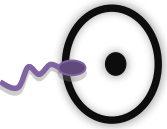
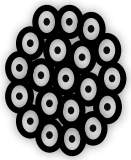
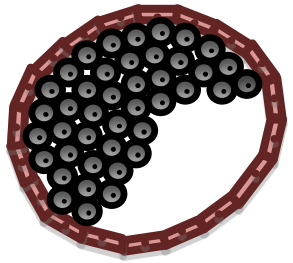
# THE STORY OF LIFE…







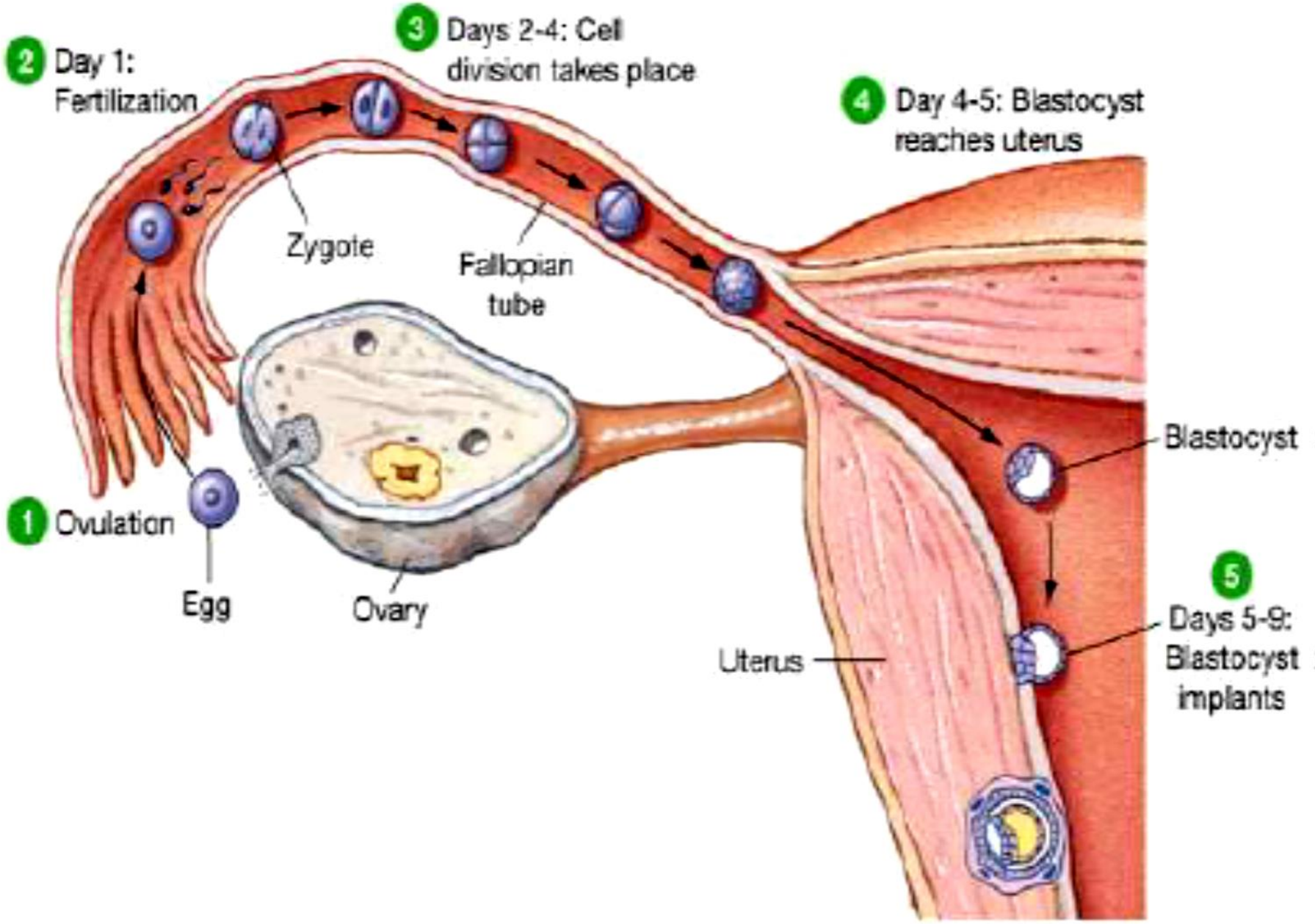


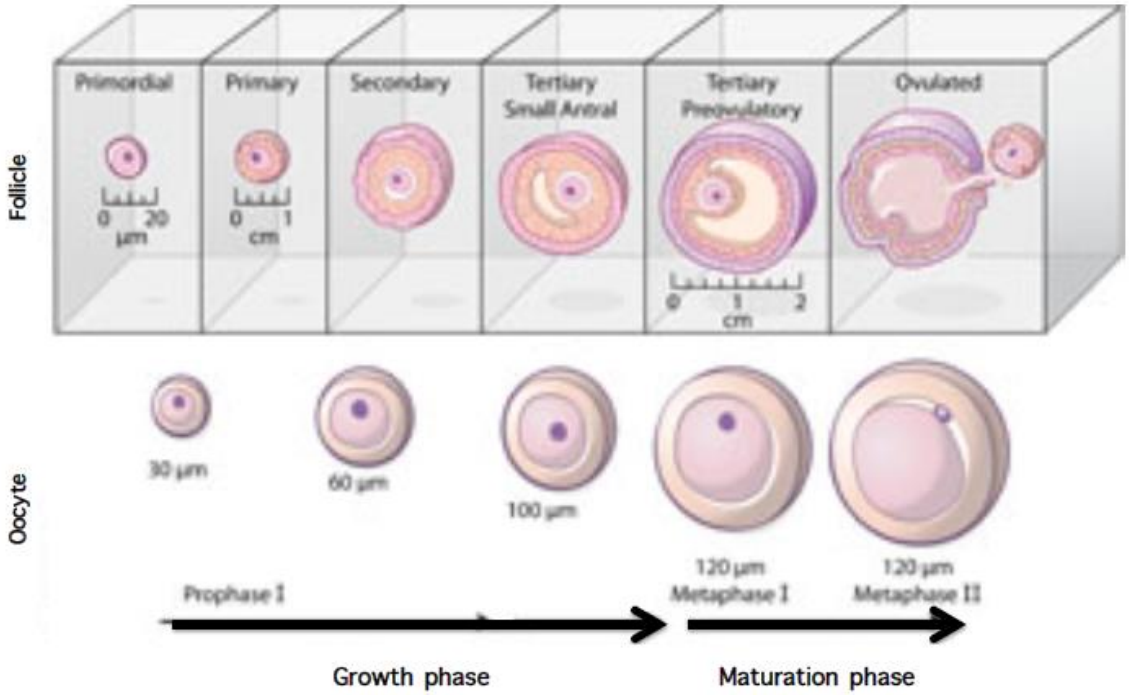






# Accomplishing Fertilization

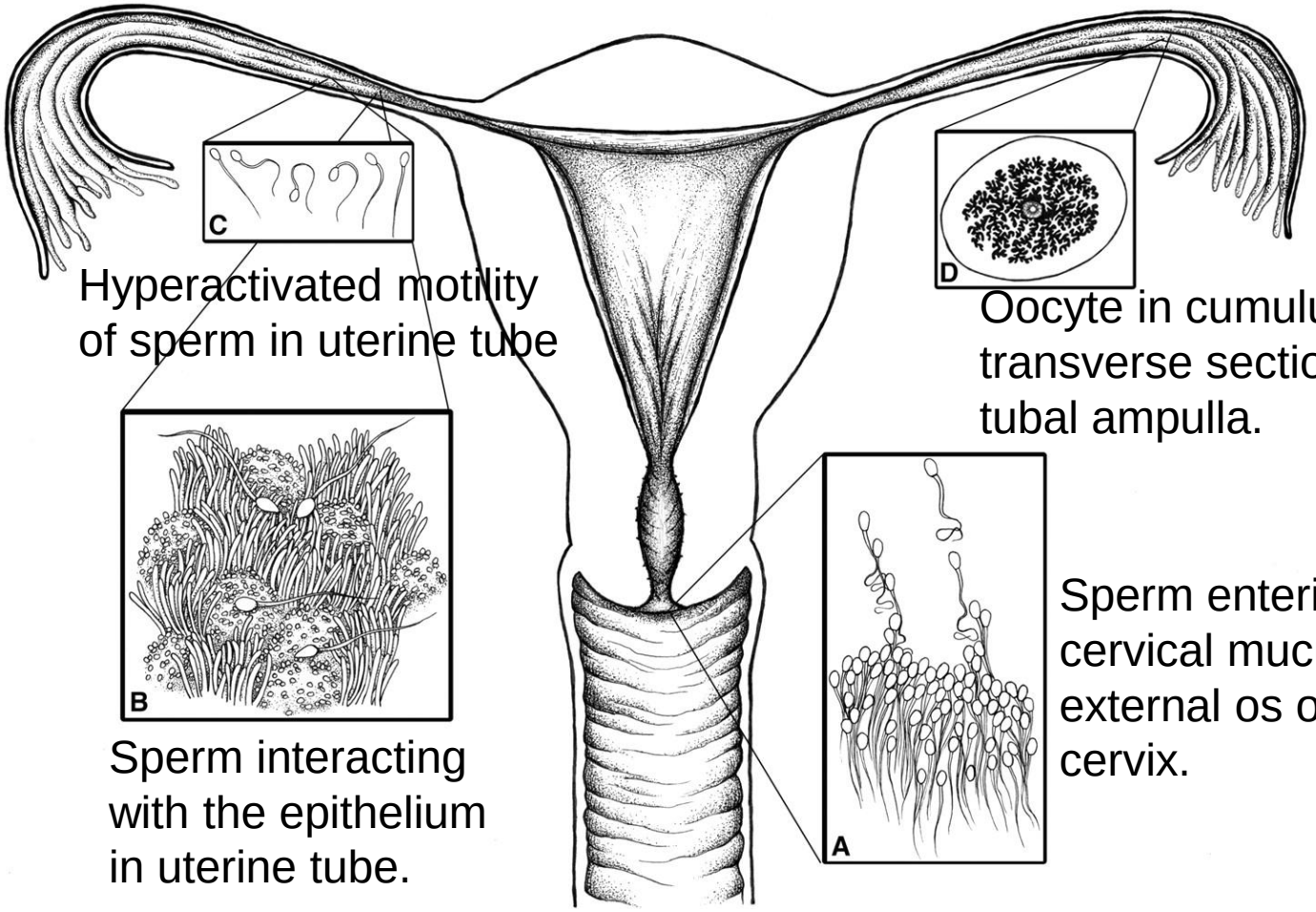



Follicle
Oocyte
Primordial
Primary
Secondary
Tertiary
Small Antral
Tertiary
Preovulatory
Ovulated
0 20
µm
0 1
cm
0 1 2
cm
30 µm
60 µm
100 µm
120 µm
Metaphase I
120 µm
Metaphase II
Prophase I
Growth phase
Maturation phase

**The mature oocyte is the unique cell of the body able to become a totipotent stem cell if properly activated.**

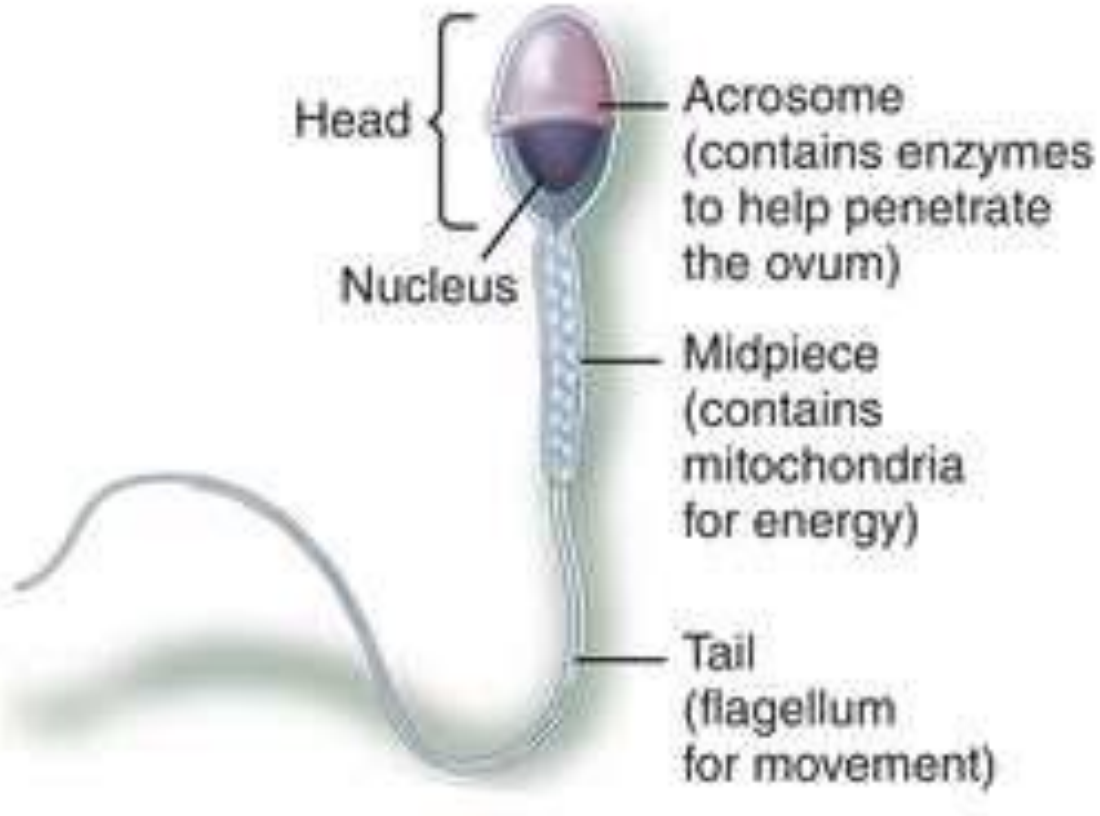


# Sperm Transport




**Human female reproductive tract illustrating stages of gamete transport**

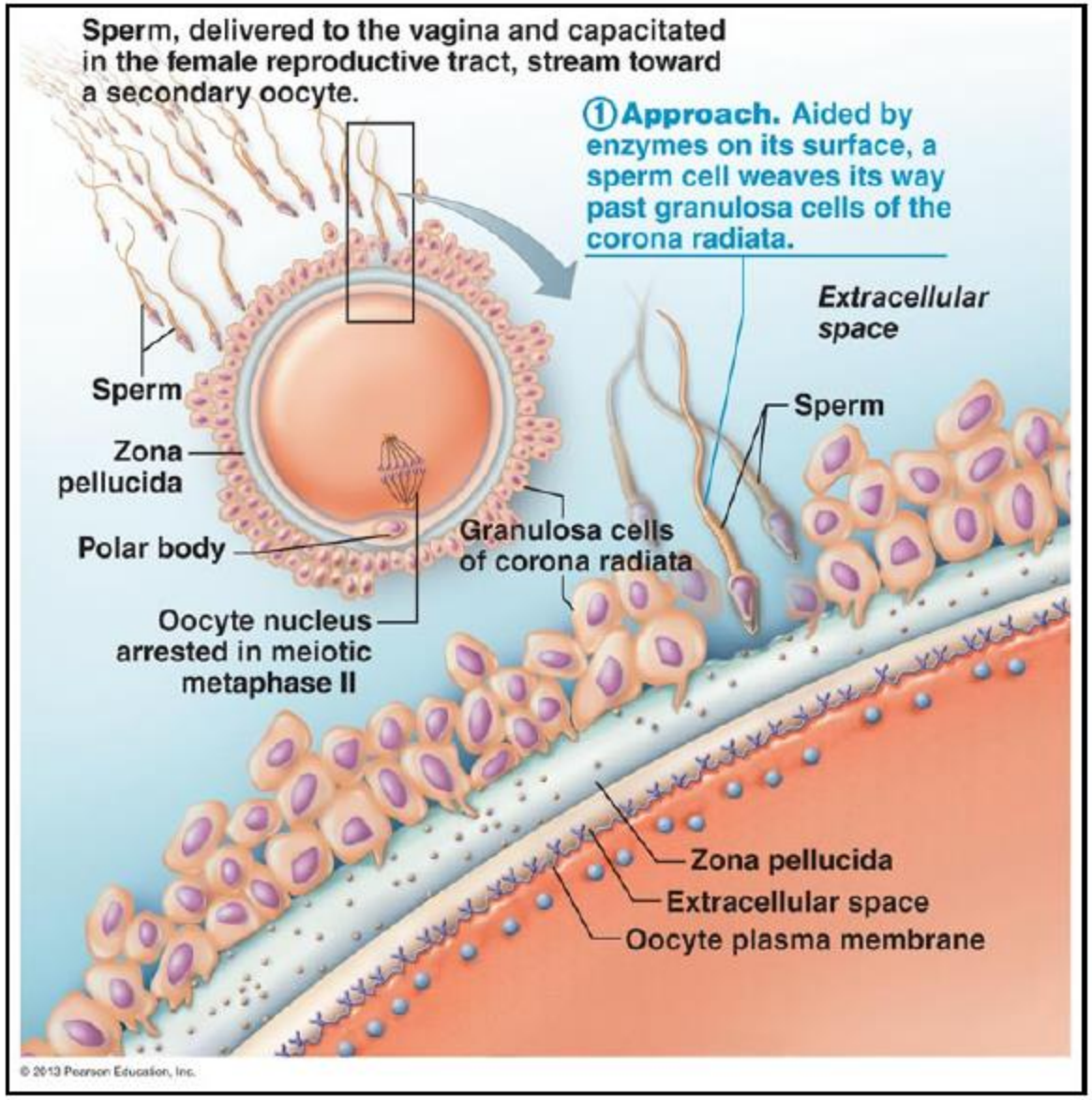
- **Capacitation**: the process in the femal reproductive tract whereby the ejaculated sperm become capable of fertilizing the egg
  - –Acrosomal membrane must become fragile



## Acrosomal Reaction and Sperm Penetration

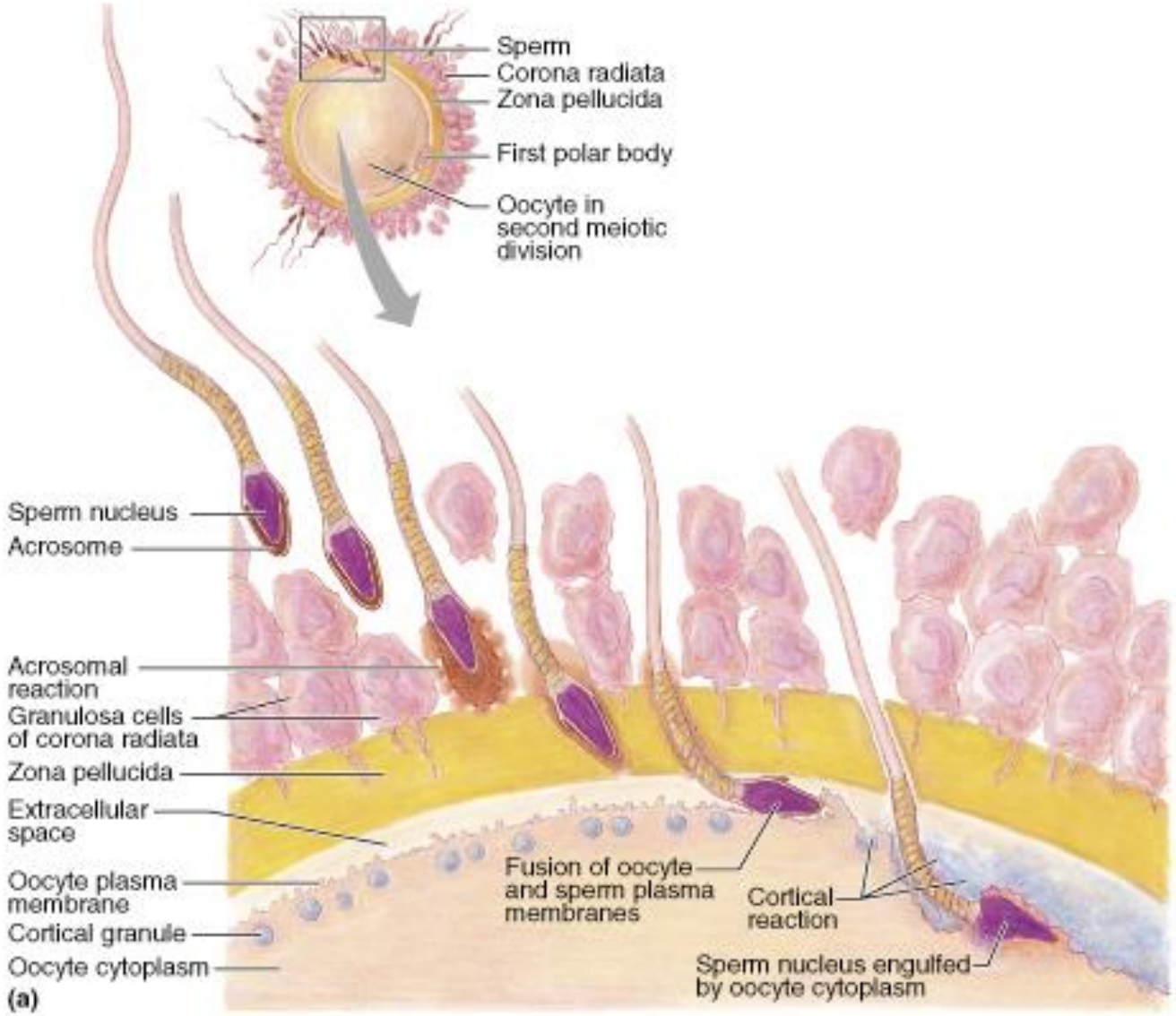
- Acrosomal reaction:  release of the digestive enzymes (acrosin, other proteases) from the sperms' acrosome
  - Hundreds of sperm must participate

# Acrosomal Reaction and Sperm Penetration



# Fertilization

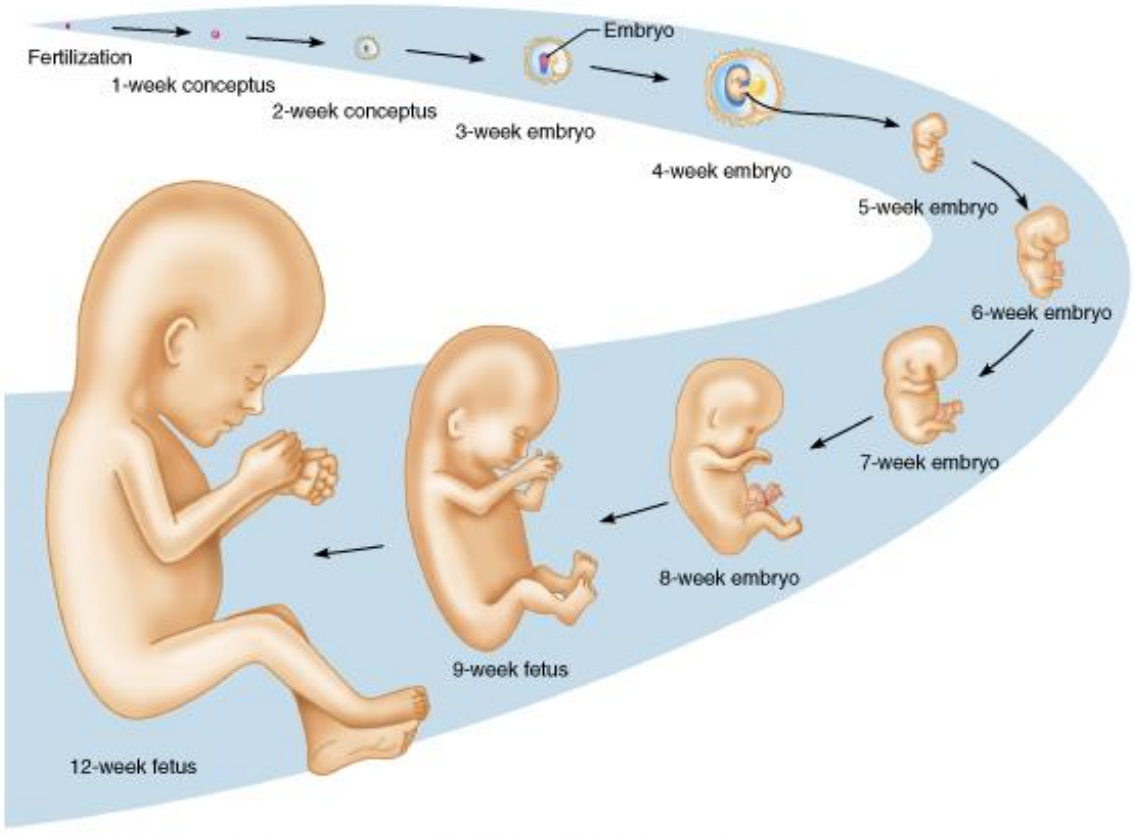
- If timing is ideal, sperm reach the oocyte in the ampulla of the uterine tube
- Sperm move by flagellar action but also receive an assist from uterine tube peristalsis




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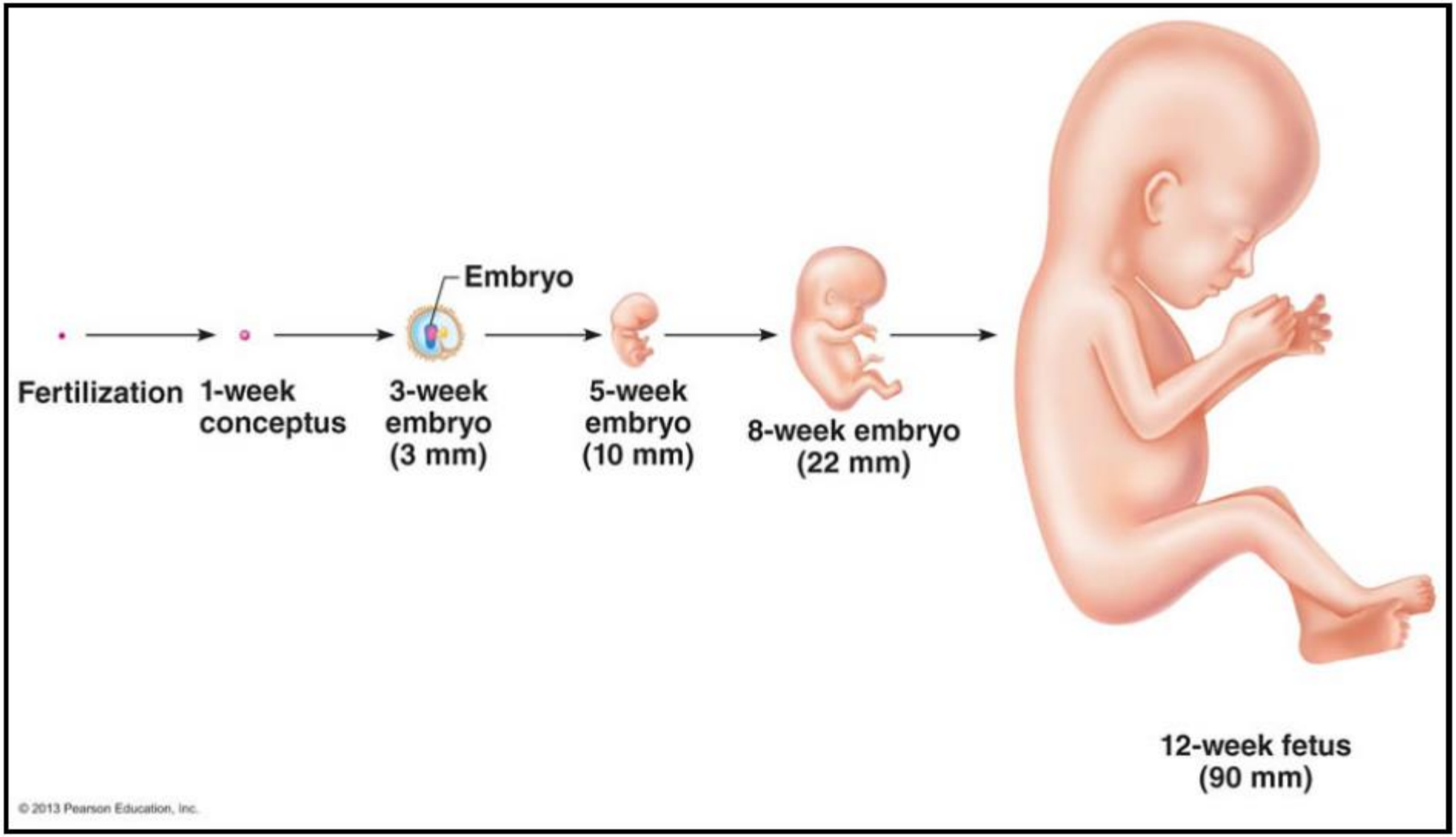
# Pregnancy

- Events from fertilization to birth
- Conceptus → Embryo → Fetus : the developing offspring
- Gestation period: the time during which development occurs



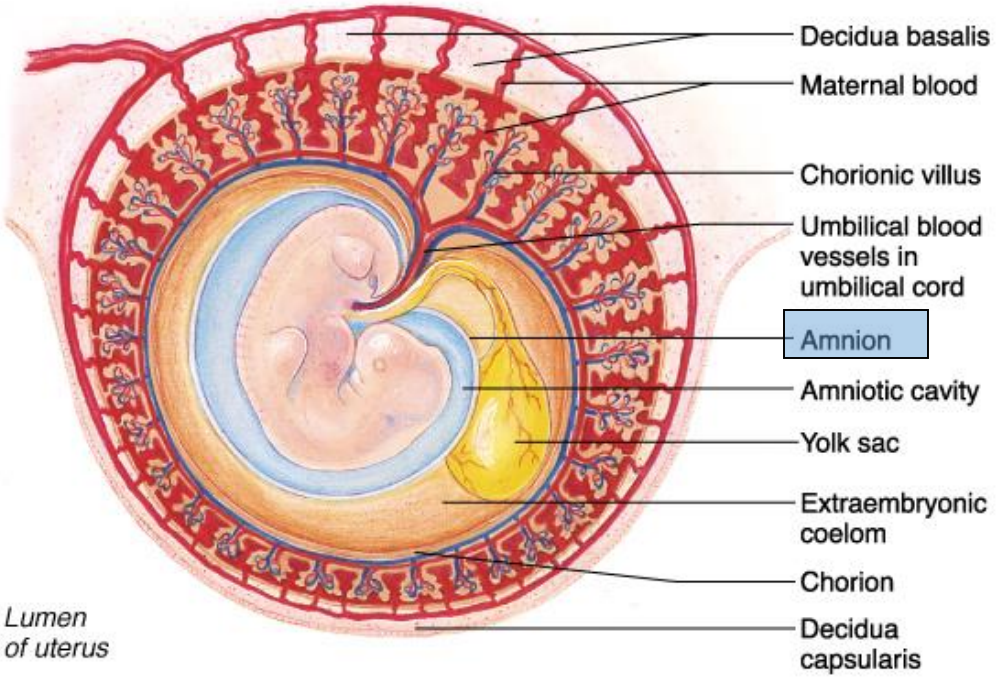

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# Pregnancy


Embryo
Fertilization
1-week conceptus
3-week embryo (3 mm)
5-week embryo (10 mm)
8-week embryo (22 mm)
12-week fetus (90 mm)
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# Amnion (inner membrane) envelops and protects embryo

- amnion – epiblast cells form a transparent membrane filled with amniotic fluid – a maternal plasma filtrate
- amniotic fluid comes from maternal blood, and, later, fetal urine adds to it
- amniotic fluid acts as a liquid shock absorber to protect the fetus
- helps maintain uterine internal homeostatis
- amniotic fluid may be sampled to determine certain aspects of fetal health




(d) 4½-week embryo

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