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ASSIGNMENT: Write short notes on the following:

1. Spermatogenesis
2. Testosterone
3. Semen
4. Male orgasm
5. Male infertility

* SPERMATOGENESIS: The origin and development of the sperm cells within the male [reproductive](https://www.britannica.com/science/human-reproductive-system) organs, the [testes](https://www.britannica.com/science/testis). The testes are composed of numerous thin, tightly coiled tubules known as the [seminiferous tubules;](https://www.britannica.com/science/seminiferous-tubule) the sperm cells are produced within the walls of the tubules. Within the walls of the tubules, also, are many randomly scattered cells, called [Sertoli cells](https://www.britannica.com/science/Sertoli-cell) that function to support and nourish the immature sperm cells by giving them nutrients and blood products. As the young germ cells grow, the Sertoli cells help to transport them from the outer surface of the seminiferous tubule to the central channel of the tubule. Sperm cells are continually being produced by the testes, but not all areas of the seminiferous tubules produce sperm cells at the same time. One immature germ [cell](https://www.britannica.com/science/cell-biology) takes as long as 74 days to reach final maturation, and during this growth process there are [intermittent](https://www.merriam-webster.com/dictionary/intermittent) resting phases. The immature cells (called [spermatogonia](https://www.britannica.com/science/spermatogonium)) are all derived from cells called stem cells in the outer wall of the seminiferous tubules. The stem cells are composed almost entirely of nuclear material. (The nucleus of the cell is the portion containing the chromosomes.) The stem cells begin their process by multiplying in the process of cell duplication known as [mitosis](https://www.britannica.com/science/mitosis). Half of the new cells from this initial crop go on to become the future sperm cells, and the other half remain as stem cells so that there is a constant source of additional germ cells. Spermatogonia destined to develop into mature sperm cells are known as primary sperm cells. These move from the outer portion of the seminiferous tubule to a more central location and attach themselves around the Sertoli cells. The primary sperm cells then develop somewhat by increasing the amount of [cytoplasm](https://www.britannica.com/science/cytoplasm) (substances outside of the nucleus) and structures called organelles within the cytoplasm. After a resting phase the primary cells [divide into a form](https://www.britannica.com/science/meiosis-cytology) called a secondary sperm cell. During this [cell division](https://www.britannica.com/science/cell-division) there is a splitting of the nuclear material. In the nucleus of the primary sperm cells there are 46 chromosomes; in each of the secondary sperm cells there are only 23 chromosomes. The secondary sperm cell still must mature before it can fertilize an egg; maturation entails certain changes in the shape and form of the sperm cell. The nuclear material becomes more condensed and oval in shape; this area develops as the head of the sperm. The head is covered partially by a cap, called the acrosome, which is important in helping the sperm to gain entry into the egg. Attached to the opposite end of the head is the tailpiece. The tail is derived from the secondary sperm cell’s cytoplasm. In the mature sperm, it consists of a long, slender bundle of filaments that propel the sperm by their undulating movement. Once the sperm has matured, it is transported through the long seminiferous tubules and stored in the [epididymis](https://www.britannica.com/science/epididyme) of the testes until it is ready to leave the male body.
* TESTOSTERONE: The secondary sperm cell still must mature before it can fertilize an egg maturation entails certain changes in the shape and form of the sperm cell. The nuclear material becomes more condensed and oval in shape; this area develops as the head of the sperm. The head is covered partially by a cap, called the acrosome, which is important in helping the sperm to gain entry into the egg. Attached to the opposite end of the head is the tailpiece. The tail is derived from the secondary sperm cell’s cytoplasm. In the mature sperm, it consists of a long, slender bundle of filaments that propel the sperm by their undulating movement. Once the sperm has matured, it is transported through the long semniferous tubules and stored in the [epididymis](https://www.britannica.com/science/epididyme) of the testes until it is ready to leave the male body.
* SEMEN: Also called **seminal fluid**, [fluid](https://www.britannica.com/science/fluid-physics) that is emitted from the male reproductive tract and that contains [sperm](https://www.britannica.com/science/sperm) cells, which are capable of fertilizing the female eggs. Semen also contains other liquids, known as [seminal plasma](https://www.britannica.com/science/seminal-plasma), which help to keep the sperm cells viable.
* MALE ORGASM:
* Orgasm: a series of muscle contractions in the genital region that is accompanied by sudden release of endorphins. Orgasm normally accompanied male ejaculation as a result of sexual stimulation, and it also occurs in females as a result of sexual stimulation. **Ejaculation** is the discharge of [semen](https://en.wikipedia.org/wiki/Semen) (normally containing [sperm](https://en.wikipedia.org/wiki/Sperm)) from the [male reproductory tract](https://en.wikipedia.org/wiki/Male_reproductive_system) as a result of an [orgasm](https://en.wikipedia.org/wiki/Orgasm). It is the final stage and natural objective of male [sexual stimulation](https://en.wikipedia.org/wiki/Sexual_stimulation), and an essential component of natural [conception](https://en.wikipedia.org/wiki/Fertilisation). In rare cases, ejaculation occurs because of [prostatic](https://en.wikipedia.org/wiki/Prostate) disease. Ejaculation may also occur spontaneously during [sleep](https://en.wikipedia.org/wiki/Sleep) (a nocturnal emission or "wet dream"). [Anejaculation](https://en.wikipedia.org/wiki/Anejaculation) is the condition of being unable to ejaculate. Ejaculation is usually very pleasurable for men; [dysejaculation](https://en.wikipedia.org/wiki/Painful_ejaculation) is an ejaculation that is painful or uncomfortable. [Retrograde ejaculation](https://en.wikipedia.org/wiki/Retrograde_ejaculation) is the condition where semen travels backwards into the [bladder](https://en.wikipedia.org/wiki/Urinary_bladder) rather than out the [urethra](https://en.wikipedia.org/wiki/Urethra).
* MALE INFERTILITY:  refers to a male's inability to cause [pregnancy](https://en.wikipedia.org/wiki/Pregnancy) in a fertile female. In humans it accounts for 40–50% of [infertility](https://en.wikipedia.org/wiki/Infertility). It affects approximately 7% of all men. Male infertility is commonly due to deficiencies in the [semen](https://en.wikipedia.org/wiki/Semen), and [semen quality](https://en.wikipedia.org/wiki/Semen_quality) is used as a surrogate measure of male fecundity.