

## PHYSIOLOGY ASSIGNMENT

OBAFEMI GODSPET OLUFEMI

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NURSING

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\*Write short notes on the following:

1. Spermatogenesis 2. Male orgasm

- Spermatogenesis: The process of sperm production in the testes. It's the process of the gradual transformation of germ cells into spermatozoa. It occurs mainly within the seminiferous tubules of the testes which are numerous thin, tightly coiled tubules and spermatogenesis can be divided into three phases, each of which is associated with different germ cell types:

\*Proliferative phase: spermatogonia → spermatocytes

\*Meiotic phase: spermatocytes → spermatids

\*Differentiation phase (also known as spermiogenesis):  
spermatids → spermatozoa

Unlike the female production of gametes which occurs entirely before birth, with gamete maturation occurring in a pulsatile fashion after puberty, males produce gametes continuously from puberty onwards for the rest of their reproductive lives and the release of the gametes is constant. The entire process of spermatogenesis including the transport on ductal system, it takes 3 months. Testes produce 200 to 300 million spermatozoa daily, however only about half or 100 million of these become viable sperm. Spermatogenesis is controlled by a complex feedback mechanism involving the hypothalamus, anterior pituitary and testes. Gonadotrophic releasing hormone (GnRH) is released by the hypothalamus in a pulsatile manner and travels through portal vessels to the anterior pituitary, where it acts on the gonadotrophic cells. These cells respond to the stimulation by producing either follicle stimulating hormone (FSH) or luteinizing hormone (LH) depending on the pattern of GnRH secretion. LH and FSH travel in the bloodstream to the testes, where LH acts on the Leydig cells to stimulate them to convert steroids to testosterone and other androgens, which in turn contribute to the stimulation of Sertoli cells. FSH acts on the receptors of Sertoli cells and in combination with testosterone, stimulates many functions, including synthesis and secretion of oestrogen, inhibin and many other products, meiosis, spermatocyte maturation and Leydig cell function.

- Male orgasm: The typical result of a male orgasm is ejaculation of sperm through muscle contractions. Although it seems simple, the male orgasm is a complex system involving multiple hormones, organs, and nerve pathways. A man often only needs physical stimulation to achieve arousal, while women typically need physical and mental stimulation to achieve the same. The fuel for the process leading to orgasm is testosterone, a hormone produced in steady supply by the testicles. The testicles also make millions of sperm each day, which mature and are then mixed with whitish, protein-rich fluids that nourish and support the sperm so they can

live after ejaculation for a limited time. This mixture of fluid and sperm, known as semen, is what is moved through the urethra and out the penis during orgasm. The testosterone flowing through a man's body is the primary factor along with physiological factors that determines the strength of his desire for sex. If a man has no sex drive, for example, if he has clinically low testosterone or is suffering from depression, his body may not respond to sexual stimuli and he may not be able to experience orgasm. The steps that lead to a successful orgasm are:

- Arousal- The man perceives something or someone that prompts sexual interest, that perception prompts the brain to send a signal down the spinal cord to the sex organs, causing erection. The penis becomes erect when blood fills spongy tissue inside its shaft, brought by arteries that have expanded to allow blood to race in at up to 50 times its normal speed. The veins in the penis that normally drain blood out squeeze shut so more blood remains inside, producing a firm erection. The scrotum pulls toward the body, and muscles throughout the body increase in tension.
- Plateau- The male body prepares for orgasm in this phase, which can last from 30 seconds to 2 minutes. Muscle tension increases even more and involuntary body movements, particularly in the pelvis begin to take over. The man's heart rate increases to between 150 and 175 beats per minute and a clear fluid may begin to flow from the urethra. This pre-ejaculatory fluid is meant to change the Ph balance of the urethra, to improve the chances of sperm survival.
- Orgasm- This occurs in two phases, emission and ejaculation. In emission, the man reaches ejaculatory inevitability. Semen is deposited near the top of the urethra, ready for ejaculation. Ejaculation occurs in a series of rapid-fire contractions of the penile muscles and around the base of the anus. The nerves causing the muscle contractions send messages of pleasure to the man's brain.
- Resolution and refraction- After ejaculation, the penis begins to lose its erection. Muscle tension fades and the male may feel relaxed or drowsy, Men usually must undergo a refractory period, or recovery phase during which they cannot achieve another erection. The average refractory period is about half an hour, men differ from women in that men usually are satiated after one orgasm. Women can experience more than one orgasm with no loss of sexual arousal and do not have to undergo a refractory period.

Some men have problems reaching orgasm, these problems can include psychological factors like restrictive upbringing, a traumatic event, or they may have fallen into masturbation patterns that could have conditioned the body to take longer to orgasm; it could also be caused by certain medications or by a neurological or cardiovascular disease, or by having surgery where nerves are cut. A thorough medical exam and history may reveal the reason why. A short-term way to address problems with orgasm

involves stimulation of the penis with a vibrator or some other type of sex toy, but for meaningful changes, some form of sex therapy will be needed. Therapy can involve “homework” in which a couple engages in sexual activities that reduce performance pressure and focus on pleasure.

#### REFERENCES

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