SI Session 4.4

How does progesterone maintain pregnancy?

Causes uterine quiescence and histotroph production

Sources of Progesterone During Gestation

Species	Site of Progesterone Production	Gestation Length
Sheep	CL to day 50 of gestation, then placenta *Can remove CL after day 50 and not cause abortion	148 days
Goat	CL and placenta *CL must remain throughout gestation	148 days
Cattle	CL and placenta *However, after ~day 210 – 215 placenta and adrenal produce enough progesterone	280 days
Sow	CL and placenta *CL must remain throughout gestation	114 days

What does MOET stand for?

Multiple ovulation and embryo transfer- a donor dam produces a large number of oocytes by super ovulation which are then flushed out and transplanted into recipients

Recall general placentation:

Endoderm: forms the yolk sac and the trophoblast

Mesoderm: double layer with trophoblast, becomes the chorion and amnion

Amniotic cavity: provides hydraulic protection around the embryo

Allantois: invagination (folding in) from hind gut, collects liquid waste

Chorion + Allantois fuse= allantochorion (fetal portion of placenta)

What is implantation?

The attachment of the placental membranes to the endometrium of the uterus.
Rodents/humans- conceptus "buries" itself in to the endometrium

Name the fetal and the maternal part of the placenta:

Chorion=fetal, uterine endometrium modifications= maternal

Time of implantation/attachment

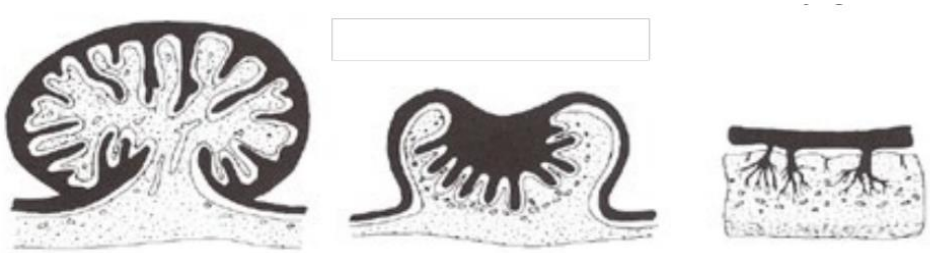
Species:	Beginning:	Completion:
Cow	22	40
Sheep	15	28
Mare	24-40	95-100
Human	7-8	30

Name the types of implantation/attachment:

- Superficial: chorion lies opposed to the uterine wall
    - Farm animal species
- Eccentric: chorion sack in a uterine fold
    - Rodents
- Interstitial: most complex, embryo digests part of the uterine wall
    - Humans

Placnetas are classified based on the distribution of chorionic villi

Label the chorionic villi down below with their respective species



(Black=fetus)

Cow Ewe Mare

Cows/ewes have a placentome, “baby sleeps in cot (cotyledon) while mom drives the car (caruncle)”

Mares have a microcotyledon

Name the types of placentas:

- Diffuse: uniform distribution of chorionic villi
    - Sow: closely spaced chorionic villi uniformly distributed over entire surface of chorion
    - Mare: specialized microcotyledons, endometrial cups produce eCG which helps form accessory CL for more progesterone

- Zonary: placentas have a band-like zone of chorionic villi (exchange region)
  - Species: dogs and cats

- Discoid: most intimate type of implantation, placentas forms discs which contain chorionic villi that interface with the endometrium for gas/nutrient/waste exchange.
  - Species: rodents, primates

- Cotyledonary: placentome (caruncle + cotyledon)
  - Species: ruminants