

What elemental compound is essential for erection to occur?

Nitric Oxide (NO)= causes vasodilation

What are chemotaxic factors?

Factors that cause movement of an organism due to a chemical stimulus. The COC releases these to draw sperm to the oocyte

T/F: Capacitation is not reversible

False, capacitation is reversible

What must be present on the sperm to penetrate the COC?

- a. Decapacitation factors
- b. The acrosome
- c. Jesus
- d. Zona Pellucida

What is polyspermy?

Multiple sperm penetrate and fertilize an oocyte= embryo death

Sperm plasma membrane have 2 ZP binding sites. What are they?

- ZBR= Zona Binding region: adheres sperm to ZP (binds to ZP3)
- ARPR= Acrosome Reaction Promoting Region: binds to ZP3 and initiates the acrosome reaction

Match the following terms to their correct definition:

B Conceptus C Fetus A Embryo

- A. organism in the early stages of development (cannot be species recognized yet)
- B. a product of conception- includes embryo/fetus/extra-embryonic membranes
- C. a potential offspring that is still within the uterus (can be species recognized)

Where does the sperm fuse to initiate Meiosis II?

Vitelline membrane

What are the 2 enzymes that Dr. Runyan wants you to know for the acrosome reaction- vesiculation in particular?

Acrosin – digests the Zona Pellucida

Hyaluronidase – breaks down cumulus oophorous cells of the oocyte

What process is completed at the end of fertilization?

Meiosis II

What is decondensing in the oocyte?

The nucleus of sperm

What pronucleus is formed 1st?

Female

What is the word used for when the male and female pronucleus fuse?

Syngamy

Oocyte at ovulation = Haploid

Oocyte at fertilization = Haploid

Sperm at fertilization = Haploid

Formation of Male Pronucleus & Female Pronucleus -> Syngamy

Fusion of Male and Female Pronuclei -> Zygote

What's order of embryonic development?

Ootid (before syngamy) → zygote (after syngamy) → 2 celled embryo / blastomere → 4-8 celled embryo → morula → early blastocyst → hatching blastocyst → hatched blastocyst

What has to happen for an embryo to continue growth?

Hatching out of the Zona Pellucida

What is the maternal recognition for cattle and sheep? Pigs?

Cattle & sheep - INF-T ; pigs - estrogen

How does maternal recognition happen in a mare?

- The embryo must migrate between the horns of the uterus 13x during days 12-17
- Presence of conceptus prevents luteolysis so it reduces endometrial production of PGF2a

Match the following term to the correct definition:

D Yolk sac B Amnion A Allantois D Chorion

- Carries blood vessels of placenta, reservoir for nutrients and wastes
- Protects fetus from injury, provides lubrication for parturition, reservoir for urine and wastes
- Attaches to the uterus → absorbs nutrients and allows maternal-fetal gas exchange
- Early nutrient supply for early embryo