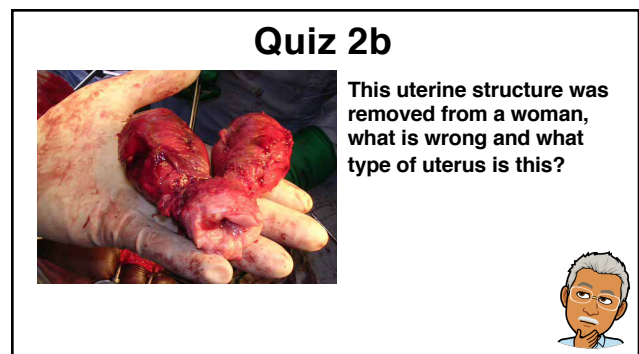
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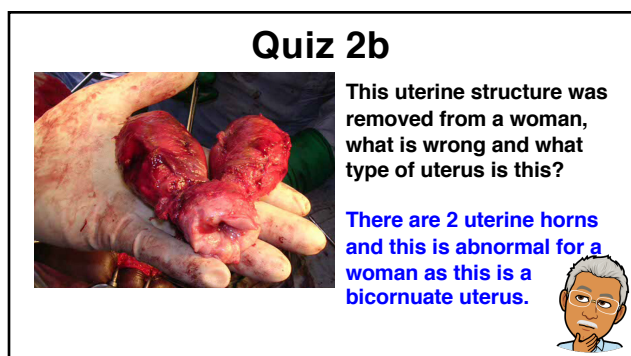
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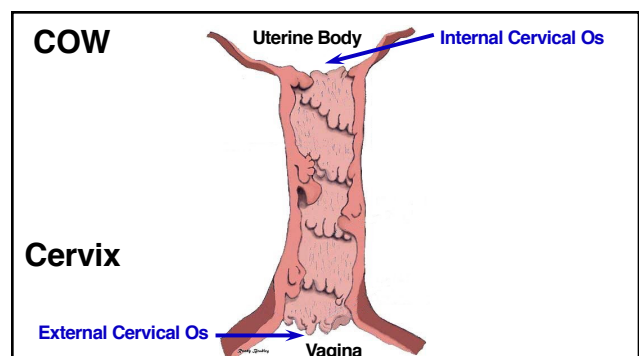
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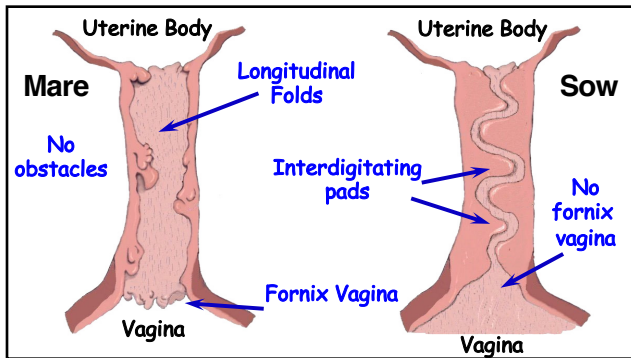
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17

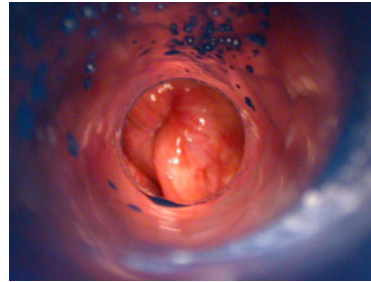


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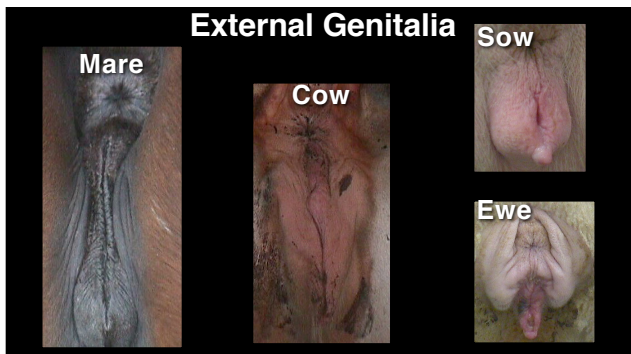
19

Equine External Cervical Os via Speculum



20

External Genitalia



21

Quiz 2c

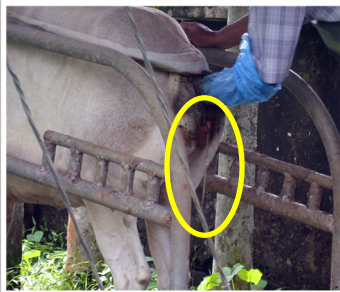
What is shown in the yellow oval and what does this indicate?



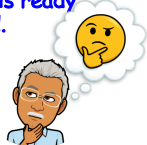
22

Quiz 2c

What is shown in the yellow oval and what does this indicate?

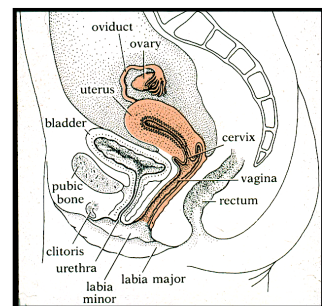


This is cervical mucus and means the cow is ready to breed.



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Human Tract



24

External Genitalia

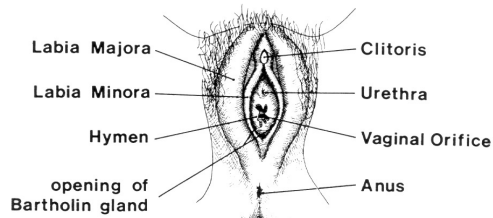
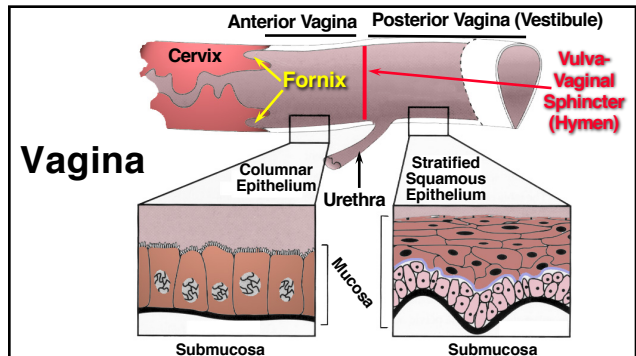
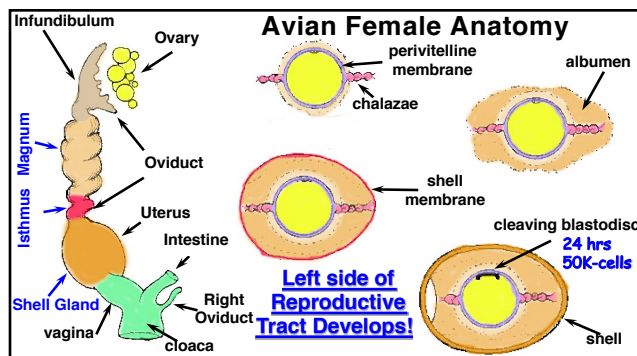


Figure 2.2. External female genital anatomy.

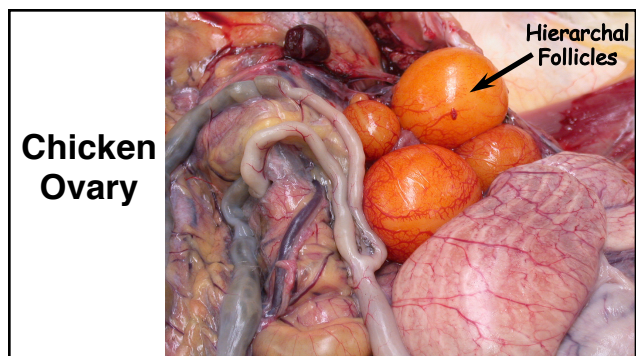
25



26



27



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Quiz 2d

Why do you get a double yolk egg?



29

Quiz 2d

Why do you get a double yolk egg?

There is initially a double ovulation. The yolks are picked up by the single reproductive tract and then both yolks are surrounded by a shell membrane and then a shell.



30

Quiz 2e

What type of reproductive tract and pattern of reproduction did Dinosaurs have?

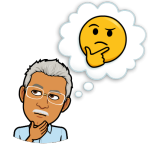


31

Quiz 2e

What type of reproductive tract and pattern of reproduction did Dinosaurs have?

Dinosaurs were precursors to birds, had an avian type reproductive tract, laid hard shelled eggs in clutches and likely had only the left side of the reproductive tract develop.



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Historical Development of Reproductive Physiology

- Covered in Book, Chapter 1
- Material will be covered in Lecture exam I

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Historical Development of Reprod. Physiol.

Aristotle 384-322 BC



- Fetus arises from menstrual blood
- Seminal plasma initiates the conversion of menstrual blood
- Semen from all parts of body

34

The Age of Gross Anatomy

- Fallopius (1562)
 - Describes the oviduct
- Coiter (1573)
 - Describes the CL
- Regnier de Graaff (1672)
 - Describes the Graafian Follicle

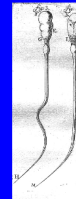
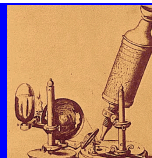
35

Development of the Microscope



Leuvenhoek Microscope (circa late 1600s)

- van Leewenhoek (1677)
 - Describes spermatozoa in semen



36

What is the role of spermatozoa?

- Spallanzani (1780)
 - Sperm were the fertilizing agent in semen
 - Successful artificial insemination of a dog
- Dumas (1825)
 - Proves sperm the fertilizing agent

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Modern Reprod. Physiology

- Gonads produce steroid hormones
- Regulation of estrous cycles in females
- Radioimmunoassay (RIA)
- Artificial Insemination
- Cryopreservation
- Prostaglandin used to control estrous cycles
- Biotechnology

38

Approach to Applications

- Develop basic knowledge of how system works
- Investigate methods that can perturb the system
- Manipulate the system to improve reproduction
 - Estrus Synchronization

39

Enhancing Reproduction

- Small improvements have profound effects on production
 - 3% improvement in birth rate results in an additional:
 - 1 million beef calves/year
 - 3.2 million pigs/year
 - 3.7 million gallons of milk/year

40

Current Trends



- Continuing need to:
 - improve reproductive performance
 - understand how to apply new technology

41

Limiting Reproduction



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