

PowerPoint Presentation on

**“REPRODUCTIVE
PHYSIOLOGY AND
PLACENTATION”**

- :By : -

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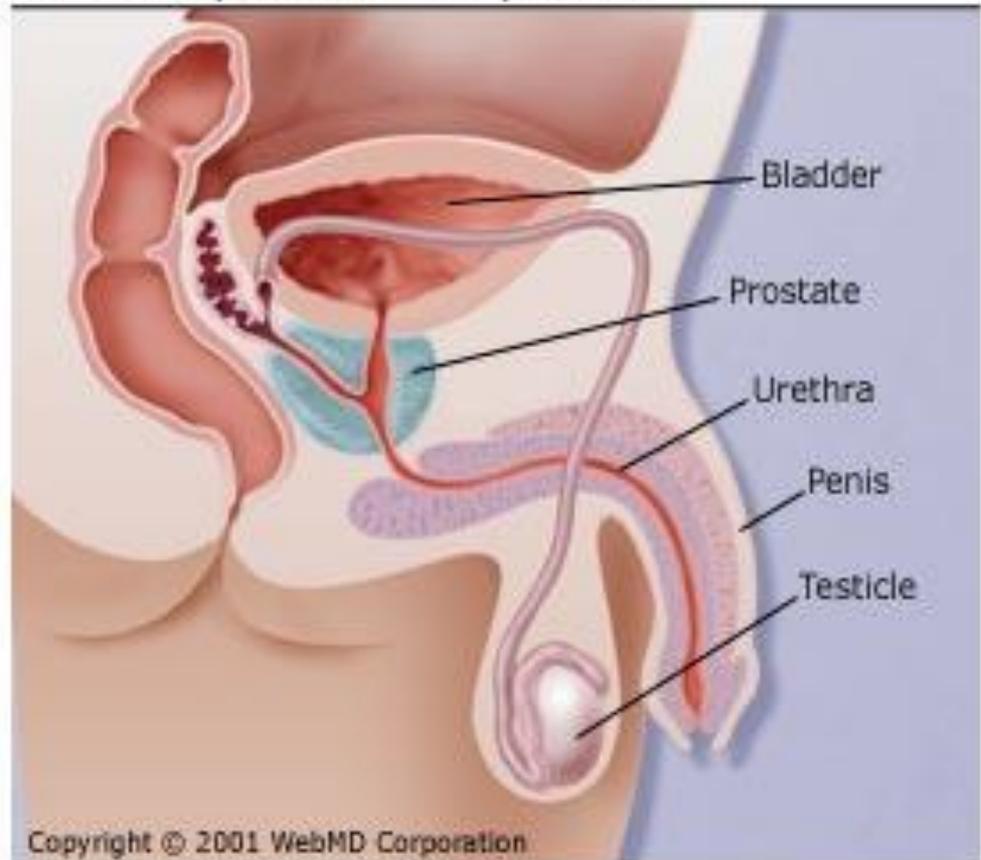
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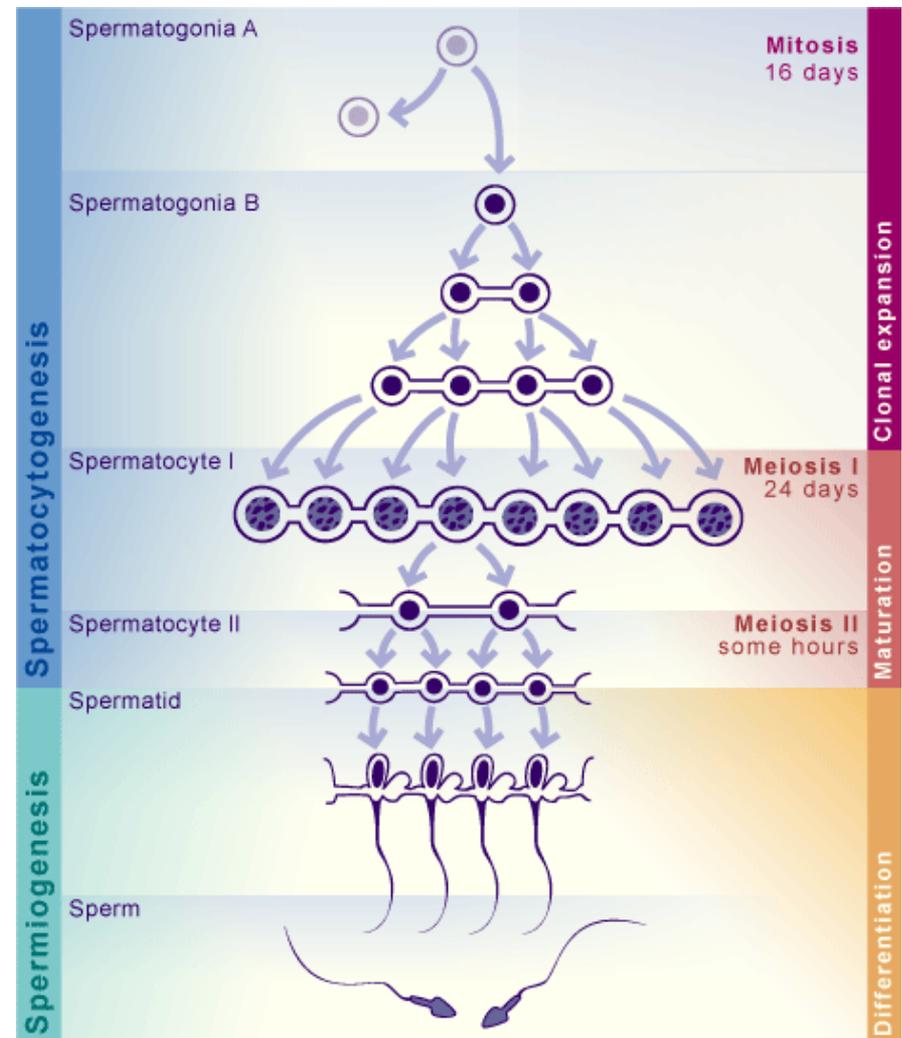
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Male Reproductive Systems

Male Reproductive System



Testicles (testes): These are oval organs about the size of large olives that lie in the scrotum, secured at either end by a structure called the spermatic cord. Most men have two testes. The testes are responsible for making testosterone, the primary male sex hormone, and for generating sperm. Within the testes are coiled masses of tubes called seminiferous tubules. These tubes are responsible for producing sperm cells.



Epididymis:

The epididymis is a long, coiled tube that rests on the backside of each testicle. It transports and stores sperm cells that are produced in the testes. It also is the job of the epididymis to bring the sperm to maturity, since the sperm that emerge from the testes are immature and incapable of fertilization. During sexual arousal, contractions force the sperm into the vas deferens.

Vas deferens:

The vas deferens is a long, muscular tube that travels from the epididymis into the pelvic cavity, to just behind the bladder. The vas deferens transports mature sperm to the urethra, the tube that carries urine or sperm to outside of the body, in preparation for ejaculation.

Ejaculatory ducts:

These are formed by the fusion of the vas deferens and the seminal vesicles. The ejaculatory ducts empty into the urethra.

Seminal vesicles:

The seminal vesicles are sac-like pouches that attach to the vas deferens near the base of the bladder. The seminal vesicles produce a sugar-rich fluid (fructose) that provides sperm with a source of energy to help them move. The fluid of the seminal vesicles makes up most of the volume of a man's ejaculatory fluid, or ejaculate.

Prostate gland :

The prostate gland is a walnut-sized structure that is located below the urinary bladder in front of the rectum. The prostate gland contributes additional fluid to the ejaculate. Prostate fluids also help to nourish the sperm. The urethra, which carries the ejaculate to be expelled during orgasm, runs through the center of the prostate gland.

Bulbourethral glands:

Also called Cowper's glands, these are pea-sized structures located on the sides of the urethra just below the prostate gland. These glands produce a clear, slippery fluid that empties directly into the urethra. This fluid serves to lubricate the urethra and to neutralize any acidity that may be present due to residual drops of urine in the urethra.

Urethra:

The urethra is the tube that carries urine from the bladder to outside of the body. In males, it has the additional function of ejaculating semen when the man reaches orgasm. When the penis is erect during sex, the flow of urine is blocked from the urethra, allowing only semen to be ejaculated at orgasm.

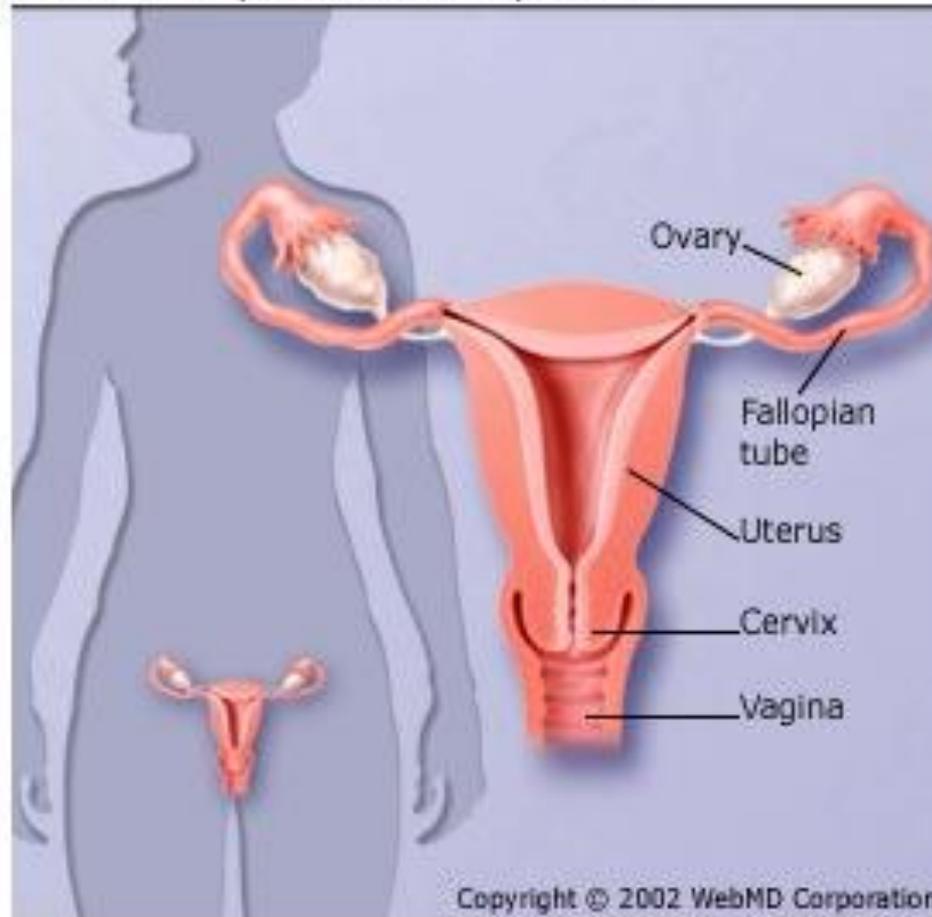
How Does the Male Reproductive System Function?

The entire male reproductive system is dependent on hormones, which are chemicals that regulate the activity of many different types of cells or organs. The primary hormones involved in the male reproductive system are follicle-stimulating hormone, luteinizing hormone, and testosterone.

Follicle-stimulating hormone is necessary for sperm production (spermatogenesis), and luteinizing hormone stimulates the production of testosterone, which is also needed to make sperm. Testosterone is responsible for the development of male characteristics, including muscle mass and strength, fat distribution, bone mass, facial hair growth, voice change, and sex drive.

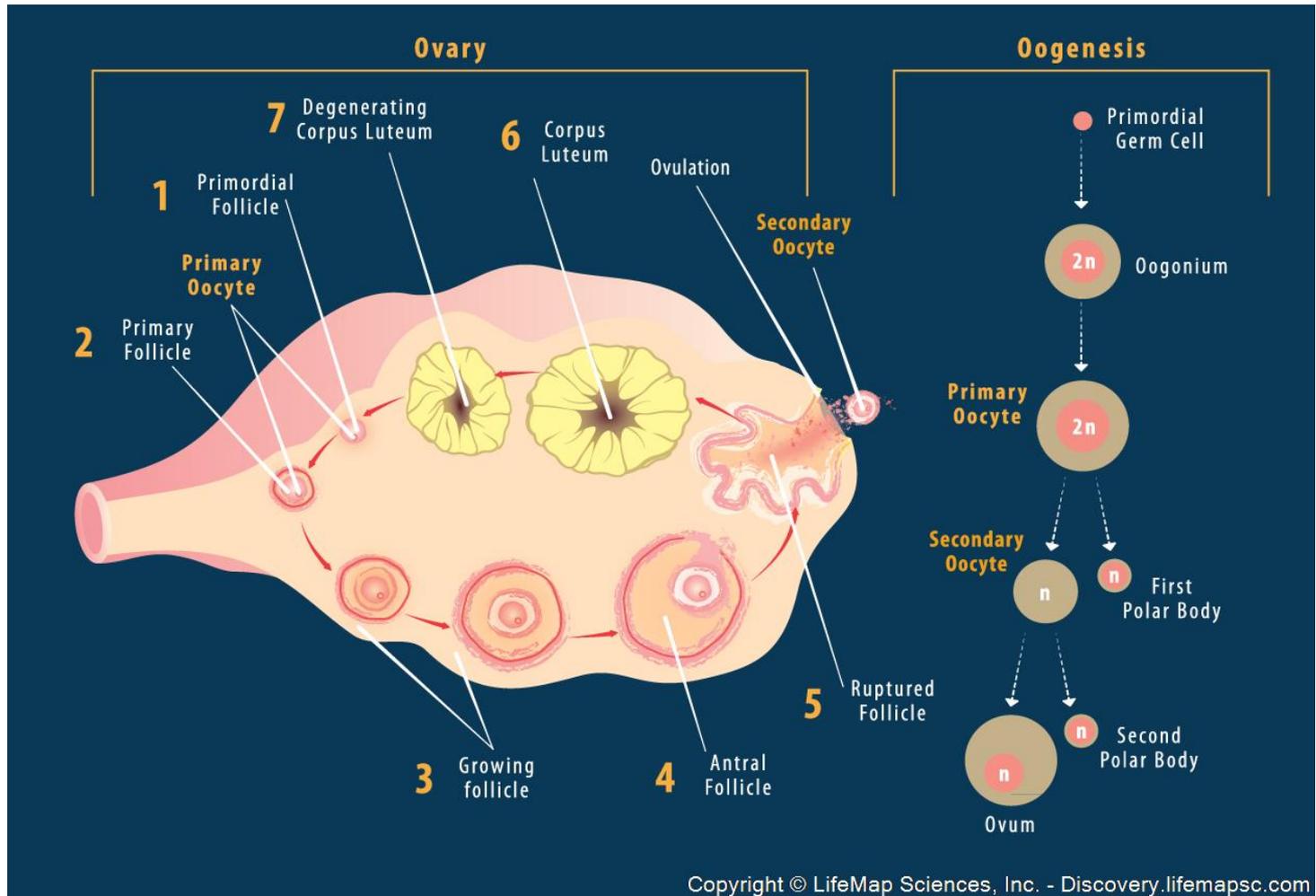
Female Reproductive System

Female Reproductive System



Ovaries:

The ovaries are small, oval-shaped glands that are located on either side of the uterus. The ovaries produce eggs and hormones.



Fallopian tubes:

These are narrow tubes that are attached to the upper part of the uterus and serve as tunnels for the ova (egg cells) to travel from the ovaries to the uterus. Conception, the fertilization of an egg by a sperm, normally occurs in the fallopian tubes. The fertilized egg then moves to the uterus, where it implants into the lining of the uterine wall.

Uterus (womb):

The uterus is a hollow, pear-shaped organ that is the home to a developing fetus. The uterus is divided into two parts: the cervix, which is the lower part that opens into the vagina, and the main body of the uterus, called the corpus. The corpus can easily expand to hold a developing baby. A channel through the cervix allows sperm to enter and menstrual blood to exit.

Vagina:

The vagina is a canal that joins the cervix (the lower part of uterus) to the outside of the body. It also is known as the birth canal.

Menstrual cycle

It is Characteristic of primates, does not occur in other vertebrates. It marks on set of puberty in human females

Phases of Menstrual cycle : -

The day count for menstrual cycle begins on the first day of menstruation when blood starts to come out of the vagina. In this section, the length of menstrual cycle has been assumed to be 28 days (which is the average among women). The entire duration of a Menstrual cycle can be divided into four main phases:

Menstrual phase (From day 1 to 5)

Follicular phase (From day 6 to 13)

Ovulation phase (Day 14)

Luteal phase (From day 15 to 28)

Menstrual phase (day 1-5)

Menstrual phase begins on the first day of menstruation and lasts till the 5th day of the menstrual cycle. The following events occur during this phase: The uterus sheds its inner lining of soft tissue and blood vessels which exits the body from the vagina in the form of menstrual fluid. Blood loss of 10 ml to 80 ml is considered normal.

You may experience abdominal cramps. These cramps are caused by the contraction of the uterine and the abdominal muscles to expel the menstrual fluid.

Follicular phase (day 6-13)

This phase also begins on the first day of menstruation, but it lasts till the 13th day of the menstrual cycle. The following events occur during this phase:

The pituitary gland secretes a hormone that stimulates the egg cells in the ovaries to grow. One of these egg cells begins to mature in a sac-like-structure called follicle. It takes 13 days for the egg cell to reach maturity. While the egg cell matures, its follicle secretes a hormone that stimulates the uterus to develop a lining of blood vessels and soft tissue called endometrium.

Ovulation phase (day 14)

On the 14th day of the cycle, the pituitary gland secretes a hormone that causes the ovary to release the matured egg cell. The released egg cell is swept into the fallopian tube by the cilia of the fimbriae. Fimbriae are finger like projections located at the end of the fallopian tube close to the ovaries and cilia are slender hair like projections on each Fimbria.

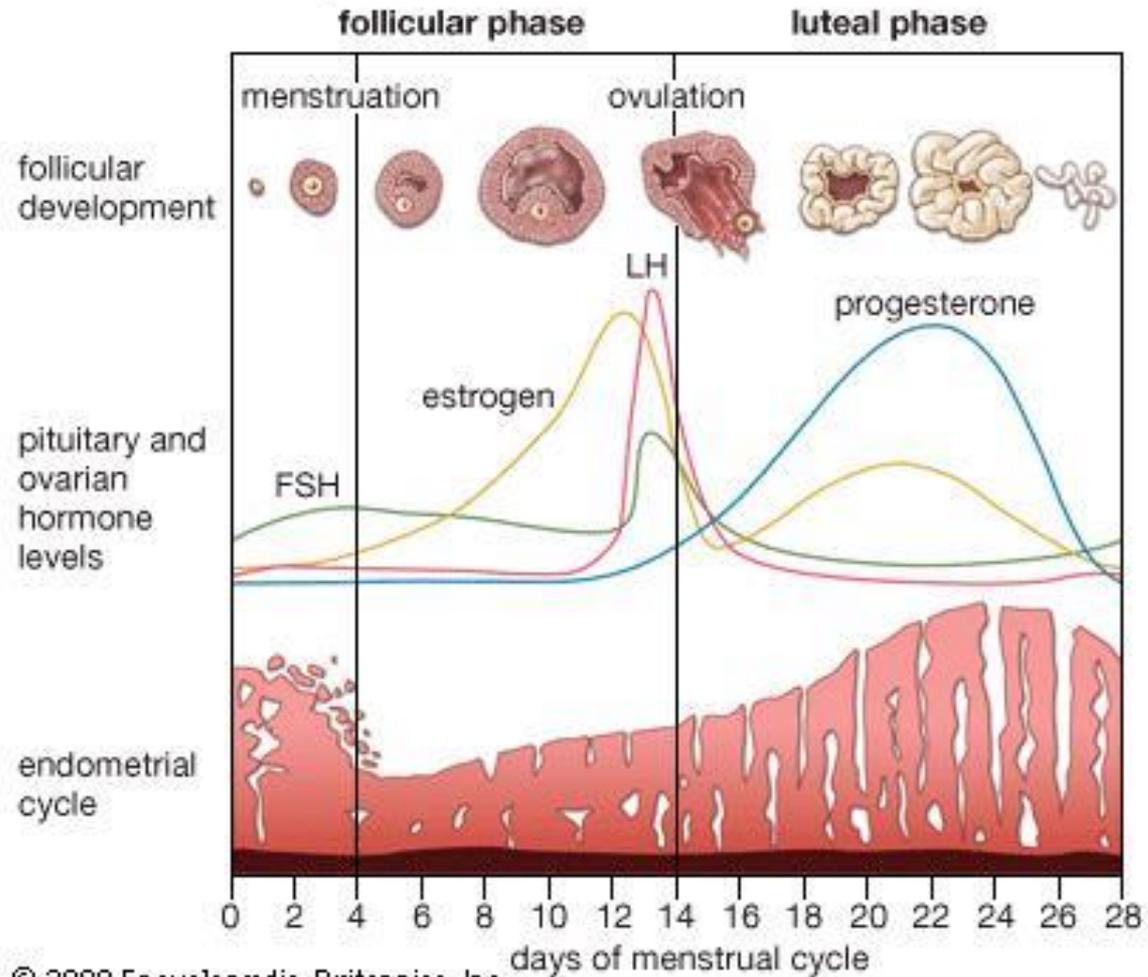
Luteal phase (day 15-28)

This phase begins on the 15th day and lasts till the end of the cycle. The following events occur during this phase:

The egg cell released during the ovulation phase stays in the fallopian tube for 24 hours. If a sperm cell does not impregnate the egg cell within that time, the egg cell disintegrates. The hormone that causes the uterus to retain its endometrium gets used up by the end of the menstrual cycle. This causes the menstrual phase of the next cycle to begin.

HORMONAL CONTROL OF MENSTRUAL CYCLE

The menstrual cycle



What Happens During the Menstrual Cycle?

Females of reproductive age experience cycles of hormonal activity that repeat at about one-month intervals. With every cycle, a woman's body prepares for a potential pregnancy, whether or not that is the woman's intention. The term *menstruation* refers to the periodic shedding of the uterine lining. (*Menstru* means "monthly.")

The average menstrual cycle takes about 28 days and occurs in phases: the follicular phase, the ovulatory phase (ovulation), and the luteal phase.

There are four major hormones (chemicals that stimulate or regulate the activity of cells or organs) involved in the menstrual cycle: follicle-stimulating hormone, luteinizing hormone, estrogen, and progesterone.

THE ESTROUS CYCLE

The majority of mammals become sexually-receptive (express estrus) and ovulate spontaneously at defined intervals. The female will only allow the male to mate during a restricted time coinciding with ovulation. Inefficiency of reproduction is attributable in part to prolonged periods of estrus; thus, the female might need to be bred several times to augment the chances of conception (eg., the mare and dog).

Stages

The estrous cycle can be divided into four stages: proestrus, estrus, metestrus, and diestrus. :-

- ✓ During proestrus the CL regresses (progesterone declines) and a preovulatory follicle undergoes its final growth phase (estradiol increases).
- ✓ Ovulation usually occurs during estrus (cows ovulate during metestrus).
- ✓ Proestrus and estrus comprise the follicular phase.
- ✓ Corpora lutea develop during metestrus and function at optimum during diestrus.
- ✓ Metestrus and diestrus make up the luteal phase.

AVERAGE LENGTHS (days) OF ESTRUS AND ESTROUS CYCLES

<i>Species</i>	<i>Estrus</i>	<i>Cycle</i>
Mouse, rat	0.5	4
Guinea pig	0.5	16
Sheep	2	17
Goat	3	20
Cattle	0.5	21
Pig	2	21
Horse	5	21
Elephant	4	22
Red kangaroo	3	35
Lion	9	55
Dog	7	60

PLACENTA

Definition of placenta:

A placenta is an organ built up of maternal and foetal tissues jointly. It serves for the transport of nutrients from the mother tissues with those of the embryo as well as the exchange of gases between the tissues of the two. Thus a placenta may be defined as a temporary connection between the maternal and foetal tissues for the purpose of shelter, nutrition, respiration, excretion and defense.

In biology, **placentation** refers to the formation, type and structure, or arrangement of placentas. The function of placentation is to transfer nutrients from maternal tissue to a growing embryo. Placentation is best known in pregnant female mammals (eutheria), but also occurs in other animals, eggs (yolk sac placentation) and flowering plants.

Components of Placenta

It consist of Two parts

a.) Foetal Placenta Furnished by Extra embryonic membrane, Amnion, chorion, yolk sac and allantois.

b.) Maternal Placenta Furnished by Uterine endometriun.

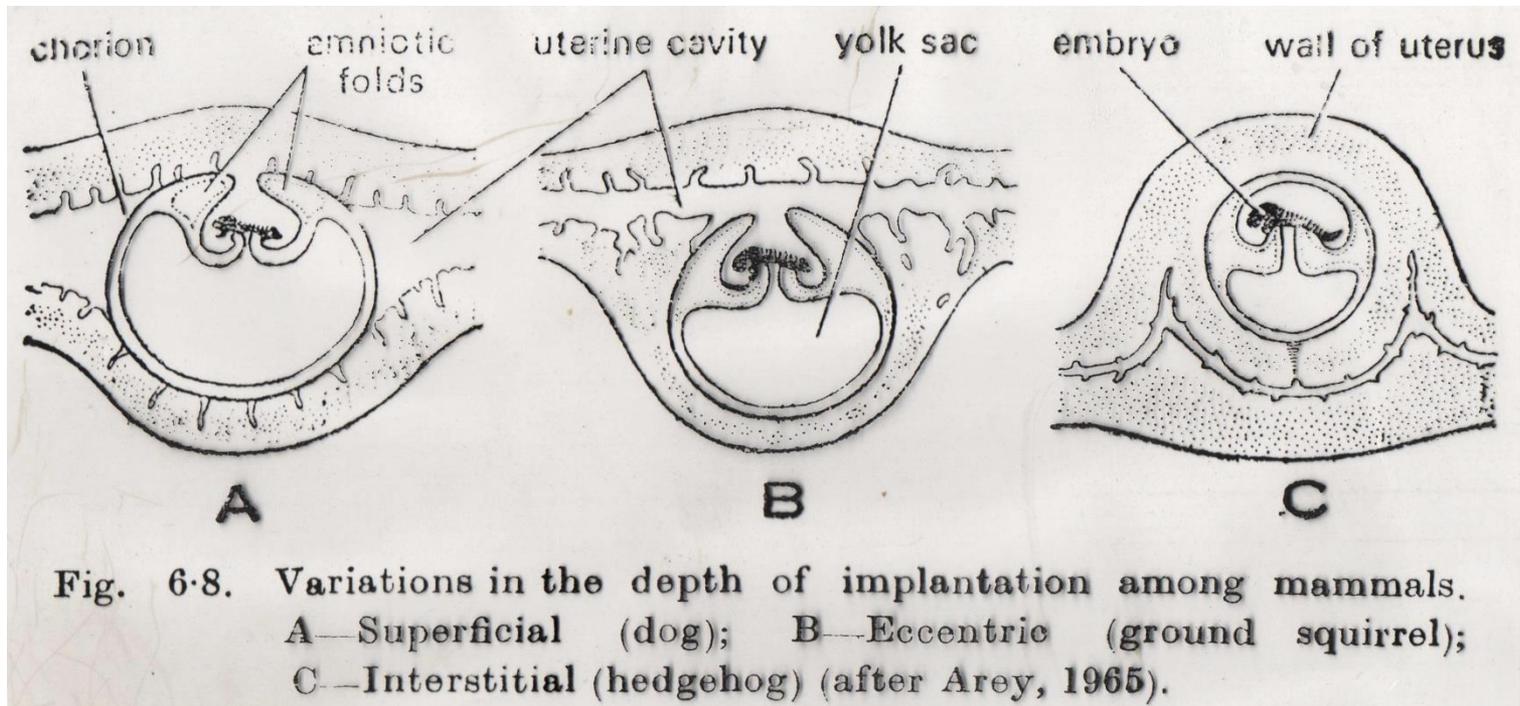
Their exist two main types of placenta in mammals :

I. Chorio-vitelline Placenta

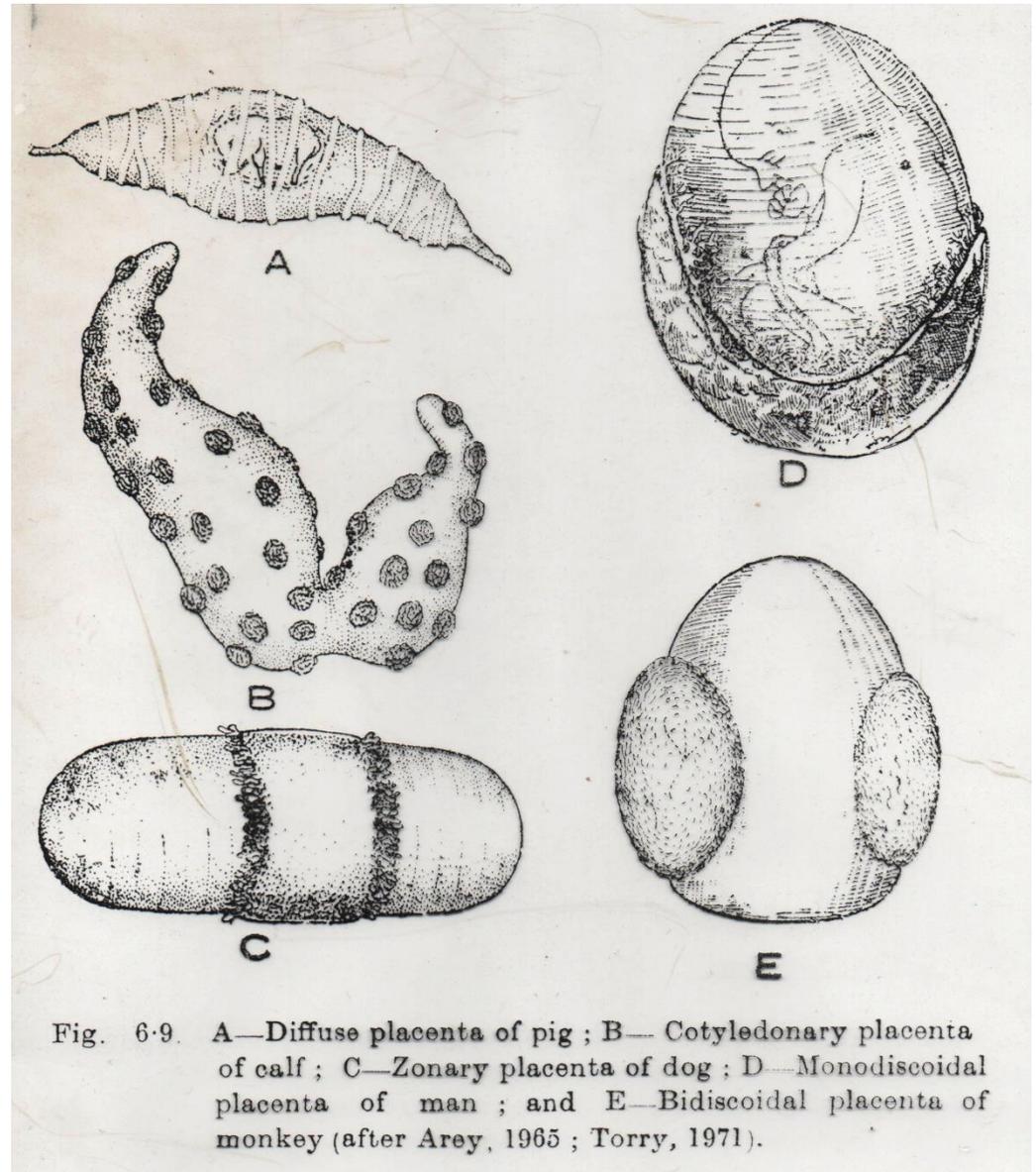
II. Chorio allantoic Placenta

Types of Mammalian Placenta

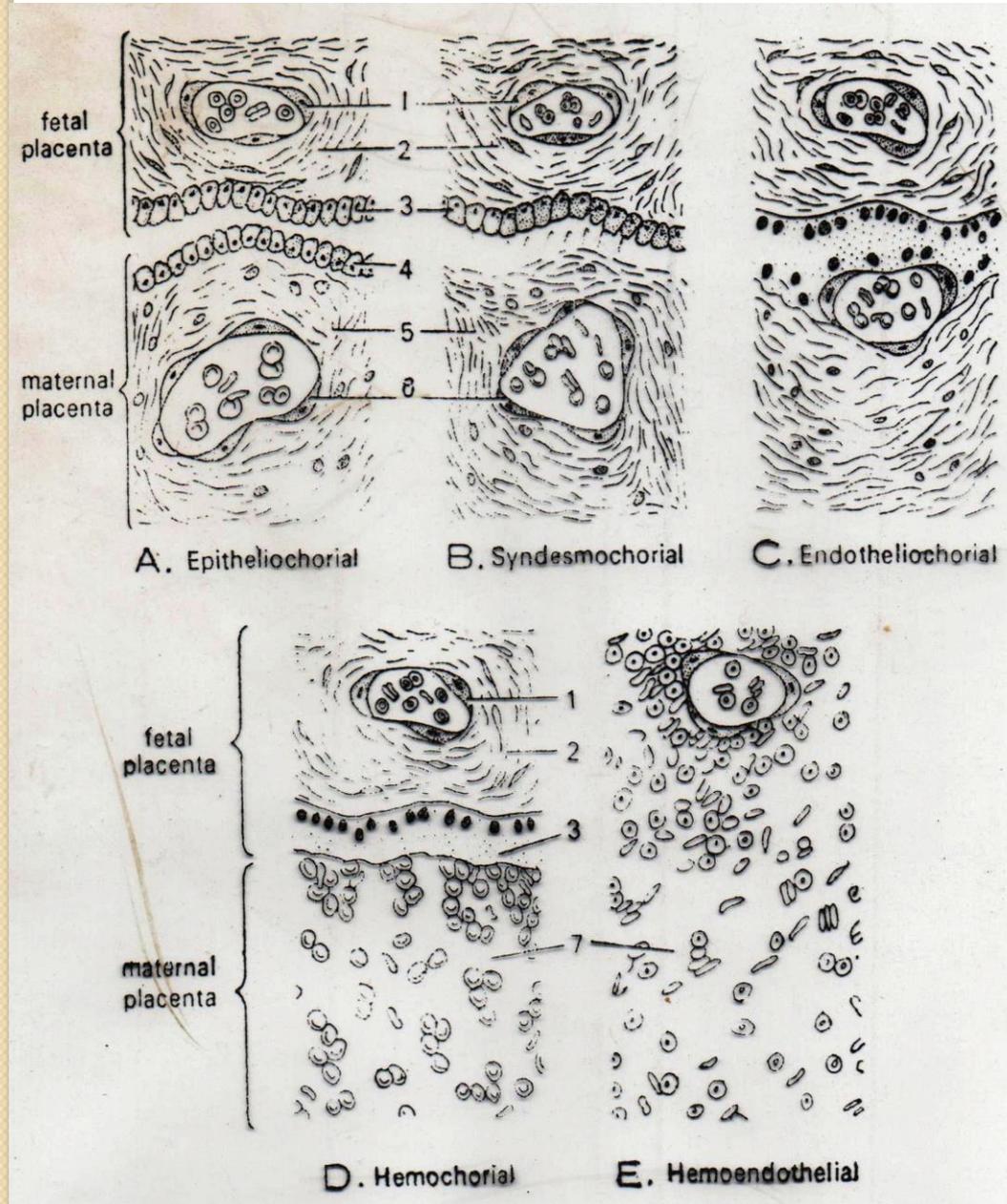
A) According to Mode of Implantation



B) According to Distribution of Villi on Chorion



C) According to histology



1. Endothelium of Foetes
2. Chorion of Foetes
3. Chorionic Epithelium
4. Uterian Epithelium
5. Endometrial Connective tissue
6. Endothelium blood vessel

PHYSIOLOGY OF PLACENTA

- Transfusion of Gases
- Transport of Water
- Transfusion of inorganic material: -
 - Iron
 - Copper
 - Manganese
 - Calcium phosphorus
- Transfusion of carbohydrates
- Transfusion of lipids
- Transfusion of vitamins
- Transfusion of nitrogen
- Role as an endocrine organ
- Role in excretion

