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MATRIC NUMBER: 18/MHS02/071

DEPATMENT: NURSING SCIENCE

COLLEGE: MEDICINE AND HEALTH SCIENCE

DEPARTMENT: NURSING SCIENCE

SUBJECT: PHYSIOLOGY ASSIGNMENT

1. SPERMATOGENESIS

This is the process by which haploid spermatozoa develop from germ cells in the seminiferous tubules of the testis and become mature in the epididymis. It is also the process of producing mature sperm called spermatogenesis. The entire process takes about 9-10 weeks and the maturation process begins at puberty.

They are three stages of spermatogenesis

1. Spermatocytogenesis (mitosis)
2. Meiosis
3. Spermiogenesis

The process starts with the mitotic division of the stem cell called spermatogonia or spermatogonium stem cell which is located close to the basement membrane of the tubules.

The miotic division of the spermatogonia produce two type of cells type A cell and type B cell. The type A cell replenish the stem cell (spermatogonia), and type B cell differentiate into primary spermatocytes.

The primary spermatocyte divides meiotically (meiosis I) into two secondary spermatocytes, each secondary spermatocyte divides into two equal haploid spermatids by meiosis II.

The spermatids develop into spermatozoa (sperm) by the process of spermatogenesis. These develop into mature spermatozoa also known as sperm cell.

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| CELL TYPE | CHROMOSOME IN HUMAN | PROCESS ENTERED |
| Spermatogonium | Diploid (2N)/46 | Spermatocytogenesis (mitosis) |
| Primary spermatocyte | Diploid (2N)/46 | Spermatidgenesis (meiosis I) |
| Two secondary spermatocytes | Haploid (N)/23 | Spermatidgenesis (meiosis II)  |
| Four spermatids  | Haploid (N)/23 | Spermiogenesis |
| Four functional spermatozoids | Haploid (N)/23 | Spermiation  |

1. TESTOSTERONE

Testosterone is the primary male sex hormone and anabolic steroid that plays important role in the body. The teste produce testosterone in the Leydig cell which is transported to other part of the body by the blood vessel which carries the testosterone all over the body. In men, it’s thought to regulate sex drive (libido), bone mass, fat distribution, muscle mass and strength and the production of the red blood cells and sperm. As men age, they often make less testosterone.

Testosterone is produced in both men and women, but men pass the age of puberty (12-15) have about 7-8x testosterone than female of the same age but is still referred to has the primary male sex hormone.

ROLE OF TESTOSTERONE

* It induces the reproductive organ to differentiate into male reproductive organ.
* Testosterone signals other cells in the body to start the process of sperm production called spermatogenesis
* It is responsible for secondary sex characteristics; growth of facial, chest, public hair, also for Deeping of voice, growth of the larynx (Adams apple), bone growth
* Increase sex drive and aggression.
* Testosterone increase red blood cell by stimulating our kidney to produce another type of hormone called erythropoietin (EPO) which cause the creation of more red blood cells.

REGULATION OF TESTOSTERONE IS BY FEED BACK LOOP

The hypothalamus will sense the amount of testosterone that is flowing through the blood, if the testosterone is not enough the hypothalamus will send signal to another gland in the brain called the anterior pituitary gland which sit right under the hypothalamus. The anterior pituitary gland will send more hormone to the teste that will increase the testosterone production.

Also, if they is too much testosterone in the blood the hypothalamus will sense it and stop sending signal to the anterior pituitary gland and the anterior pituitary gland will stop sending signal to the teste which will lead to decrease in testosterone. Control blood testosterone is referred to as testosterone homeostasis meaning to remain constant.