

UMAR SHAMWEEL MAKUN

BIOMEDICAL ENGINEERING

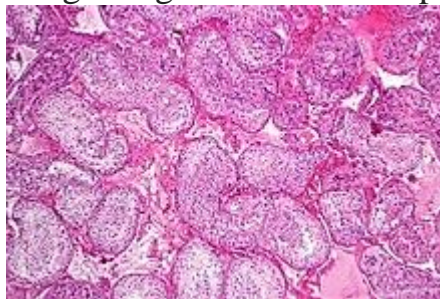
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ANATOMY ASSIGNMENT

1. 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. 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. The primary spermatocyte divides meiotically (Meiosis I) into two secondary spermatocytes; each secondary spermatocyte divides into two equal haploid spermatids by Meiosis

Spermatozoa are the mature male gametes in many sexually reproducing organisms. Thus, spermatogenesis is the male version of gametogenesis, of which the female equivalent is oogenesis. In mammals it occurs in the seminiferous tubules of the male testes in a stepwise fashion. Spermatogenesis is highly dependent upon optimal conditions for the process to occur correctly, and is essential for sexual reproduction. DNA methylation and histone modification have been implicated in the regulation of this process. 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 mature sperm.

Spermatogenesis takes place within several structures of the male reproductive system. The initial stages occur within the testes and progress to the epididymis where the developing gametes mature and are stored until ejaculation. The seminiferous tubules of the testes are the starting point for the process, For humans, the entire process of spermatogenesis is variously estimated as taking 74 days

2.TESTOSTERONE: Testosterone is the hormone responsible for the development of male sexual characteristics. Hormones are **chemical messengers** that trigger necessary changes in the body. Females also produce testosterone, usually in smaller amounts.

It is a type of androgen produced primarily by the testicles in cells called the Leydig cells.

In men, testosterone is thought to regulate a number of functions alongside sperm production. These include:

- Bone mass
- Sex drive
- muscle size and strength
- red blood cell production

Without adequate amounts of testosterone, men become infertile. This is because testosterone assists the development of mature sperm.Despite being a male sex hormone, testosterone also contributes to sex drive, bone density, and muscle strength in women. However, an excess of testosterone can also cause women to experience male pattern infertility.The brain and pituitary gland control testosterone levels. Once produced, the hormone moves through the blood to carry out its various important functions. Testosterone levels naturally decrease as a man ages.

The effects of gradually lowering testosterone levels as men age have received increasing attention in recent years. It is known as late-onset hypogonadism.

After the age of 40, the concentration of circulating testosterone falls by about **1.6 percent every year** for most men. By the age of 60, the low levels of testosterone would lead to a diagnosis of hypogonadism in younger men.

About **4 in 10** men have hypogonadism by the time they reach 45 years old.



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 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 seminal vesicle, 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. During the process of ejaculation, sperm passes through the ejaculatory ducts and mixes with fluids from the seminal vesicles, the prostate, and the bulbourethral glands to form the semen. The seminal vesicles produce a yellowish viscous fluid rich in fructose and other substances that makes up about 70% of human semen



4. male orgasm: we have different types of orgasm : wet dream, multiple, pelvic, prostrate etc.

Orgasm is when your pleasure peaks and releases. It can last from a few seconds to a few minutes. , this is when it usually happens. An orgasm is just part of the sexual cycle, which happens in stages. Every body is different, so the duration, intensity, and even order of the stages can vary from one person to another. Like excitement , plateau. **Ejaculation** is the discharge of seme from the male reproductory tract as a result of an orgasm.

5. male infertility: **Male infertility** refers to a male's 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,

CAUSES

- genetics
- immune infertility
- age
- trauma
- malaria
- abnormal set of chromosome
- testicular cancer.
- Infection
- Tobacco smoking
- DNA damage

PREVENTION

- Avoid smoking
- Diet
- Avoid heavy alcohol taking

- Avoid too much heat to the testes
- Wearing protective cup to protect the testicles,