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PHS 212

Write short notes on the following:

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

SPERMATOGENESIS

Spermatogenesis 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. It starts at puberty and usually continues uninterrupted until death, although a slight decrease can be discerned in the quantity of produced sperm with increase in age. Spermatogenesis starts in the bottom part of seminiferous tubes and progressively cells go deeper into tubes and moving along it until mature spermatozoa reaches the lumen where spermatozoa are deposited. The initial stages occur within the testes and progress to the epididymis where the developing gametes mature and are stored until ejaculation.

TESTOSTERONE

Testosterone 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 prostate, 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. Insufficient levels of testosterone in men lead to abnormalities including frailty and bone loss. Testosterone is used as a medication in the treatment of low testosterone levels in men, transgender hormone therapy for transgender men and breast cancer in women. Since testosterone levels decrease as men age, testosterone is sometimes used in older men to counteract this deficiency. It is also used illicitly to enhance physique and performance, for instance in athletes.

SEMEN

Semen also known as seminal fluid, is an organic fluid that contains spermatozoa. It is secreted by the gonads and other sexual organs of male or hermaphroditic animals and can fertilize the female ovum. In humans, seminal fluid contains several components besides spermatozoa: proteolytic and other enzymes as well as fructose are elements of seminal fluid which promote the survival of spermatozoa and provide a medium through which they can move or swim. Semen is produced and originates from the vesicles, which is located in the pelvis. The process that results in the discharge of semen is called ejaculation. Semen is also a form of genetic material.

MALE ORGASM

The major function of the male orgasm is to ejaculate sperm, although not all men will ejaculate during an orgasm. The male orgasm is a complex system involving multiple hormones, organs, nerve pathways. The hormone testosterone produced in the testicles, plays a central role by enhancing the sexual role by enhancing the sexual desire (libido) that leads to arousal, erection and ultimately orgasm. By contrast, low testosterone not only decreases a man's energy and mood, it makes him less responsive to sexual stimuli, both physical and mental. With that being said, a man often only requires physical stimulation and mental stimulation to achieve arousal. The male ejaculate semen is comprised of sperm cells and seminal fluid the latter of which contains phosphorylcholine (an enzyme that aids in fertility) and fructose (which provides fuel for sperm). The average volume of semen expelled by a healthy man is around a teaspoon.

MALE INFERTILITY

Male infertility is a male's inability to cause pregnancy in a fertile female. In humans it accounts for 40-50 % of fertility. It affects approximately 7% of all men. Male infertility is commonly due to deficiencies in the semen and semen quality is used as a surrogate measure of male fecundity. It can be caused by; abnormal set of chromosomes, mumps, testicular cancer, malaria, acrosomal defects affecting egg penetration, drugs, varicocele (enlargement of veins in the scrotum) and obesity and so on. Male infertility is more common in environments with high levels of environmental pollution, including water contaminants, pesticides and herbicides.