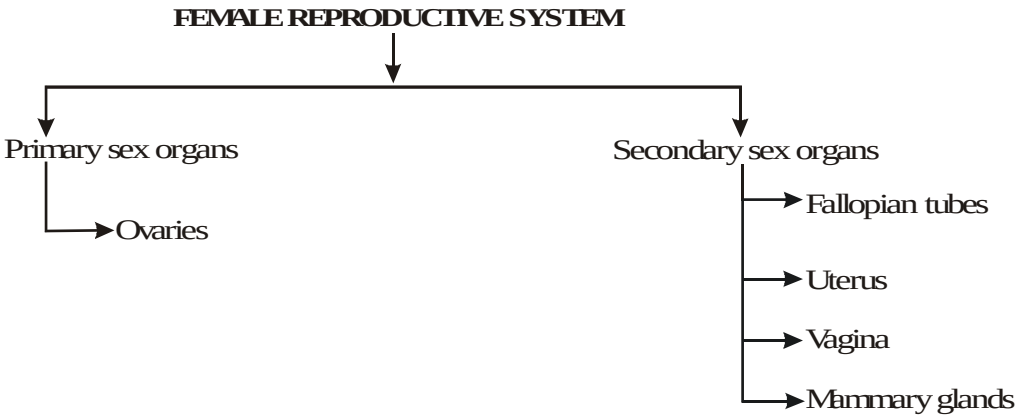
SCIENCE

FEMALE REPRODUCTIVE SYSTEM AND MENSTRUATION

Female reproductive system



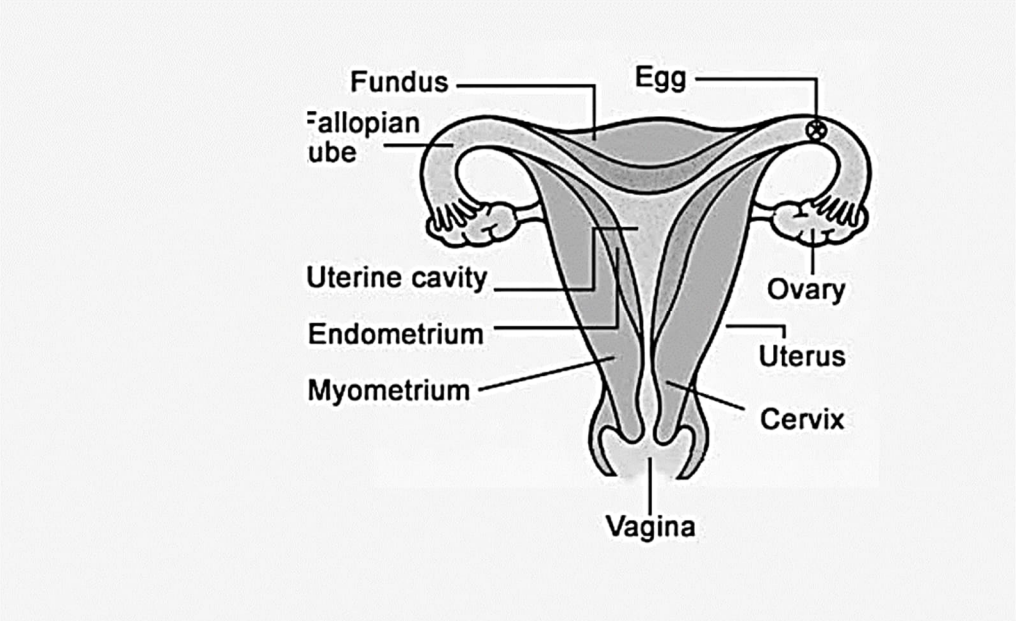


Fig. : Female reproductive system.

(I) Ovaries : One pair of ovaries are present (oval shaped) near the kidney.

• Ovary is divided into 2 parts : - Outer part is cortex made up of dense connective tissue with reticular fibres, ovarian follicles and few blood vessels while inner or central part is medulla made up of less dense connective tissue with elastic fibres, numerous blood vessels.

(II) Fallopian tube : It is about 10 cm. long muscular tube. It shows 4 regions :

1. Infundibulum : It is the broad, funnel shaped proximal part of fallopian tube. It's margin bears finger like processes called as fimbriae. This is meant to carry ovum by ciliary movement to the fallopian tube.

2. Ampulla : It is a long, wide part of the fallopian tube next to the infundibulum.

3. Isthmus : It is the narrow part that follows ampulla.

4. Uterine part : It is also narrow and passes through the uterine wall.

(III) Uterus : It is large , highly elastic sac specialized for the development of the embryo.

• It is situated in pelvic cavity.

• It is attached to the fallopian tube from the sides and below it opens into vagina through cervix.

(IV) Cervix : Lower narrow cervix that projects into the vagina.

(V) Vagina : It is a large, median, elastic, muscular tube. It is also called as "Birth canal".

(iii) Menstrual Cycle :

• The sexual cycle in females (or women) is called menstruation or menstrual cycle. This is described below :

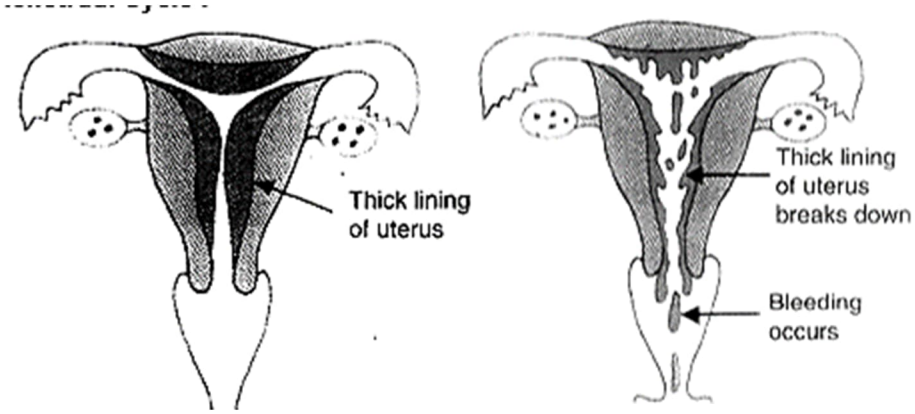


Fig.: A thick lining grows in the uterus to receive the fertilised egg cell (if any),

• When girl reaches puberty at the age of about 10 to 12 years, the sex hormones released into her blood cause some of the ova (or egg cells) in her ovaries to become mature (or ripe).

• usually one mature ovum (or egg) is released from the ovary into the oviduct once every 28 days. This is called ovulation.

• Before ovulation(or release of ovum), the inner lining of uterus becomes thick and spongy, and full of tiny blood vessels (or blood capillaries), and prepares itself to receive the fertilised ovum or egg (in case it gets fertilised by sperm).

• If the ovum (or egg) does not get fertilised (due to non-availability of sperm in the female body) then the thick and soft inner lining of uterus is no longer needed and hence it breaks. So, the thick and soft innner lining of uterus alongwith the blood vessels and the dead ovum (or egg) comes out of the vagina in the form of a bleeding called menstruation.

• menstruation usually occurs 14 days after ovulation and usually lasts for about 3 to 5 days.

• After menstruation is over, the inner lining of the uterus starts building up again so that it may become ready to receive the next ovum (or egg) in case it gets fertilised.

• If the ovum (or egg) does not get fertilised even now, then menstruation takes place again. This cycle of menstruation is repeated again and again in women after every 28 days (till the time ovum gets fertilised). The menstural cycle is controlled by hormones. Menstruation stops temporarily when the ovum (or egg) gets fertilised and the woman gets pregnant. This is because in this case the thick and soft lining of the uterus containing lot of blood vessels is needed for the growth and development of the fertilised ovum (or fertilised egg cell) to form a baby. Menstruation restarts after the birth of the baby.

• Oogenesis : Oogenesis is a process of formation of ovum. The ovum is a rounded , non– motile cell.

(iv) fertilization :

• It includes release of ovum from the ovary, where it remains viable for 12 – 24 hours.

• Only one sperm is required for fertilization of the ovum.

• The head of the sperm penetrates ovum.

• This process is facilitated by acrosome and proteolytic enzymes.

• After penetration only head enter inside the ovum.

• Here the pronuclei of sperm and ovum fuse to form a new resultant nucleus each contributing 23 chromosomes, so that the resultant structure have 46 chromosomes.

• Fusion of male & female gametes is called as fertilization.

• Zygote starts developing in fallopian tube and forms embryo, this later on moves to uterus.

• It gets attached to uterine walls and the whole process is called as implantation.

• Placental formation occurs between uterine wall and the foetus, which provides nourishment to the foetus.

• The time period for which a developing foetus remains inside the mother's womb is called as gestation period. It extends for about 9 months or 40 weeks or 280 days.

• The process of giving birth to baby is called as parturition

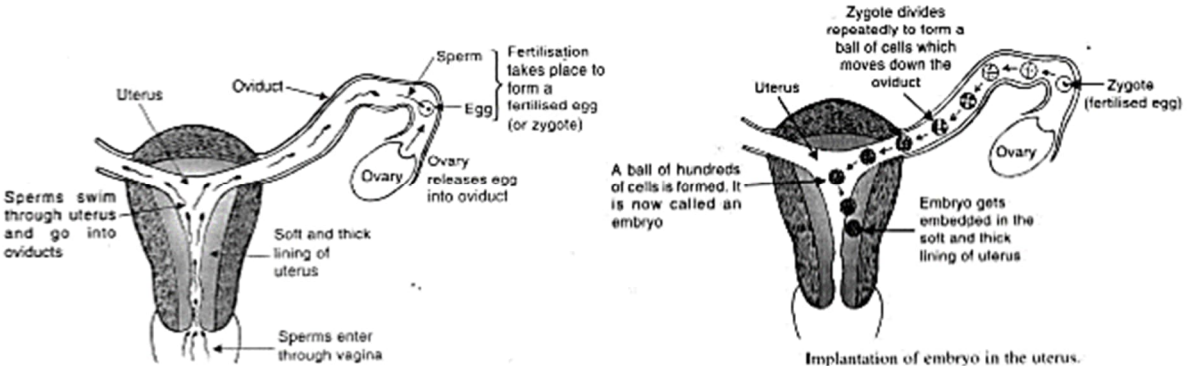


Fig.: Fertilisation in human to form a zygote (fertilised egg). , Implantation of embryo in the uterus.

(IV) Population Growth :

• The term population refers to the total number of individuals of a species occupying particular geographical area at a given time.

• The scientific study of human population is called as "demography".

(i) Factors that lead to increase in population are :

• Illiteracy

• Desire of son

- Decline in death rate
- Desire for more earning hands

(ii) Birth control methods : The prevention of pregnancy in women (by preventing fertilisation) is called contraception. Any device or chemical (drug) which prevents pregnancey in woman is called a contraceptive. All the birth control methods can be broadly divided into three categories.

1. Barrier methods 2. Chemical methods. 3. Surgical methods. 4. IUCD

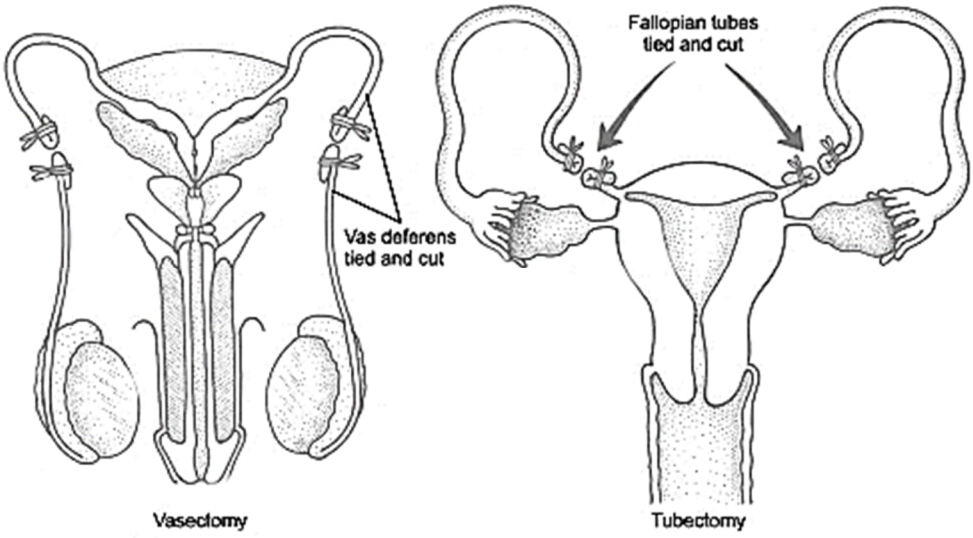
1. Barrier Methods : In the barrier methods of preventing pregnancy, the physical devices such as condoms and diaphragm (or cap) are used. Condoms are used by males (by putting them as a covering on the penis). Condom is called 'nirodh' in Hindi. Diaphragm (or cap)is used by females (by putting it in the vagina to cover the cervix). Condom as well as diaphragm prevent the sperms from meeting the ovum (or egg) by acting as a barrier between them . An important benefit in the use of condom is that it protects a person from the sexualy transmitted diseases such as gonorrhoea, syphilis and AIDS. No other method of contraception provides protection against sexually transmitted diseases.

2. Chemical methods : In the chemical methods of preventing pregnacy, the females use two types of pills : oral pills and vaginal pills, which are made of specific drugs. The oral pills contain hormones which stop the ovaries from releasing ovum (or eggs) into the oviduct.Oral pills are also called oral contraceptives.

3. Intra-Uterine Contraceptive Device (IUCD) : The use of intrauterine contraceptive device called Copper-T is also very effective in preventing pregnancy. A Copper-T is placed inside the uterus by a doctor or a trained nurse. The IUCD or Coper-T prevents the implantation of fertilised egg in the uterus. If a woman uses a Copper -T as method of contraception for avoiding unwanted pregnancies, then Copper-T cannot protect her from acquiring sexually transmitted diseases (if her partner has such a disease).

4. Surgical Methods : Surgical methods of birth control are available for males as well as females. In males, a small portion of the sperm duct (or vas deferens) is removed by surgical operation and both the cut ends are ligated (or tied) properly. This prevents the sperms from coming out. The surgical procedure carried out in males is called 'vasectomy'. In females, a small portion of the oviducts is removed by surgical operation and the cut ends are ligated (or tied). This prevents the

ovum (or egg) from entering into the oviducts. The surgical procedure carried out in females is called tubectomy.



Sexually transmitted diseases (STD) : These diseases are transmitted through unsafe sexual act. e.g.

(i) Gonorrhoea caused by Neisseria gonorrhoea (bacteria).

(ii) Syphilis caused by Treponema pallidum (bacteria).

(iii) AIDS (Acquired Immuno deficiency Syndrome) caused by human immuno deficiency virus (HIV).

Test yourself:

1. Expand the following terms :

   (i) IUCD (ii) STD (iii) HIV (iv) AIDS

2. Define semen.
3. Name two surgical methods of birth control.
4. Name primary sex organs of male and female.
5. What do you understand by fertilization ?
7. State the function of ovaries.
8. What changes occur in girls in the age group of 10-13 years ?