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PHARMACOLOGY

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PHS212

1. **Spermatogenesis**: This is the process by which haploid spermatozoa develop from germ cells in the seminiferous tubules of the testis. This process starts with the mitotic division of the stem cells located close to the basement membrane of the tubules. These cells are called spermatogonial stem cells. The mitotic division of this produces two types of cells. Type A cells replenish the stem cells, and type B cells differentiate into primary spermatocytes. The primary spermatocyte divides meiotically into two secondary spermatocytes; each secondary spermatocyte divides into two equal haploid spermatids by meiosis2. The spermatids are transformed into spermatozoa by the process of spermatogenesis. These develop into mature spermatozoa, also known as sperm cells. 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.
2. **Testosterone:** this is the primary male sex hormone and anabolic steroid. In male humans, testosterone plays a key role in the development of male reproductive tissues such as testes and prostrate, as well as promoting secondary sexual characteristics such as increased muscle and bone mass, and the growth of body hair. In addition, testosterone is involved in health and well-being, and the prevention of osteoporosis. Testosterone is a steroid from the androstane class containing a keto and hydroxyl groups at positions three and seventeen respectively. It is biosynthesized in several steps from cholesterol and is converted in the liver to inactive metabolites. It exerts its action through binding to and activation of the androgen receptor. Testosterone is secreted primarily by the testicles of males and, to a lesser extent, the ovaries of females.
3. **Semen:** also known as seminal fluid, is an organic fluid that contains spermatozoa. It is secreted by the gonads (sexual glands) and other sexual organs of male or hermaphroditic animals and can fertilize the female ovum. ... The process that results in the discharge of semen is called ejaculation sperm passes through the ejaculatory ducts and mixes with fluids from the seminal vesicles, produce yellowish viscous fluid rich in fructose and other substances that makes up about 70% of human semen.
4. **Male orgasm:** Men achieve orgasm through a series of steps involving a number of organs, hormones, blood vessels, and nerves working together. The typical result is ejaculation of fluid that may contain sperm through strong muscle contractions.
5. **Male infertility:** this refers to a male inability to cause pregnancy in a fertile female. In humans it accounts for 40-50% of infertility. It affects approximately 7% of all men. Male infertility is commonly due to deficiencies in the semen, and the semen quality is used as a surrogate measure of male fecundity. These may include: Abnormal sperm production or function due to undescended testicles, genetic defects, health problems such as diabetes.