

Revision Notes

Class 12 – Biology

Chapter 4 - Reproductive Health

Reproductive Health: The complete well-being with respect to all aspects of reproduction like physical, emotional, behavioral, and social. A society with people having physically and functionally normal reproductive organs, as well as normal interactions with respect to behavior and emotion among them, is reproductively healthy.

4.1: Reproductive Health- Problems and Strategies

(i) In 1951, the strategies for family planning were introduced in India whose main aim was to achieve total reproductive health, and these strategies were evaluated every now and then.

(ii) Reproductive and Child Health Care (RCH) Programs are being introduced in order to create awareness among people about various reproduction-related aspects and in building a reproductively healthy society by providing facilities and support.

(iii) Steps to Achieve Reproductive Health:

1. Use of audio-visual and media print by both the governmental and non-governmental agencies to create awareness programs.
2. Young adults and children must be provided with correct information by the responsible adults, teachers, parents, close relatives, and friends along with the open dialogues to make them aware of reproductive health.
3. Sex education needs to be introduced in schools and colleges.
4. Awareness must be created about Sexually Transmitted Diseases or STDs.
5. There is a need to educate the people about birth control options, pre and post-natal care along with the importance of child care especially for fertile couples and marriageable individuals. They must also be made aware of the importance of breastfeeding, all this will result in the development of a conscious and healthy society and families.
6. People must be made aware of the problems related to the population explosion, sex-related crimes, and sex abuse.
7. To successfully implement the health plans there must be the availability of professional expertise, provision and availability of strong infrastructural facilities, and material support.

8. The facilities that are provided must be newer and upgraded in accordance with the need of the reproductive health.
9. Complete ban on fetal sex determination to check female foeticide.
10. Large-scale child immunization programs.

Certain factors need to be under check in order to decrease the rate of maternal and infant mortality, these factors are:

- (i) Awareness must be created related to matters of sex.
- (ii) The deliveries need to be medically assisted.
- (iii) Better post-natal care.

Indicators to indicate the improved reproductive health of the society are:

- (i) Smaller families.
- (ii) Early detection and cure for STDs.
- (iii) Overall increased medical facilities.

4.3: Population Explosion and Birth Control

Population Explosion: After the end of World war II, there is a rapid growth in the population of certain species, especially humans in the world leading to an increase in birth rate and a decrease in maternal, infant, and child rates. This will also result in an increase in the life expectancy of humans.

This will result in increased stress on all resources.

Causes:

- (i) The rapid decrease in the death rate.
- (ii) The rapid decrease in the maternal mortality rate (MMR).
- (iii) The rapid decrease in the infant mortality rate (IMR).
- (iv) The increase in the period of life expectancy.
- (v) The increase in the number of people belonging to the reproductive age.

Methods to Control Population Explosion:

- (i) Promoting the smaller families.
- (ii) Promoting the use of contraceptive methods.
- (iii) Increasing the legal age for marriage (18 years for females and 21 years for males).
- (iv) Appreciative measures towards couples with smaller families.

Ideal Contraceptive:

- (i) Should be used easily.
- (ii) Should be available easily.
- (iii) Should be effective.
- (iv) Side effects must be absent or minimum.
- (v) Should be reversible.
- (vi) Should not affect the desire, sexual drive, or act of the individual.

Methods of Contraception:

1. Natural or Traditional
2. Barrier Methods
3. Intra-uterine devices (IUDs)
4. Oral contraceptives
5. Injectable and implants
6. Surgical Methods

1. Natural Methods:

It is based on principles related to avoiding the fusion of the sperms and the egg.

(i) Periodic Abstinence: In this method, The couples prevent themselves from intercourse during the 10th and 17th day of the menstrual cycle since during this period the chances of ovulation are maximum, called the fertile period. Therefore, refraining from coitus during this period will result in a decrease in the chances of pregnancy.

(ii) Withdrawal or Coitus interruptus: In this method, during the process of coitus, the male withdraws the penis from the vagina just before ejaculation. Thus, preventing the release of semen in the vagina which results in the prevention of insemination.

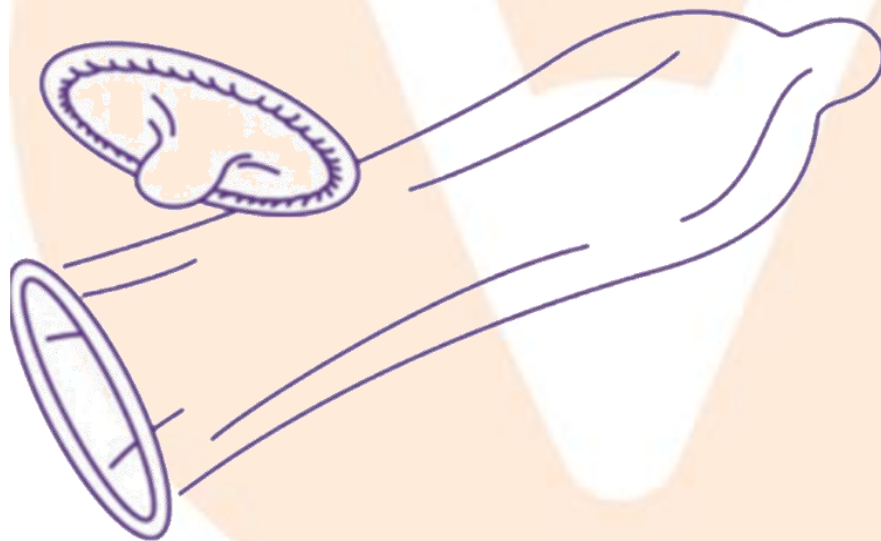
(iii) Lactational amenorrhea: This method occurs during the lactation period when the menstrual cycle is absent in the females. During this period there will be no ovulation and this results in the decreased chances of pregnancy. This period continues only up to six months after the birth of the child (parturition) till the period of intense lactation.

In the case of natural barriers, there is no use of chemicals leading to no side effects although its success rate is limited and the chances of failure are also high. They are not completely safe.

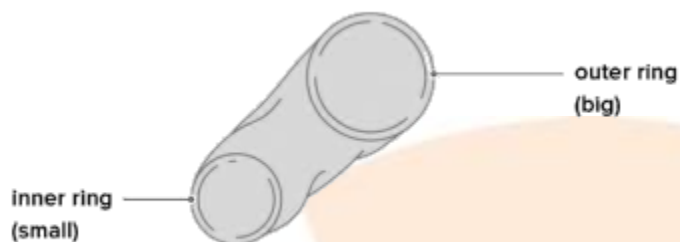
2. Barrier Methods:

In this method, there are certain physical barriers used that prevent the fusion of sperms and ovum.

- (i) **Condoms:** They are the physical barriers that are made up of thin rubber or latex sheath that cover the penis in males while in the case of females they cover the the cervix.
- (ii) The condoms for both males and females can be easily disposed of.
- (iii) The condoms are useful in preventing the transfer of STDs as stop the meeting of genital fluids of both the partners.
- (iv) Ceratin other barriers like cervical caps, diaphragms, and vaults can also be used by the females to cover the cervix during the process of coitus that prevents the entry of sperms and these barriers are reusable.
- (v) To increase the efficiency of these barriers various foams, gels, and spermicidal creams are used along with these barriers.



(i)Condoms for male



(ii)Condoms for female

3. Intra-Uterine Devices (IUDs):

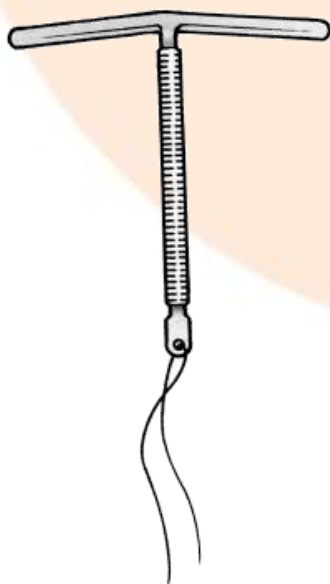
They are those devices that are inserted into the uterus of the females through the vagina with the help of either the doctors or expert nurses. IUDs are of various types:

(i) Non-medicated IUDs like Lippes Hoopes that lead to an increase in the phagocytosis of sperms.

(ii) Copper releasing IUDs like Copper-T, Copper-7, Multiload 375 that results in a decreased rate of sperms motility.

(iii) IUDs that release hormone-like Progestasert, LNG-20 are useful in making the uterus unsuitable for implantation and will also make the cervix hostile towards the sperms.

These devices are ideal contraceptives and the most widely used method of contraception for the females in order to maintain the family planning.

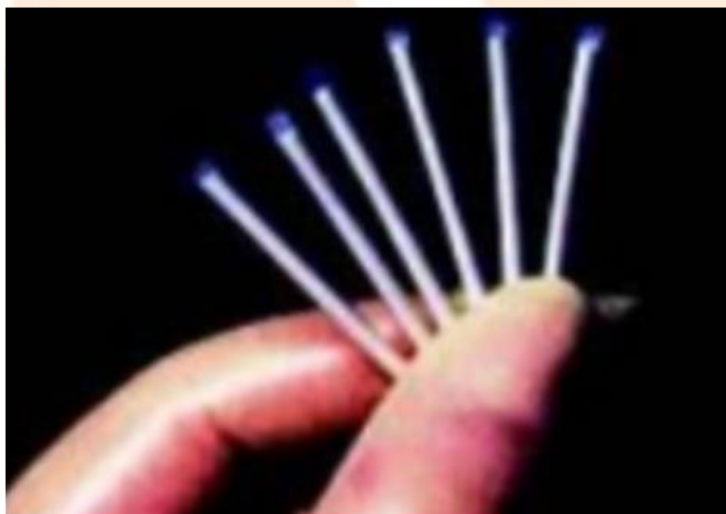


4. Oral Contraceptives:

This method includes the usage of pills that are the combination of oral administration of progestogens or progesterone-estrogen. They are taken for 21 days and are skipped during the 7 days of the menstrual cycle and then after 7 days of the menstrual cycle, they are taken again and should only be stopped when the females wish to conceive. There is a development of newer pills called Saheli that are taken once a week and are non-steroidal pills with very few side effects and help in preventing ovulation and implantation and make the cervix hostile towards the sperms.

5. Injectable and implants:

There are certain implants or injections that can also be taken by the females under the skin. These are the combination of either progesterone alone or both progesterone and estrogens. They work almost similar to the pills but continue their effect for a longer time period.



6. Surgical Methods:

This method includes the interference of surgery in blocking the movement of gametes leading to failed conception. They are the terminal methods of contraception and are therefore also called sterilization. In the case of males, sterilization is called vasectomy while it is called tubectomy in the case of the females.

(i) Vasectomy: Here, the Vas deferens of the male reproductive system are cut with the help of a small incision in the scrotum and then tied up.

(ii) Tubectomy: Here, the fallopian tubes of the female reproductive system are cut with the help of a small incision in the abdomen or the vagina and then tied up.

These methods are highly effective methods of contraception but the chances of their reversibility are very poor.

The need for contraceptive methods is to help in checking the population explosion. But the use of various methods of contraception may also lead to various side effects that include abdominal pain, nausea, irregular menstruation, breakthrough bleeding, breast cancer, etc.

4.3: Medical Termination of Pregnancy (MTP):

The medical termination of pregnancy (MTP) is also called the induced abortion where the pregnancy is terminated intentionally before its full-term completion.

Though MTP is used for the purpose of decreasing the population growth, it sometimes plays a major role in decreasing population. In 1971, the use of MTP was legalized by the Government of India along with certain strict provisions to prevent its misuse.

Why MTP?

(i) To prevent unwanted pregnancies.

(ii) It is useful in certain cases where the continuation of the pregnancy may be fatal for either mother or fetus or both. In the first trimester of pregnancy, MTPs are safe while during the second trimester they become riskier. It is often observed that the MTPs are sometimes performed by quacks or unqualified doctors leading to fatality for the mothers. Also, the use of amniocentesis or other methods for the determination of pre-natal sex will result in female foeticide due to the preference of a male child over a female child is very high.

4.4: Sexually Transmitted Diseases:

Those diseases or infections that are transmitted through sexual activities and intercourse and are responsible for infecting the reproductive tract of a person are called sexually transmitted diseases (STD) or venereal diseases (VD) or reproductive tract infections (RTI). Common examples of STDs are Gonorrhoea, genital herpes, syphilis, genital warts, chlamydia, hepatitis-B, trichomoniasis, HIV leading to AIDS. The most dangerous STDs among the above mentioned are HIV infection.

Hepatitis-b and HIV are transmitted easily by simply sharing the injections, syringes, or the surgical tools. It can also be transmitted through transfusion of blood from an infected person to another, or even in the developing fetus if the mother is suffering from STDs.

STDs when detected early, then are curable except for Hepatitis-B, HIV infections, and genital herpes.

Some common symptoms for STDs include itching, slight pain, fluid discharge, swellings, etc.

The STDs are asymptomatic for a long time in individuals thus leading to late detection of the disease making it incurable for the Individuals

The STDs result in various complications that include abortions, pelvic inflammatory diseases (PID), ectopic pregnancies, stillbirths, infertility, or even cancer of the reproductive tract. STDs act as a barrier to achieving a healthy society. Thus, in the case of STDs, the prime importance is given to prevention or early detection, and then the cure of these diseases under reproductive healthcare programmes.

Steps to prevent STDs:

- (i) To avoid sex with strangers/multiple partners.
- (ii) Use condoms during coitus must be checked.
- (iii) If a slight irritation is observed contact an expert or a qualified doctor for early detection of disease and get treatment on time.

4.5: Infertility:

The inability to produce children even after the process of unprotected coitus is called infertility.

The reasons leading to infertility can be physical, diseases, congenital, immunological, drugs, or even psychological.

It is noticed that in the society mainly women are blamed for being childless but the problem can be in either of the male or the female.

The disorders of infertility can be treated sometimes with the help of the specialized health care units like infertility clinics and if these treatments are not effective then the couples can opt for Assisted Reproductive Technology (ART).

- (i) In-vitro Fertilisation (IVF): The process involves the method of fusion of gametes outside the body mainly in the laboratories where the conditions that are similar to the body are maintained. The fertilized zygote formed will then be divided and

results in the formation of the embryo which is then transferred into the uterus of the female.

(ii) Zygote Intra Fallopian Transfer (ZIFT): In this process, the transfer of zygote or early embryo (up to 8 blastomeres) into the fallopian tube of the female is performed.

(iii) Intra-Uterine Transfer (IUT): It involves the transfer of embryos into the uterus of the female with more than 8 blastomeres.

(iv) Gamete Intra Fallopian Transfer (GIFT): This process involves the collection of the ovum from the donor female and is then introduced into the other female who cannot produce the ovum but the internal body conditions are suitable for the process of fertilization and embryo development.

(v) Intracytoplasmic sperm injection (ICSI): In this process, the sperms are directly injected into the ovum of the female that results in the formation of the embryo in the laboratory.

(vi) Artificial insemination (AI) technique: This technique involves the collection of semen that consists of sperm from either the husband or a healthy male donor and is then injected into either the vagina or the uterus (IUI – intra-uterine insemination) of the female body.

All these methods are performed by certified experts who are highly experienced with the technologies used and also require instruments that are quite expensive. Another good option for the couples who desire children is a legal adoption.