

REPRODUCTIVE HEALTH

Unit - VI: Reproduction

Introduction:

- A total wellbeing in all aspects of reproduction such as physical, mental, behavioural and emotional is called **reproductive health**.
- A society which is composed of people with physically and functionally normal reproductive organs as well as having normal emotional and behavioural interactions among them is referred as a **reproductively healthy society**.

Reproductive Health-Problems:

- **Over population:** Causes a scarcity of every basic need and hence hinder the task of making a reproductively healthy society.
- **Sex education:** Due to lack of sex education people are not concerned about safe and hygienic sexual practice and develop various myths and misconceptions about sex-related aspects.
- **Adolescence related changes:** The changes which take place during adolescent phase can lead to sex abuse and hence can affect reproductive health.
- **Sexually transmitted diseases:** Enable people to lead an unhealthy reproductive life.
- **Sex abuse and sex related crimes:** These are social evils which can cause physical injury, unwanted pregnancy, pelvic pain, emotional disturbance, etc.



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- ➔ **Female foeticides:** Can affect reproductive, sexual and mental health of a woman.

Reproductive Health-Strategies:

Family planning (Reproductive and Child Health Care programmes):

- ➔ The dramatic increase in population, health of individuals, education for all the children as well as marriage and child bearing capacity of individuals are some major concerns for the overall reproductive health.
- ➔ Thus to attain the total reproductive health as a social goal, Government of India initiate 'Family Planning' programme in 1951 and 'Reproductive and Child Healthcare' programme (RCH) in 1997.
- ➔ The major objectives of these programmes are to generate awareness among people about various reproductive aspects and developing a reproductively healthy society by providing support and facilities.
- ➔ Awareness about reproduction and social evils- Government and non-government agencies have taken various steps to create awareness about consequences of overpopulation, social evils like sex abuse, sex related crimes etc.



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Sex education:

- Introduction of sex education in schools and colleges is another step to provide right information to the adolescents.
- It is essential to provide proper knowledge to the fertile couples and also who are in marriageable age group about birth control methods, pre and post-natal care of mother and child, importance of breast feeding, equal opportunities to the male and female child, etc.

Infrastructural facilities and material support:

- Medical assistance should be provided to the people who are in reproduction related problems like pregnancy, delivery, STDs, abortions, menstrual problems, etc.

Ban on amniocentesis:

- Amniocentesis is a technique used to find out **chromosomal abnormalities** in developing embryo by using amniotic fluid that surrounds the developing embryo.
- It is used to test for the presence of genetic disorders such as haemophilia, down's syndrome, sickle cell anemia, etc.

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- This technique is also being misused for foetal sex determination based on the chromosomal pattern in the amniotic fluid. Therefore, this results in the increase of female foeticide.

Population Explosion:

- In the last century, development in various fields significantly improved quality of life, health facilities, and living conditions. These factors dramatically increase the population in a very short span of time.
- Rapid decline in **Maternal Mortality Rate (MMR)** and **Infant Mortality Rate (IMR)** along with increase in **Natality** (birth rate) and population of reproductive age are the expected reasons behind the population explosion.
- Some steps are taken by the government to prevent population explosion are:
 - Motivating smaller families through advertisements.
 - Promoting the use of various birth control methods (**contraceptive methods**).
 - Giving incentives to couples with smaller families.
 - Increasing the marriageable age of the female to 18 years and that of males to 21 years.



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Medical Termination of Pregnancy (MTP):

- MTP is the intentional or voluntary termination of pregnancy before full term. It is also termed as **induced abortion**. It has significant role in decreasing population though it is not meant for this purpose.
- MTP is performed to get rid of unwanted pregnancies due to casual unprotected intercourse, failure of contraceptive used during coitus, rapes and in cases where continuation of pregnancy is fatal either to the mother or to the foetus or both.
- MTPs are safe during the **first trimester** (12 weeks) of pregnancy whereas second trimester abortions are much riskier.
- In **1971**, Government of India **legalised** MTP with some strict conditions to avoid its misuse for the indiscriminate and illegal female foeticides.

Sexually Transmitted Diseases (STDs):

- Diseases or infections that are transmitted through sexual intercourse are called as **Sexually Transmitted Diseases (STDs)** or **Sexually Transmitted Infections (STIs)**.



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- ➔ Other names for such kind of infections are **Venereal Diseases (VD)** or **Reproductive Tract Infections (RTI)**.
- ➔ **Examples of STDs:** Gonorrhoea, syphilis, genital herpes, chlamydiasis, genital warts, trichomoniasis, Hepatitis-B and HIV-AIDS.
- ➔ Most of the STDs are completely curable if detected early and treated properly except, hepatitis-B, genital herpes and HIV infections.
- ➔ Apart from transmission through sexual intercourse, infections like hepatitis-B and HIV-AIDS can also be transmitted through the sharing injection needles, surgical instruments, etc., with infected persons, transfusion of infected blood, or from an infected mother to foetus.
- ➔ STDs could leads to complications like **Pelvic Inflammatory Diseases (PID)**, abortions, still births, ectopic pregnancies, **infertility** or even cancer of the reproductive tract.
- ➔ Prevention from contracting STDs is always possible by following practices:
 - ➔ Avoiding sex with unknown or multiple partners.
 - ➔ Using condoms during coitus.
 - ➔ Seeking medical help in case of any doubt and getting it complete cured.



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➔ Some important STDs are described in the below given table:

Disease	Cause	Symptoms	Effects on foetus	Treatment	Complications
1. Acquired Immuno Deficiency Syndrome	Human Immuno-deficiency virus (HIV)	Fever, weakness, infections, cancer	Exposure to AIDS virus and other infections.	Drugs to treat or delay symptoms; no cure	Dementia and death
2. Chlamydia-sis	<i>Chlamydia</i> bacteria	Painful urination and intercourse, mucus discharge from penis or vagina	Pre-mature birth, blindness, pneumonia	Antibiotics	Pelvic inflammatory disease, infertility, arthritis, ectopic pregnancy
3. Genital herpes	Herpes simplex virus type I or II	Genital sores, fever	Brain damage, still birth	Antiviral drug (acyclovir)	Increase risk of cervical cancer.
4. Genital warts	Human papilloma virus	Warts on genitals	Not known	Chemical or surgical removal	Increase risk of cervical cancer.

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5. Gonorrhoea	Neisseria gonorrhoeae bacteria	In women, usually none; in men, painful urination.	Blindness, still birth	Antibiotics	Arthritis, rash, infertility, pelvic inflammatory disease
6. Syphilis	<i>Treponema pallidum</i> bacteria	Initial chancres usually on genitals or mouth; rash 6 months later; several years with no symptoms as infection spreads; finally damage to heart, liver, nerves, brain, etc.	Miscarriage, prematurity, birth defects, still birth	Antibiotics	Death.
7. Hepatitis B	Hepatitis B virus	Fatigue, persistent low grade, fever jaundice (yellowing skin), rash, abdominal pain	Low birth weight	Rest, alpha interferon	Cirrhosis, liver cancer.





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Birth Control (Contraception):

- It is the regulation of conception by preventive methods or contraceptive devices to limit the number of offsprings.
- An ideal contraceptive should be easily available, user-friendly, effective and reversible with no or least side-effects, should not interfere with the sexual drive, desire and/or sexual act of the user.

Methods of Birth Control:

- **Natural/Traditional methods:** Work on the principle of avoiding the meeting of ovum and sperms.
 - **Periodic abstinence:** The couples abstain from coitus from day 10 to 17 (**fertile period**) of the menstrual cycle.
 - **Withdrawal or Coitus Interruptus:** Male partner withdraws his penis from the vagina just before ejaculation in order to avoid insemination.
 - **Lactational Amenorrhea:** Ovulation and subsequently the menstrual cycle do not occur during the period of first six months of intense lactation following parturition. The chances of conception are almost nil.

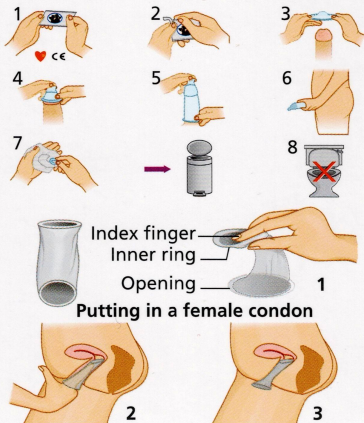




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- **Barrier methods:** Male and female gamete are prevented from physically meeting with the help of barriers.
- **Condoms:** Used to cover the penis in the male or vagina and cervix in the female, just before the coitus. These are made up of thin rubber/latex sheath and protect the user from contracting STIs.





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- **Diaphragms, cervical caps and vaults:** Made of rubber that is inserted into the female reproductive tract to cover the cervix during coitus.

Diaphragm



Dumas (vault cap)



Vimule



Cervical cap



- **Spermicides:** Usually used along with the barriers to increase their contraceptive efficiency. These are available in the form of spermicidal creams, jellies and foams.



- **Intra Uterine Devices (IUDs):** Inserted in the uterus of females through vagina by doctors or expert nurses.
- **Non-medicated IUDs:** e.g., Lippes loop leads to an increase in the phagocytosis of sperms.





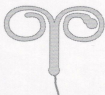
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- **Copper releasing IUDs:** e.g., CuT, Cu7, Multiload 375 reduces sperm motility and their fertilising capacity.
- **Hormone releasing IUDs:** e.g., Progestasert, LNG-20, Mirena make the uterus unsuitable for implantation and the cervix hostile to the sperms.



Lippes loop



Saf-T-Coil



TCu-200B



TCu-380A



TCu-220C



Nova T



Copper 7



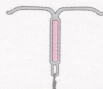
Cu-Fix



TCu-38 Slimline



Multiload 375



Levonorgestrel IUD

- **Oral contraceptives:** Used by females in which either progestogens or progestogen-estrogen combinations are orally administered in the form of tablets. They inhibit

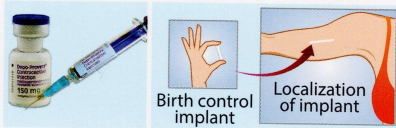




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ovulation and implantation as well as alter the quality of cervical mucus to prevent/retard entry of sperms.

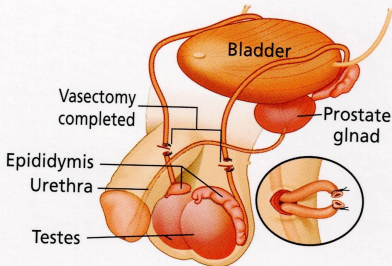
- **Combined pills:** e.g., Mala D. These pills have to be taken continuously for 21 days starting preferably within the first five days of menstrual cycle. After a gap of 7 days it has to be repeated in the same pattern.
- **Mini pills:** e.g., Saheli which is a non-steroidal preparation that contains centchroman. It is a 'once a week' pill.
- **Emergency contraceptives:** e.g., i-pill, pill 72, is found to be very effective if taken within 72 hours of coitus.
- **Injectables or Implants:** Consist of progestogens alone, or combined estrogen and progestogens preparations.
 - **Injections:** e.g., DMPA (Depo-Provera) that are administered as an intramuscular injection. These provide contraception for one to three months.
 - **Implants:** e.g., Norplant, Nexplanon are reversible and long-acting (3-7 years). It is surgically placed under the skin of the female, which slowly releases hormones and blocks ovulation.



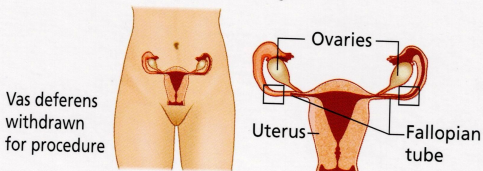


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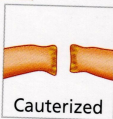
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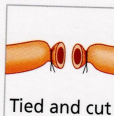
Vasectomy



Banded



Cauterized



Tied and cut

Tubectomy





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- **Surgical methods/Sterilisation:** Is a non-reversible permanent method to prevent any more pregnancies.
 - **Vasectomy:** Applied in males where a small part of the vas deferens is removed or tied up through a small incision on the scrotum.
 - **Tubectomy:** Applied in females where a small part of fallopian tube is removed or tied up through a small incision in the abdomen or through vagina.

Infertility:

- It is the inability to conceive in spite of regular unprotected coitus.
- The reasons for infertility can be physical, congenital, drugs, diseases, immunological or even psychological.
- The problem of infertile couples can be solved through certain special techniques, commonly called as Assisted Reproductive Technologies (ARTs).

Assisted Reproductive Technologies (Arts):

- Its various techniques are:
 - **In vitro fertilisation (IVF) or Test Tube Baby Programme:** The ovum from the donor female/wife and sperms from the donor male/husband





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are collected and are induced to form zygote under simulated *in vitro* conditions. The zygote or early embryo formed can then be transferred inside the female's body for further development. This is called as **Embryo Transfer (ET)**.

- **Zygote Intra Fallopian Transfer (ZIFT):** The zygote or early embryos (with up to 8 blastomeres) are transferred into the fallopian tube.
- **Intra Uterine Transfer (IUT):** The embryos with more than 8 blastomeres are transferred into the uterus of the female for further development.
- **Gamete Intra Fallopian Transfer (GIFT):** Ovum collected from a donor female is transferred in to the fallopian tube of another female who cannot produce the ovum, but can provide a suitable environment for fertilisation and further development.
- **Intra Cytoplasmic Sperm Injection (ICSI):** A sperm is directly injected with the help of a micro needle into the ovum to form an embryo.
- **Artificial Insemination (AI):** Semen is collected either from the husband or from a donor and then it is artificially introduced either into the vagina or into the uterus (**IUI-Intra-Uterine Insemination**) of the female. This technique is used when the male partner have **low sperm count** in the ejaculate.



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1. Which of the following cannot be detected in a developing foetus by amniocentesis?
 - (a) Jaundice
 - (b) Down's syndrome
 - (c) Klinefelter's syndrome
 - (d) Sex of the foetus
2. MTP was legalised in India in:
 - (a) 1971
 - (b) 1951
 - (c) 1981
 - (d) 1923
3. Hepatitis B is transmitted through:
 - (a) Blood transfusion
 - (b) Intimate physical contact
 - (c) Sexual contact
 - (d) All of the above
4. Which of the following is not a sexually transmitted disease?
 - (a) Encephalitis
 - (b) Syphilis
 - (c) AIDS
 - (d) Gonorrhea



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Solutions:

1. Option (a) is correct.

Amniocentesis is a technique used to determine the sex and presence of genetic disorders such as down's syndrome, klinefelter's syndrome, etc. in developing embryo by using amniotic fluid. Jaundice is metabolic disorder and cannot be detected using amniocentesis.

2. Option (a) is correct.

In 1971, Government of India legalised MTP (Medical termination of pregnancy) with some strict conditions to avoid its misuse for the indiscriminate and illegal female foeticides.

3. Option (d) is correct.

Hepatitis B is a sexually transmitted disease. Apart from transmission through sexual intercourse, hepatitis-B can also be transmitted through the sharing of injection needles, surgical instruments, etc., with infected persons, transfusion of infected blood, or from an infected mother to foetus.

4. Option (a) is correct.

Out of the given diseases, encephalitis is not a sexually transmitted disease. It is an acute inflammation of the brain caused due to bacterial, viral infection or an autoimmune response.



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5. Which of the following is a non-medicated IUD?
 - (a) Lippe's loop
 - (b) Multiload – 375
 - (c) LNG – 20
 - (d) Progestasert
6. Tubectomy is a method of sterilization in which _____.
 - (a) Uterus is removed surgically.
 - (b) Small part of the fallopian tube is removed or tied up.
 - (c) Tubes are inserted into the uterus.
 - (d) Ovaries are removed.
7. Embryo with more than 16 blastomeres formed due to *in vitro* fertilization is transferred into _____.
 - (a) Fallopian tube
 - (b) Fimbriae
 - (c) Cervix
 - (d) Uterus
8. In case of a couple where the male is having a very low sperm count, which of the following technique will be suitable for fertilisation?
 - (a) Intra uterine transfer.
 - (b) Gamete intra cytoplasmic fallopian transfer.
 - (c) Artificial Insemination.
 - (d) Intra cytoplasmic sperm injection.



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Solutions:

5. Option (a) is correct.

Lippe's loop is a non-medicated IUD. On the other hand, Multiload 375 is copper releasing IUD. Progestasert and LNG-20 is hormone releasing IUDs.

6. Option (b) is correct.

Tubectomy is a method of sterilization which is applied in females. In this, a small part of fallopian tube (helps in transport of ovum and is the site of fertilisation) is removed or tied up through a small incision in the abdomen or through vagina.

7. Option (d) is correct.

Embryo with more than 16 blastomeres formed due to *in vitro* fertilization is transferred into uterus of the female for further development. This method is known as Intra Uterine Transfer (IUT).

8. Option (c) is correct.

Artificial Insemination technique will be suitable for fertilisation in case of the couple where the male is having very low sperm count. In this method, semen is collected either from the husband or from a donor and then it is artificially introduced either into the vagina or into the uterus of the female.

