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DEPARTMENT: NURSING SCIENCES

COURSE: PHYSIOLOGY (PHS 212)

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**ASSIGNMENT:** Write short note on the following;

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

ANSWERS

* **MALE ORGASM**

Orgasm according to the dictionary is defined as the climax of sexual excitement, characterized by intensely pleasurable feelings centered in the genitals and (in men) experienced as an accompaniment to ejaculation. An orgasm is a feeling of intense pleasure that happens during sexual activity. Orgasm is the peak of sexual arousal when all the muscles that were tightened during sexual arousal relax. It’s sometimes called coming or climaxing. Most people can have orgasm. During orgasm, your heart may beat faster and your breathing may change .a guy’s orgasm is usually accompanied by the release of ejaculatory fluid, and about 10percent of women also ejaculate during orgasm.

Male orgasm is a complex experience. The major function of the male orgasm is to ejaculate sperm, although not all men will ejaculate during an orgasm. Beyond delivering pleasure, the role of the female orgasm is less clear, although it may help move the sperm closer toward the ovum (egg).

In the 1950s, Alfred Kinsey, the first scientist to study human sexuality in detail, descried the orgasm as “an explosive discharge of neuromuscular tension. “In the years since those initial studies, we have come closer to understanding both the physiological and emotional components of the male orgasm, as well as the conditions that impede or promote it.

The male orgasm is a complex system involving multiple hormones, organs, and nerve pathways. The hormone testosterone, produced in the testicles, plays a central role by enhancing the sexual desire (libido) that leads to arousal, erection, and ultimately orgasm. By constrast, lowtestosterone not only decreses 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 to achieve arousal, while women typically need physical and mental stimulation to achieve the same. The 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.

**Phases of the male orgasm**

The routes to ejaculation in men are actually delineated by four (4) distinct phases, of which orgasm is the third. While the duration and intensity of these phases can vary, the experience will proceed in a strictly specific way. The model was first outlined by will am Masters and Virginia Johnson in their 1966 book, Human Sexual Response.

PHASE 1: **Arousal**

Arousal is the stage in which physical, sensory, and emotional cues prompt the brain to release a neurotransmitter known as acetylcholine. This in turn triggers the release of nitric oxide into the arteries of the penis, causing them to expand and rapidly fill with blood. The resulting erection is generally accompanied by changes in respiration, increased overall muscle tension, and the retraction of the scrotal sac.

PHASE 2: **Plateau**

Plateau is the phase immediately preceding orgasm in which the voluntary thrust of the body, specifically the pelvis, suddenly becomes involuntary, increasing both in intensity and speed. It is at this stage that the heart rate increases to between 150 and 175 beats per minute, accompanied by a marked rise in blood pressure and body temperature. Traces of seminal fluid (“pre-cum”) may leak from the urethra. The release of pre-ejaculatory fluid is more than just incident; it alters the pH of the urethra so that the sperm has better chance of survival. All told, the plateau phase lasts between 30 seconds and 2 minutes.

PHASE 3: **Orgasm**

The orgasm phase is divided into two parts. The first, known as emission, is the stage where ejaculation is inevitable. This is immediately followed by the second stage, ejaculation; in which strong contraction of the perinea muscles help propel the semen from the body. During orgasm, the reward center of the brain (specifically the cerebellum, amygdala, nucleus accumbens, and ventral tegmental area) is flooded with neurochemicals, inciting the intense emotional response associated with an orgasm. At the same time, the lateral orbitofrontal cortex located behind the left eye shut down entirely. This is the part of the brain that plays a central role in judgment and self-control. The effect explains why people often describe an orgasm as a state where “nothing else matters”.

PHASE 4: **Resolution and Refraction**.
Resolution is the phase following orgasm where the penis starts to lose its erection. This is often accompanied by feelings of extreme relaxation or even drowsiness. Refraction, also known as the refectory period, is the stage following climax when a man is unable to achieve another erection with stimulation. In younger men, the refectory period may be as short as 15 minutes. In older men, it may last as long as an entire day.

**MALE MULITIPLE ORGASM**

“Multiorgasmic” is a term used to describe the ability to have more than one orgasm within the span of minutes or seconds. The orgasm mat not involves actual ejaculate but must include the physiological and emotional components of ejaculation. The multiorgasmic state can be classified in one of two ways;

* Condensed, in which two or four individuals and defined orgasms occur within a few seconds to two minutes.
* Sporadic, in which refraction is delayed and multiple orgasms can be achieved within the span of several minutes.

Beyond age, there are several factors commonly noted in multiorgasmic men. These include the use of psychoactive drugs, having multiple partners, having novel sex partners, and the use of sex toys to enhance tactile stimulation. What this suggests is that the ability to achieve multiple orgasms is the result of a heightened state of arousal rather than any unique hormonal or physiological response.

* **MALE INFERTILITY**

Male infertility refers to a male’s inability to cause pregnancy in a fertile female. In humans it accounts for40-5-% of infertility. It affects approximately 7% of all male. Male infertility is commonly due to deficiencies in the semen and semen quality is used as a surrogate measure of male fecundity.

CAUSES

Factors related to male infertility include:

* Immune infertility: Antiserum antibodies (ASA) have been considered as in fertility cause in around 10-30% of infertile couples. ASA production are directed against surface antigens on sperm, which can interfere with sperm motility and transport through the female reproductive tract, inhibiting fertilization, influence on the implantation process, and impaired growth and development of the embryo. Risk factors for the formation of antiserum antibodies in men include; the breakdown of the blood-testis barrier, trauma and surgery, orchitis, varicocele, infections, prostatitis, testicular cancer, failure of immunosuppression and unprotected receptive anal or oral sex with men.
* Genetics: chromosomal anomalies and genetic mutations account for nearly 10-15% of all male infertility cases.
* Klinefelter Syndrome: one of the most commonly known causes of infertility is klinefelter syndrome, affecting 1 out of 500-1000 newborn males. The klinefelter syndrome is a chromosomal defect that occurs during gamete formation due to a non-disjunction error during cell division. Resulting in male having smaller testes, reducing the amount of testosterone and sperm production. Males with this syndrome carry and extra X chromosome (XXY), meaning they have 47 chromosomes compared to the normal 46 in each cell. This extra chromosome directly affects sexual development before birth and during puberty (links to learning disabilities and speech development have also been shown to be affected). There are verities in the klinefelter syndrome, where some cases may have the extra X chromosome in some cells but not others, referred to as Mosaic Klinefelter syndrome, or where individuals have an extra X chromosome in all cells. The reduction of testosterone in the male body normally results in an overall decrease in the production of viable sperm for these individuals thereby forcing them to turn to fertility treatments to father children.
* Y chromosome deletions: chromosomal infertility is a direct cause of male infertility due to its effect on sperm production, occurring in 1 out of every 2000 males. Usually affected men show no sign of symptoms there than at times can exhibit smaller testes size. Men with this condition can exhibit azoospermia (no number of sperm production), oligozoospermia (small number of sperm production), or they will produce abnormally shaped sperm (teretozoospermia). This case of infertility occurs during the development of gametes in the male, where a normal healthy male will produce both X and Y chromosome, affected males have genetic deletion in the Y chromosome. These deletions affect protein production that is vital foe spermatogenesis. Studies shown that this is an inherited trait will; if a male is fathered by a man who also exhibited chromosome deletion then this trait will be passed down. These Individual are thereby “Y-linked”, although daughters are not affected due to the lack of Y chromosome.

Other causes include;

* Age
* Abnormal set of chromosomes
* Centriole
* Neoplasm, e.g. seminoma
* Idiopathic failure
* Trauma
* Hydrocele
* Hypopituitarism in adults, and hypopituitarism untreated in children( resulting in growth hormone deficiency and proportionate dwarfism)

PREVENTION

Some strategies suggested or proposed for avoiding male infertility include the following:

* Avoiding smoking as it damages sperm DNA
* Avoiding heavy marijuana and alcohol use.
* Avoiding excessive heat to the testes.
* Maintaining optimal frequency of coital activity: sperm counts can be depressed by daily coital activity and sperm motility may be depressed by coital activity that takes place too infrequently (abstinence 10-14 days or more).
* Wearing a protective cup and jockstrap to protect the testicles, in any sport such as baseball, football, cricket, lacrosse, hockey, softball, karate.e.t.c.
* Diet; healthy diets (i.e. the Mediterranean diet) rich in such nutrients as omega-3 fatty acids, some antioxidants and vitamins, and low in saturated fatty acids (STAs) and trans-fatty acids (TFAs) are inversely associated with low semen quality parameter.