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# WRITE SHORT NOTE ON THE FOLLOWING

* SPARMATOGENESIS
* TESTOSTERON
* SEMEN
* MALE ORGASM
* MALE INFERTILITY

**1)SPERMATOGENESIS**

**Spermatogenesis** is the process by which [haploid](https://en.wikipedia.org/wiki/Haploid) [spermatozoa](https://en.wikipedia.org/wiki/Spermatozoa) develop from [germ cells](https://en.wikipedia.org/wiki/Germ_cell) in the [seminiferous tubules](https://en.wikipedia.org/wiki/Seminiferous_tubules%22%20%5Co%20%22Seminiferous%20tubules) of the [testis](https://en.wikipedia.org/wiki/Testis). This process starts with the [mitotic division](https://en.wikipedia.org/wiki/Mitosis) of the [stem cells](https://en.wikipedia.org/wiki/Stem_cell) located close to the basement membrane of the tubules.[[1]](https://en.wikipedia.org/wiki/Spermatogenesis#cite_note-1) These cells are called [spermatogonial stem cells](https://en.wikipedia.org/wiki/Spermatogonial_Stem_Cells%22%20%5Co%20%22Spermatogonial%20Stem%20Cells). The mitotic division of these produces two types of cells. Type A cells replenish the stem cells, and type B cells differentiate into primary [spermatocytes](https://en.wikipedia.org/wiki/Spermatocyte%22%20%5Co%20%22Spermatocyte). The primary spermatocyte divides meiotically ([Meiosis](https://en.wikipedia.org/wiki/Meiosis) I) into two secondary spermatocytes; each secondary spermatocyte divides into two equal haploid [spermatids](https://en.wikipedia.org/wiki/Spermatids%22%20%5Co%20%22Spermatids) by Meiosis II. The spermatids are transformed into spermatozoa (sperm) by the process of [spermiogenesis](https://en.wikipedia.org/wiki/Spermiogenesis%22%20%5Co%20%22Spermiogenesis). These develop into mature spermatozoa, also known as [sperm cells](https://en.wikipedia.org/wiki/Sperm).[[2]](https://en.wikipedia.org/wiki/Spermatogenesis#cite_note-Sharma-2018-2) Thus, the primary spermatocyte gives rise to two cells, the secondary spermatocytes, and the two secondary spermatocytes by their subdivision produce four spermatozoa and four haploid cells.[[3]](https://en.wikipedia.org/wiki/Spermatogenesis#cite_note-3)

Spermatozoa are the mature male [gametes](https://en.wikipedia.org/wiki/Gamete) in many sexually reproducing organisms. Thus, spermatogenesis is the male version of [gametogenesis](https://en.wikipedia.org/wiki/Gametogenesis%22%20%5Co%20%22Gametogenesis), of which the female equivalent is [oogenesis](https://en.wikipedia.org/wiki/Oogenesis%22%20%5Co%20%22Oogenesis). In [mammals](https://en.wikipedia.org/wiki/Mammal) it occurs in the [seminiferous tubules](https://en.wikipedia.org/wiki/Seminiferous_tubules%22%20%5Co%20%22Seminiferous%20tubules) of the male [testes](https://en.wikipedia.org/wiki/Testes) in a stepwise fashion. Spermatogenesis is highly dependent upon optimal conditions for the process to occur correctly, and is essential for [sexual reproduction](https://en.wikipedia.org/wiki/Sexual_reproduction). [DNA methylation](https://en.wikipedia.org/wiki/DNA_methylation) and [histone modification](https://en.wikipedia.org/wiki/Histone_modification%22%20%5Co%20%22Histone%20modification) have been implicated in the regulation of this process.[[4]](https://en.wikipedia.org/wiki/Spermatogenesis#cite_note-4) It starts at [puberty](https://en.wikipedia.org/wiki/Puberty) and usually continues uninterrupted until death, although a slight decrease can be discerned in the quantity of produced sperm with increase in age (see [Male infertility](https://en.wikipedia.org/wiki/Male_infertility)).

2) TESTOSTERON

Testosterone is a hormone found in humans, as well as in other animals. The testicles primarily make testosterone in men. Women’s ovaries also make testosterone, though in much smaller amounts.

The production of testosterone starts to increase significantly during [puberty](https://www.healthline.com/health/parenting/stages-of-puberty), and begins to dip after age 30 or so.

Testosterone is most often associated with sex drive, and plays a vital role in sperm production. It also affects bone and muscle mass, the way men store fat in the body, and even red blood cell production. A man’s testosterone levels can also affect his mood. Low levels of testosterone, also called low T levels, can produce a variety of symptoms in men, including:

* decreased sex drive
* less energy
* weight gain
* feelings of depression
* moodiness
* low self-esteem
* less body hair
* thinner bones