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Biomedical Engineering

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PHS 212 Assignment

1. Spermatogenesis

This is the origin and development of the sperm cells within the male reproductive organs, the testes. The testes are composed of numerous thin, tightly coiled tubules known as the seminiferous tubules, 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, 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 ~~testis~~ ^{seminiferous tubules} produce one sperm cell at the same time. One

immature germ cell takes as long as 74 days to reach final maturation, and during this growth process there are intermittent resting phases.

2. Testosterone

It 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 may lead to abnormalities including frailty and bone loss. Testosterone is a steroid from the androstane class containing a keto and hydroxyl groups at positions three and seventeen respectively.

3. SEMEN

Semen, also called seminal fluid, fluid that is emitted from the male reproductive tract and that contains

Sperm cells, which are capable of fertilizing the female eggs. Semen also contains other liquids, known as seminal plasma, which help to keep the sperm cells viable. In the sexually mature human male, sperm cells are produced by the testes they constitute only about 2 to 5 percent of the total semen volume. As sperm travel through the male reproductive tract, they are bathed in fluid produced and secreted by the various tubules and glands of the reproductive system. Sulfate chemicals in semen help prevent the sperm cells from swelling; and fructose is the main nutrient to sperm cells.

4. Male Orgasm

The penis usually becomes erect (hard) before an orgasm, and flaccid (soft) again after. When a man has an orgasm, his penis spasms and undergoes a series of rhythmic contractions, during which he feels a very strong and enjoyable feeling in his penis and groin, and sometimes in all of his body. In a man, an orgasm usually happens at the same time as an ejaculation, which is a release of semen through the penis that can't be stopped.

Young boys can orgasm, but there may be no semen because semen usually occurs only after puberty has started. After an orgasm, men usually have a deep sense of relaxation, usually felt in the groin and the thighs. The major function of the male orgasm is to ejaculate sperm, although not all men will ejaculate during an orgasm.

5 Male Infertility

Male Infertility is any health issue in a man that lowers the chances of his female partner getting pregnant. Problems can stop cells from growing into sperm. Problems can keep the sperm from reaching the egg. Even the temperature of the scrotum may affect infertility.

The most common problems are with making and growing sperm. Sperm may; not grow fully, be oddly shaped, not move the right way, be made in very low numbers (oligospermia), not be made at all (azoospermia). Sperm problems can be from traits you're born with. Lifestyle choices can lower sperm numbers. Smoking, drinking alcohol, and taking certain medications can lower sperm numbers. Other causes include long term sickness, childhood infections (mumps) chromosome or hormone problems (such as low testosterone).