

# REPRODUCTIVE HEALTH

Family planning refers to practices that help individual to attain certain objectives

- (i) To avoid unwanted Births
- (ii) To Bring about wanted birth
- (iii) To regulate the interval between pregnancies
- (iv) To determine the number of children in family

India is first country in world to initiate family planning programme in 1951. In 1977 it changed into family welfare programme "To improve the quality of life of people." "Reproduction and child health care (RCH) programmes"

Small family norm

- 1970 slogan was – “Do ya Teen Bas”
- 1980 slogan was – “Sons or Daughter - Two will do”
- “Second after 3 years”

## CONTRACEPTIVE METHOD :

**Method which prevent unwanted birth or pregnancies are called contraceptive methods.** (two types)

- (1) Temporary method or spacing method
- (2) Terminal method

An ideal contraceptive should be user-friendly, easily available, effective and reversible with no or least side-effects. It also should in no way interfere with the sexual drive, desire and/or the sexual act of the user. A wide range of contraceptive methods are presently available which could be broadly grouped into the following categories, namely Natural/Traditional, Barrier, IUDs, Oral contraceptives, Injectables, Implants and Surgical methods.

**(1) Temporary or Spacing Methods :** Are of following types –

**(i) Chemical Method :**

In this method chemicals are used which are **spermicidal agent** or surface active agents which attach themselves to spermatozoa and **inhibit  $O_2$  uptake** and kill sperm. Failure rate is approximately 30%.

**Example :**

- Vaginal Foam/tablets = 'Today'
- Cream or Jelly = “Nim - 76”

**(Defence Institute of Physiology Allied Science Manufactured it)**

These medicines are composed of chemicals like  **$ZnSO_4$ ,  $KMnO_4$ , Boric acid, Lactic acid, Citric acid**. These chemicals completely destroy sperms so they are called as **spermicides**.



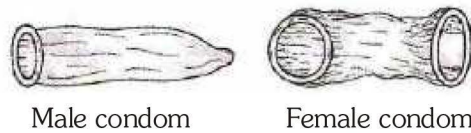
Spermicide

**(ii) Barrier method :** Ovum and sperms are prevented from physically meeting with the help of barriers.

**For Male :**

**Condom -** Condoms are barriers made of thin rubber/ latex sheath that are used to cover the penis in the male or vagina and cervix in the female, just before coitus so that the ejaculated semen would not enter into the female reproductive tract. This can prevent conception. 'Nirodh' is a popular brand of condom for the male. Use of condoms has

increased in recent years due to its additional benefit of protecting the user from contracting STDs and AIDS. Both the male and the female condoms are disposable, can be self-inserted and thereby gives privacy to the user.



- Failure rate of male condoms = 10-14%
- Failure rate of female condom = 5-15%

**Share  
Rakshak**

### For Female :

**Diaphragms, cervical caps** and **vaults** are also barriers made of rubber that are inserted into the female reproductive tract to cover the cervix during coitus. They prevent conception by blocking the entry of sperms through the cervix. They are reusable. Spermicidal creams, jellies and foams are usually used alongwith these barriers to increase their contraceptive efficiency.



**Intra Uterine Devices (I.U.D.) :** These devices are inserted by doctors or expert nurses in the uterus through vagina.

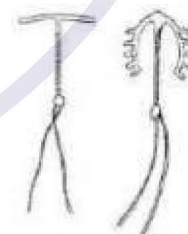
### I.U.C.D. – Intra Uterine Contraceptive Devices :

1<sup>st</sup> IUCD was used by **Graffenberg**. It was a **Ag** made I.U.C.D. when it was put into the uterus, till it was there, the female wasn't pregnant.

Now **Cu** made IUCD are used.

IUDs are available as :-

- Non-medicated IUDs : e.g. : Lippes loop
  - These devices are made of plastic or stainless steel only.
  - Lippes loop made of plastic (Polyethylene) impregnated with barium sulphate is still used in many part of world.
- Copper releasing IUDs : eg. : CuT, Cu7, Multiload 375
- Hormone releasing IUDs : eg. : Progestasert, LNG-20



CuT    Multiload 375  
Two IUCDS

### Mechanism :

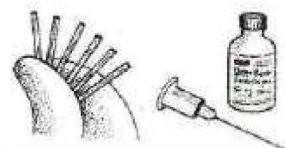
- Non-medicated IUDs, promote the phagocytic cells of uterus to phagocytosis of sperms within the uterus.
- Copper releasing IUDs, released Cu ions suppress sperm motility and the fertilizing capacity of sperms.

- The hormone releasing IUDs, make the uterus unsuitable for implantation and the cervix hostile to the sperms.
- IUDs are ideal contraceptives for the females who want to delay pregnancy and / or space children. It is one of most widely accepted methods of contraception in India.
- Failure rate of IUDs is approximately 1-3%

### (iii) Hormonal Method :

This is the most effective method (almost 100% effective)

**Most widely used contraceptive method.** In this method oral pills, injections and implants are used.



Hormone implant capsules

Hormone injection

**Female oral pills are -**

**Mala-N, Mala-D** - Daily oral pills

Failure rate = 0.1%

The daily oral pills are started preferably within the first five days of menstrual cycle.. For 1 to 21 days Hormonal pills are given and Iron or Fe pills are given in last 7 days for recovery of blood loss in menstruation flow and to maintain regularity of pills.

### Composition of oral pill

(a) **Norethisterone acetate (Synthetic progesterone)**

- High concentration

(b) **Ethinyl estradiol (Synthetic Estrogen)**

- Low concentration



Oral contraceptive pills

### Mechanism :

Action of oral pill is to **prevent the Ovulation** from ovary this is achieved by **blocking the pituitary secretion of gonadotropin (FSH and LH)** that is necessary for ovulation. Progesteron only preparations render the **cervical mucosa thick and scanty** this prevent / retard entry of sperms. So fertilization is absent.

**Saheli** - Weekly oral pills. Non-steroidal pill. (Developed by scientists at CDRI Lucknow)

- Few side effects and high contraceptive value.

- Failure rate = 1.83%

- Saheli chemical composition of centchromen is ormeloxifen. Ormaloxifen anti-estrogenic prevent implantation activity and cause contraception.

**Injection - DMPA - (Depot - medroxy progesterone acetate) (Depot = slow release)**

**Implant - Norplant./Subcutaneous injection**

In these Injections high level of progesterone Hormone is present which Inhibit secretion or gonadotropins so ovulation in absent.

Failure rate = 0-0.4%

### Male Pill :

**Gossypol** - Made from cotton seeds. This pill **prevent spermatogenesis**. Now it has been banned because it causes permanent **azzospermia** (preventing spermatogenesis) **Progesterone hormone can be used in male oral pills.**

**In July 2000 china made progestrone pills for male (first time in world).**

## Emergency contraceptive methods :-

Contraceptives methods which are used within 72 hours of unprotected sexual intercourse.

- (a) Emergency contraceptive pills - progesterone only pill.  
eg. i-pill, unwanted-72 (LNG)
- (b) IUD-IUD can also be use as an emergency contraception.

Administration of progestogens or progestogen-estrogen combinations or IUDs within 72 hours of coitus have been found to be very effective as emergency contraceptives as they could be used to avoid possible pregnancy due to rape or casual unprotected intercourse.

(iv) **Natural method** : Work on the principle of avoiding chances of ovum and sperms meeting.

- (a) **Rhythm or Periodic abstinence method** – Ist **7 days after** Menstruation Cycle (M.C.) and **7 days before** M.C. is called **safe period** because in these 14 days ovum is absent in fallopian tubes. Hence fertilization usually does not occur.

**Periodic abstinence** is one such method in which the couples avoid or abstain from coitus from day 10 to 17 of the menstrual cycle when ovulation could be expected. As chances of fertilisation are very high during this period, it is called the fertile period. Therefore, by abstaining from coitus during this period, conception could be prevented.

- (b) **Withdrawal or Coitus interruptus** – During sexual intercourse, male partner withdraws his penis from vagina just before ejaculation so as to avoid insemination.
- (c) **Lactational amenorrhea** – High concentration of prolactin may lead to inhibition of menstrual cycle in lactating mother. Lactational amenorrhea (absence of menstruation) method is based on the fact that ovulation and therefore the cycle do not occur during the period of intense lactation following parturition. Therefore, as long as the mother breast-feeds the child fully, chances of conception are almost nil. However, this method has been reported to be **effective only upto a maximum period of six months following parturition**. As no medicines or devices are used in these methods, side effects are almost nil. Chances of failure, though, of this method are also high.

## (2) Terminal method :

It is a **surgical method/Sterilisation – Block gamete transport thereby prevent conception**. These techniques highly effective but their reversibility is poor.

Female sterilisation – 85%

Male sterilisation – 10 to 15%

**For Male : Vasectomy**

To cut of vas deferens. So ejaculation of sperm does not occur.

**For Female : Tubectomy** – To cut of fallopian tubes.

Tubal ligation – To ligate fallopian tubes.

## Medical Termination of Pregnancy (M.T.P.) :-

**It is relatively safe during the I<sup>st</sup> trimester (upto 12 weeks of pregnancy) and more risk in II<sup>nd</sup> trimester.** Intentional or voluntary termination of pregnancy before full term is called **medical termination of pregnancy (MTP)** or induced abortion. Nearly 45 to 50 million MTPs are performed in a year all over the world which accounts to 1/5th of the total number of conceived pregnancies in a year. Obviously, MTP has a significant role in decreasing the population though it is not meant for that purpose. Whether to accept / legalise MTP or not is being debated upon in many countries due to emotional, ethical, religious and social issues involved in it. **Government of India legalised MTP in 1971 with some strict conditions to avoid its misuse.** Such restrictions are all the more important to check indiscriminate and illegal female foeticides which are reported to be high in India.

Why MTP? Obviously the answer is to get rid of unwanted pregnancies either due to casual unprotected intercourse or failure of the contraceptive used during coitus or rapes. MTPs are also essential in certain cases where continuation of the pregnancy could be harmful or even fatal either to the mother or to the foetus or both.

## Condition of MTP :

- (i) **Medical** – When pregnancy might endanger to mother's life.
- (ii) **Eugenic** – When child being born with serious illness.
- (iii) **Humanitarian** – Where pregnancy is result of rape.
- (iv) **Socioeconomic** – If mother is having more than 2 to 3 child.
- (v) **Failure of contraceptive devices.**

## INFERTILITY :

If couples are unable to produce children inspite of unprotected sexual cohabitation up to 1 year this is called infertility. It is prevented by assisted reproductive technologies (ART).

### It is two types -

- (i) **Invitro fertilisation** – If fertilisation occurs outside the body of female and after it, embryo is transferred into uterus or fallopian tube of surrogate mother or same mother, this is called embryo transfer. Two types of Invitro fertilisation –
  - (a) **Zygote Intra Fallopiun Transfer (ZIFT)** – Zygote or early embryos (with upto eight blastomer) could then be transferred into the fallopian tube of surrogate or same mother. This is called ZIFT.
  - (b) **Intra Uterine Transfer (IUT)** – If more than eight blastomers (commonly 32 cells stage) transfer into uterus, this is called IUT).
  - (c) **Intracytoplasmic sperm injection (ICSI)** – It is an another specialised procedure to form an embryo in the laboratory in which a sperm is directly injected into the cytoplasm of ovum.
- (ii) **Invivo fertilisation** - If fertilisation occurs inside the body of female either natural or artificial this is called invivo fertilisation.
  - (a) **Gamete Intra Fallopiun Transfer (GIFT)** – Transfer of an ovum collected from ovary into the fallopian tube of same female or female who can't produce one, but can provide suitable environment for fertilisation, this is called GIFT.
  - (b) **Artificial insemination** – If male is unable to inseminate the semen into vagina then semen is artificially introduced either into vagina or into the uterus of the female (intrauterine insemination).

## Test-Tube Baby :

**(In vitro fertilisation** – (IVF - **fertilisation outside the body** in almost similar conditions as that in the body).

(In vivo fertilisation : (fusion of gametes within the female).

After the fusion of gametes zygote is formed which reaches the **32 celled stage within 24 hrs**. Now this embryo (**blastocyst**) is transplanted in normal uterus of same mother or surrogate mother for further development after the completion of gestation period a normal child take birth.

**1<sup>st</sup> Test tube baby :** **England, 25 July, 1978, Louise Joy Brown**

**India :** Ist test tube baby is approved as '**Durga**'.

**Amniocentesis :** a foetal sex determination test based on the chromosomal pattern in the amniotic fluid surrounding the developing embryo.

In the **14<sup>th</sup> or 15<sup>th</sup> week** of pregnancy with the help of long surgical needle, amniotic fluid is taken out from the uterus. In this fluid, few cell of embryo (skin, liver and placenta) are present.

They are tested to know –

- (i) **Genetic disorder / chromosomal abnormalities like Down Syndrome**
- (ii) **Metabolic disorder (deficiency of protein, enzymes, hormones)**
- (iii) **Detection of Sex (Barr bodies)**

**Statutory ban on amniocentesis for sex-determination to legally check increasing female foeticides.**