

**CUET (UG) Biology Notes: Reproductive Health**
**1. Reproductive Health: Problems and Strategies**

Reproductive health refers to total well-being in all aspects of reproduction (physical, emotional, behavioral, and social).

- Family Planning Programs: India was one of the first nations to initiate action plans at a national level (1951) to attain total reproductive health.
- RCH Programs: Currently operating under the name Reproductive and Child Health (RCH) Care programs.
- Key Strategies:
  - Creating awareness about reproduction-related aspects (audio-visual and print media).
  - Introducing sex education in schools to dispel myths and misconceptions.
  - Educating people about birth control options, care of pregnant mothers, and postnatal care.

**Amniocentesis and Its Statutory Ban**

- Definition: A fetal sex determination and diagnostic test based on the chromosomal pattern in the amniotic fluid surrounding the developing embryo.
- Medical Use: Used to test for the presence of certain genetic disorders (e.g., Down syndrome, haemophilia, sickle-cell anemia) and survivability of the fetus.
- Misuse & Ban: It was widely misused to determine the sex of the fetus, leading to an alarming rate of female foeticide. Therefore, a statutory ban on amniocentesis for sex-determination was implemented to legally check female foeticides.

**2. Population Stabilisation and Birth Control**

Better awareness, improved medical facilities, and overall increased standard of living have led to a rapid increase in population size.

- Key Factors for Population Growth: Decline in Death Rate, Maternal Mortality Rate (MMR), and Infant Mortality Rate (IMR), along with an increase in the number of people in reproductive age.

**Contraceptive Methods (Birth Control)**

An ideal contraceptive should be user-friendly, easily available, effective, reversible, and with no or least side effects.

Method Category	Mechanism of Action & Examples
1. Natural / Traditional	<p>Work on the principle of avoiding chances of ovum and sperm meeting.</p> <ul style="list-style-type: none"> <li>• Periodic Abstinence: Avoiding coitus from day 10 to 17 of the menstrual cycle (fertile period).</li> <li>• Withdrawal (Coitus Interruptus): Male withdraws penis from vagina just before ejaculation.</li> <li>• Lactational Amenorrhea: Absence of menstruation during intense lactation following parturition (effective up to 6 months max).</li> </ul>
2. Barrier Methods	<p>Prevent physical meeting of sperm and ovum.</p> <ul style="list-style-type: none"> <li>• Condoms: Made of thin rubber/latex. Protect against STIs and AIDS. (e.g., Nirodh for males).</li> <li>• Diaphragms, Cervical Caps, Vaults: Inserted into the female reproductive tract to cover the cervix during coitus. Reusable.</li> </ul>
3. Intra Uterine Devices (IUDs)	<p>Inserted by doctors/nurses into the uterus through the vagina. Highly effective.</p> <ul style="list-style-type: none"> <li>• Non-medicated IUDs: Increase phagocytosis of sperms (e.g., Lippes loop).</li> <li>• Copper-releasing IUDs: Cu ions suppress sperm motility and fertilizing capacity (e.g., CuT, Cu7, Multiload 375).</li> <li>• Hormone-releasing IUDs: Make the uterus unsuitable for</li> </ul>

	implantation and cervix hostile to sperms (e.g., Progestasert, LNG-20).
4. Oral Contraceptives (Pills)	<p>Small doses of either progestogens or progestogen-estrogen combinations. They inhibit ovulation and implantation and alter cervical mucus to retard sperm entry.</p> <ul style="list-style-type: none"> <li>Saheli: Non-steroidal preparation, once-a-week pill, very few side effects, developed by CDRI, Lucknow.</li> </ul>
5. Injectables & Implants	Progestogens alone or with estrogen can be used as injections or implants under the skin. Mode of action is similar to pills, but their effective periods are much longer.
6. Surgical Methods (Sterilisation)	<p>Terminal methods to prevent any more pregnancies by blocking gamete transport. Highly effective, but poor reversibility.</p> <ul style="list-style-type: none"> <li>Vasectomy: A small part of the vas deferens is tied/cut in males.</li> <li>Tubectomy: A small part of the fallopian tube is tied/cut in females.</li> </ul>

- MTP (Amendment) Act, 2021: Allows termination of pregnancy up to 20 weeks on the advice of one registered medical practitioner, and 20-24 weeks for special categories of women (like survivors of rape) on the advice of two registered medical practitioners, provided there is a fetal abnormality or risk to the mother's life.



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### 3. Medical Termination of Pregnancy (MTP)

- Definition: Intentional or voluntary termination of pregnancy before full term (also called induced abortion).
- Statistics: Nearly 45 to 50 million MTPs are performed in a year all over the world.
- Safety: MTPs are considered relatively safe during the first trimester (up to 12 weeks of pregnancy). Second-trimester abortions are much more risky.
- +1
- Legal Status (India): Government of India legalized MTP in 1971 with some strict conditions to avoid its misuse (especially female foeticide).

### 4. Sexually Transmitted Infections (STIs)

Also known as Venereal Diseases (VD) or Reproductive Tract Infections (RTI). They are infections transmitted through sexual intercourse.

Category	Key Diseases & Characteristics
Curable STIs	Gonorrhoea, Syphilis, Genital warts, Chlamydia, Trichomoniasis.  Note: Fully curable if detected early and treated properly.
Incurable STIs	Hepatitis-B, Genital herpes, HIV infections.
Symptoms	Early symptoms are often minor: itching, fluid discharge, slight pain, swellings in the genital region.

Complications	If untreated, can lead to Pelvic Inflammatory Diseases (PID), abortions, stillbirths, ectopic pregnancies, infertility, or even cancer of the reproductive tract.
Prevention	<ol style="list-style-type: none"> <li>1. Avoid sex with unknown partners/multiple partners.</li> <li>2. Always use condoms during coitus.</li> <li>3. Seek qualified medical help early if in doubt.</li> </ol>

blastomeres) are transferred into the fallopian tube.

2. IUT (Intra Uterine Transfer): Embryos with more than 8 blastomeres are transferred directly into the uterus to complete further development.

#### In Vivo Fertilisation Methods

Fusion of gametes within the female. Used for females who cannot produce an ovum but can provide a suitable environment for fertilisation and development.

1. GIFT (Gamete Intra Fallopian Transfer): Transfer of an ovum collected from a donor into the fallopian tube of another female.

#### Specialized Artificial Techniques

1. ICSI (Intra Cytoplasmic Sperm Injection): A specialized procedure to form an embryo in the laboratory where a single sperm is directly injected into the ovum.
2. AI (Artificial Insemination): Used when the male partner is unable to inseminate the female or has a very low sperm count. The semen collected from the husband or a healthy donor is artificially introduced into the vagina.
3. IUI (Intra Uterine Insemination): A specific type of AI where the washed sperm is introduced directly into the uterine cavity of the female.



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### 5. Infertility and Assisted Reproductive Technologies (ART)

Infertility is the inability to produce children in spite of unprotected sexual cohabitation. When corrective treatments are not possible, Assisted Reproductive Technologies (ART) are used.

#### In Vitro Fertilisation (IVF) - "Test Tube Baby" Programme

Fertilisation takes place outside the body in almost similar conditions as that in the body. Followed by Embryo Transfer (ET).

1. ZIFT (Zygote Intra Fallopian Transfer): The zygote or early embryos (with up to 8