| | Description | Function |
|---|---|---|
| **sperm (spermatozoa)** | lost most of their cytoplasm and cellular organelles, and don't survive in the female reproductive tract more than a few days after ejaculation<br>composed of:<br>1. head<br>2. midpiece<br>3. tail | |
| **head** | consists mostly of nucleus with an **acrosome** | |
| **acrosome** | vesicle filled with hydrolytic enzymes | enzymes allow sperm to penetrate the female oocyte for fertilization |
| **midpiece** | contains many mitochondria | provides the needed energy ATP for the tail once the sperm cells are ejaculated |
| **tail** | flagellum | performs a whip-like motion, propelling the sperm |



- Process of spermatogenesis:
  1. begins with **spermatogonia**, diploid (46 or 2n chromosomes) stem cells located in outer portion of seminiferous tubules w/ beneath the basement of membrane
  2. spermatogonia divide = form primary spermatocytes (diploid) + more spermatogonia stem cells
  3. each division moves cells closer to lumen of tubule
  4. **primary spermatocytes** with 46 chromosomes enlarge = nucleus divides in mitosis I = 2 haploid (n) **secondary spermatocytes**, each with 23 double chromosomes
  5. 2 secondary spermatocytes divide by second nuclear division (meiosis II) —> 4 haploid **spermatids**, each with 23 single chromosomes
  6. **spermiogenesis:** spermatids go through drastic change in shape/composition = making of sperm
  7. **sertoli cells**: surround the cells undergoing spermatogenesis, providing chem. environment for the process/assisting the cells to move from basement membrane to lumen