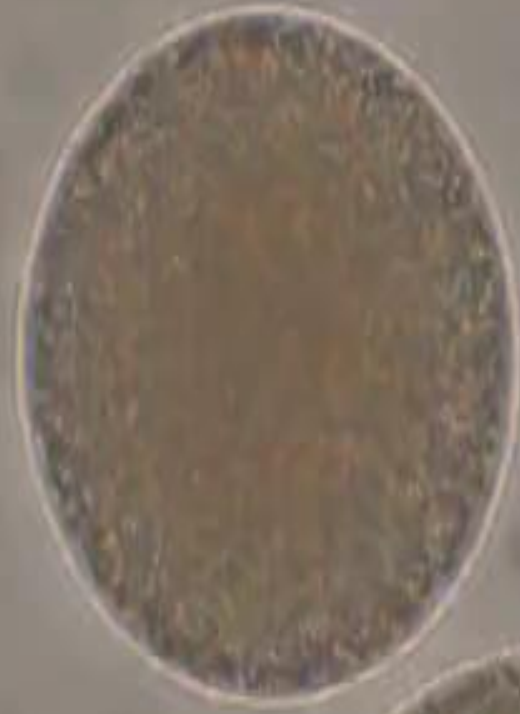


Physiology of
Pregnancy

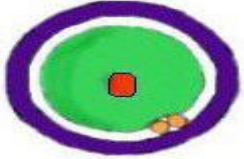
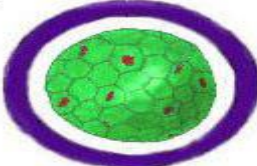


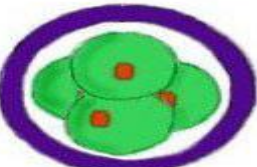

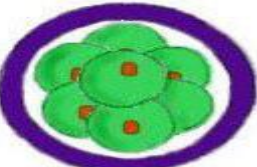
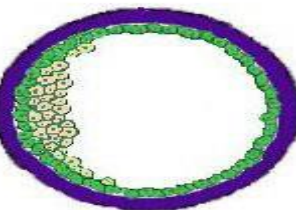


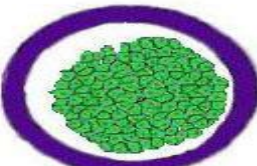
BY :

DR. A. K.GOUDARZI , D.V.M. PH.D

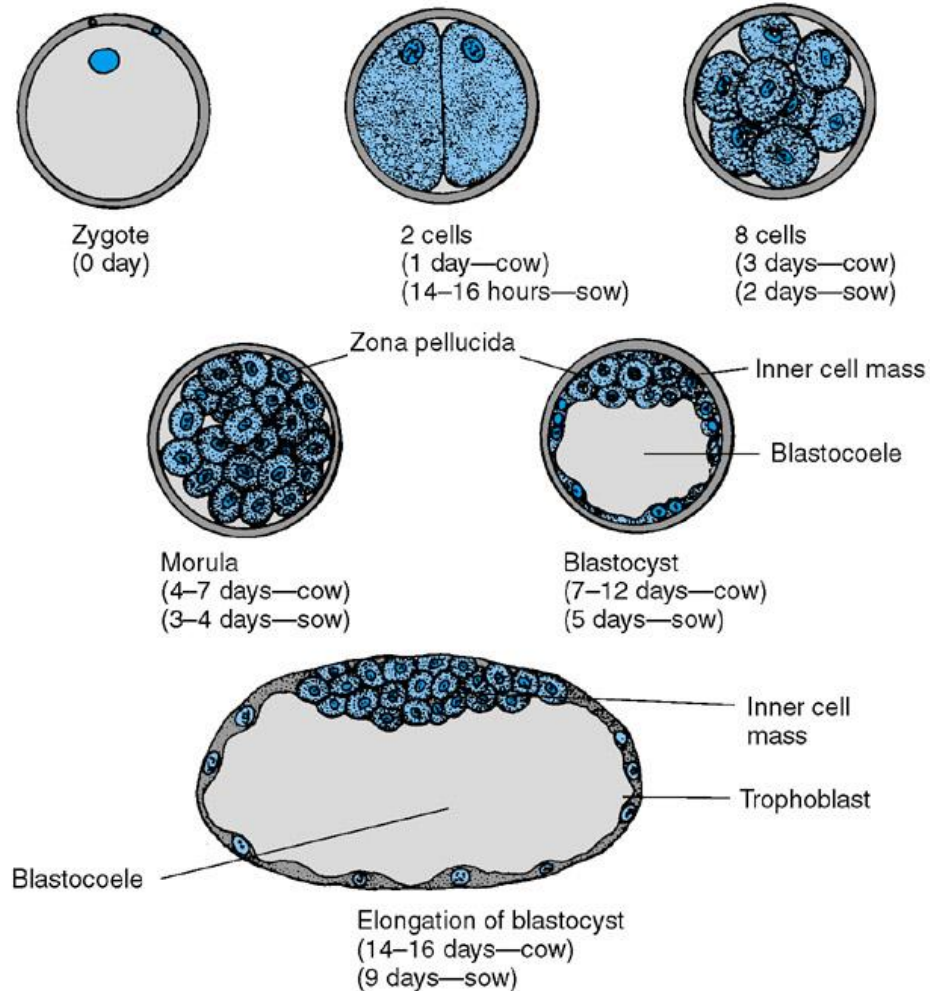


@CarbonateAtlas

cleavage

<u>Location</u>	<u>Day</u>	<u>Development</u>		<u>Day</u>	<u>Development</u>	
Isthmus	0-2	One Cell		5-7	Tight Morula	
Isthmus	1-3	Two Cell		7-8	Early Blastocyst	
Ampullary Isthmic Junction	2-3	Four Cell		7-9	Blastocyst	
Ampullary Isthmic Junction	3-5	Eight Cell		8-10	Expanded Blastocyst	
Uterus	4-5	Sixteen Cell		9-11	Hatching Blastocyst	
Uterus	5-6	Morula				

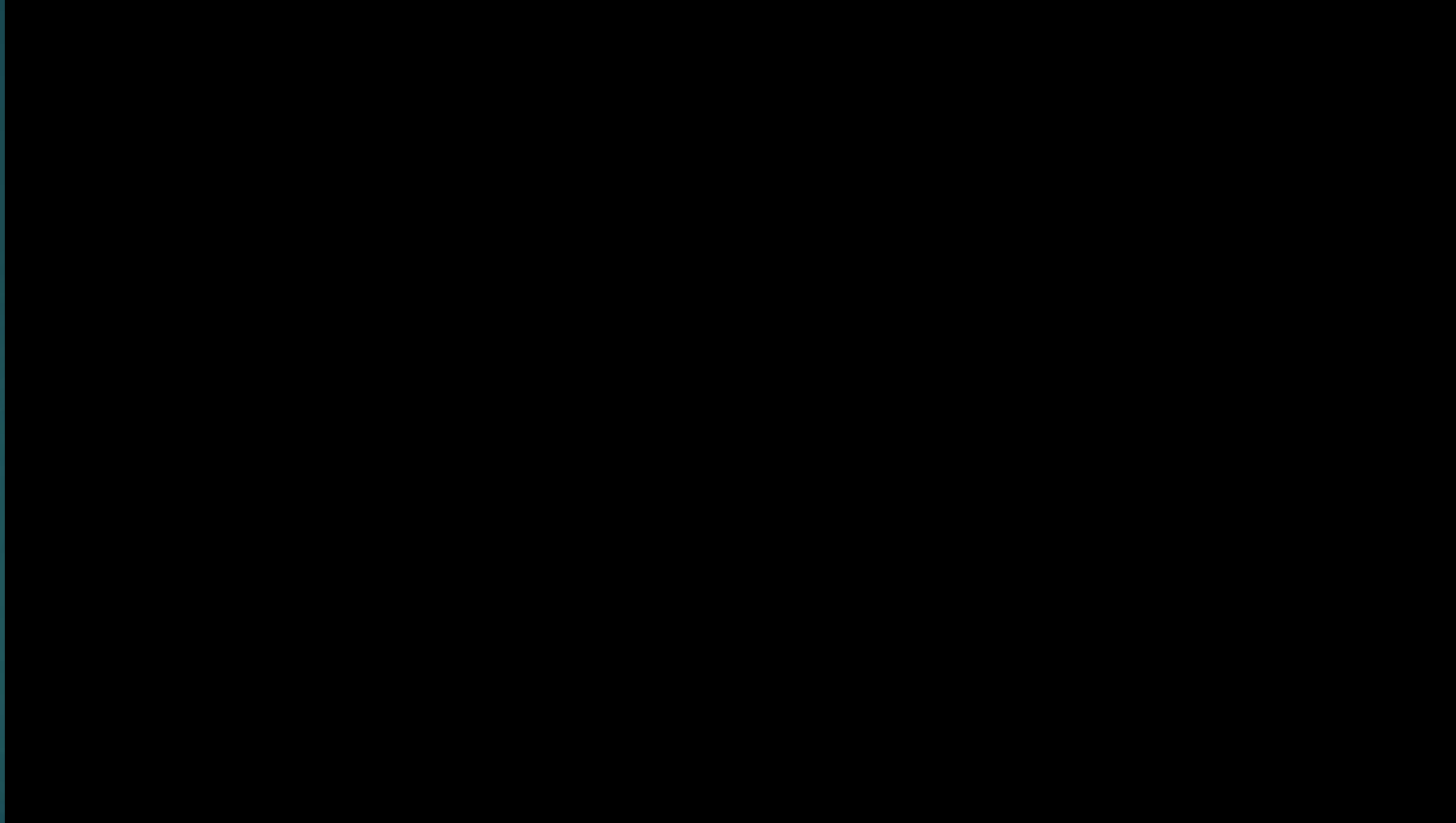
cleavage



Specific cleavage stages at given times after fertilization in the cow (281-day gestation) and the sow (114-day gestation). (*Source*: Bearden and Fuquay, 1997, p. 91.)

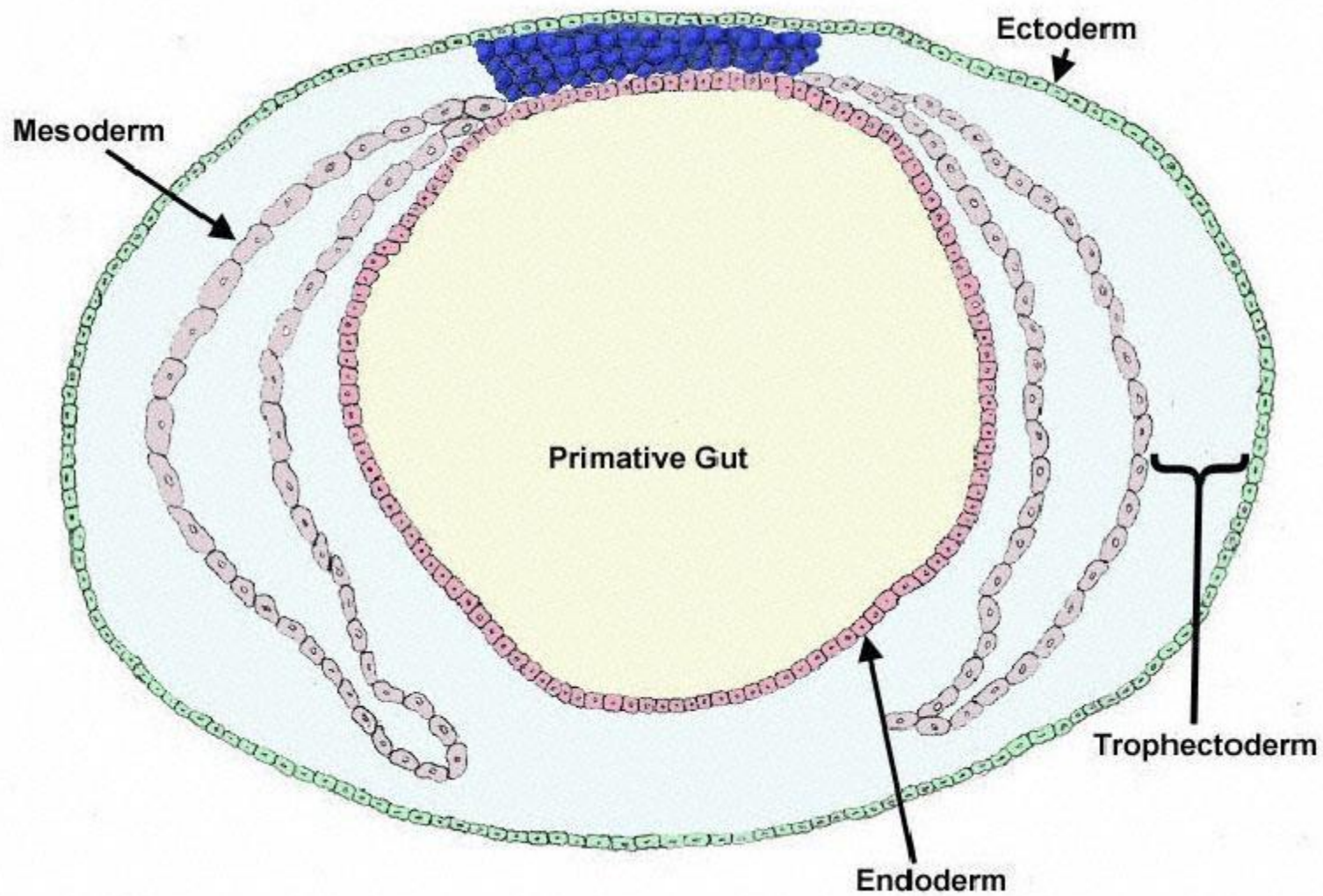


Fertilization and Implantation



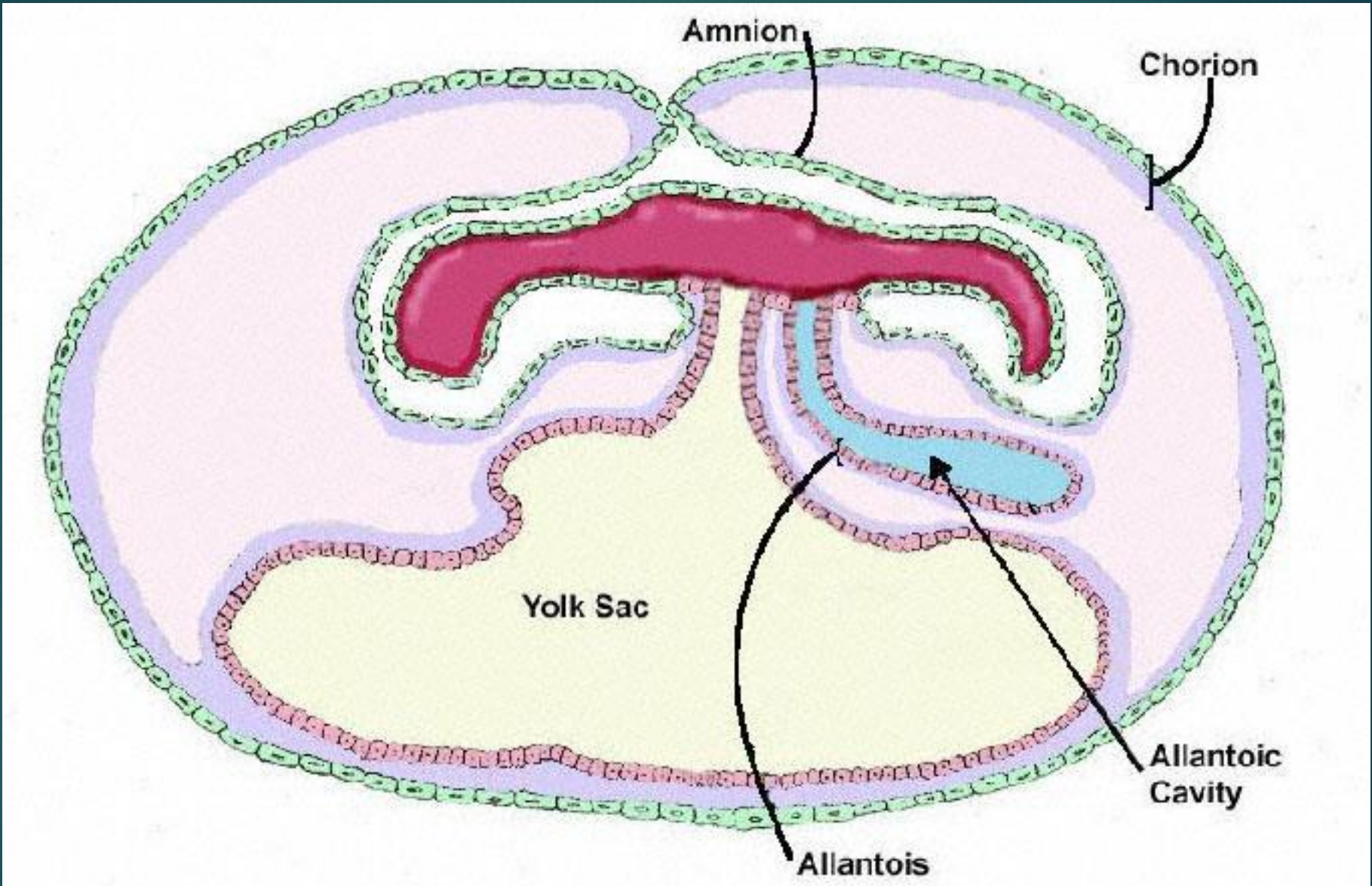
Germinal layers

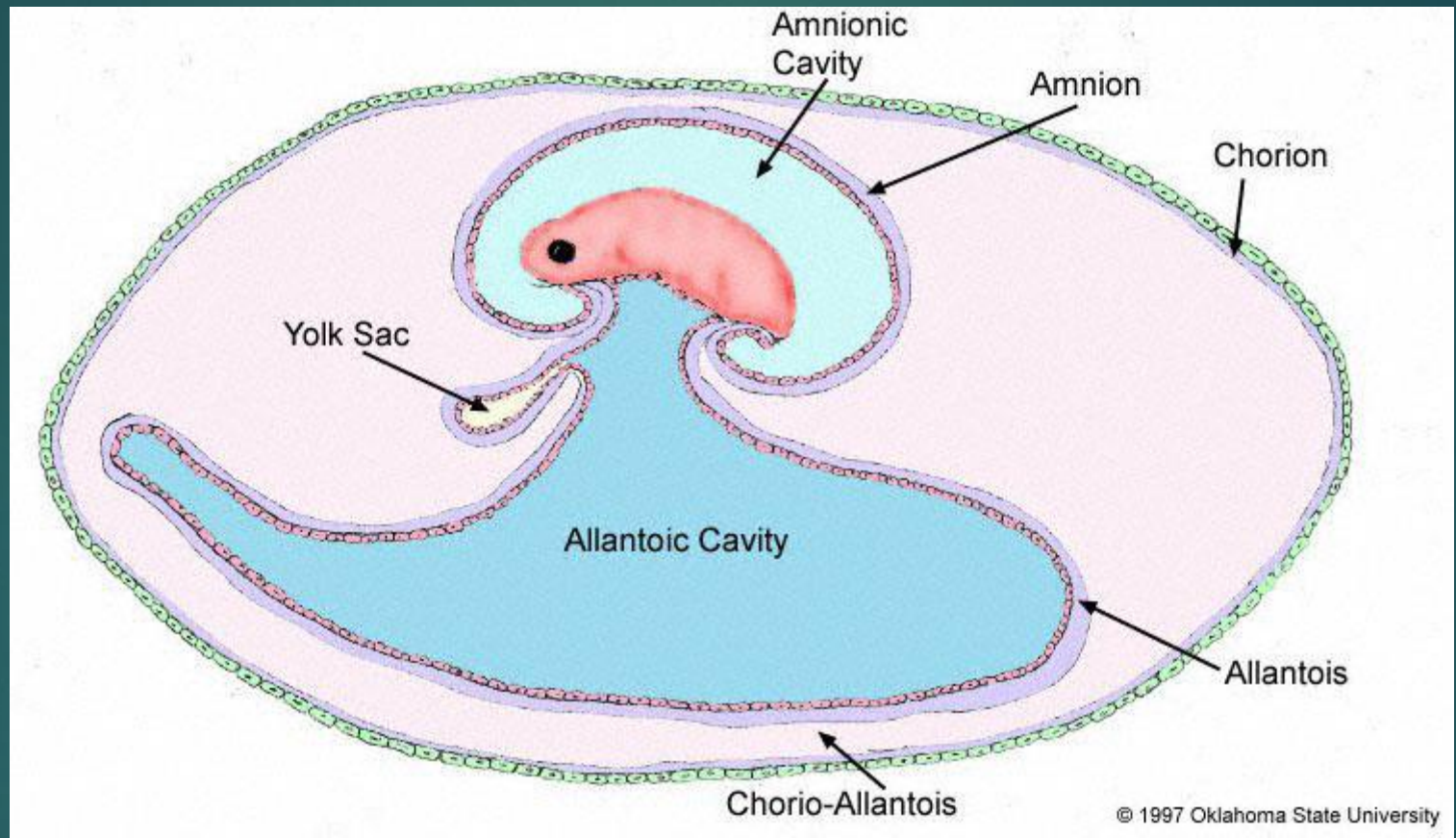
- ▶ **Ectoderm** : skin , hair , nails (hoofs) , mammary glands & nervous system
- ▶ **Mesoderm** : heart , muscles & skeleton
- ▶ **Endoderm** : other internal organs



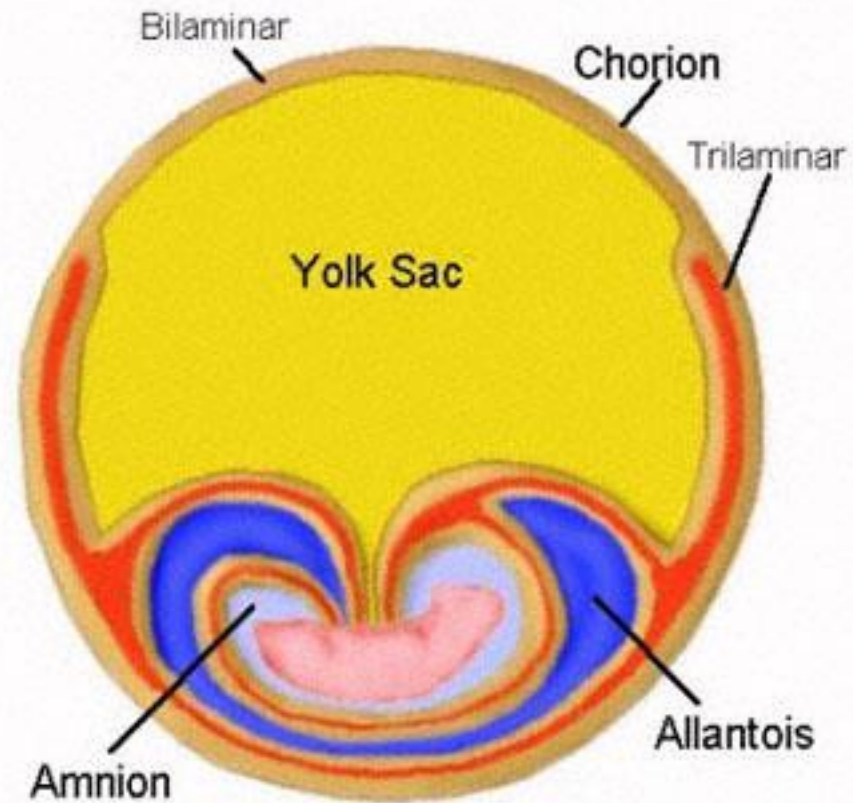
Extra embryonic membranes

- ▶ Necessary for attachment or implantation of embryo to the uterine wall
- ▶ **Chorion layer** : from primitive endoderm & trophoblast
- ▶ **Allantois layer** : from primitive gut with 2 layers (chorioallantoic membrane)
- ▶ **Yolk sac** : from primitive endoderm
- ▶ **Amnion layer** : from primitive endoderm & trophoblast

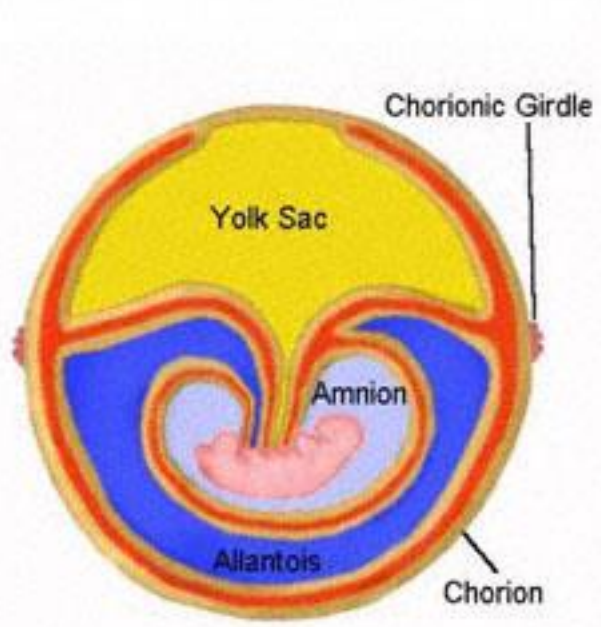




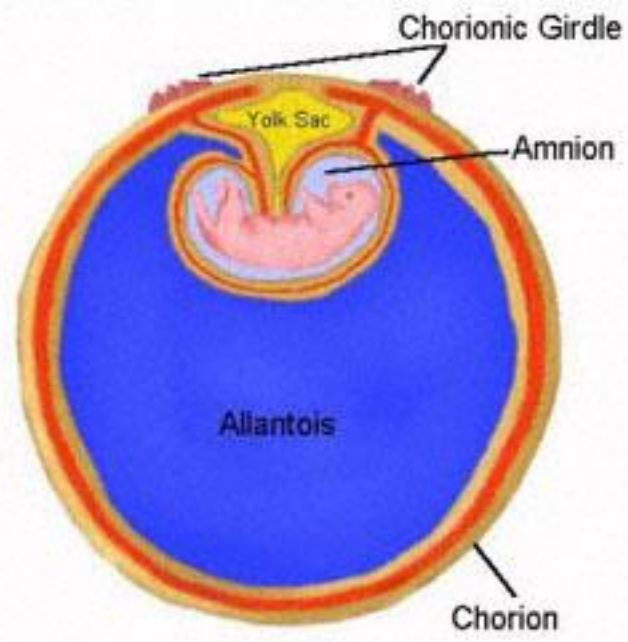
Placental Development in the Mare



Day 25



Day 34



Day 40

Placenta

- ▶ Association of chorion and endometrium for nutrition and removing waste materials of fetus
- ▶ Anatomic distribution of chorionic villi :
 - Diffuse (sow , mare)
 - zonary (bitch , queen)
 - discoid (primates , rat , mice , . . .)
 - cotyledonary (cow , ewe)

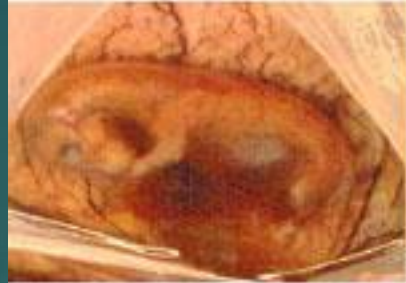
Placenta

Type of classification

Species	Gross morphology	Microscopic shape	Decidualization
mare, sow	Diffuse	Epitheliochorial	Adeciduate
Ewe, cow	Cotyledonary (placentomes)	Synepitheliochorial	Adeciduate
Bitch, queen	Zonary	Endotheliochorial	Moderately deciduate
Primates , mice	Discoid	Hemochorial	Deciduate
Rabbit , rat	Discoid	hemoendothelial	Deciduate

Types of Placenta

Diffuse Placenta



Mare



Sow

Cotyledonary Placenta



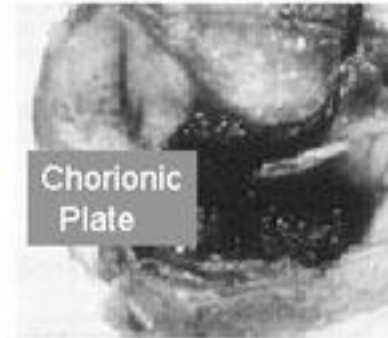
Ewe



Cow

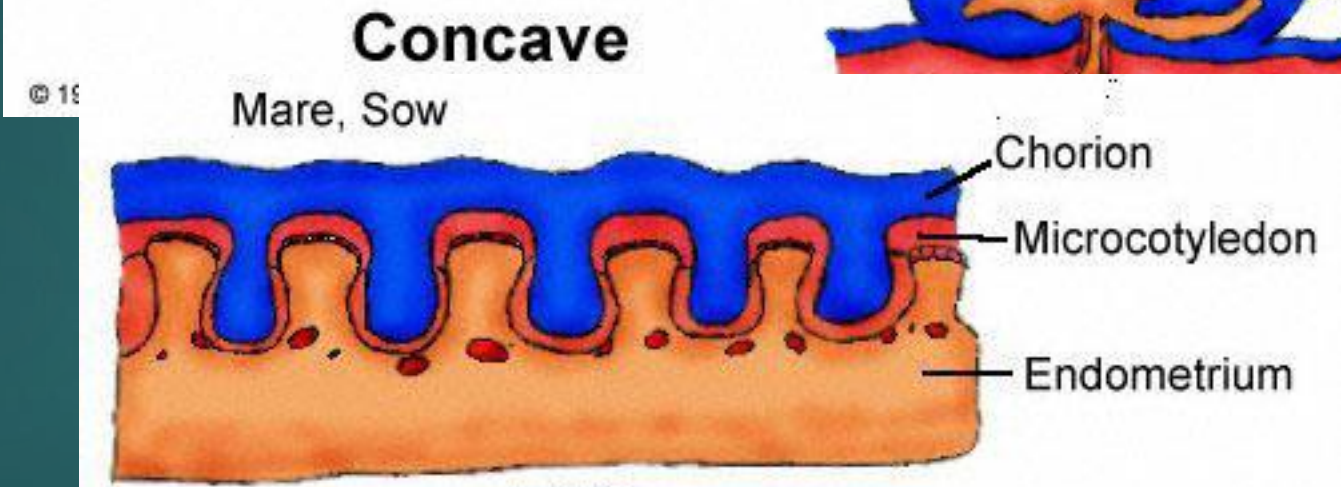
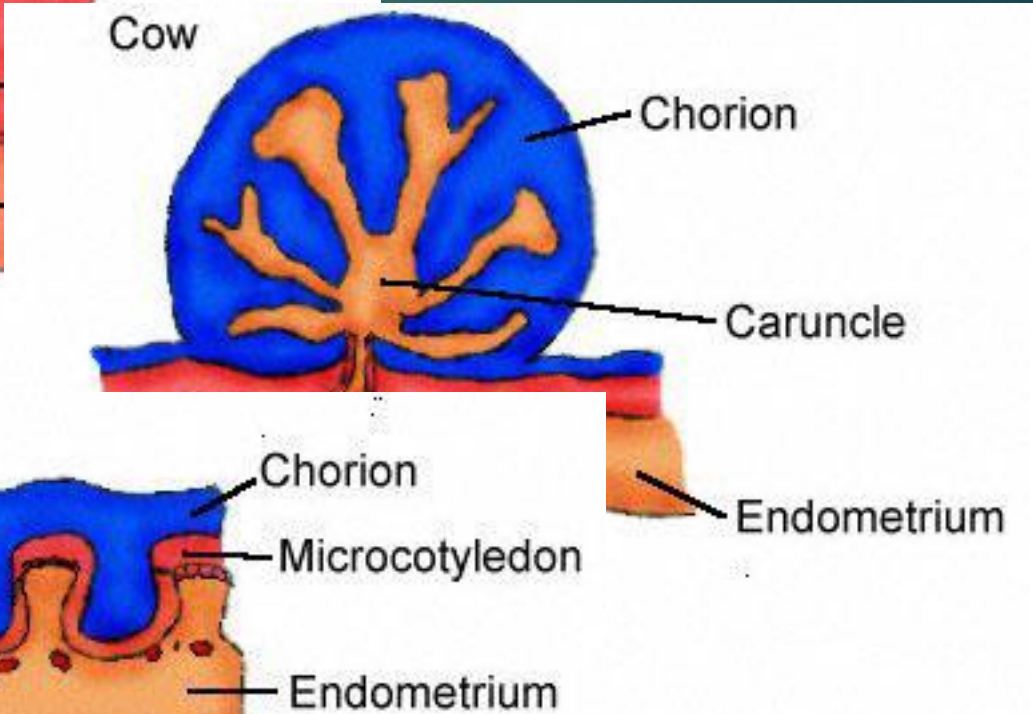
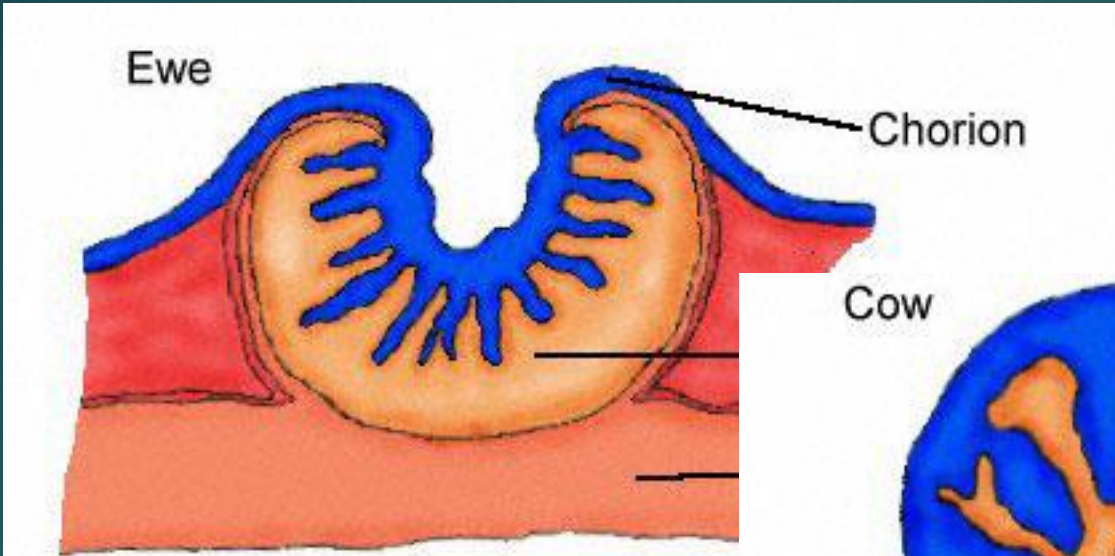
Also Goat & Deer

Discoid Placenta



Chorionic Plate

Human

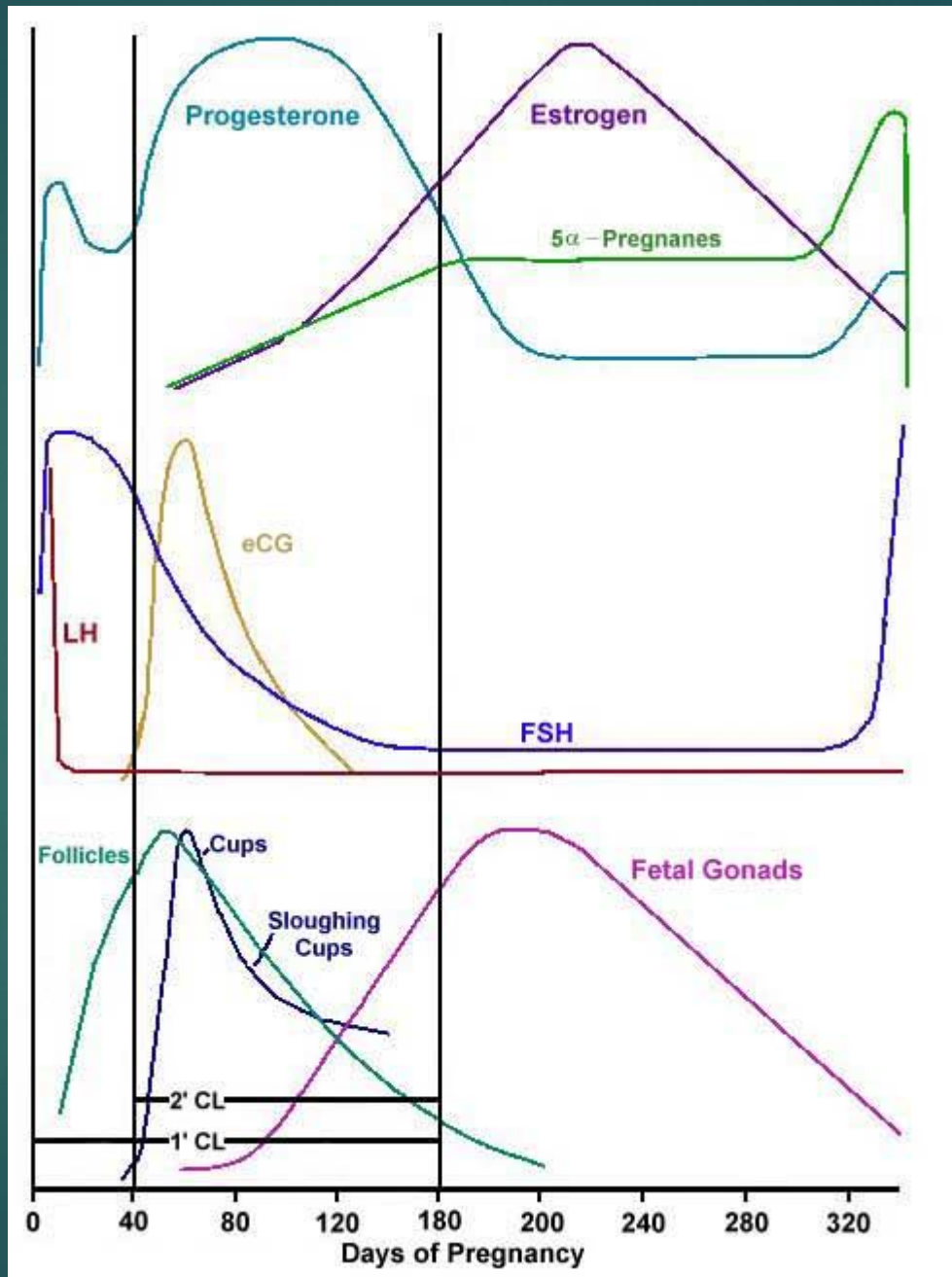


Concave

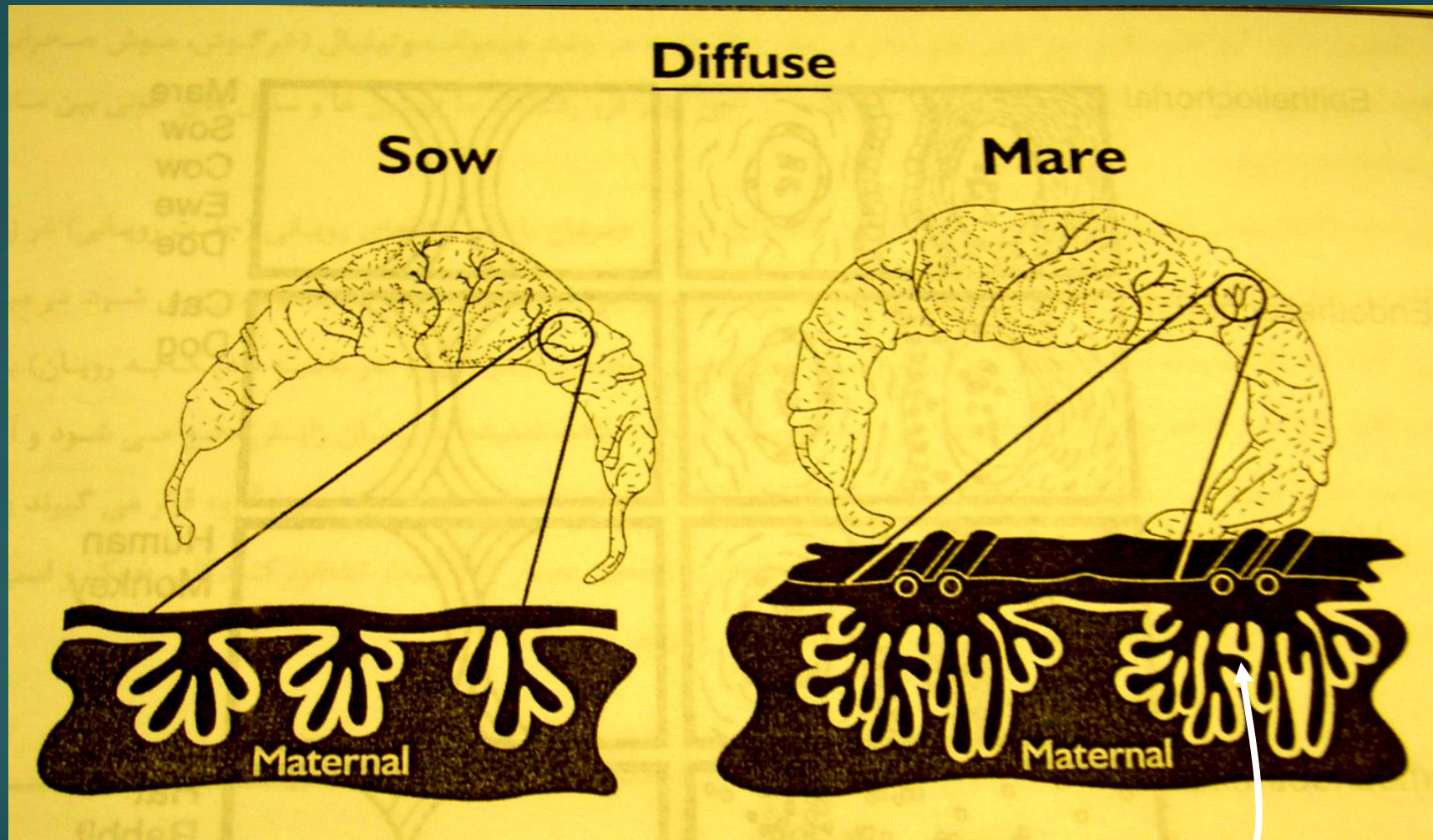
Diffuse

© 1997

© 1997 Oklahoma State University

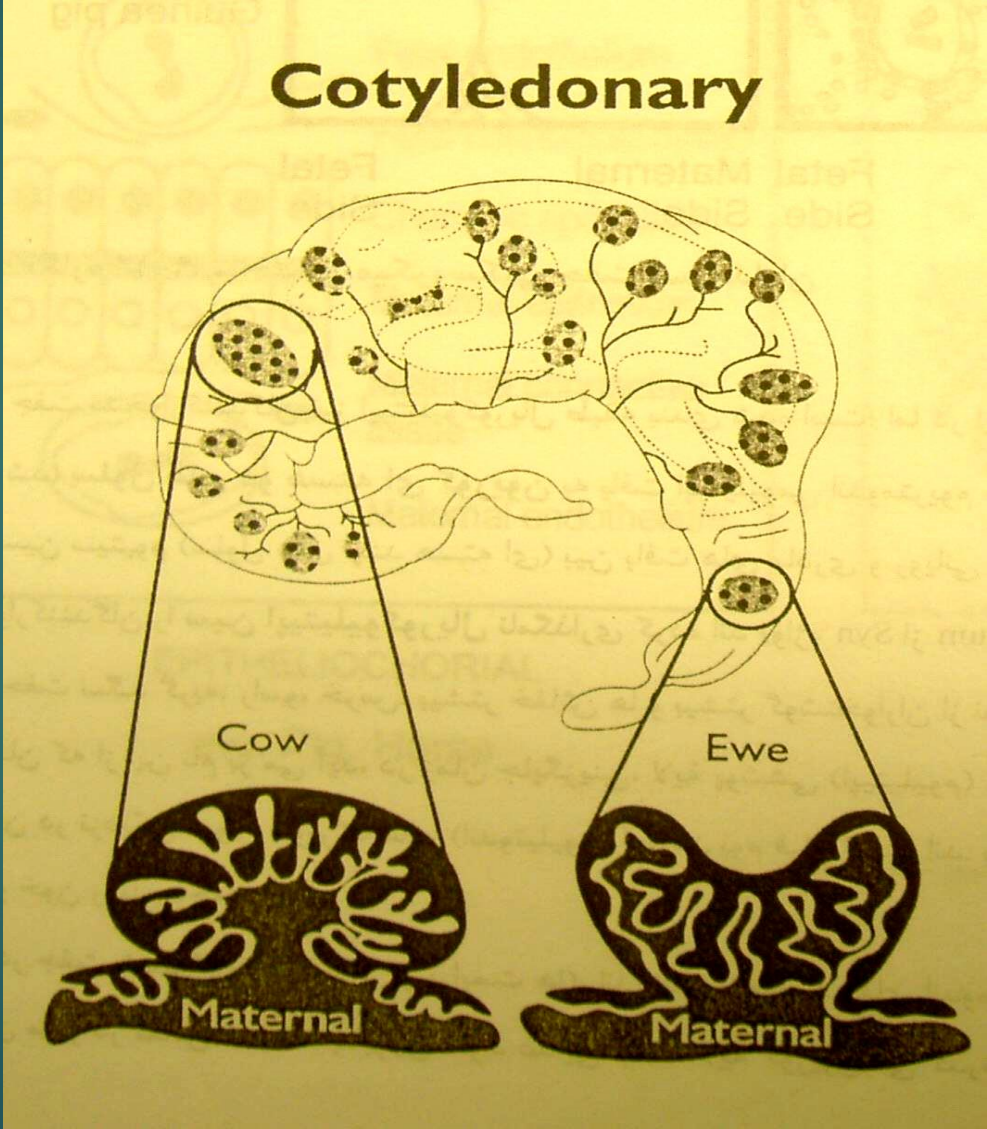


Placenta



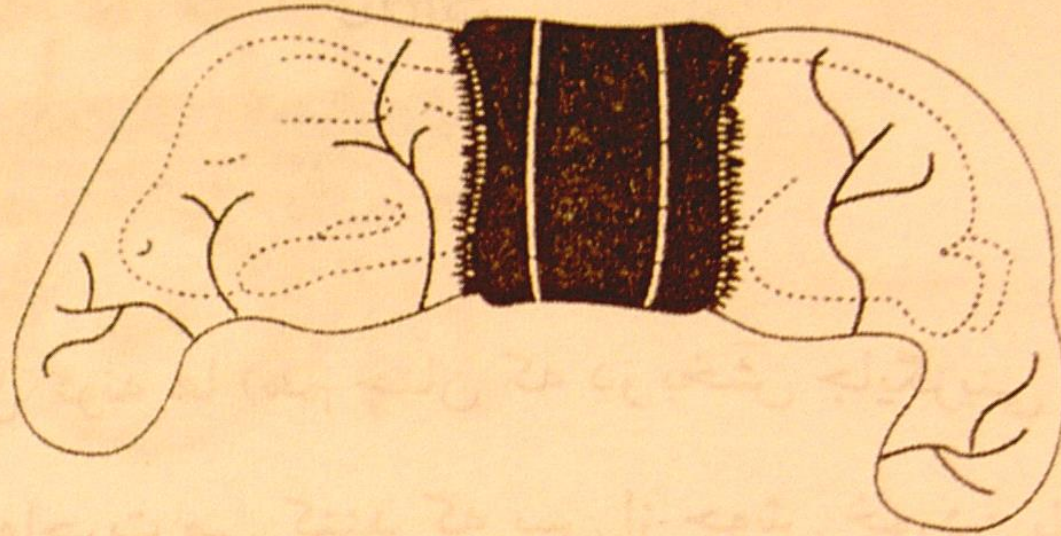
Cortical granules

Placenta



Placenta

Zonary
(bitch, queen)

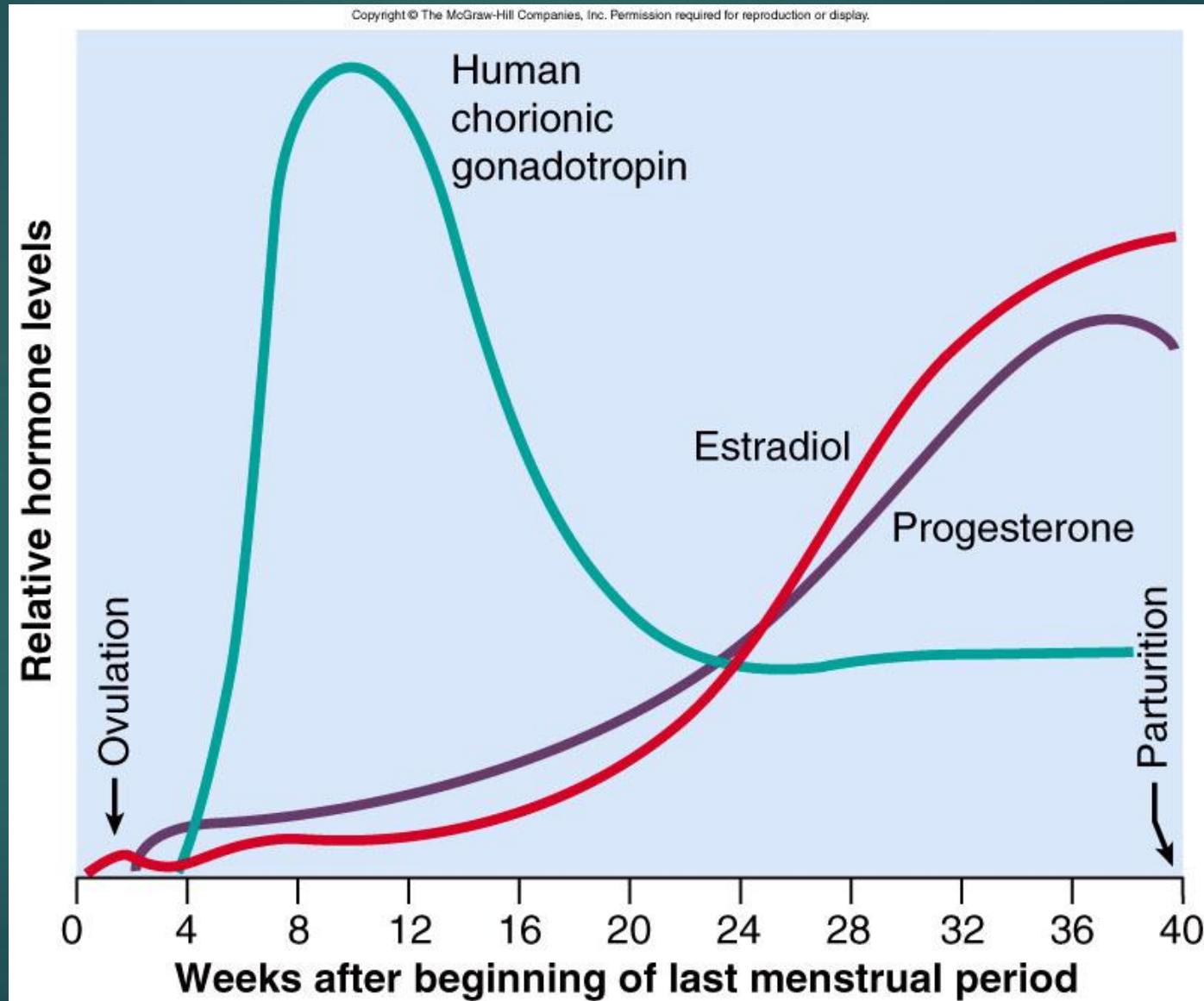


Placenta

Discoid (human)



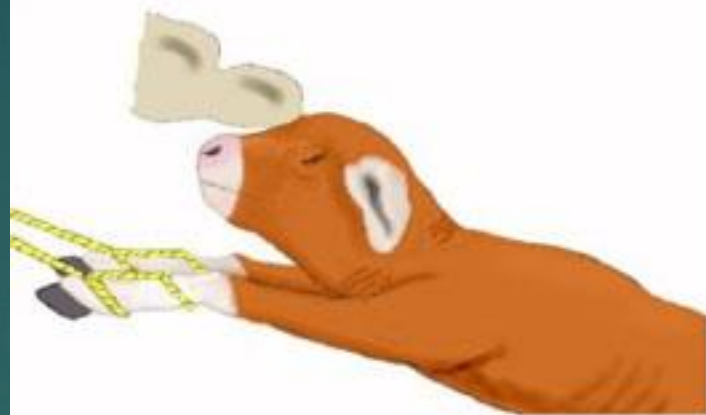
Hormone Levels and Pregnancy



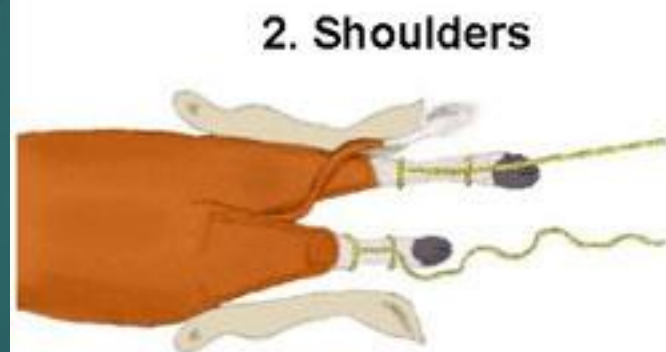
Parturition

- ▶ **First stage** : uterine contractions to cervix dilation
- ▶ **Second stage** : expulsion of fetus
- ▶ **Third stage** : expulsion of placenta

Three Barriers in Delivery of a Calf



1. Head

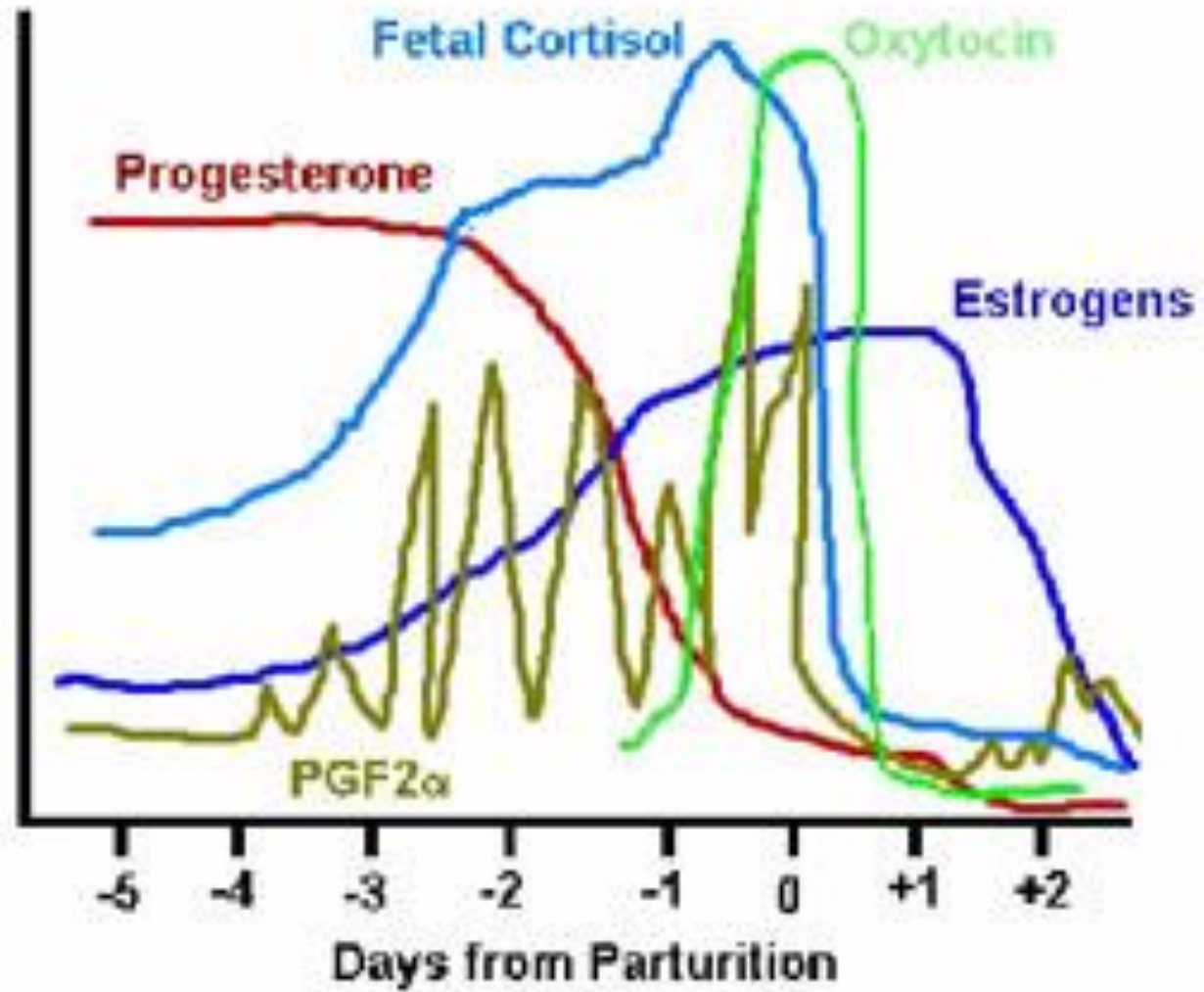


2. Shoulders



3. Hips

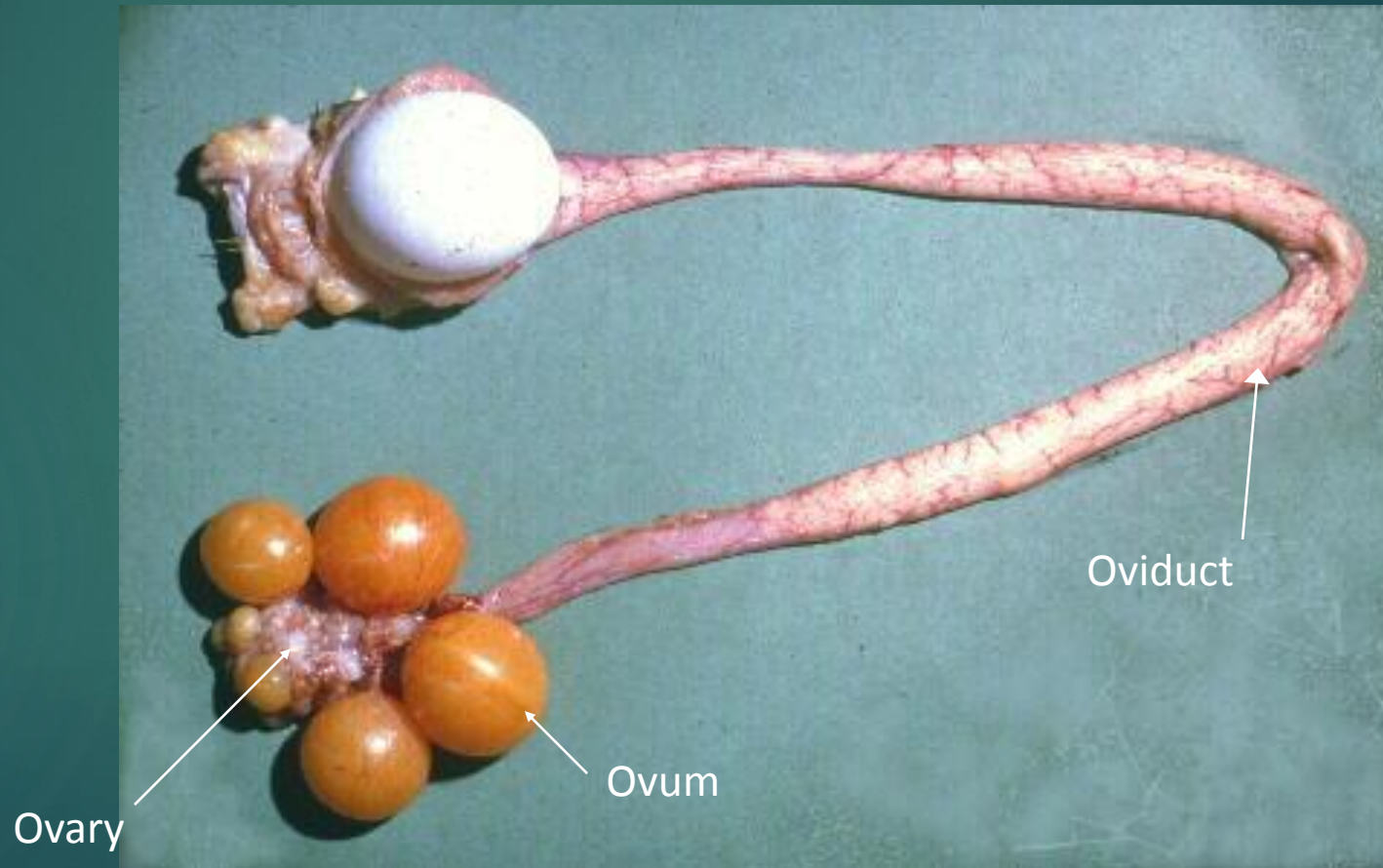
Relative Changes in Hormone Levels



Reproduction in Poultry

- Female
 - Right ovary & oviduct fail to develop after hatching
 - ovulate starting at puberty starting at 20-25 weeks
 - 24+ hours from one ovulation to next

Chicken reproductive tract



(University of Alberta & CBHEMA, 1999)

Chicken ovary



(University of Alberta & CBHEMA, 1999)

GOOD LUCK

