Reproductive Health



Indian Population

- India - second most populated country



Population Explosion

Population explosion

- Our population which was approximately 350 million at the time of our independence reached close to the billion mark by 2000 and crossed 1 billion in May 2000.



Population Explosion

Population explosion

- Increased health facilities along with better living conditions had an explosive impact on the growth of population.
- The world population which was around 2 billion in 1900 rocketed to about 6 billions by 2000.

Population Explosion

Population explosion

- Such an alarming growth rate could lead to an absolute scarcity of even the basic requirements, i.e., food, shelter and clothing, in spite of significant progress made in those areas.





Reasons for high population in India?

High Population - Reasons

01 High mortality and higher life span

02 Child marriage

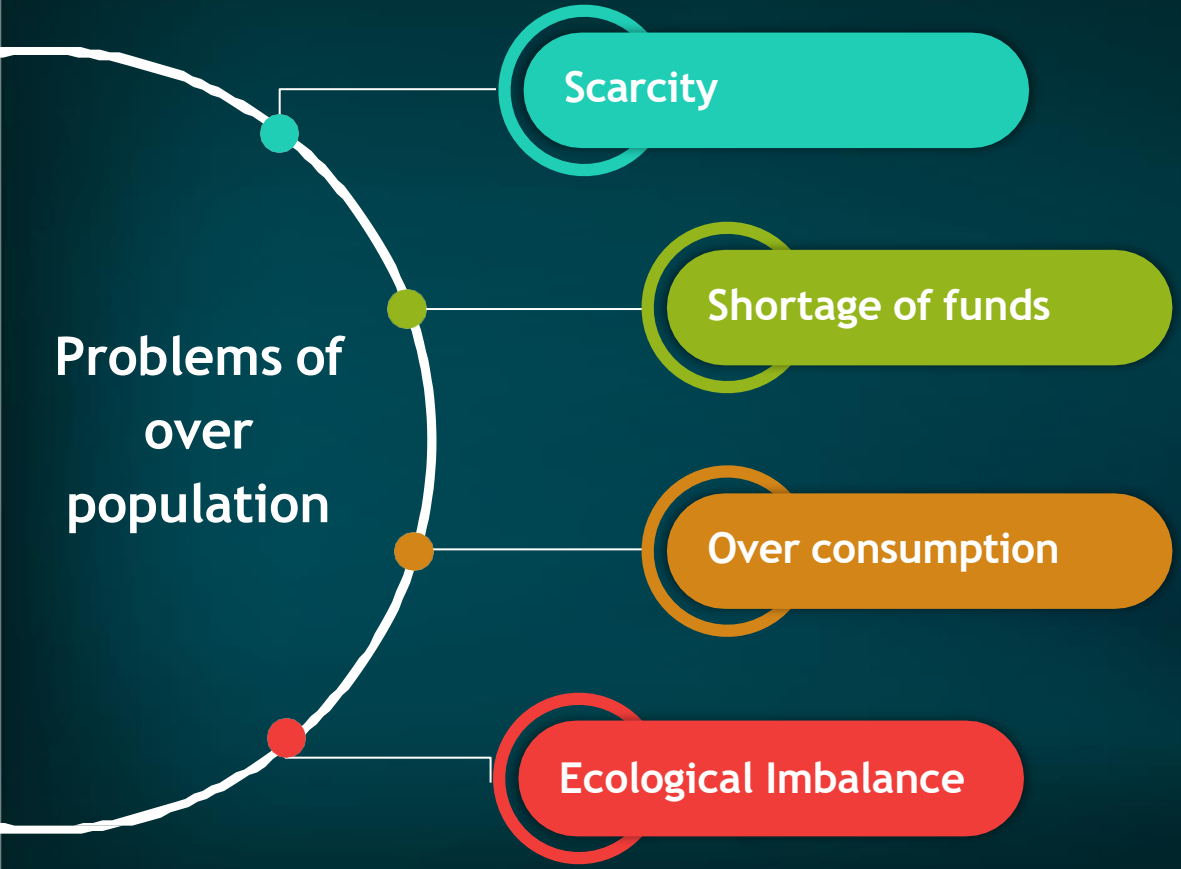
03 Illiteracy

04 Preference for male kids

05 Aversion from family planning

06 Non-availability of contraceptives

High Population - Problems





Population Stabilisation Policy

Stabilisation Policies

National Program for Family Planning (1952)

- **India - first to launch family planning program**
- **Objective:** to promote small family and introduction of contraceptives



Stabilisation Policies



Stamps promoting family planning



Hum Do Hamare Do



Reproductive and Child Healthcare Programmes

Stabilisation Policies - RCH

Reproductive and Child Healthcare Program (RCH) - 1997

- **Objectives:**
  - Reduce **infant mortality rate and maternal mortality rate**
  - Monitor **overall well being** of mother and child
  - Measures to avoid **unwanted pregnancies** and **sexually transmitted diseases**

Stabilisation Policies - Outcomes

- Access to **good health care** for
  - Pregnancy, STDs, abortions, menstrual problems, infertility



Stabilisation Policies - Outcomes

- Raise of marriageable age
  - Females – **18 years**; males – **21 years**



Stabilisation Policies - Outcomes

- Awareness
  - Introduction of **sex education in schools**



Stabilisation Policies - Outcomes

- Educating **fertile couple** –
  - **Birth control** options
  - Care of **pregnant mothers**
  - **Postnatal care**
  - Importance of **breastfeeding**

Stabilisation Policies - Outcomes

- Providing information about
  - **Reproductive organs**
  - **Adolescence**
  - **Safe and hygienic** sexual practices
  - **Sexually transmitted diseases**

Stabilisation Policies - Outcomes

- Statutory **ban** on fetal sex determination methods
  - **Amniocentesis**
  - **Ultrasound scanning to determine sex**



Stabilisation Policies - Outcomes

- Research of newer , better and easier to use **family planning methods**
- **For example:**
  - **Saheli -** 1st and only non-hormonal oral contraceptive for females
  - Developed by **Central Drug Research Institute (CDRI)** Lucknow, India



- **Cheap** and **wide availability** of contraceptives
- Contraceptives at **medical shops, health centers**
- **Free distribution** of contraceptives



Question Time

Saheli is the first

a) Hormonal oral contraceptive

b) Non-hormonal oral contraceptive

c) Hormonal implant

d) None of the above

Saheli is the first

a) Hormonal oral contraceptive

b) Non-hormonal oral contraceptive

c) Hormonal implant

d) None of the above



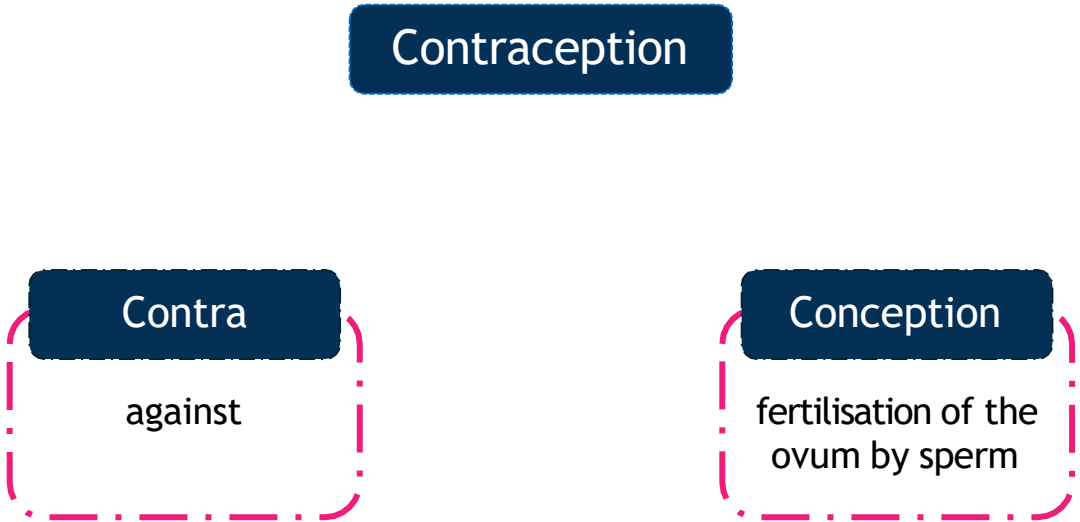
Reproductive Health

Reproductive Health

Reproductive health is physical, emotional, behavioural and social well-being in all aspects of reproduction


Birth Control/
Contraceptive
methods

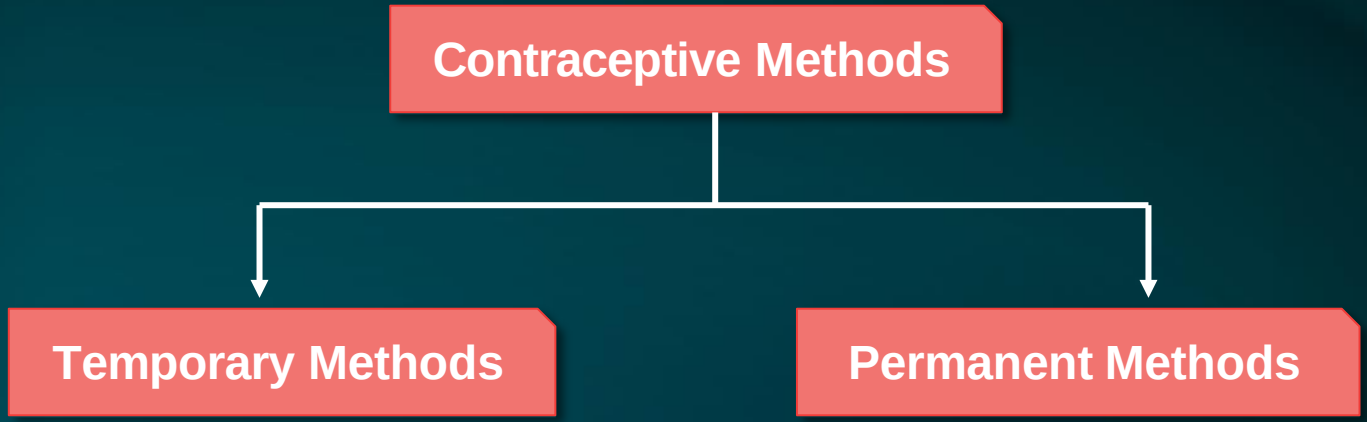
Birth Control/ Contraceptive methods

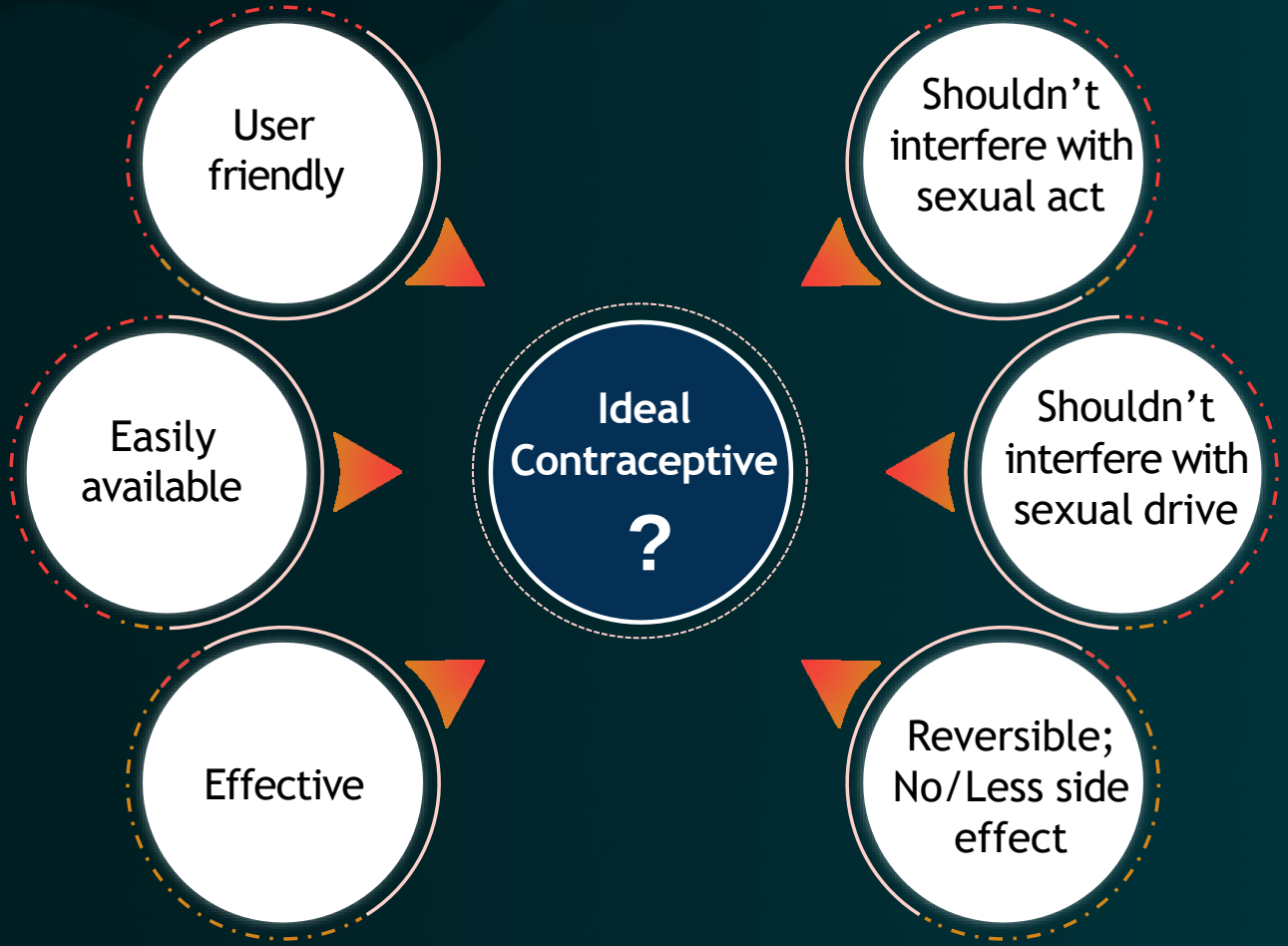


Contraception

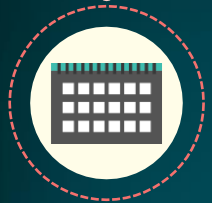
- A method or system which allows sexual intercourse but prevents pregnancy.
- The method is called temporary if the effect of the method lasts till the time couple uses the method and fertility resumes immediately after or within few months of its discontinuation.

Contraceptives




User friendly
Shouldn't interfere with sexual act
Easily available
Ideal Contraceptive
?
Shouldn't interfere with sexual drive
Effective
Reversible; No/Less side effect

CONTRACEPTIVE METHODS



Natural



Barrier



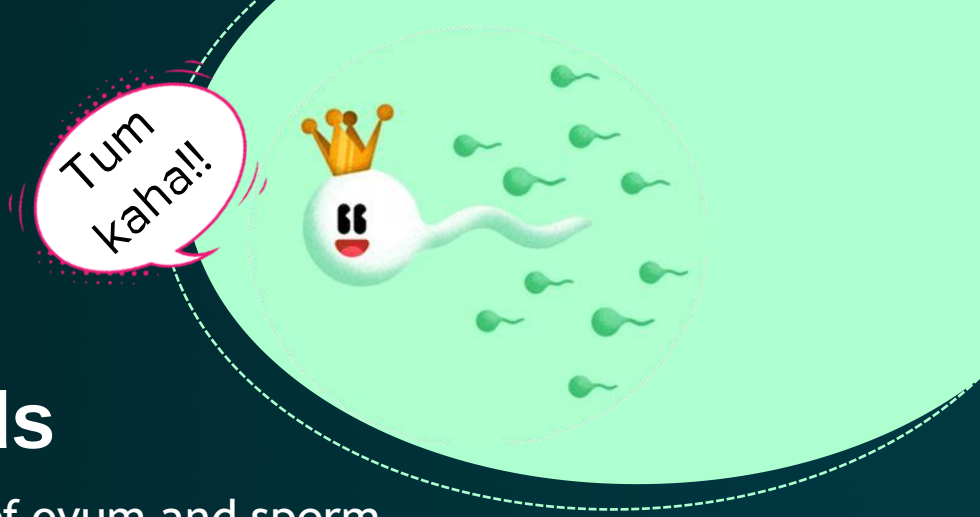
Chemical



Implant



Surgical



Natural Methods

Avoid meeting of ovum and sperm
No need of chemicals or physical equipment



Natural Methods

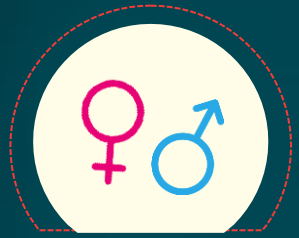


Periodic abstinence
(Rhythm method)

Coitus interruptus
(Withdrawal method)

Lactational amenorrhea
(Absence of menstruation)

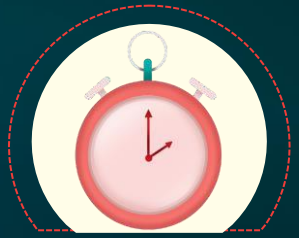
Periodic abstinence (Rhythm method)



For both males and females



Reversible



Short term

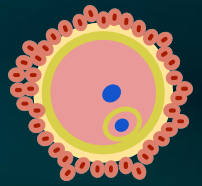
Periodic abstinence (Rhythm method)



- Avoid coitus from **day 10-17** of menstrual cycle
- **Ovulation** may occur- chances of fertilisation

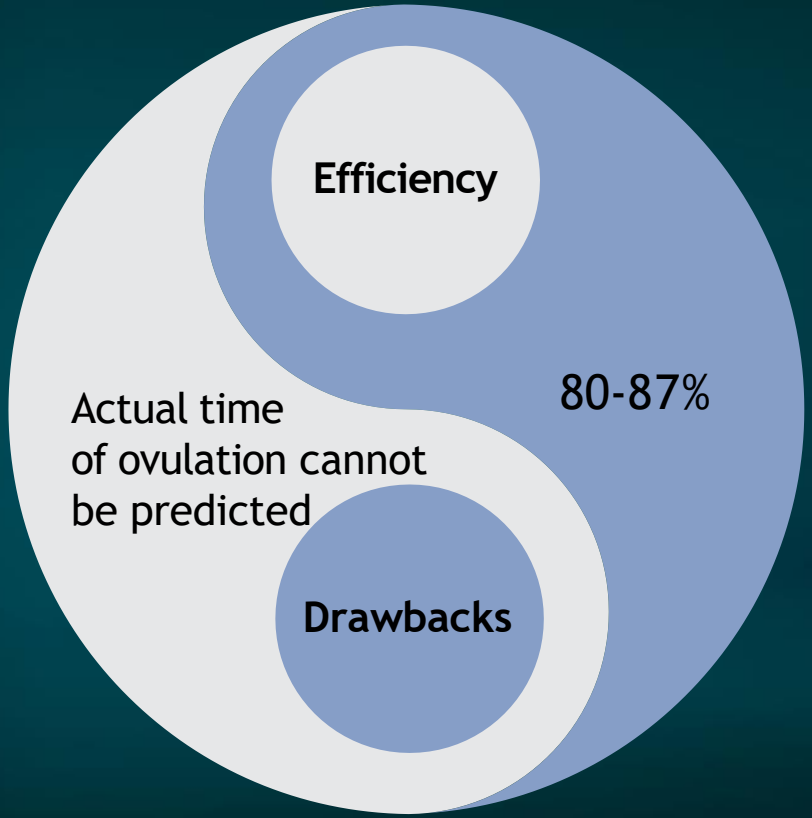


Sperm
Survives 3 days

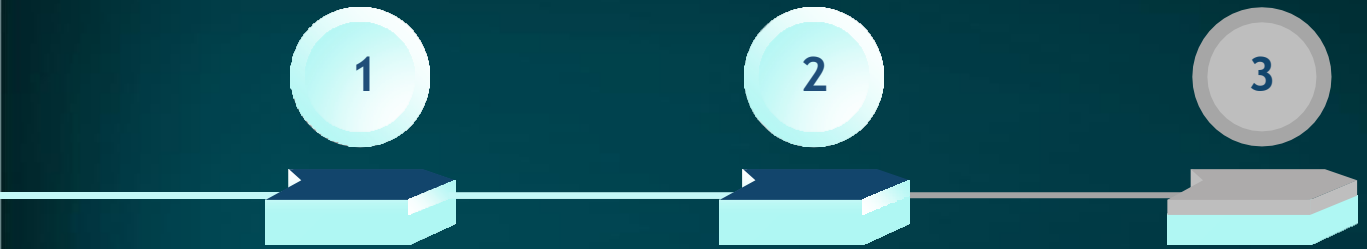


Ovum
Survives 1 day

Periodic abstinence (Rhythm method)



Natural Methods



Periodic abstinence
(Rhythm method)

Coitus interruptus
(Withdrawal method)

Lactational amenorrhea
(Absence of menstruation)

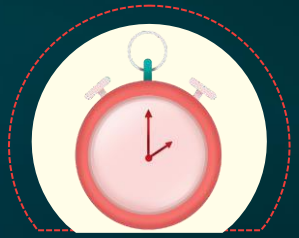
Coitus Interruptus (Withdrawal method)



For males only

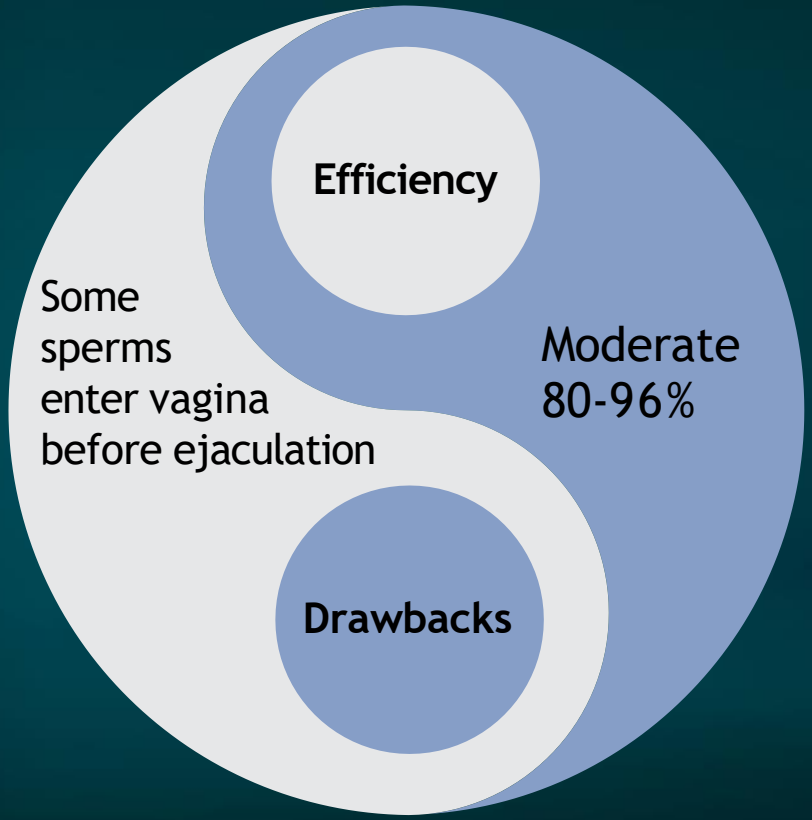


Reversible

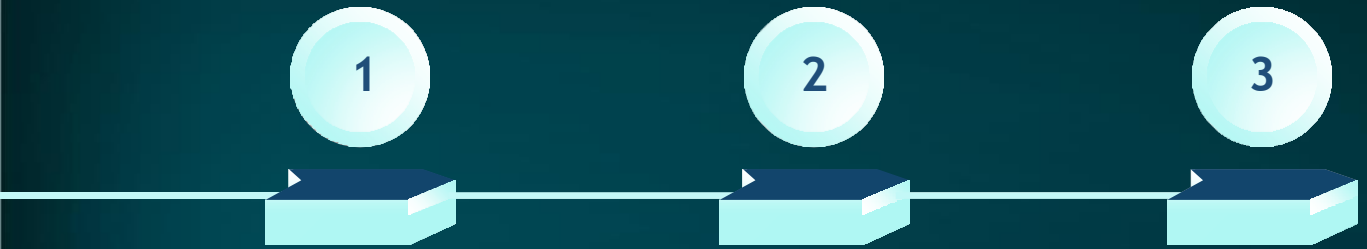


Short term

Coitus interruptus (Withdrawal method)



Natural Methods



1. Periodic abstinence (Rhythm method)
2. Coitus interruptus (Withdrawal method)
3. Lactational amenorrhea (Absence of menstruation)

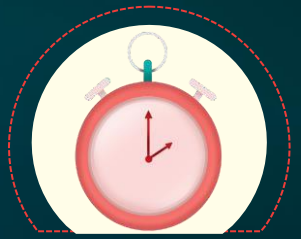
Lactational amenorrhea
(Absence of menstruation)



For females only

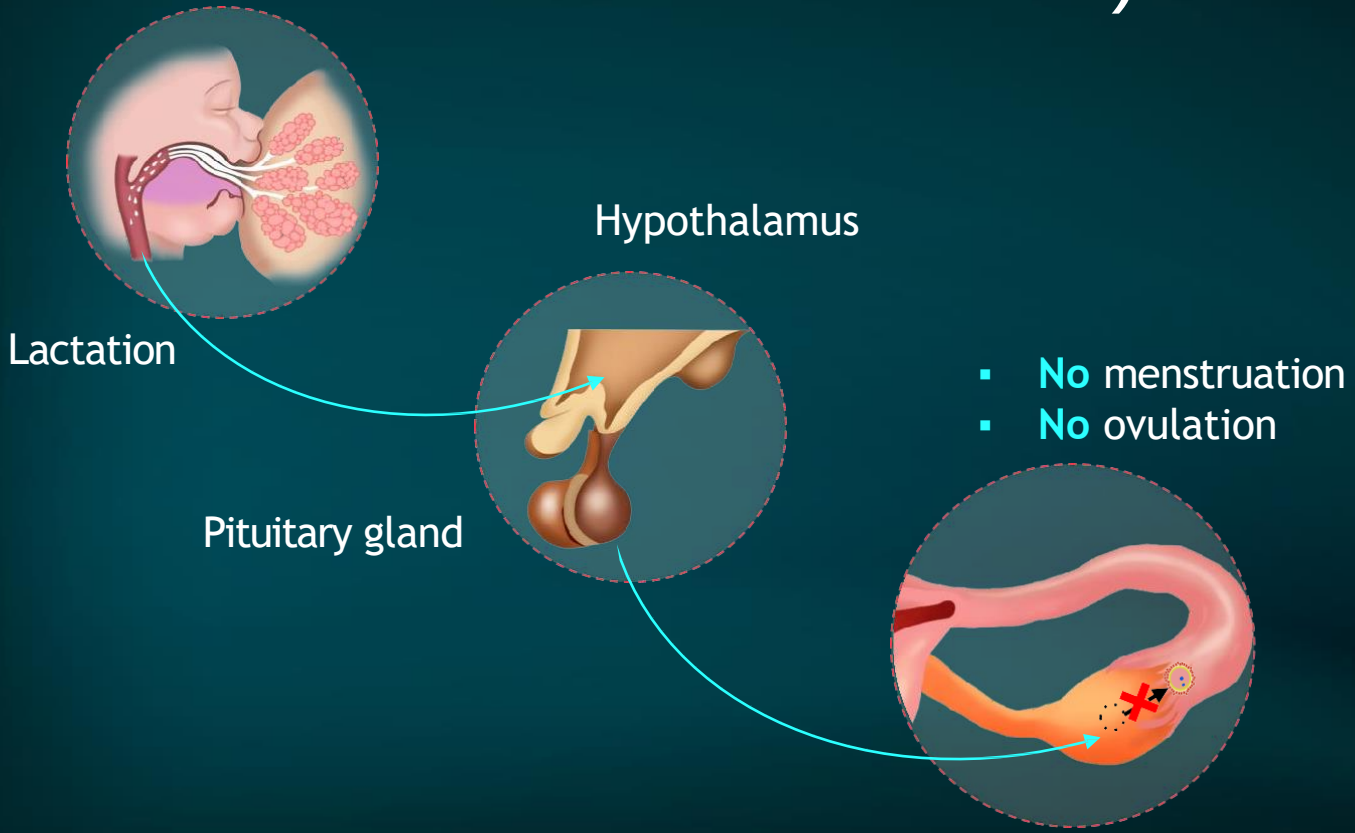


Reversible

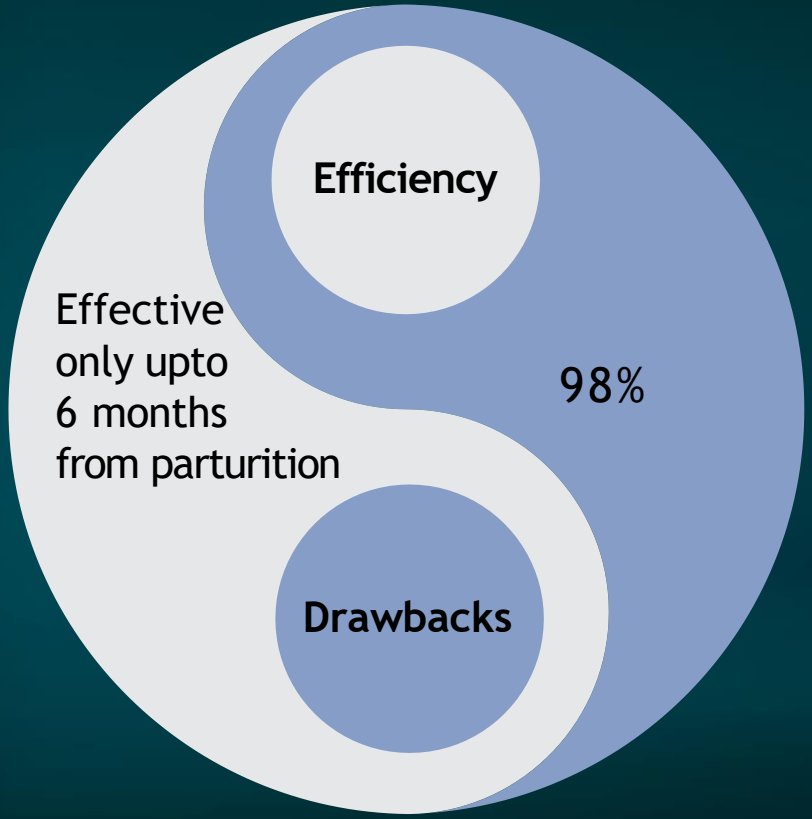


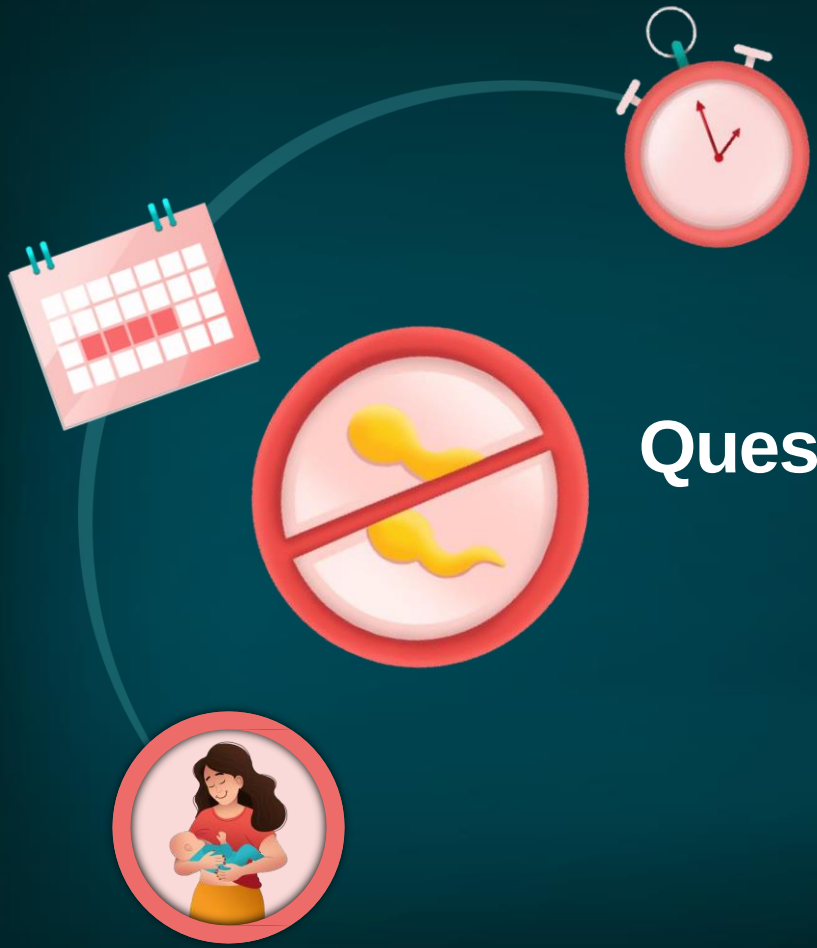
Short term

Lactational amenorrhea (Absence of menstruation)



Lactational amenorrhea (Absence of menstruation)





Question Time!!

For effective use of the rhythm method, coitus should be avoided from day _____to _____

A 10;17

B 13;15

C 10;14

D 1;7

For effective use of the rhythm method, coitus should be avoided from day _____to _____

A 10;17

B 13;15

C 10;14

D 1;7



Barrier Methods



Avoid meeting of ovum and sperm prevent fertilisation

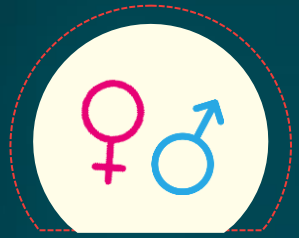
Barrier Methods



Condoms

Diaphragms, Cervical Caps and Vaults

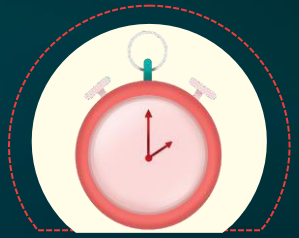
Condoms - Merits



For both
males and females



Reversible



Short term

Condoms



Male Condom



Female Condom

- **Thin rubber/ latex** sheath
- Used just **before and during** coitus

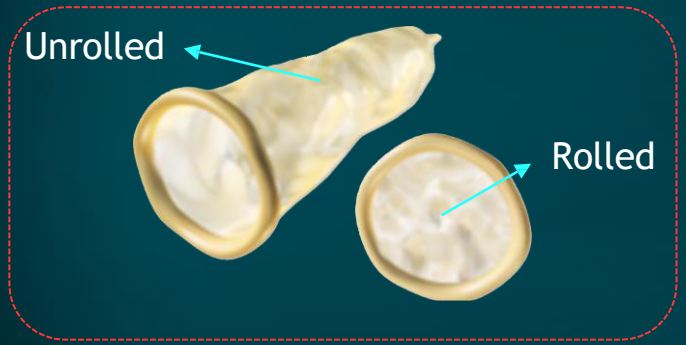
Condoms



- Prevents release of semen into female reproductive tract
- Prevents **fertilisation**

Condoms

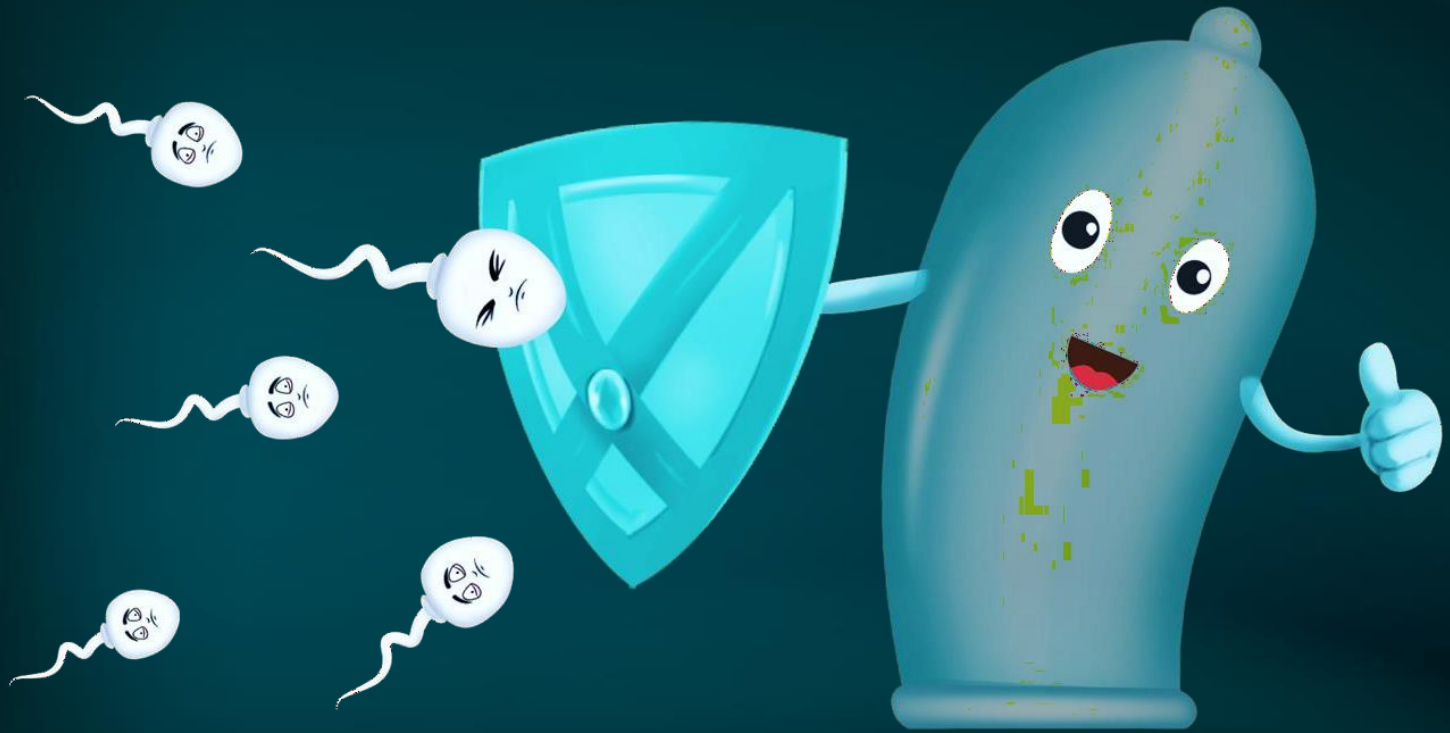
Male condoms



Female condoms/Femidoms



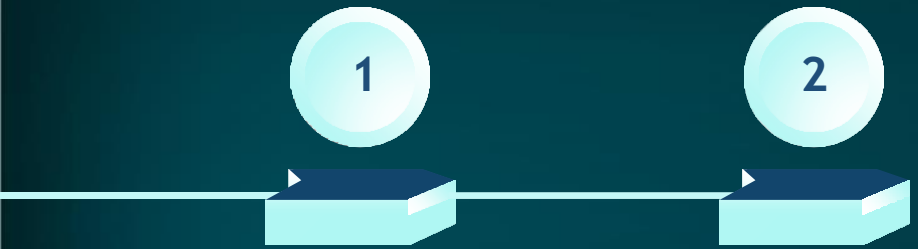
Advantages of Condoms



Advantages of Condoms

1. Protects user from **STDs** and **AIDS**
2. Easy to **access** and **dispose**
3. Can be **self inserted**; gives **privacy** to user

Barrier Methods



Condoms

Diaphragms, Cervical Caps and Vaults

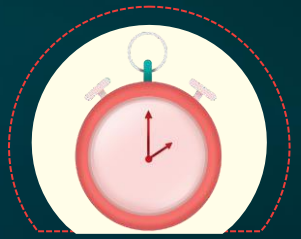
Diaphragms, Cervical Caps and Vaults



For females only



Reversible



Short term

Diaphragms, Cervical Caps and Vaults



- Exclusively for **women**
- Made of **rubber**
- Holds **spermicide**

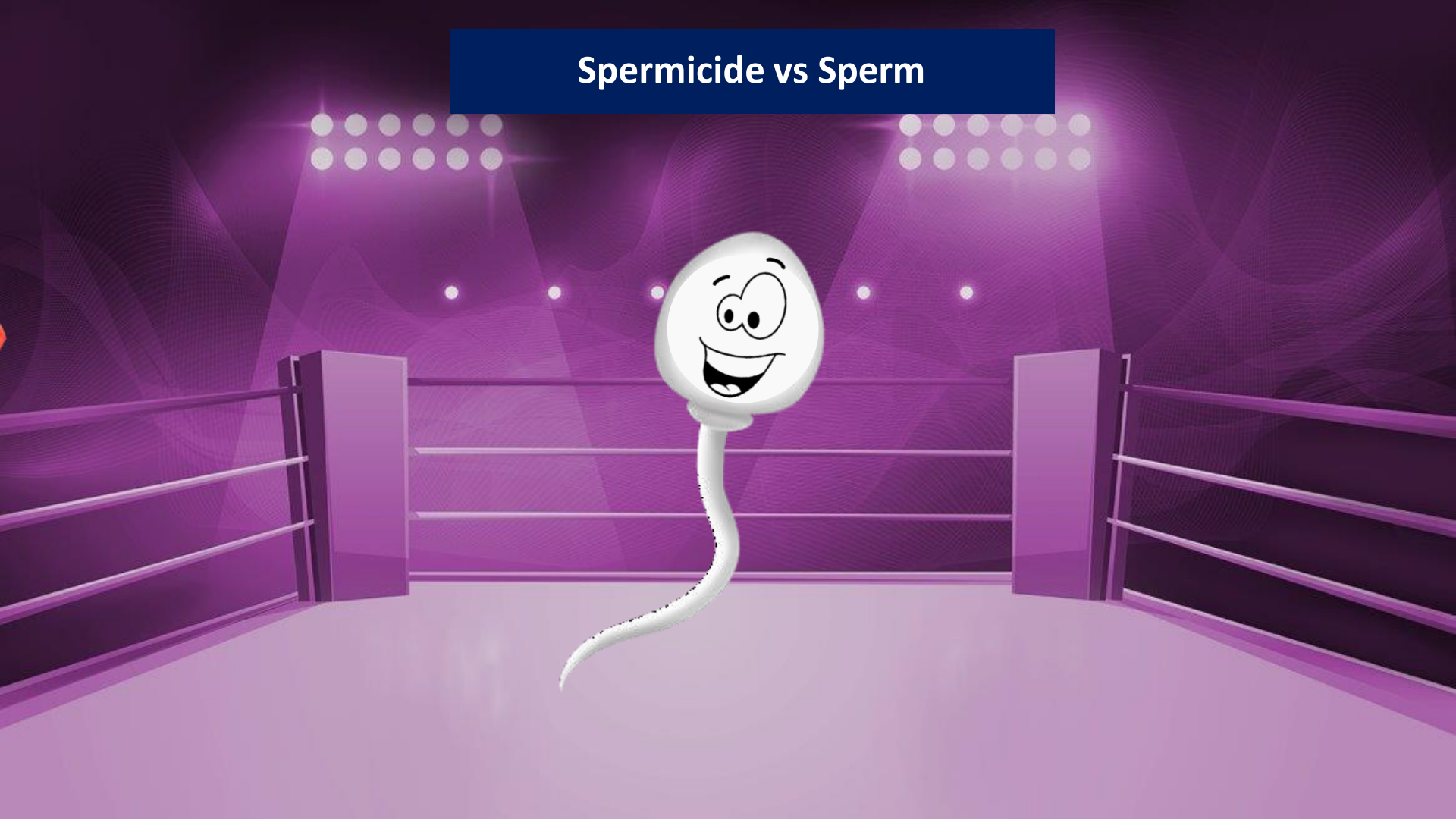
Spermicidal Agents



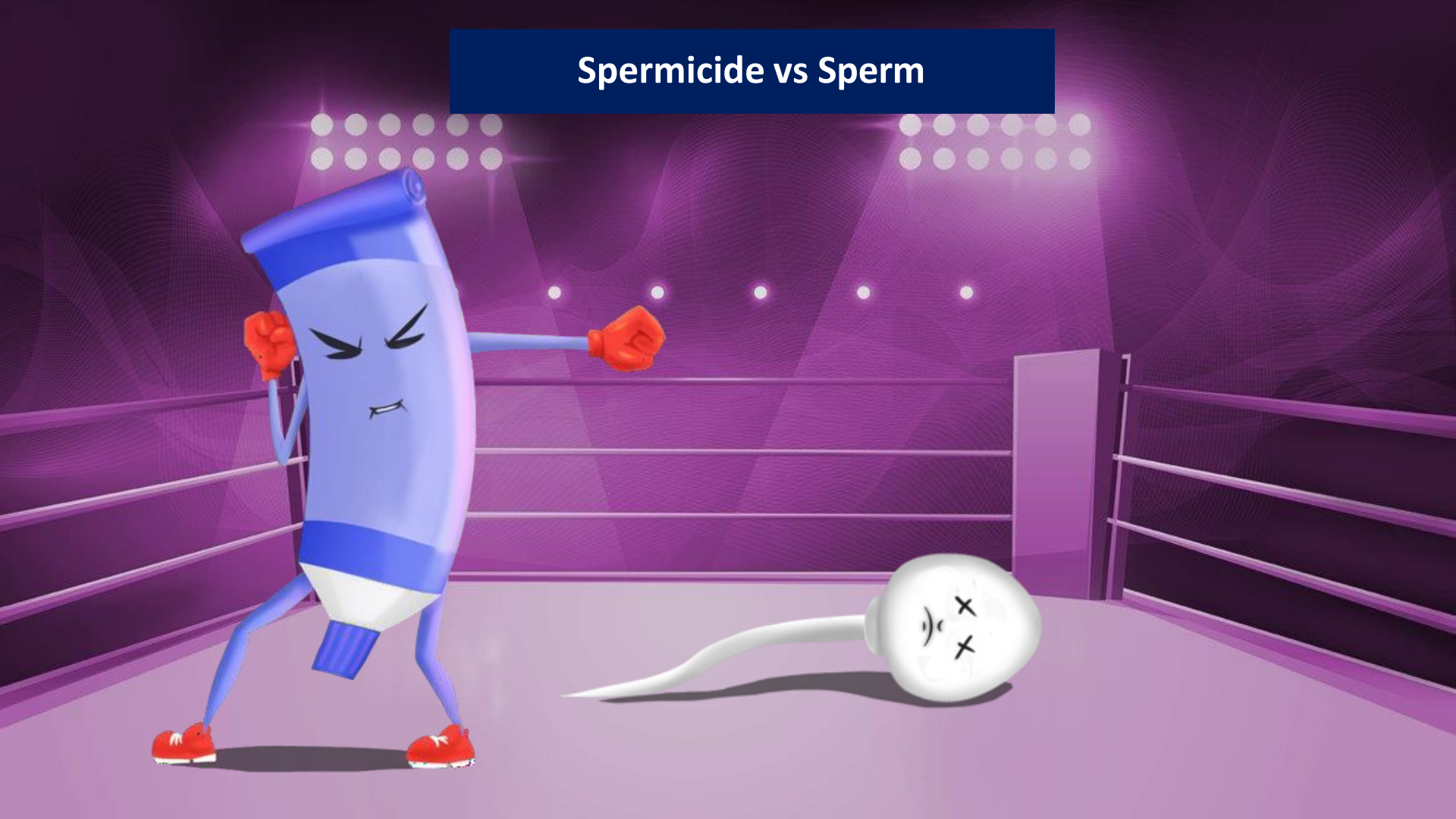
- These are available in the form of
  - Creams
  - Jellies
  - Foams
  - Vaginal tablets

- These are usually used along with barrier methods to increase their contraceptive efficiency.
- These contain chemicals which kill the sperm like boric acid, zinc sulphate, nonoxynol-9.

Spermicide vs Sperm



Spermicide vs Sperm





Question Time!!

What are the advantages of using condoms?

A. Protection from STDs

B. Prevention from conception

C. Can be self inserted

D. All of the above

What are the advantages of using condoms?

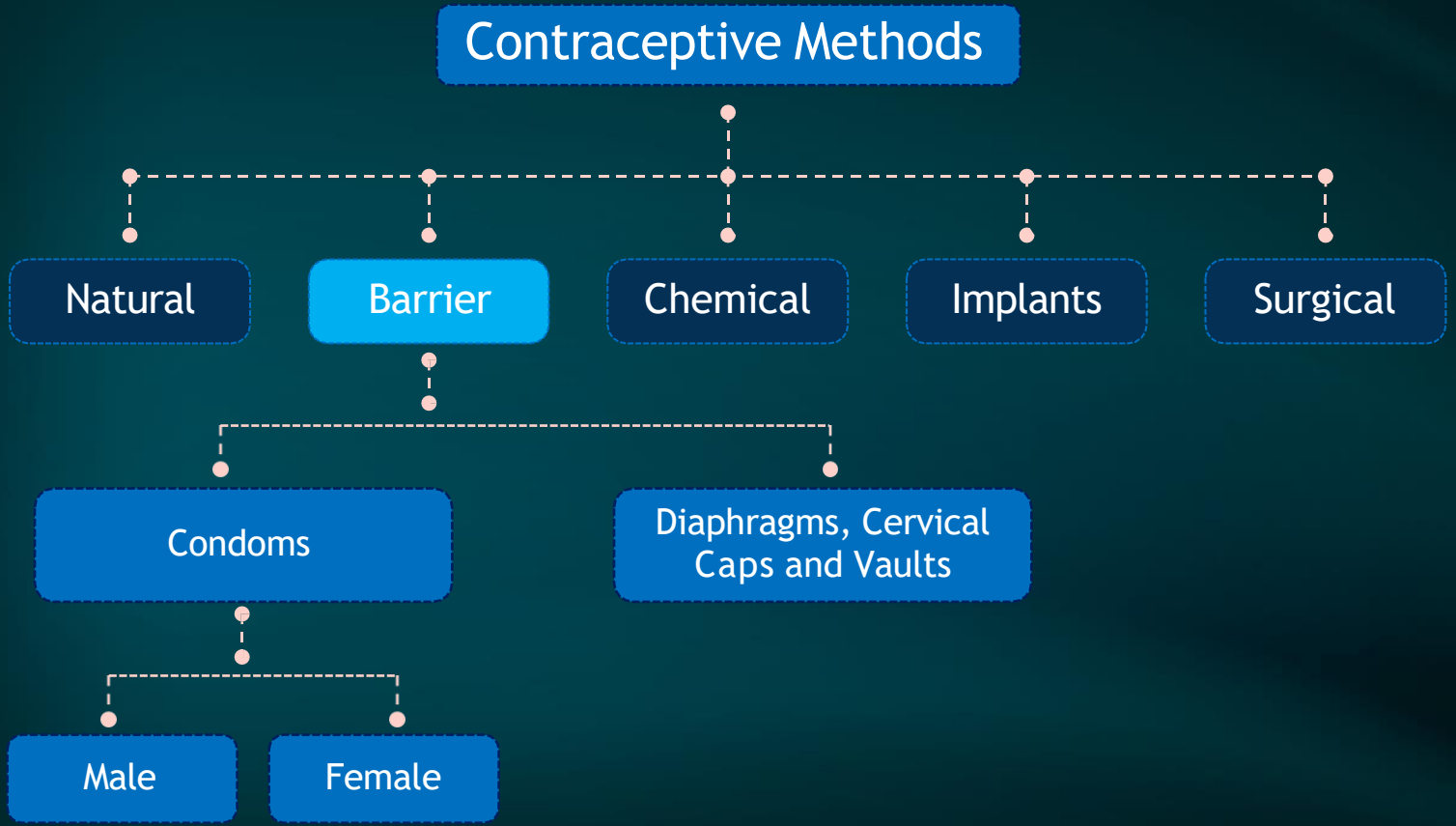
A. Protection from STDs

B. Prevention from conception

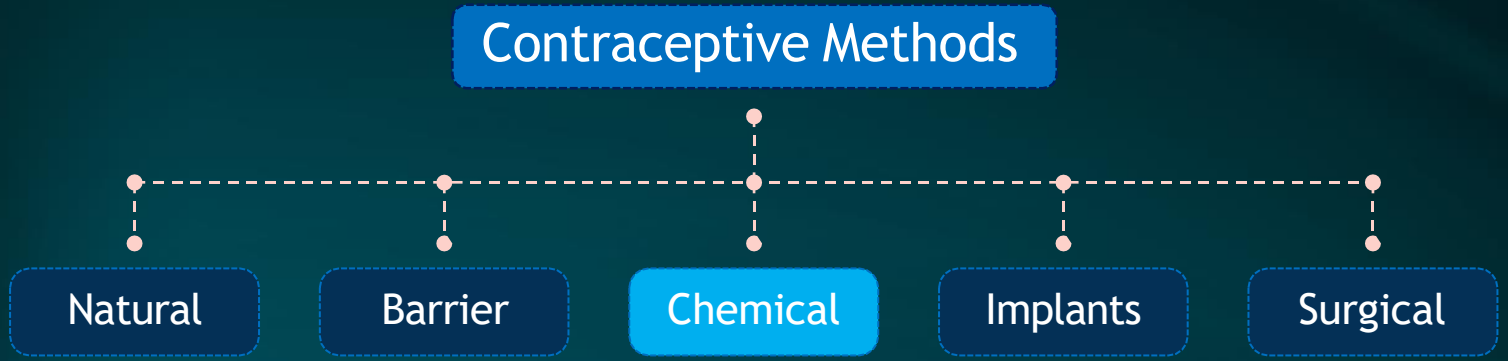
C. Can be self inserted

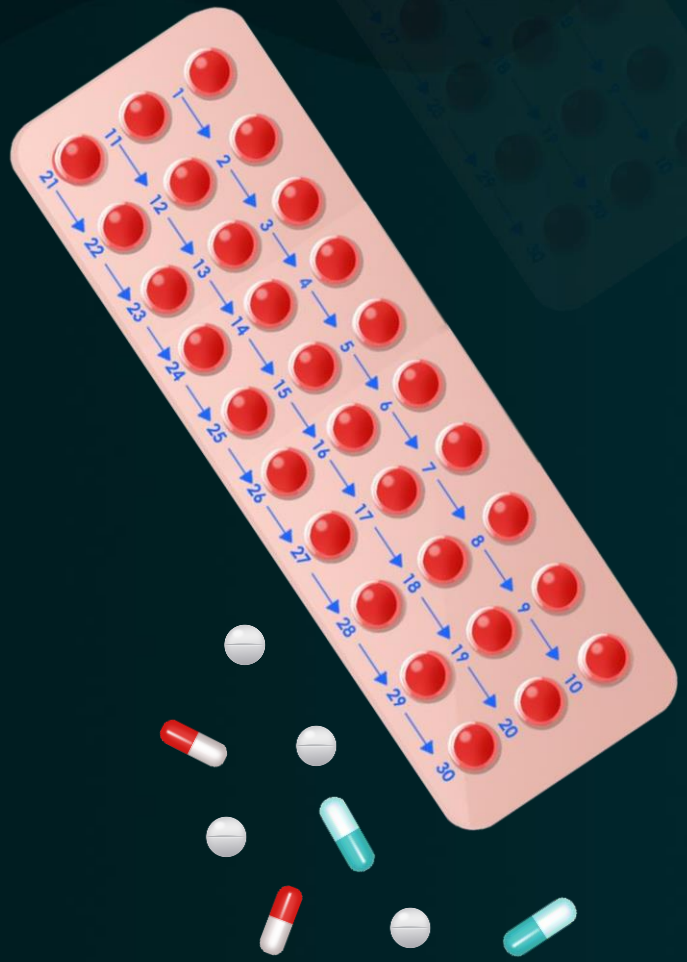
D. **All of the above**

Methods of contraception



Methods of contraception

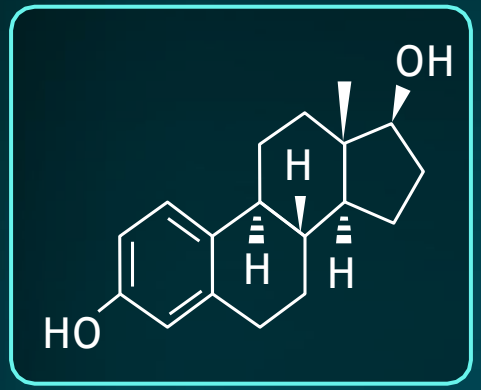




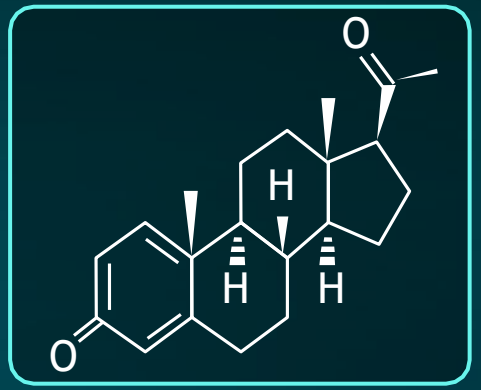
Chemical Contraceptives

Contraceptives in which **chemical constituents** are used to prevent fertilisation or avoid implantation.

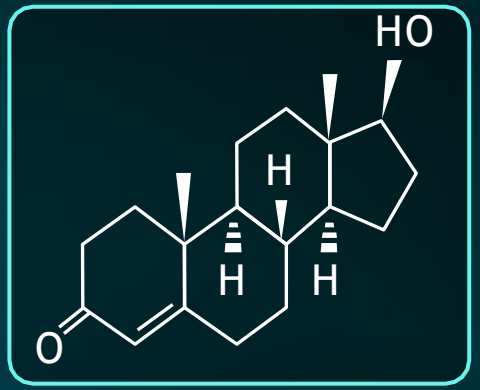
Steroidal Hormones



Estrogen



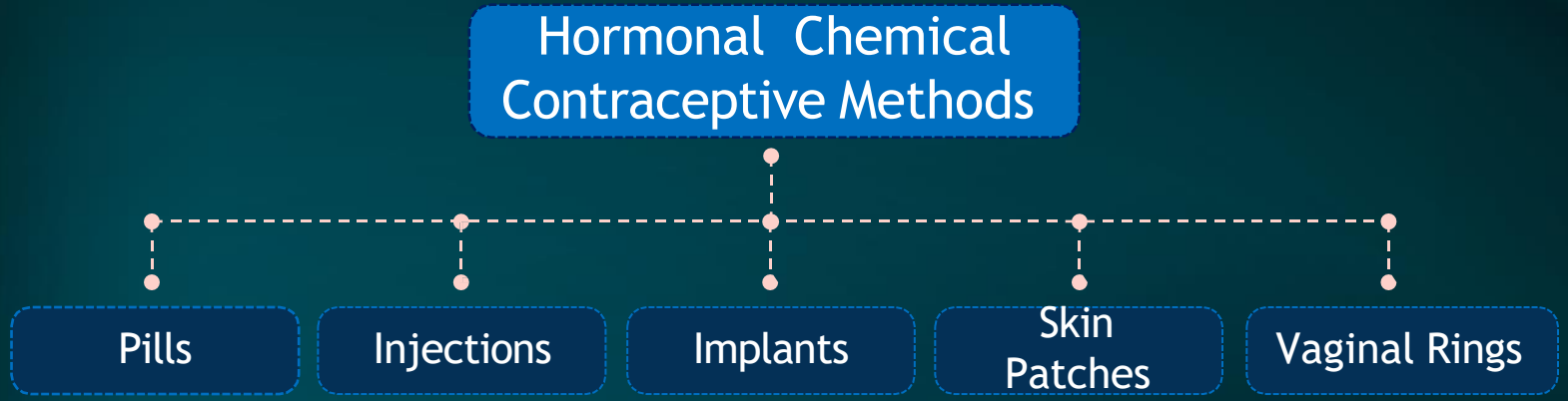
Progesterone



Testosterone

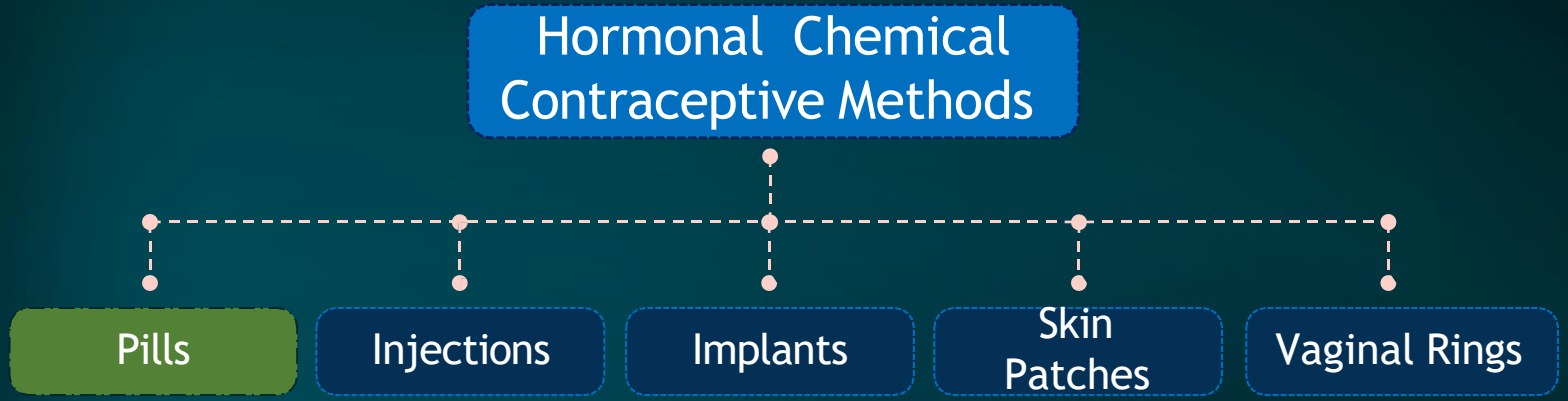
Hormonal Chemical Contraceptives

How to use?



Hormonal Chemical Contraceptives

How to use?



Hormonal Chemical Contraceptives - Oral Contraceptive Pills

What is it?

Oral administration of small doses of **progestogen** or combination of **progestogen-estrogen.**

They are used by females in the form of **tablets** and hence are popularly called the **pills.**

There are **many different formulations** or **brands**, but the average pack is designed to be taken over a 28-day cycle.



Hormonal Chemical Contraceptives - Oral Contraceptive Pills

How does it work?

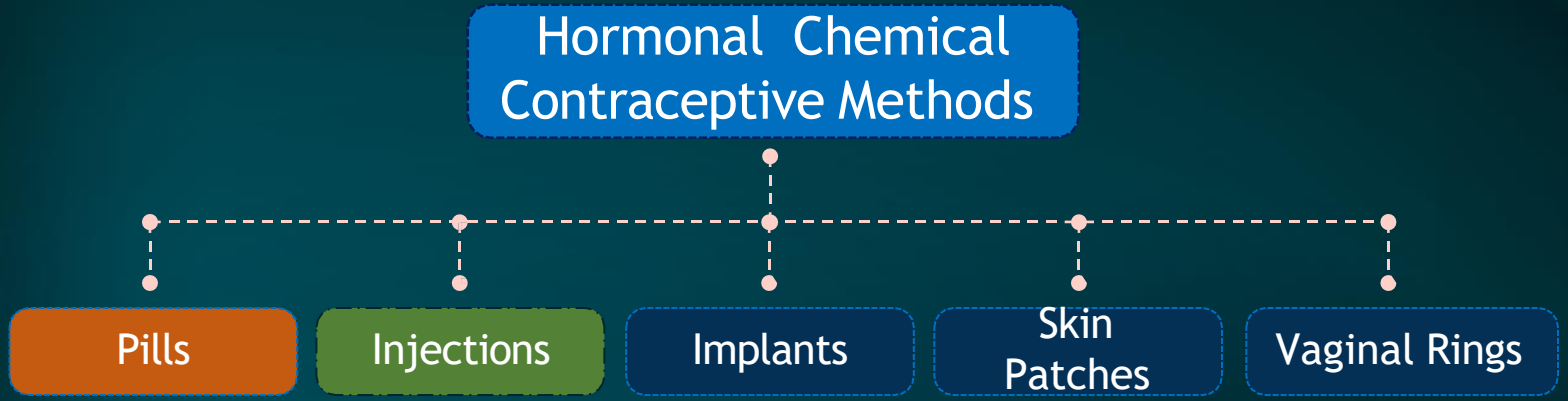
For the **first 21 days of the cycle**, users take a daily pill that contains hormones (estrogen and progestogen).

The **last 7 days of the cycle** are **hormone free days**.

Some packets only contain 21 pills and users are then advised to take no pills for the following week.

Hormonal Chemical Contraceptives

How to use?



Hormonal Chemical Contraceptives - Injections

What is it?

Injections of **progestogen alone** or **in combination with estrogen**.

E.g., DEPO-PROVERA

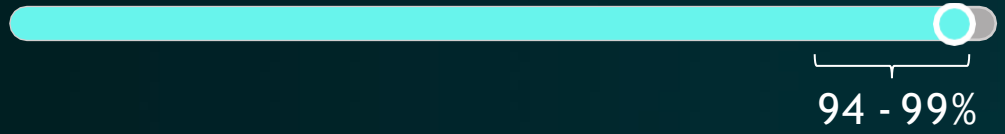
How to use?

Once in three months.

Mode of action?

Similar to that of pills

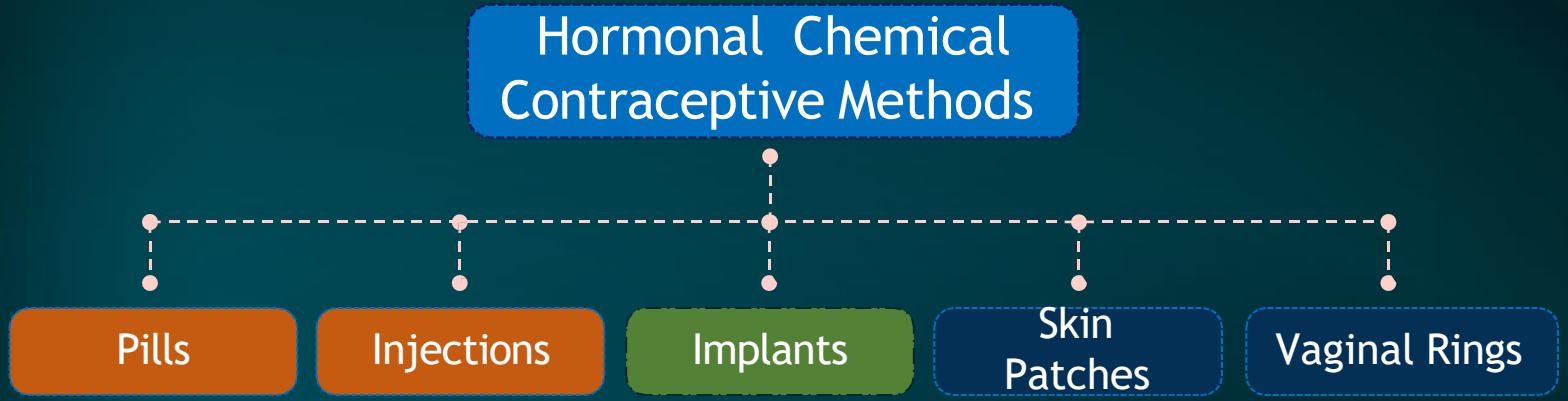
Efficiency





Hormonal Chemical Contraceptives

How to use?



Hormonal Chemical Contraceptives - Implants

What is it?

Matchstick sized rod of plastic or other inert material containing a form of the hormone progesterone called **etonogestrel.**

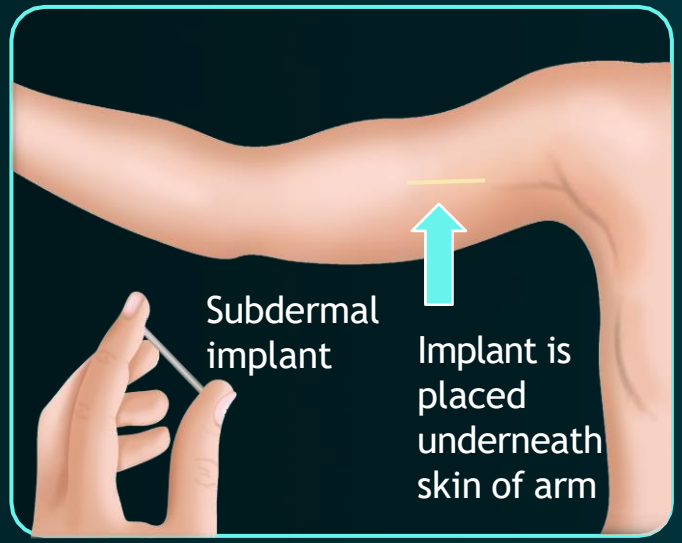
Norplant has six small capsules containing hormone and these are inserted under skin of left upper arm.



Hormonal Chemical Contraceptives - Implants

How to use?

Doctor or trained nurse insert the plastic rod implant under the skin of the inner arm above the elbow.



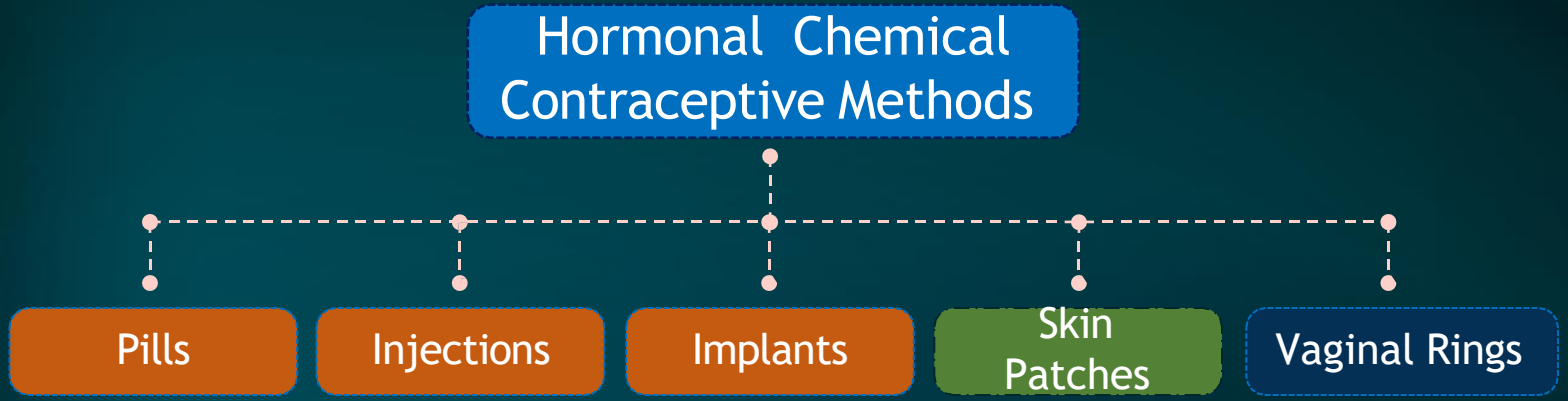


Efficiency

99%

Hormonal Chemical Contraceptives

How to use?



Hormonal Chemical Contraceptives - Skin Patches

What is it?

Transdermal patch applied to the skin.

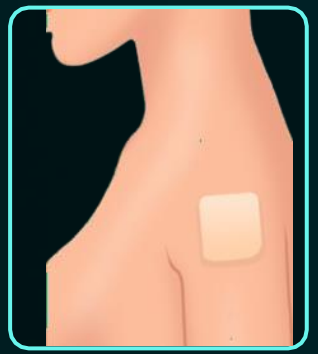
Contains estrogen - progestogen combination.



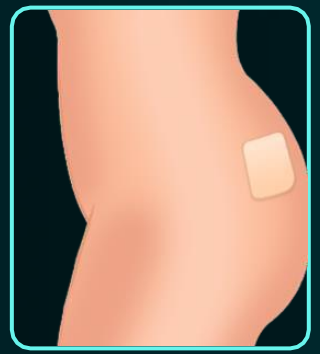
Hormonal Chemical Contraceptives - Skin Patches

How to use?

Skin patch is adhesive patch worn on



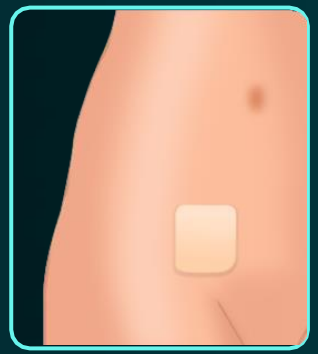
Upper torso (excluding breasts)



Buttock



Upper outer arm



Abdomen

Replace patch after 28 days

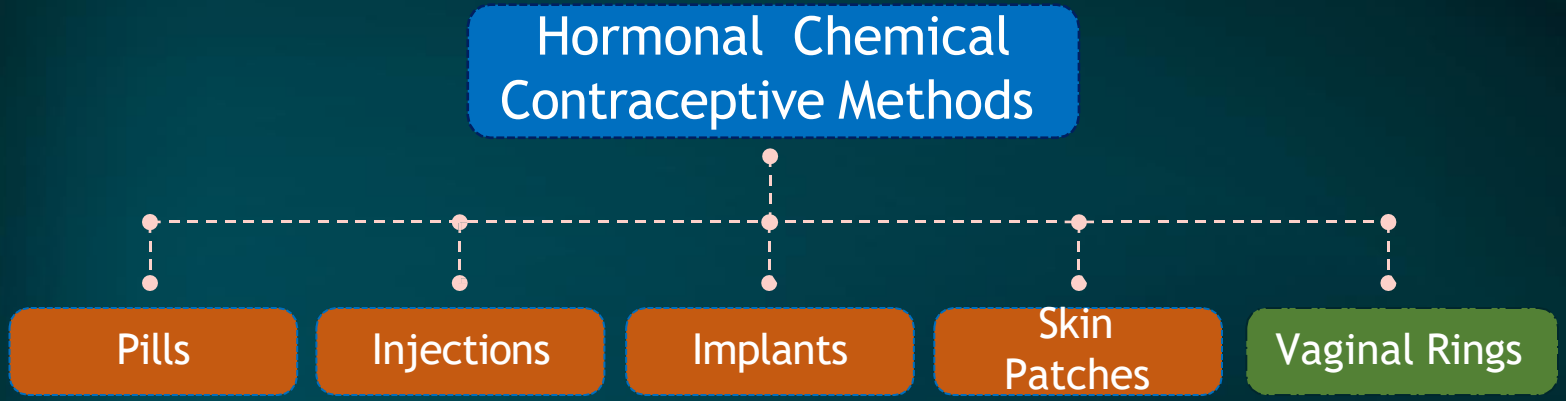
Efficiency



99%

Hormonal Chemical Contraceptives

How to use?



Hormonal Chemical Contraceptives - Vaginal Rings

What is it?

Small, flexible, soft plastic ring which releases continuous dose of estrogen - progestogen combination

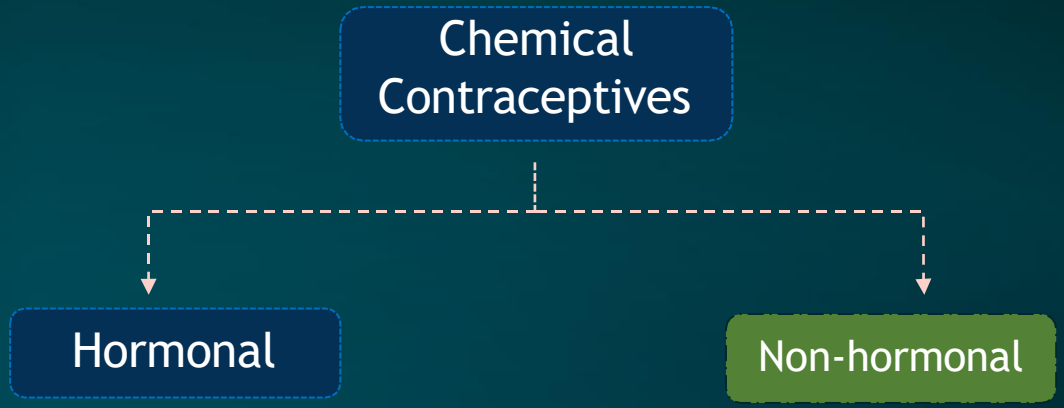


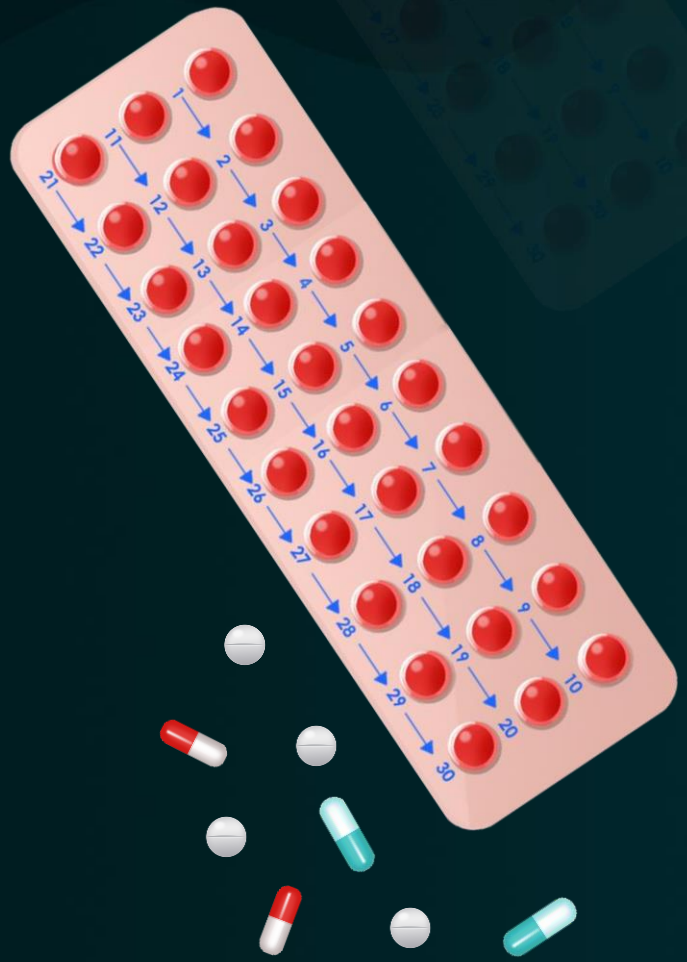
Hormonal Chemical Contraceptives

Common drawbacks

- Irregular periods
- Mood changes
- Depression
- Weight gain
- Sore breast
- Vaginal irritation or inflammation
- No protection against Sexually Transmitted Infections (STI)
- Low sexual drive
- Migraine and Nausea

Chemical Contraceptive - Types





Saheli

Non - Steroidal Pill- Saheli



What is it?

World's **first** and **only** oral non-steroidal contraceptive pill.

Developed at **Central Drug Research Institute (CDRI),** India.

What is it?

It is a '**once a week**' pill with very few side effects and high contraceptive value.

It is taken **twice weekly for the first three months** and **then once a week.**

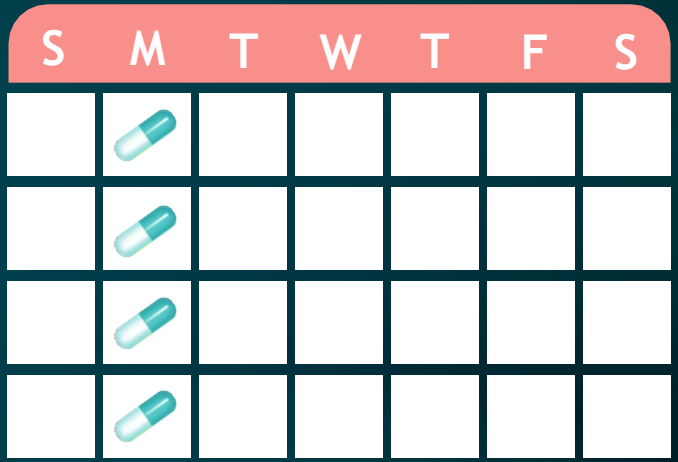
Non - Steroidal Pill- Saheli

How to use?

Initial 3 months



After 3 months



Non - Steroidal Pill- Saheli

Efficiency

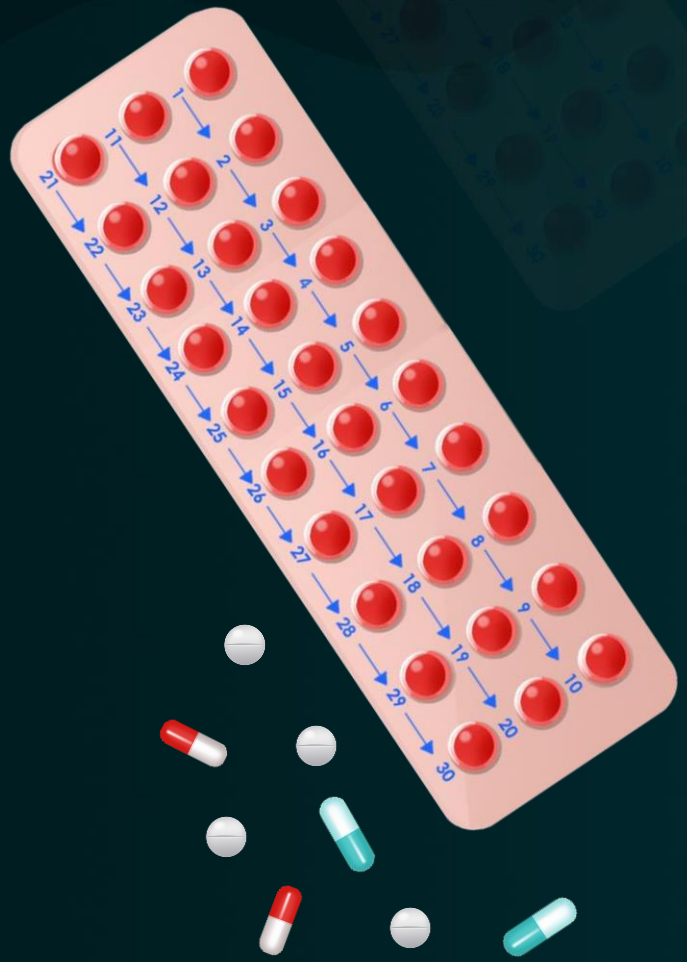


99%

Drawbacks

Very few side effect like

- Weight gain
- Nausea and vomiting



Spermicidal Formulation

Non-Hormonal Contraceptives - Spermicidal Formulations

What is it?

Non - Steroidal chemical formulation for topical application

- Cream
- Jelly
- Foam



Non-Hormonal Contraceptives - Spermicidal Formulations

How does it work ?

Contains chemicals which prevent pregnancy by

- Killing the sperm
- Blocking cervix and entry to the uterus
- Slowing down the sperm’s movement



Non-Hormonal Contraceptives - Spermicidal Formulations

How to use?

- Spermicides creams are applied deep in the vagina and cervix just 10-60 minutes before sex
- Not to be washed immediately after sex
- Must stay inside till 5-6 hours after sex, so reapply after 3-4 hours



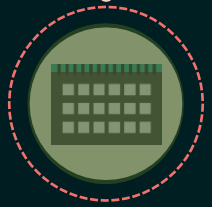
Non-Hormonal Contraceptives - Spermicidal Formulations

Drawbacks

- No protection against STIs
- Effective for a limited time only and should be reapplied after three hours
- Vaginal irritation and infections

Contraceptive Methods

CONTRACEPTIVE METHODS



Natural



Barrier



Chemical

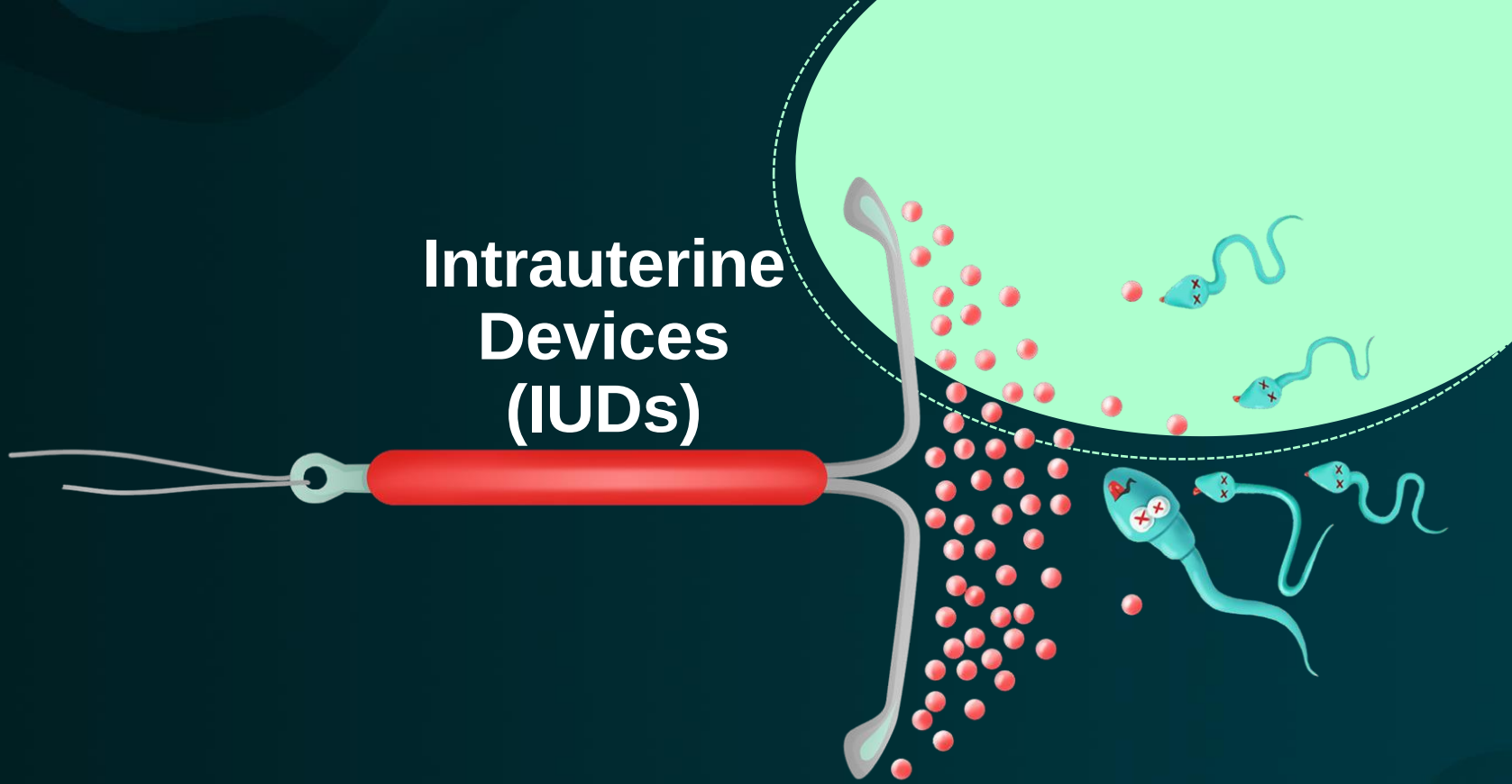


Intra Uterine



Surgical

Intrauterine Devices (IUDs)

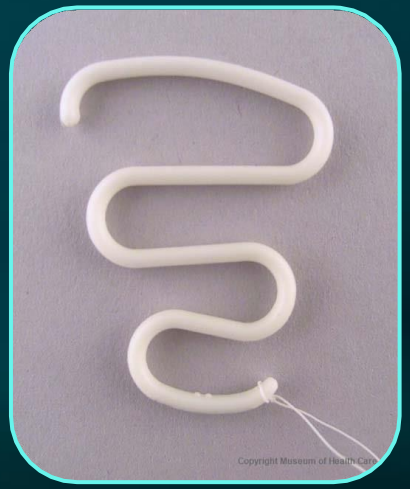


Intrauterine Devices or IUDs

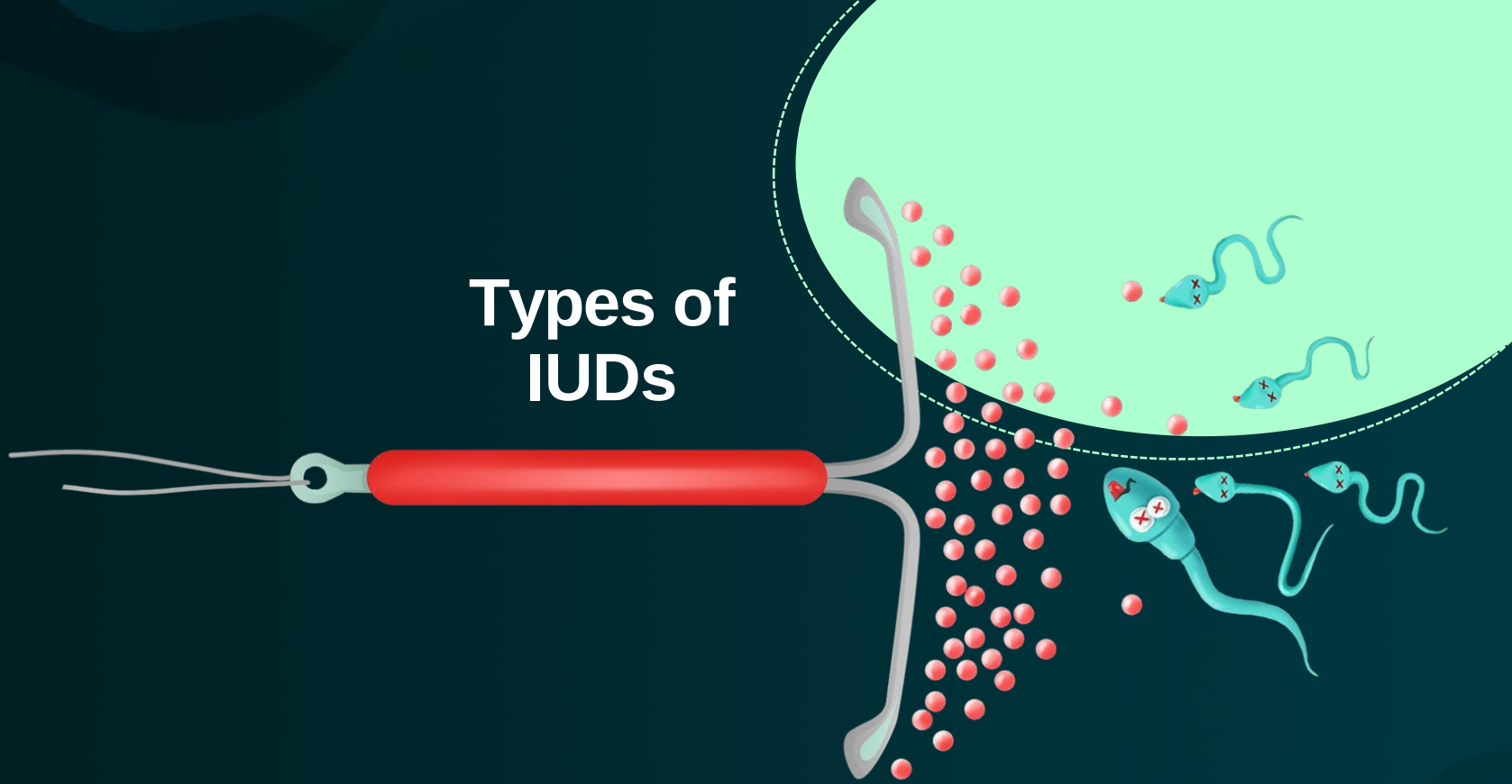
- Small birth-control devices placed in the uterus to prevent pregnancy
- Long-acting reversible contraception



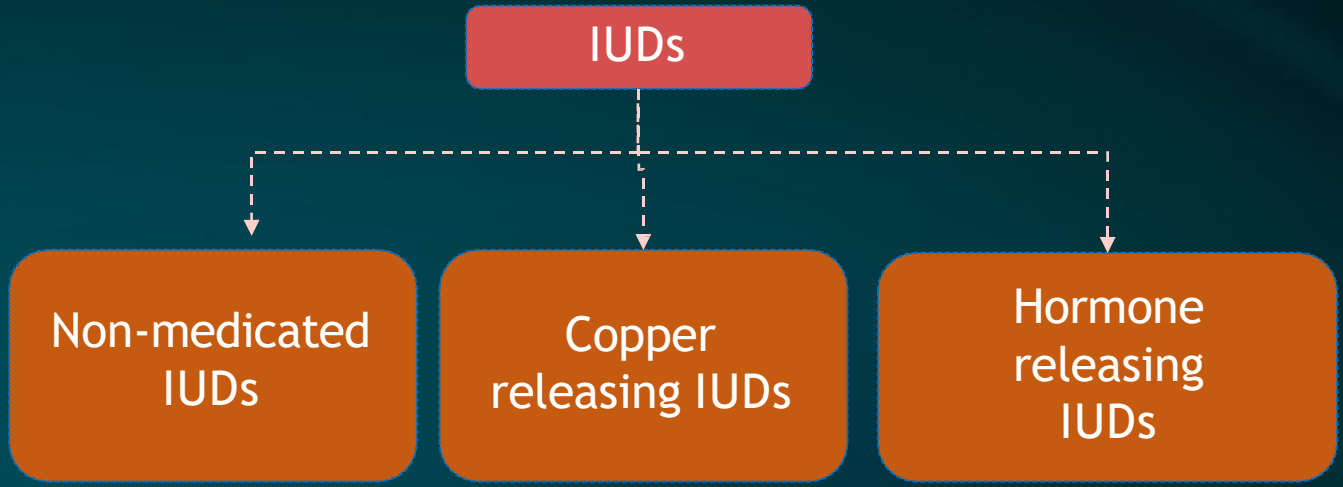




Types of IUDs



Intrauterine Devices or IUDs - Types



Intrauterine Devices or IUDs

Mechanism of action:

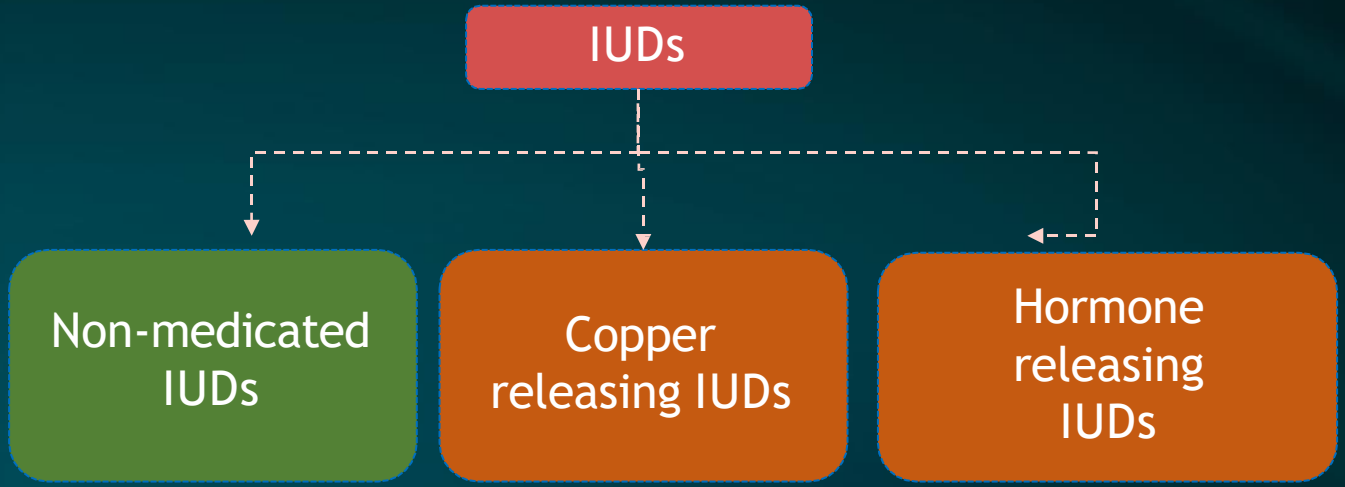
- IUDs increase **phagocytosis of sperms** within the uterus.
- Cu ions released **suppress sperm motility** and the fertilising capacity of sperms.
- Cu ions make uterine endometrium **unfavourable** for implantation.

Intrauterine Devices or IUDs

Mechanism of action:

- Hormone releasing IUDs, in addition, make the uterus **unsuitable for implantation** and the **cervix hostile** to the sperms.
- IUDs are ideal contraceptives for females who want to delay pregnancy and/or space children.
- It is one of most widely accepted methods of contraception in India.

Intrauterine Devices or IUDs - Types

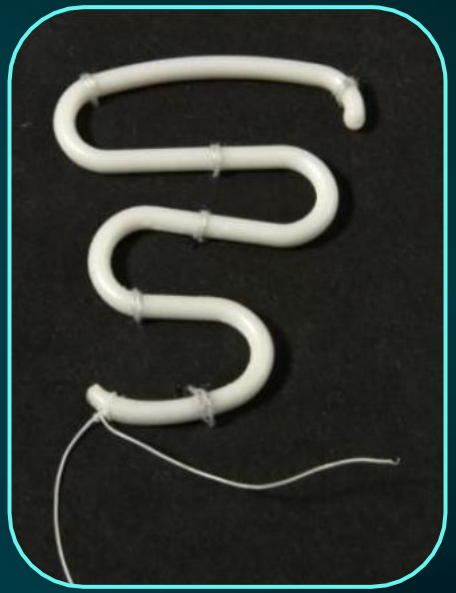


Non-medicated IUDs - Lippes Loop

What is it?

Double S shaped inert flexible plastic loop.

Overall trapezoid shape.

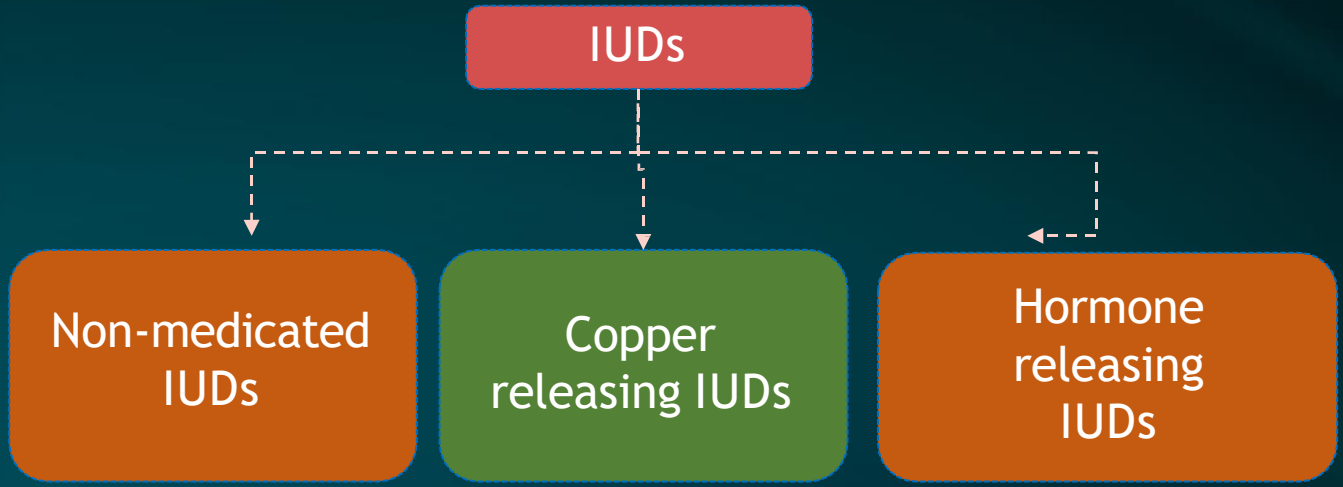


How does it work?

Foreign material inserted into the uterus provokes an increase in the immune cells in the uterus

- Killing (phagocytosing) the sperm
- Preventing implantation of the embryo

Intrauterine Devices or IUDs - Types



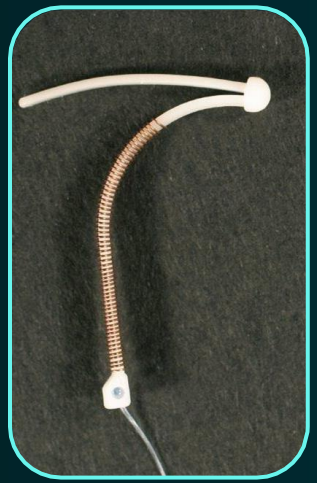
Cu Releasing IUDs - CuT, Cu7 & Multiload 375

What is it?

Plastic frame wrapped with fine copper wire



CuT



Cu7



Multiload 375

Cu Releasing IUDs - CuT

What is it?

- It is a T-shaped device
- The main frame of copper-T is made up of polyethylene coated with barium sulfate to make it radio opaque so that its presence can be detected by X-ray.



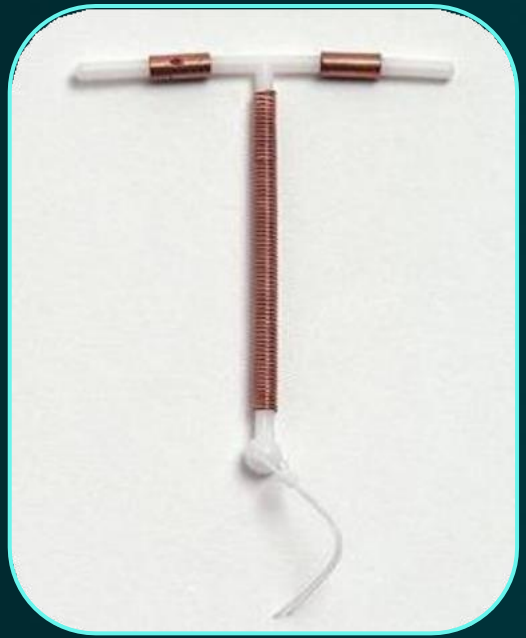
CuT

Cu Releasing IUDs - CuT

How does it work?

Releases Cu ions that

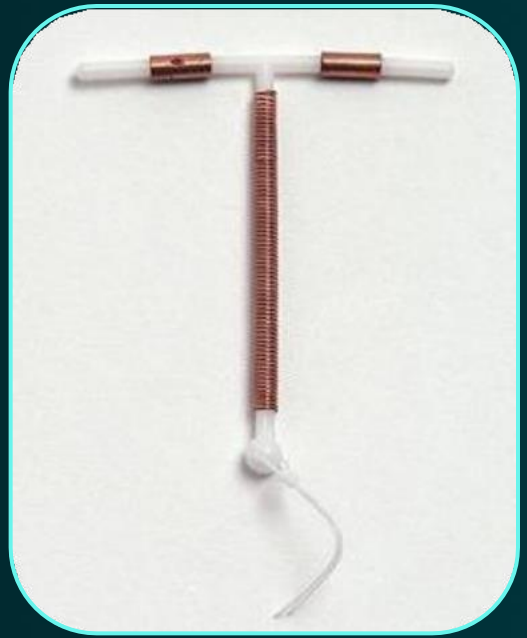
- Decrease sperm motility
- Decrease fertilising ability of sperms
- Kill sperm
- Disrupt implantation of embryo



Cu Releasing IUDs - CuT

Drawbacks

- Expulsion from the uterus
- Perforation into the uterus wall
- Pelvic inflammation
- Cramping
- Heavier periods



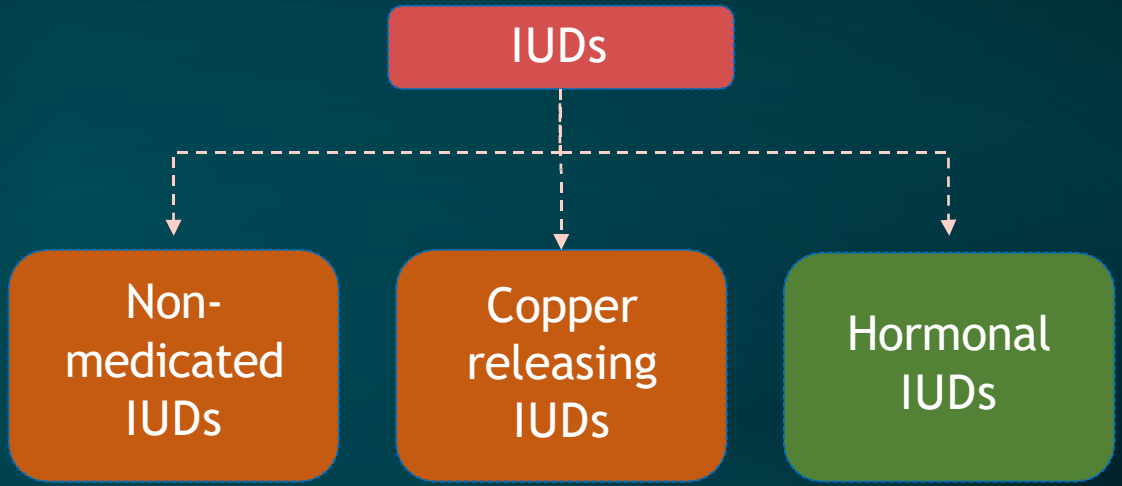
Cu Releasing IUDs - Multiload 375

- It has about **375 mm² of copper wire** wound around its stem.
- The flexible arms are designed to **minimize expulsions**.
- The multiload 375 and T Cu-380 A are similar in their efficacy and performance.





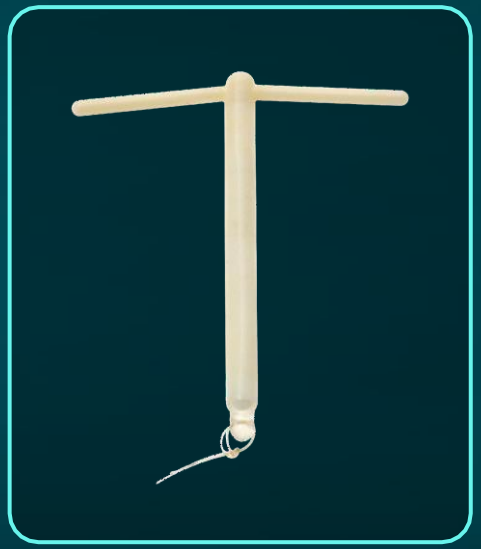
Intrauterine Devices or IUDs - Types



Hormonal IUDs - Progestasert, LNG-20

What is it?

T-shaped piece of plastic with a reservoir containing the hormone.



Progestasert



LNG-20

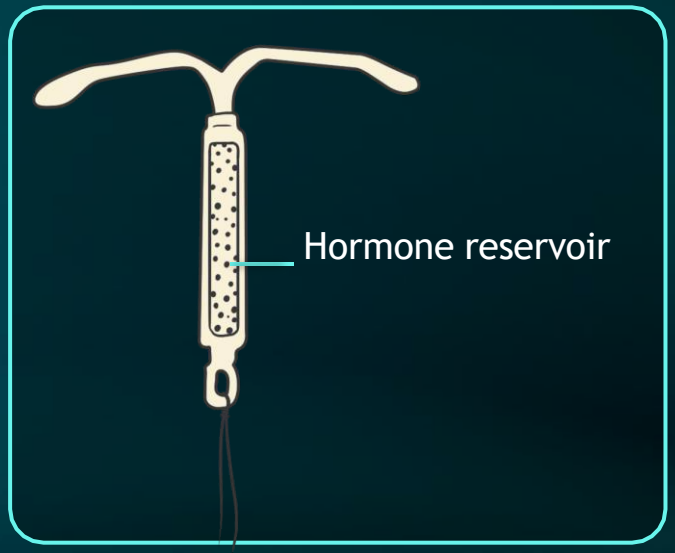
Hormonal IUDs - Progestasert, LNG-20

How does it work?

Hormone in the reservoir is continuously released into the uterus as regulated by the membrane enclosing it



Progestasert



LNG-20

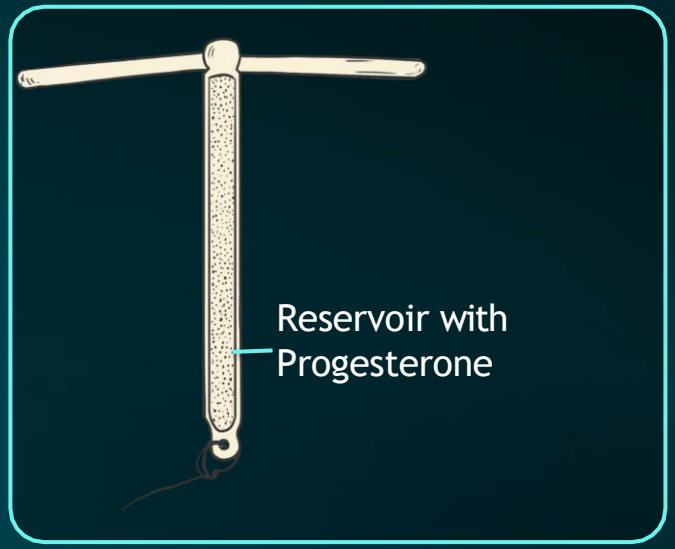
Hormonal IUDs - Progestasert

How does it work?

Releases progesterone that inhibits the ovulation.

Does not increase the serum levels of the hormone

Lasts only for 1 year



Progestasert

Efficiency

>99%

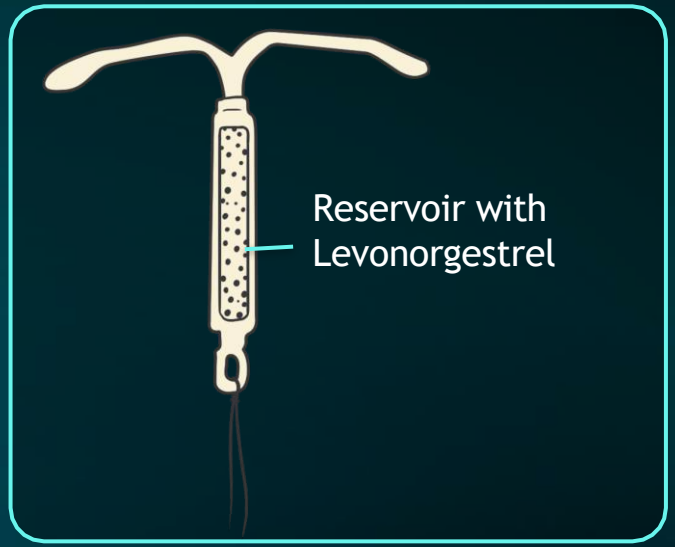
Hormonal IUDs - LNG-20

How does it work?

Releases **levonorgestrel**, a progestin (synthetic hormone similar to progesterone)

- Thickens cervical mucus - prevents entry of sperm
- Prevents ovulation (same mechanism as progesterone)

Lasts about 5 years



LNG-20

Efficiency



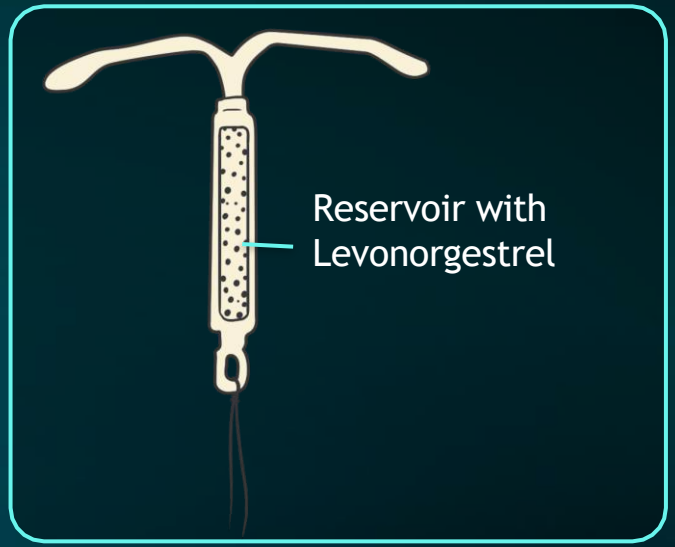
>99%

Hormonal IUDs - LNG-20

How to use?

A doctor or a trained nurse inserts the IUD into the uterus.

The T arms sit between the folds of the uterus.



LNG-20

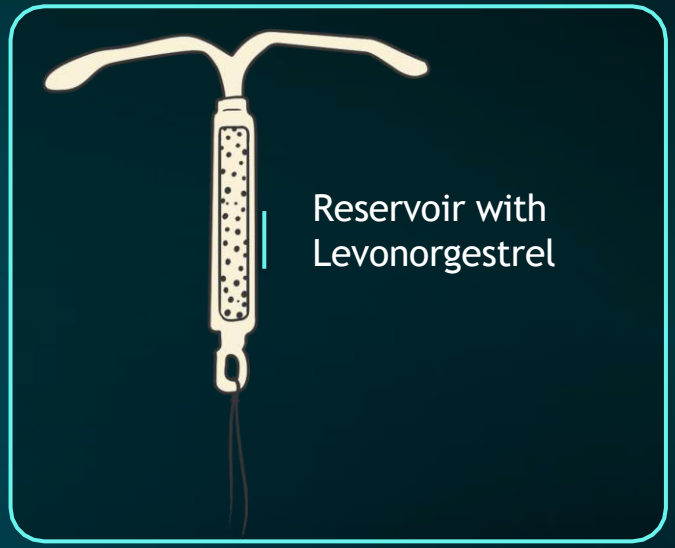
Hormonal IUDs - LNG-20

Drawbacks

Same as other IUDs

- Weight gain
- Ovarian cysts
- Negatively affects mental health
- Nausea
- Headache & migraine
- Lower sexual drive

and many more ...



LNG-20



Emergency Contraceptive Methods

Emergency contraception refers to methods of contraception that can be used to prevent pregnancy **after** sexual intercourse.

Emergency Contraception

- Administration of progestogens or progestogen-estrogen combinations within 72 hours of coitus have been found to be very effective as emergency contraceptives (morning after pills).
- These could be used to avoid possible pregnancy due to rape, missed pills or casual unprotected intercourse.



Emergency Contraceptive Pills

What is it?

Medical formulation containing **levonorgestrel**

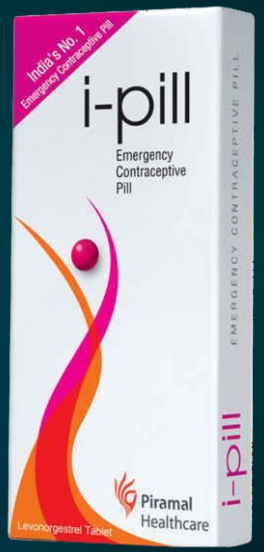


Emergency Contraceptive Pills

How does it work?

Levonorgestrel has a few effects

- Delay or prevent ovulation
- Thickening of the cervical mucus to prevent sperm entry into the uterus
- Prevent implantation of the embryo



Emergency Contraceptive Pills

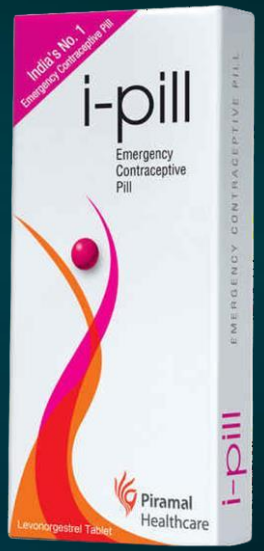
How to use?

Pill should be taken within 5 days of sexual intercourse.

More effective when taken as early as possible especially within 3 days or

3 x 24 = **72 hours**

Best used after **unprotected sex** or **rape**

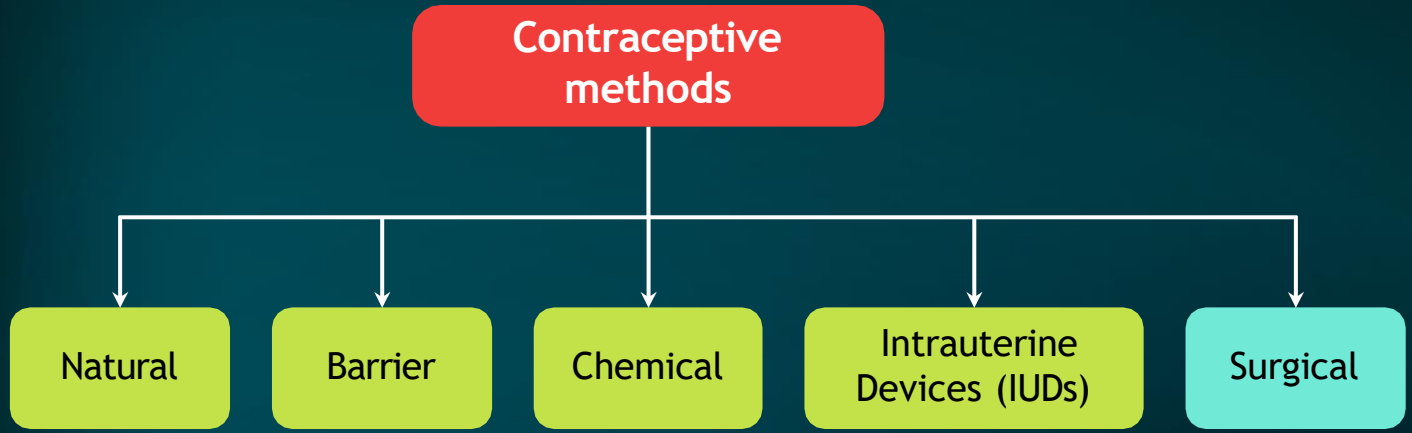


Efficiency



~95%

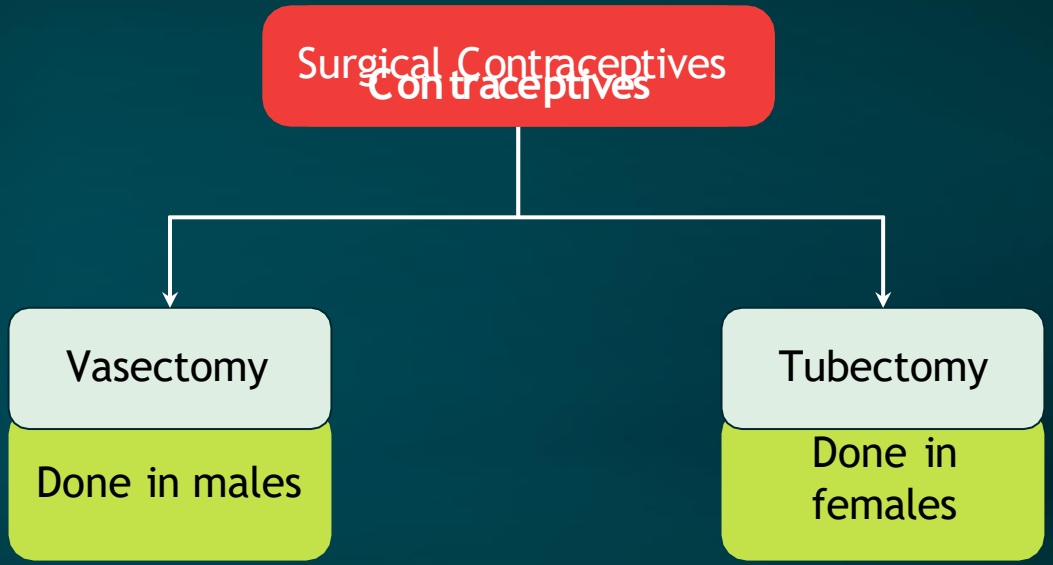
Contraceptive Methods



Surgical Contraceptives

Terminal method of birth control to prevent any more pregnancies

Surgical Contraceptives- Types



Vasectomy

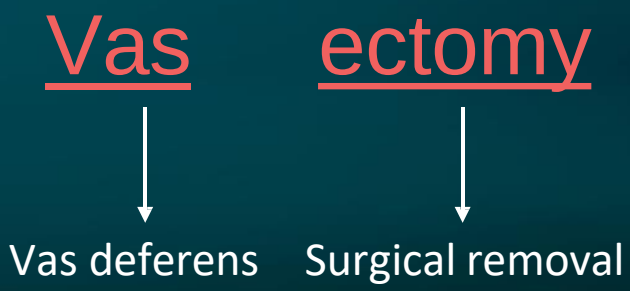
Vasectomy

What is it?

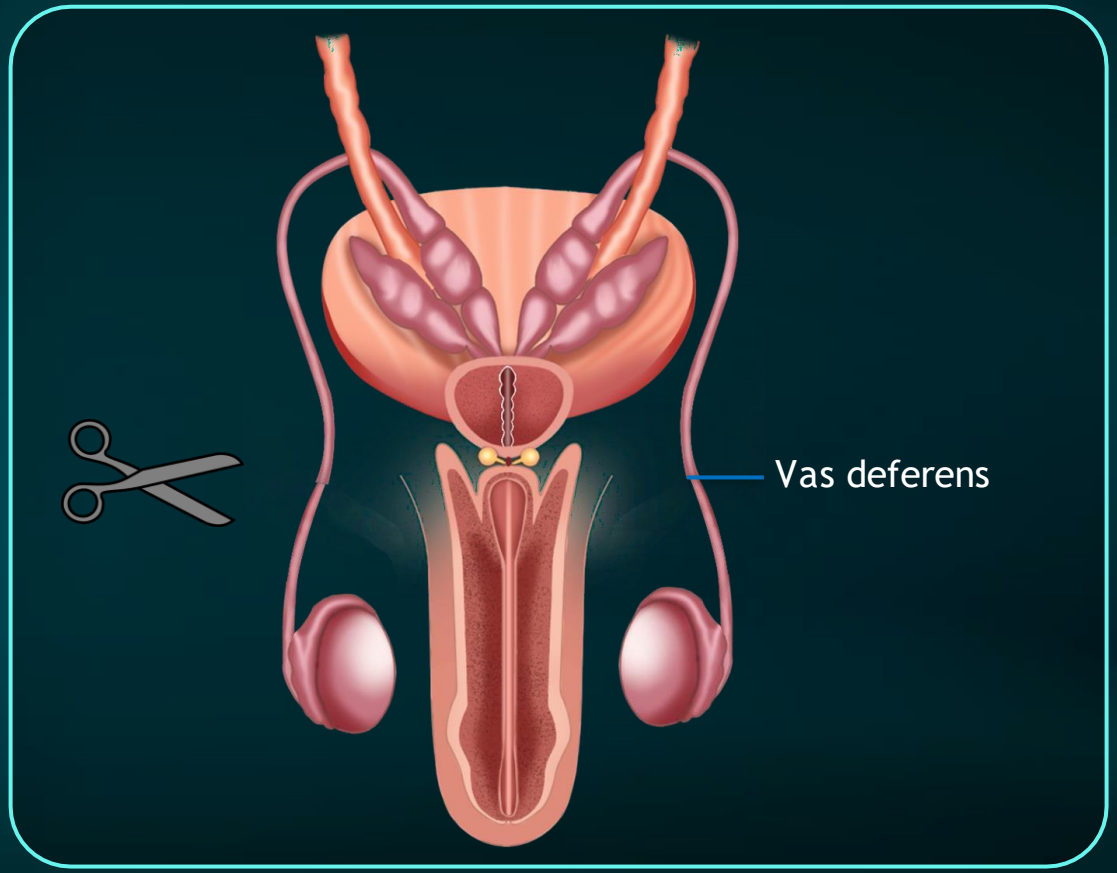
- Surgical method of male **sterilisation**
- Prevents **sperm transport**

How does it work?

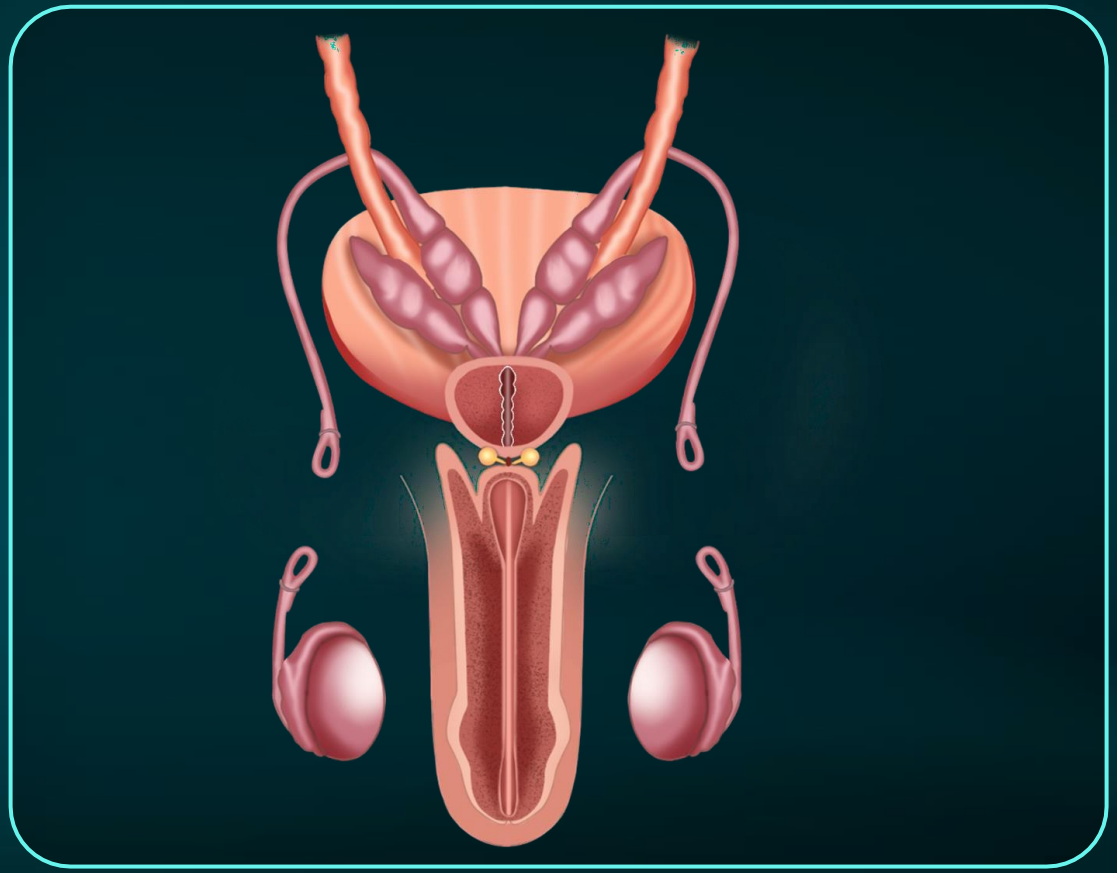
- Small part of **vas deferens removed/tied up**



Vasectomy

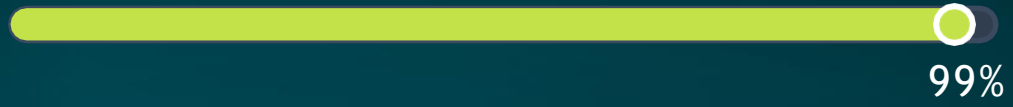


Vasectomy



Vasectomy

Efficiency



Drawbacks

- Cannot be easily reversed
- Reversal is usually not successful

Tubectomy

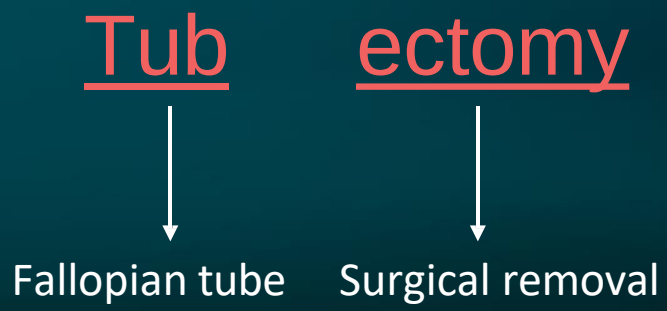
Tubectomy

What is it?

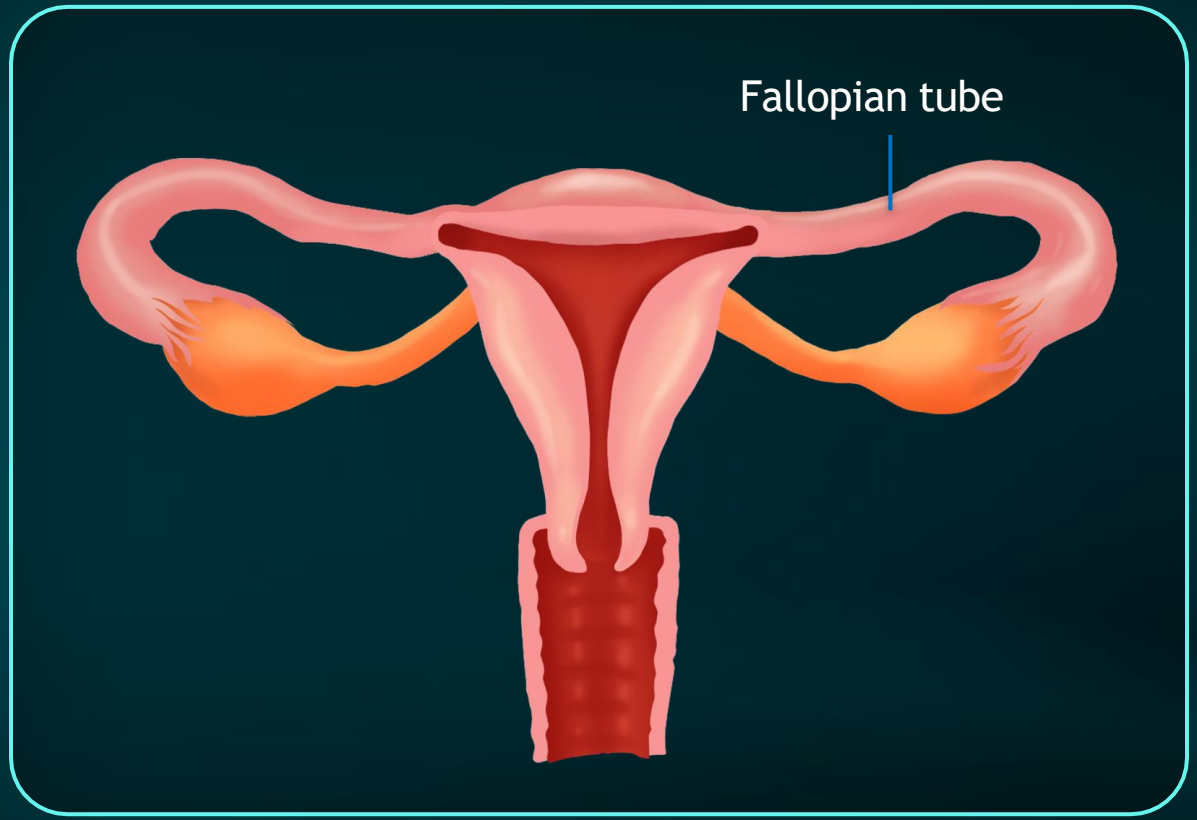
- Surgical method of female **sterilisation**
- Prevents **ovum transport**

How does it work?

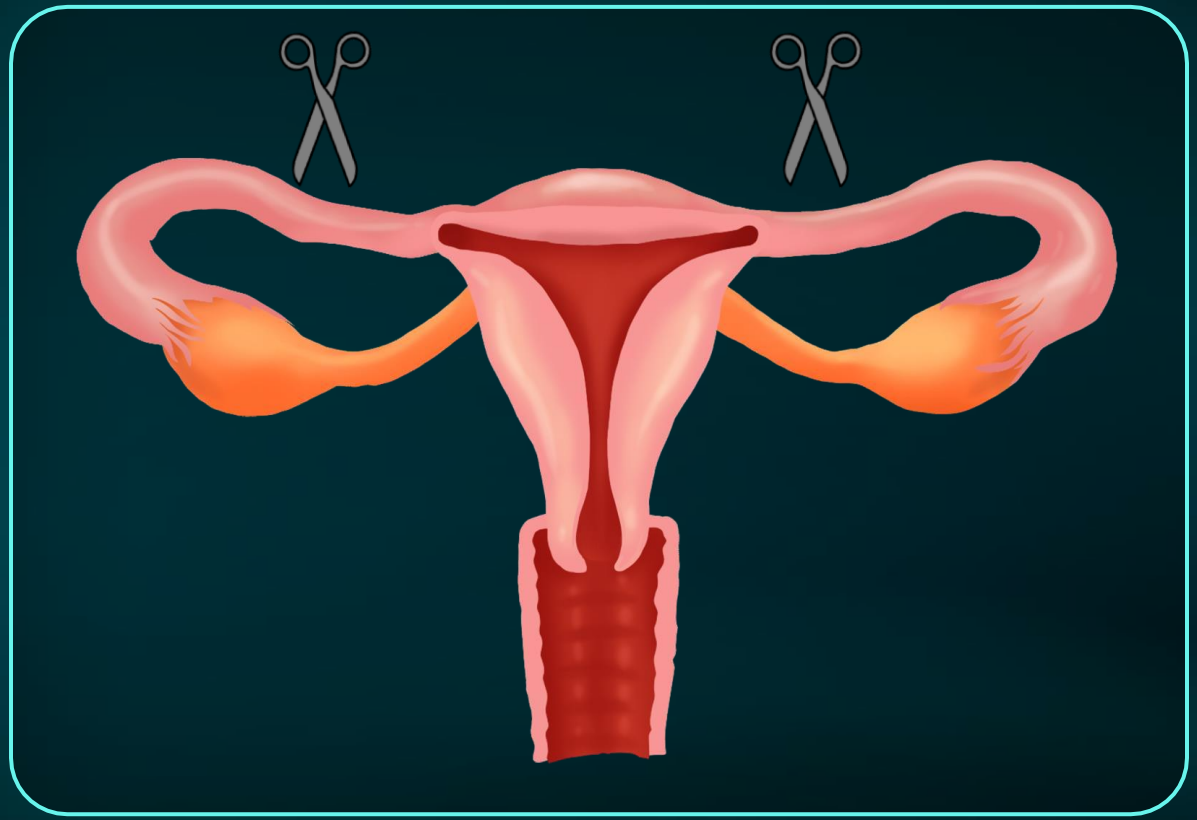
- Small part of **fallopian tube removed/tied up**
- Also called **tubal ligation**



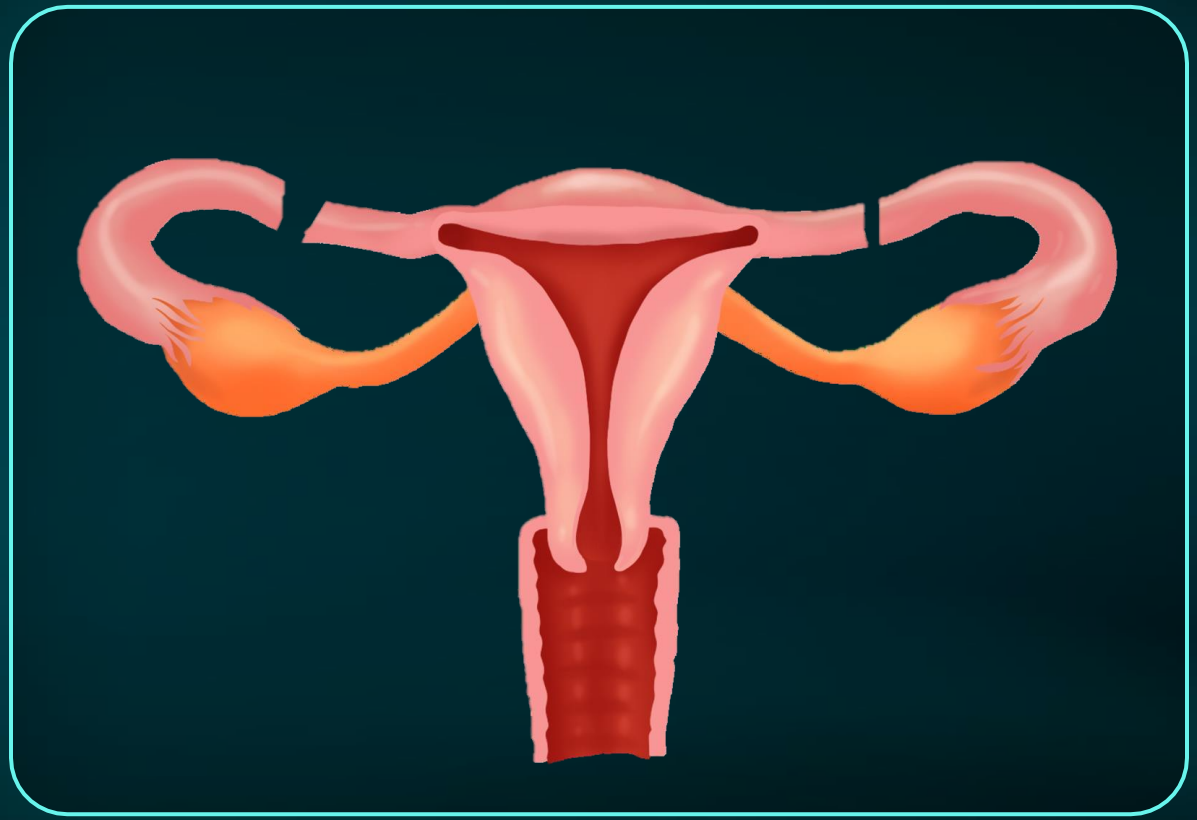
Tubectomy



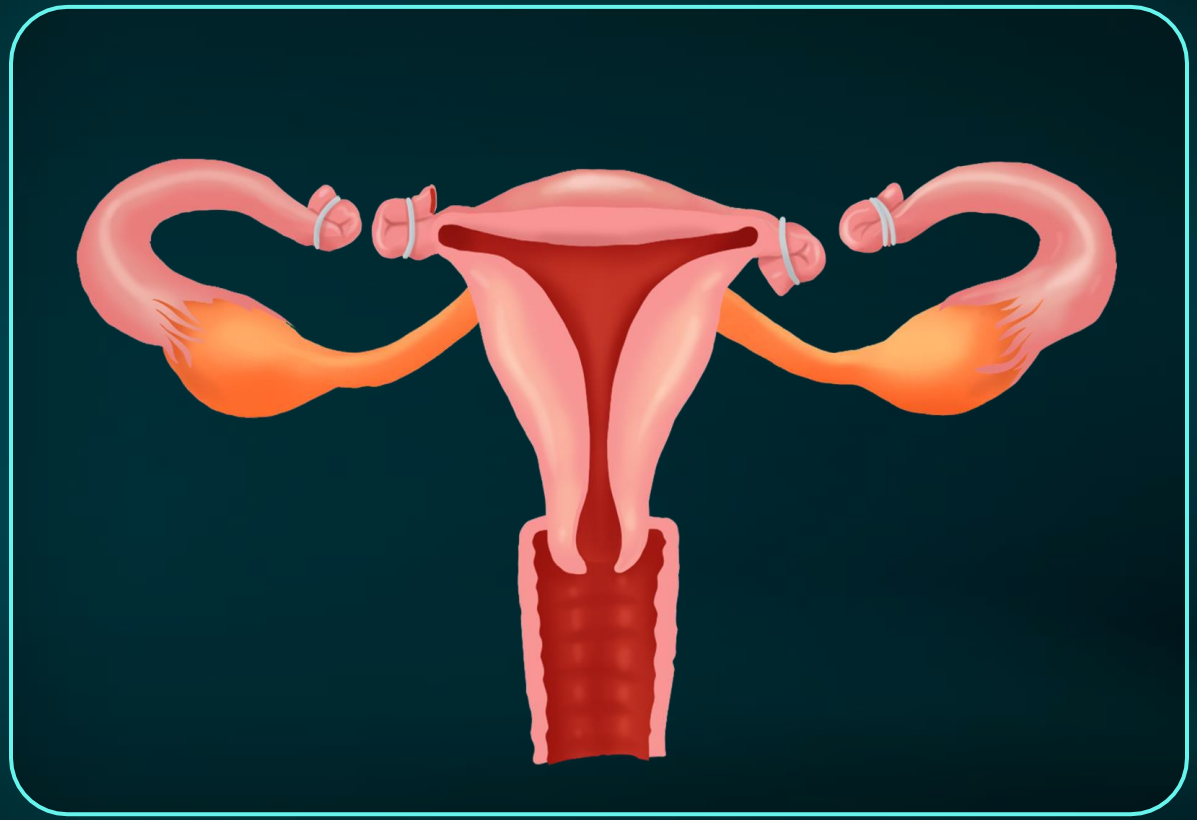
Tubectomy



Tubectomy

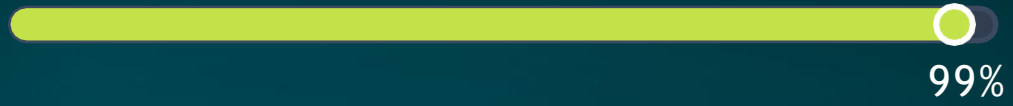


Tubectomy



Tubectomy

Efficiency



Drawbacks

- Cannot be easily reversed
- Reversal is usually not successful

What if a female is pregnant due to…



Contraception failures



Rape



Unprotected sex

Or she finds out..



Continuation of pregnancy harmful for her or foetus

Medical Termination of Pregnancy (MTP)



Medical Termination of Pregnancy

- **Intentional** or **voluntary termination** of pregnancy
- Also called **induced abortion**



3.3 Medical Termination of Pregnancy (MTP)

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. 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.

MTPs are considered relatively safe during the first trimester, i.e., upto 12 weeks of pregnancy. Second trimester abortions are much more riskier. One disturbing trend observed is that a majority of the MTPs are performed illegally by unqualified quacks which are not only unsafe but could be fatal too. Another dangerous trend is the misuse of amniocentesis to determine the sex of the unborn child. Frequently, if the foetus is found to be female, it is followed by MTP- this is totally against what is legal.

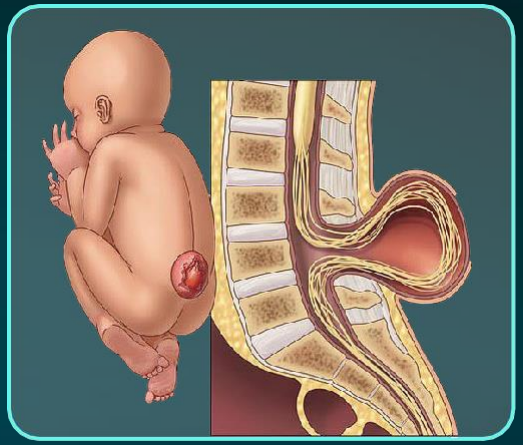
Are you aware of birth defects?



Birth defects











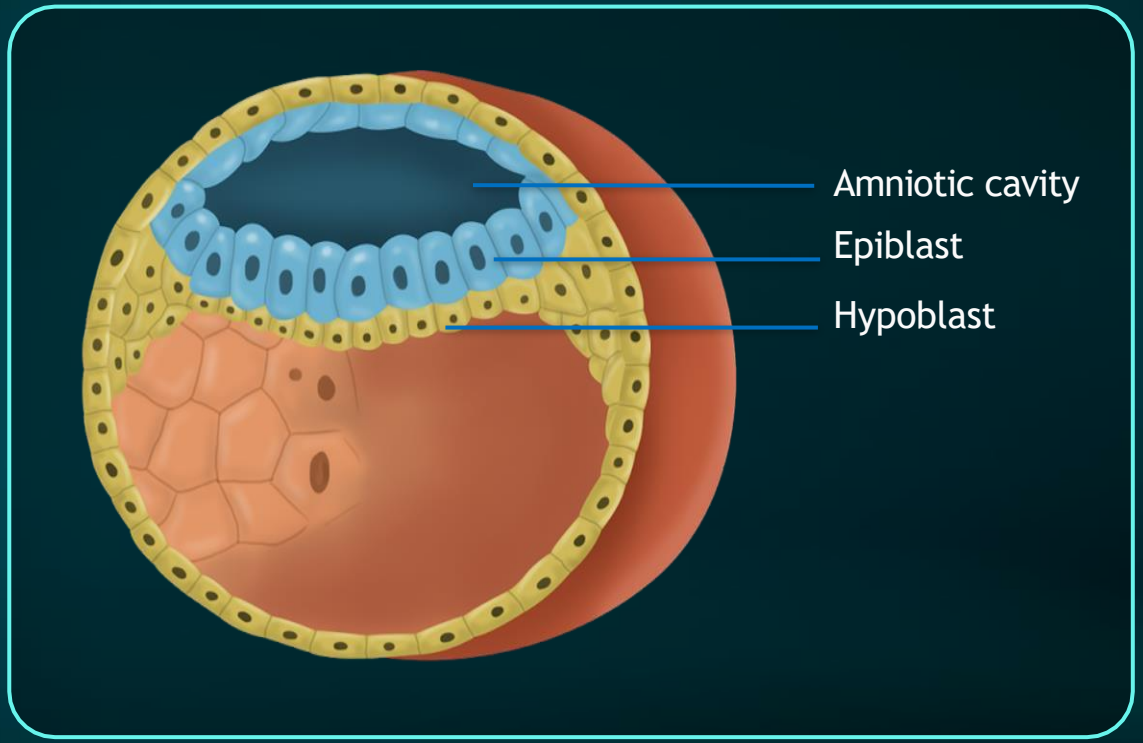
Is there a method to detect these diseases?



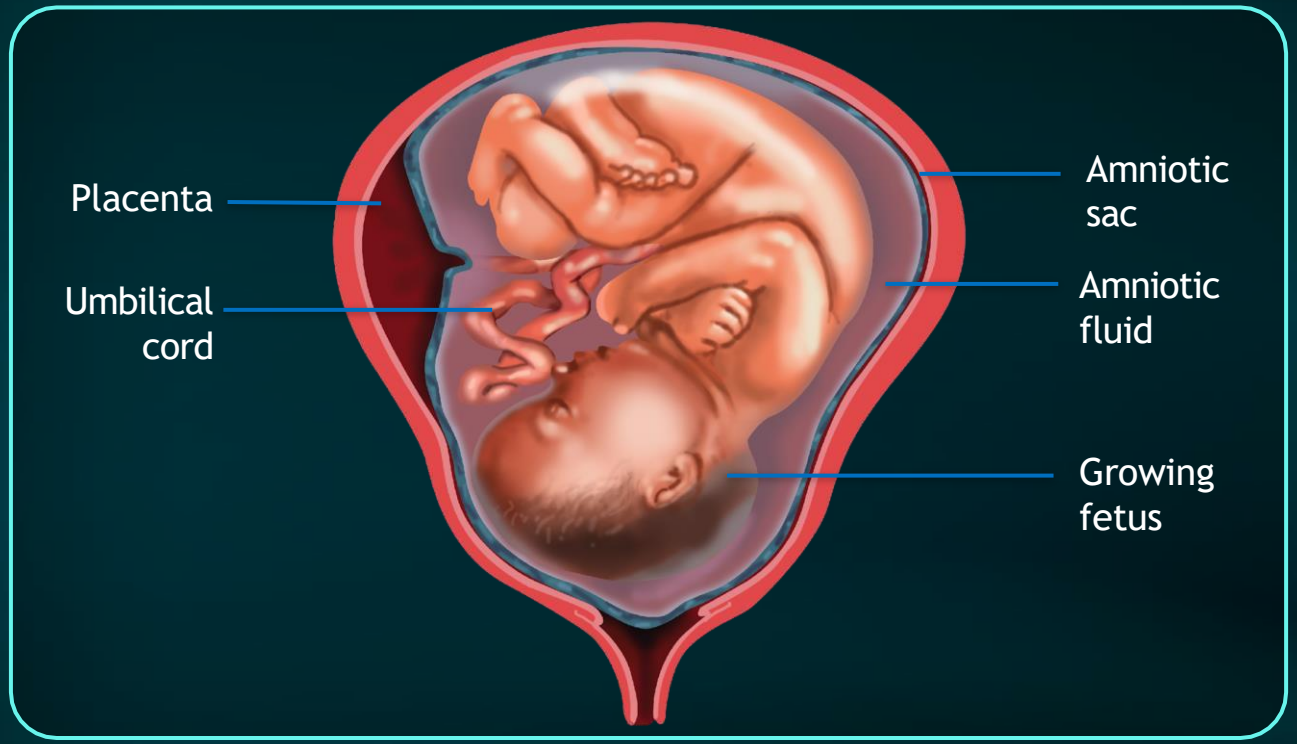
Amniocentesis



Recall! Gastrulation



Amniotic fluid

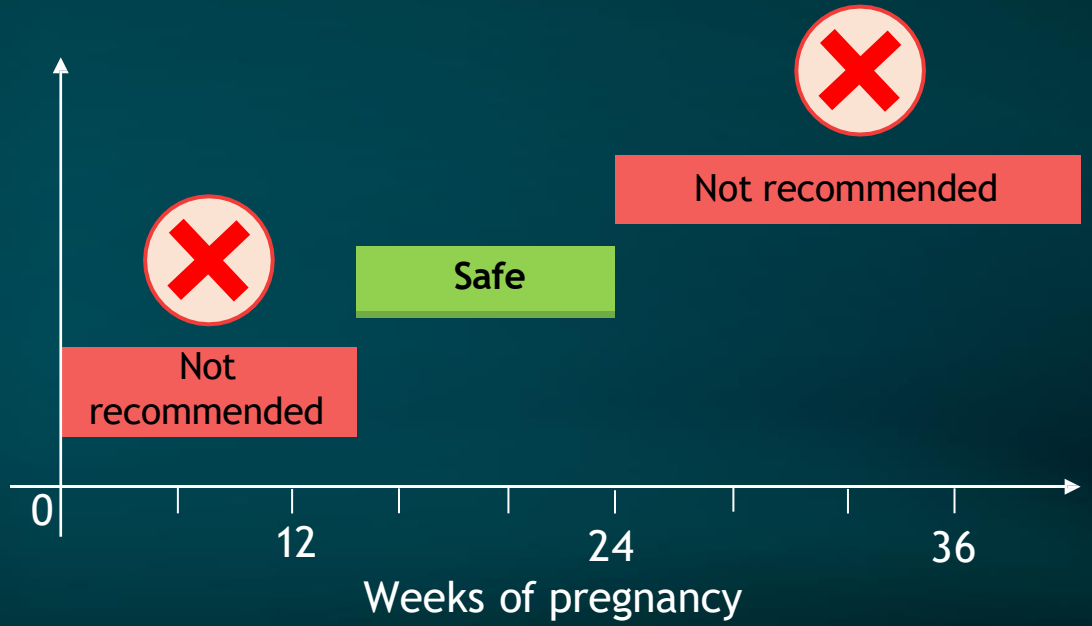


Amniocentesis

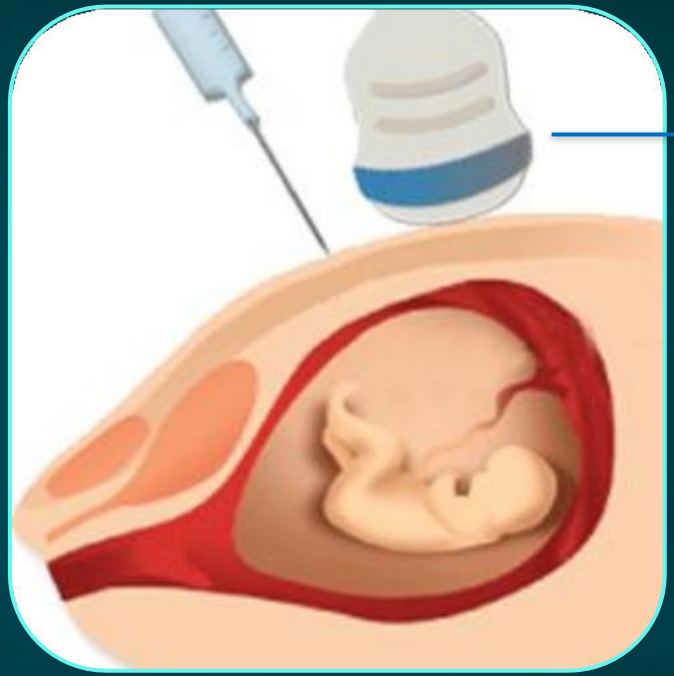
- It is a **prenatal test**
- Determination test **based on the genetic makeup in the cells from the amniotic fluid.**
  - Sex determination test
  - Fetal disorder test

Amniocentesis

- Performed **between 15th - 20th weeks** of pregnancy
- Amniotic fluid sample is taken and tested



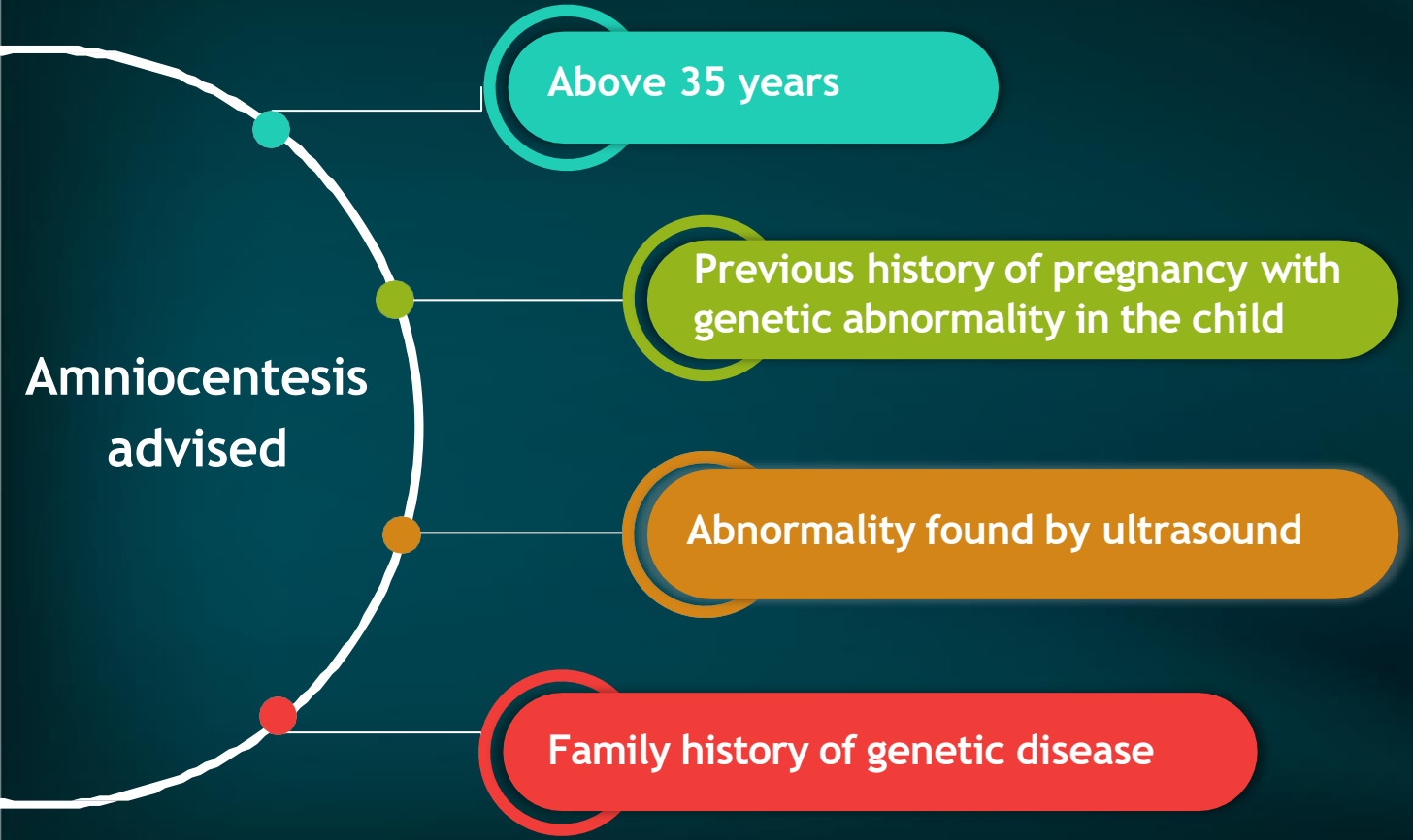
Amniocentesis

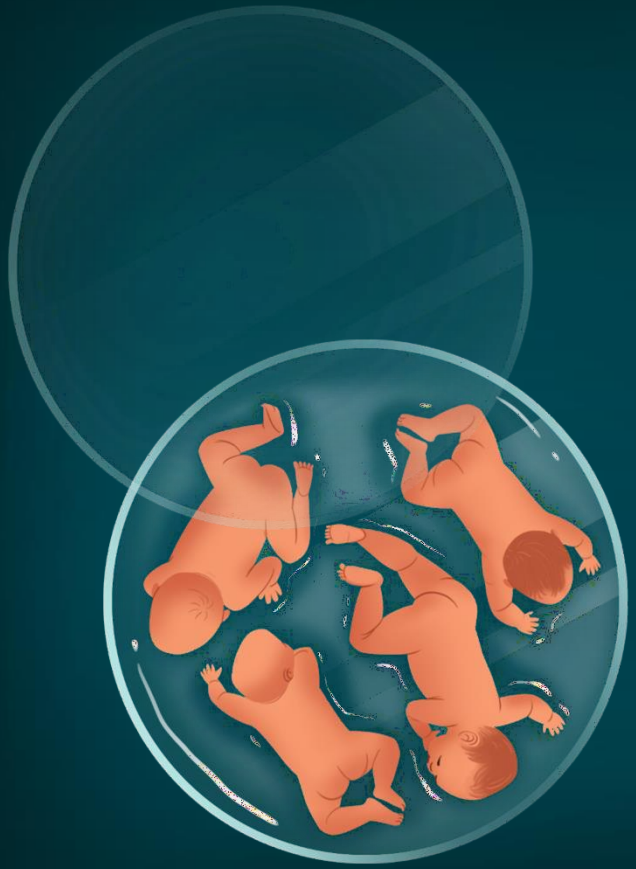


When is amniocentesis advised?



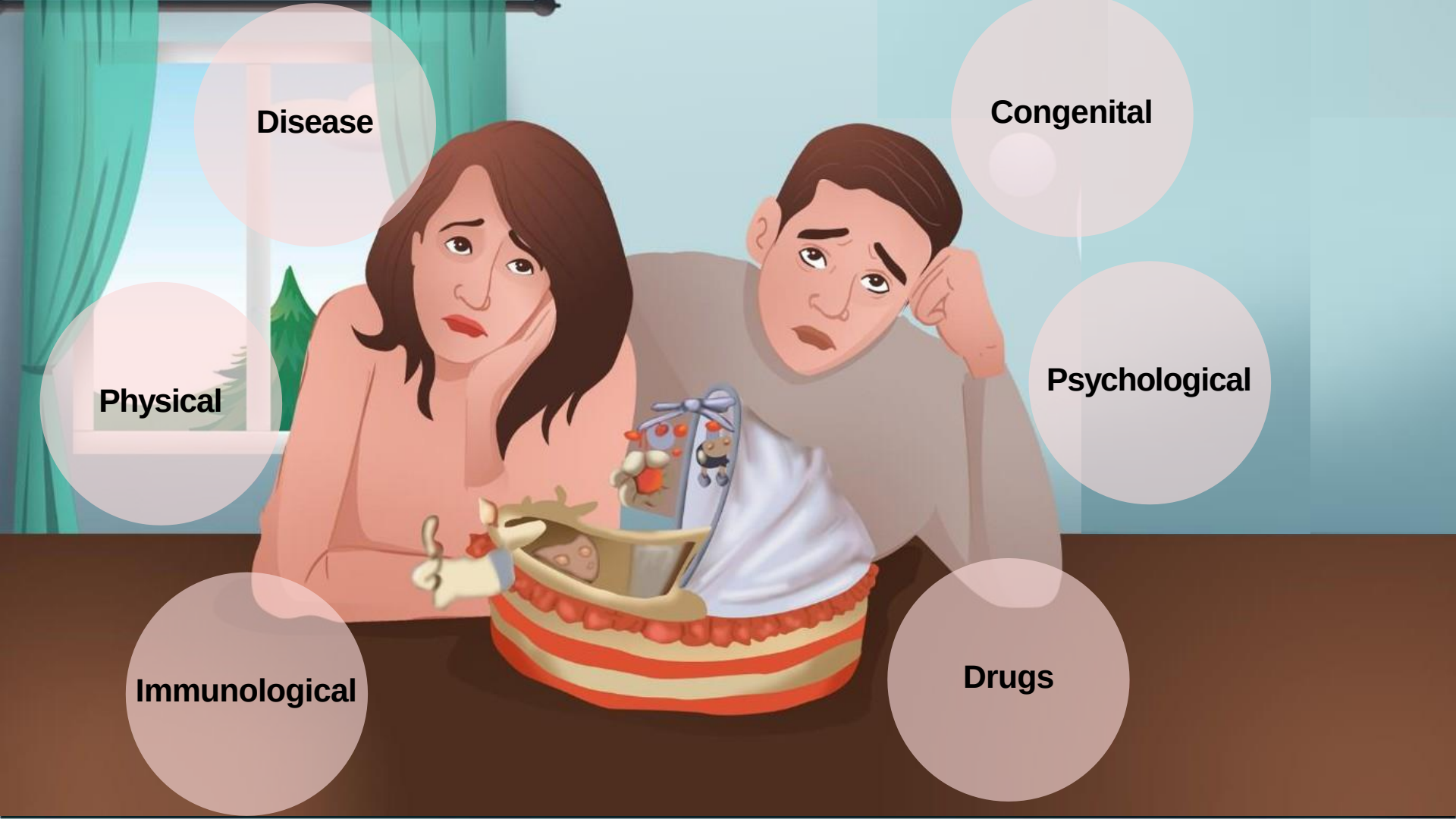
Female foeticide- Reasons





Infertility

Inability to conceive or produce children even after 2 years of unprotected sexual cohabitation


Disease
Congenital
Physical
Psychological
Immunological
Drugs

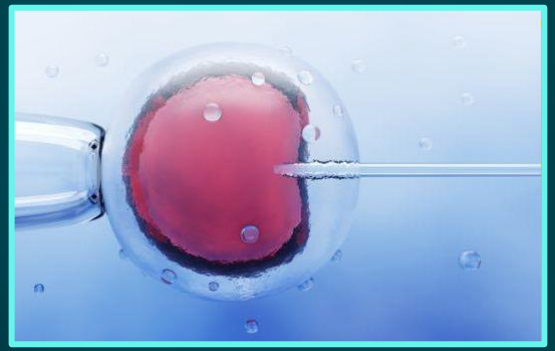


So, what happens when couples are diagnosed infertile?


Assisted Reproductive Technologies
A set of medical procedures aimed at treating infertility

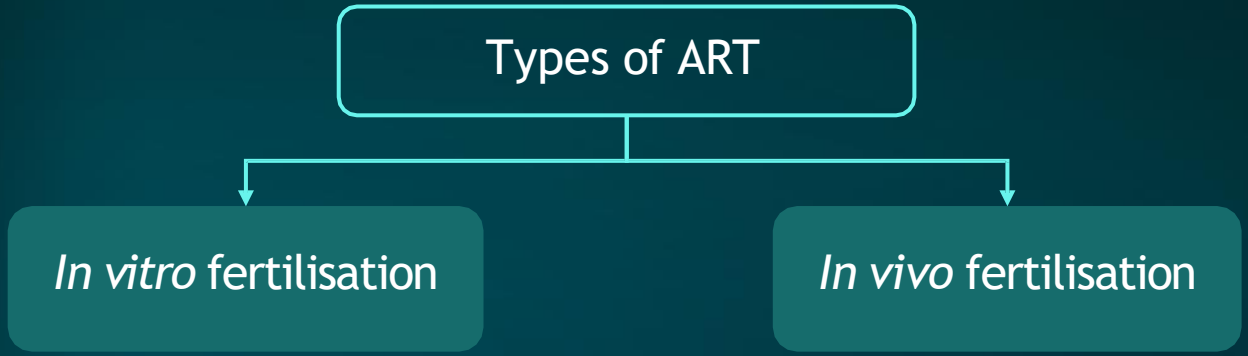
Assisted Reproductive Technologies

- Various techniques which are used to help infertile couples to conceive when natural conception is not possible.



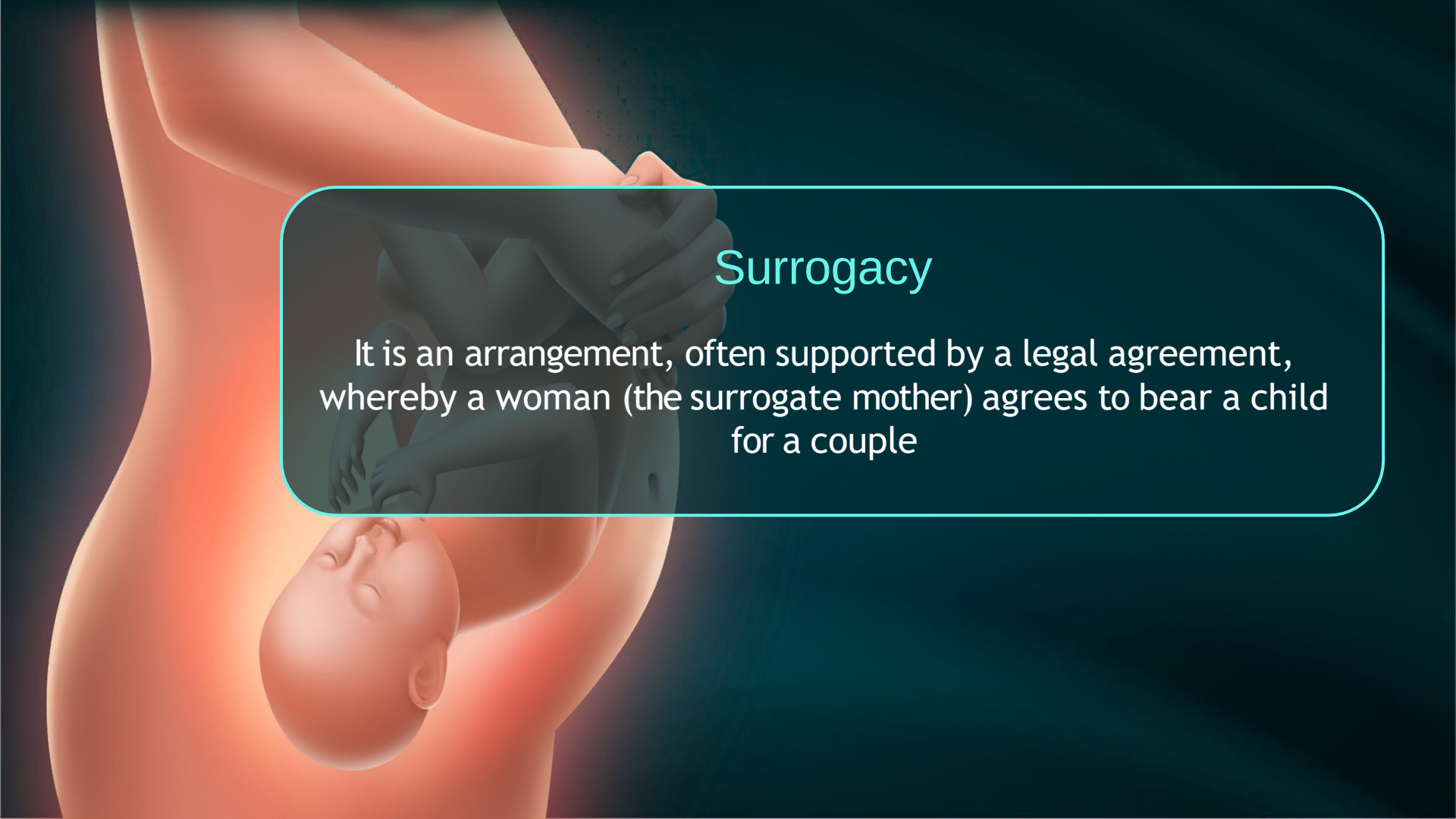


Assisted Reproductive Technologies



***In vitro* fertilisation** (IVF–fertilisation outside the body in almost similar conditions as that in the body) followed by **embryo transfer** (ET) is one of such methods. In this method, popularly known as **test tube baby** programme, ova from the wife/donor (female) and sperms from the husband/donor (male) are collected and are induced to form zygote under simulated conditions in the laboratory. The zygote or early embryos (with upto 8 blastomeres) could then be transferred into the fallopian tube (ZIFT–**zygote intra fallopian transfer**) and embryos with more than 8 blastomeres, into the uterus (IUT – **intra uterine transfer**), to complete its further development. Embryos formed by **in-vivo fertilisation** (fusion of gametes within the female) also could be used for such transfer to assist those females who cannot conceive.

Transfer of an ovum collected from a donor into the fallopian tube (GIFT – **gamete intra fallopian transfer**) of another female who cannot produce one, but can provide suitable environment for fertilisation and further development is another method attempted. **Intra cytoplasmic sperm injection** (ICSI) is another specialised procedure to form an embryo in the laboratory in which a sperm is directly injected into the ovum. Infertility cases either due to inability of the male partner to inseminate the female or due to very low sperm counts in the ejaculates, could be corrected by **artificial insemination** (AI) technique. In this technique, the semen collected either from the husband or a healthy donor is artificially introduced either into the vagina or into the uterus (IUI – **intra-uterine insemination**) of the female.



Surrogacy

It is an arrangement, often supported by a legal agreement, whereby a woman (the surrogate mother) agrees to bear a child for a couple

Unconventional Parenthood

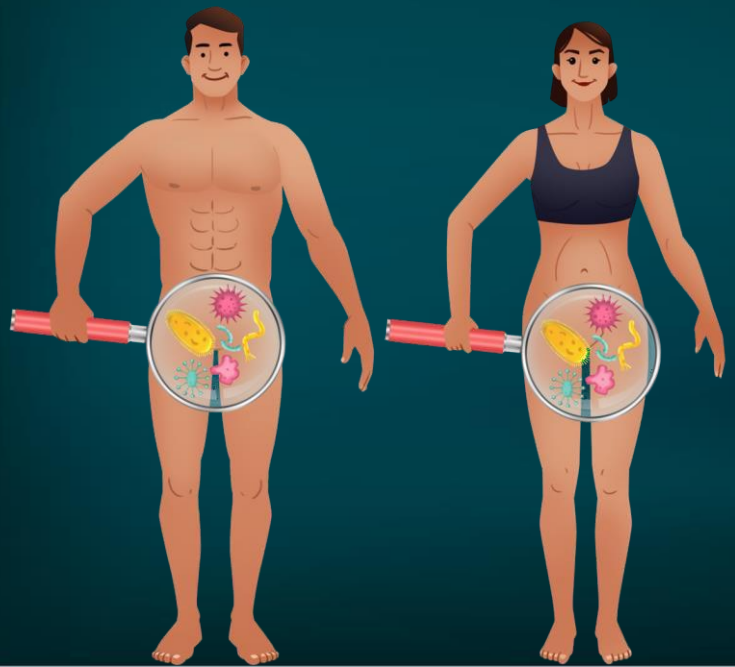


Adoption

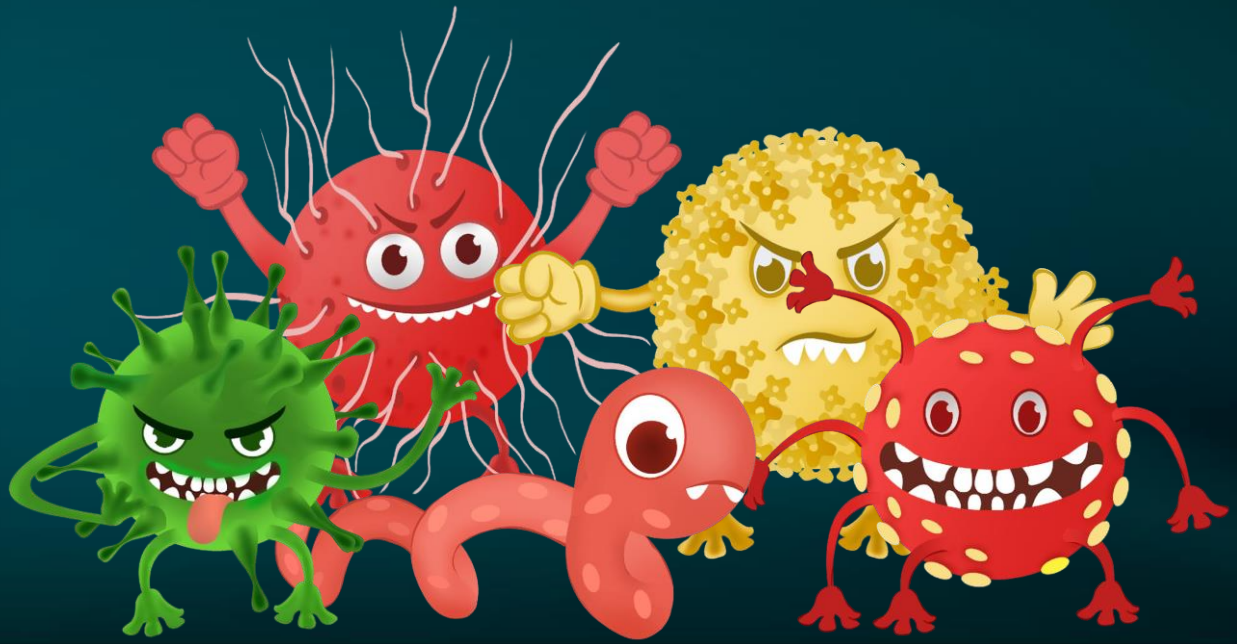


It is a legal process which fully transfers parental responsibility from a child's biological parents to their adoptive parents

Reproductive Health



Sexually Transmitted Infections (STIs)



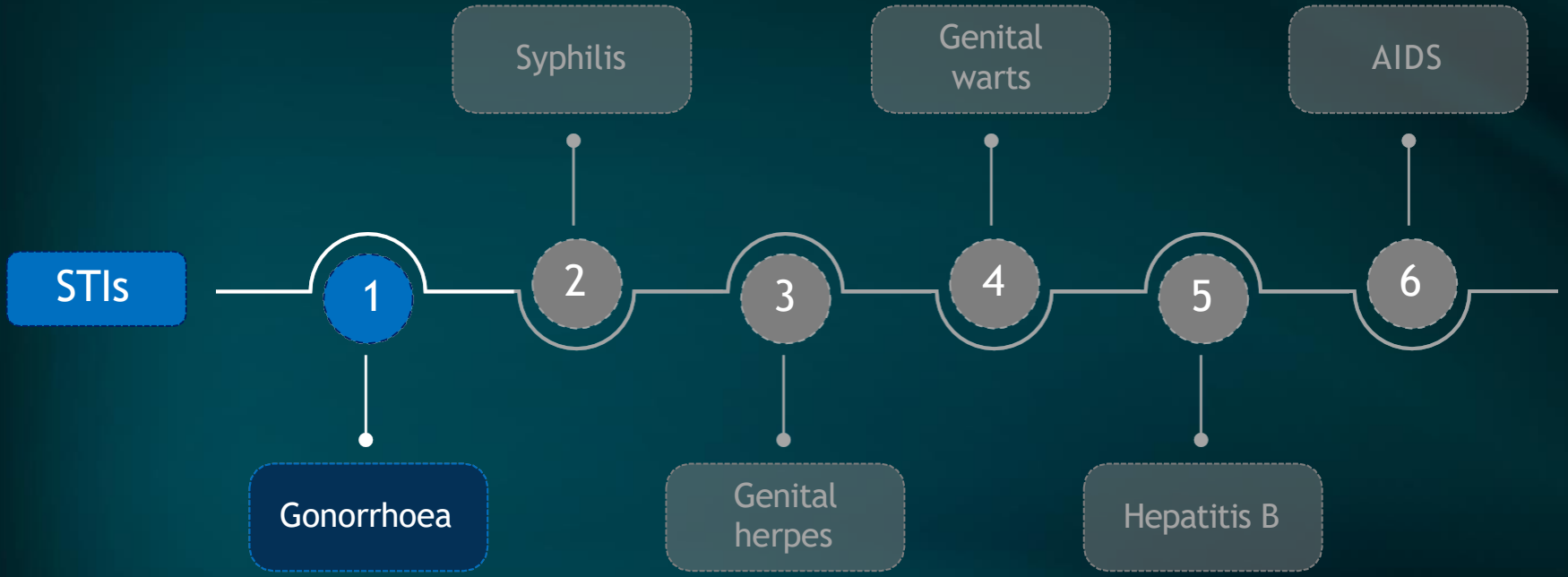
Sexually Transmitted Infections

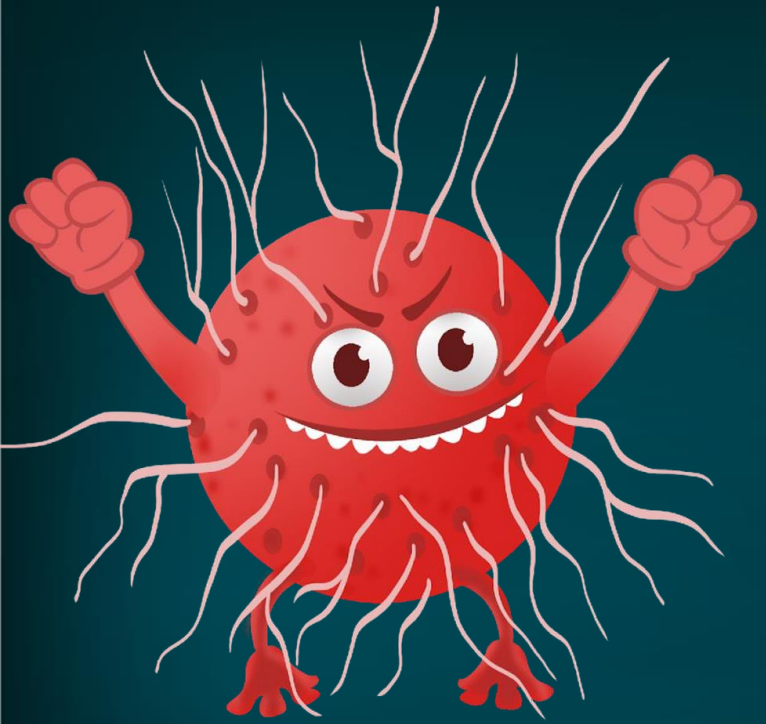
Sexually Transmitted Infections (STIs) are the diseases which can transmit through sexual intercourse or body fluid interaction

They are also called

- Sexually transmitted diseases (STDs)
- Venereal disease (VD)
- Reproductive tract infections (RTIs)

Sexually Transmitted Infections





Gonorrhoea

Gonorrhoea

Causative organism	Type
Neisseria gonorrhoeae	Bacteria



Gonorrhoea

Symptoms



Burning sensation during urination



Penile/Vaginal discharge



Testicular swelling



Bleeding between periods

Gonorrhoea

Transmission

Sex



Vaginal



Oral



Anal

Mother to baby

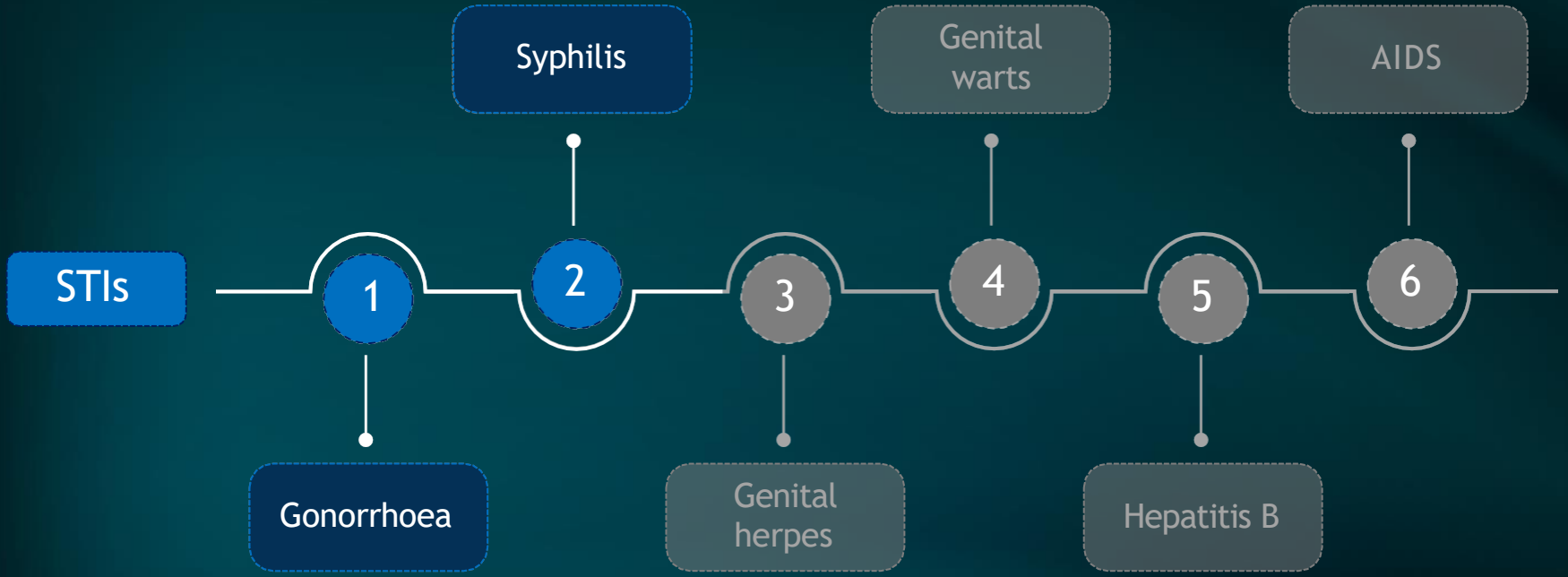


Antibiotics

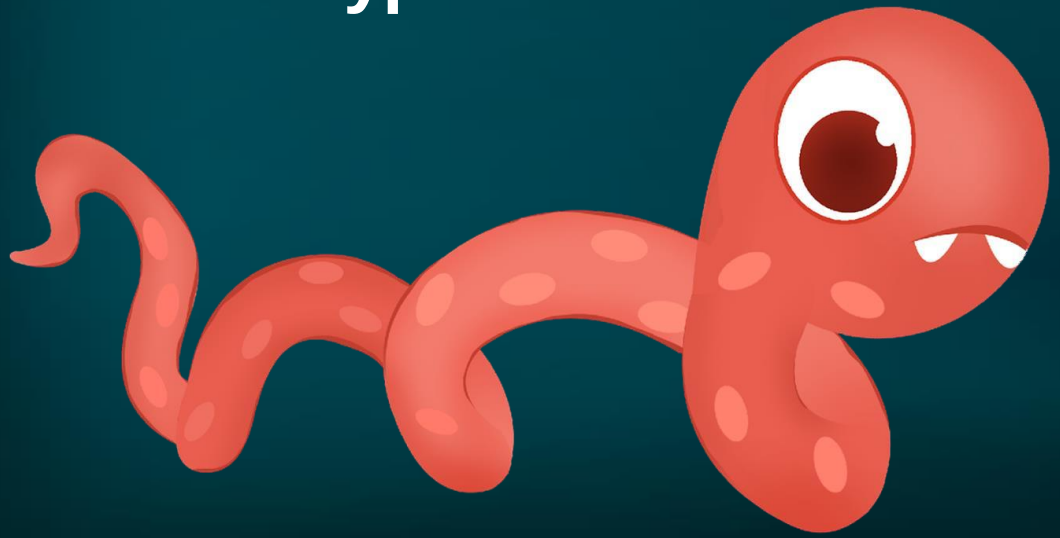
- **Antibiotics** are the medicines which are used to kill bacteria and prevent them from growing, multiplying and causing diseases

- **Examples** - Penicillin, tetracycline, amoxicillin, etc.

Sexually Transmitted Infections



Syphilis



Syphilis

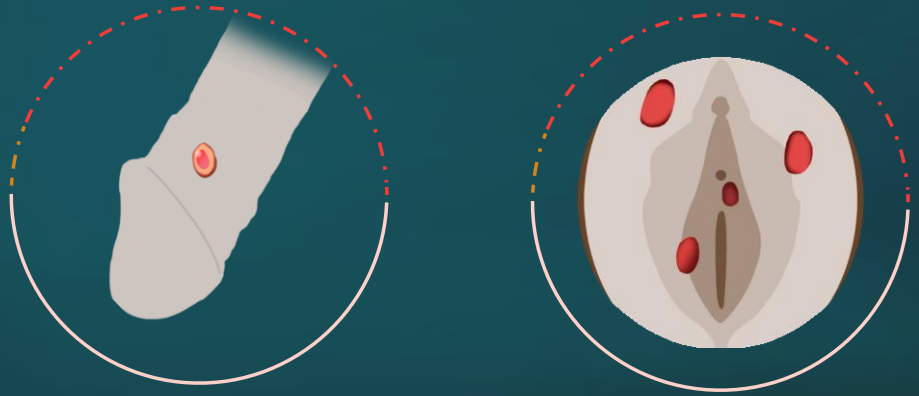
Causative organism	Type
Treponema pallidum	Bacteria



Syphilis

Symptoms

Infectious painless genital sores



Syphilis

Symptoms



Swollen lymph nodes



Sore throat



Hair loss



Body rash

Syphilis

Transmission

Unprotected sex



Vaginal

Oral

Anal

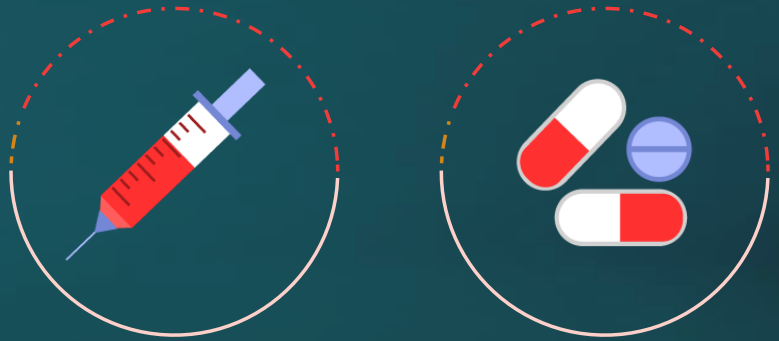
Direct contact with sores



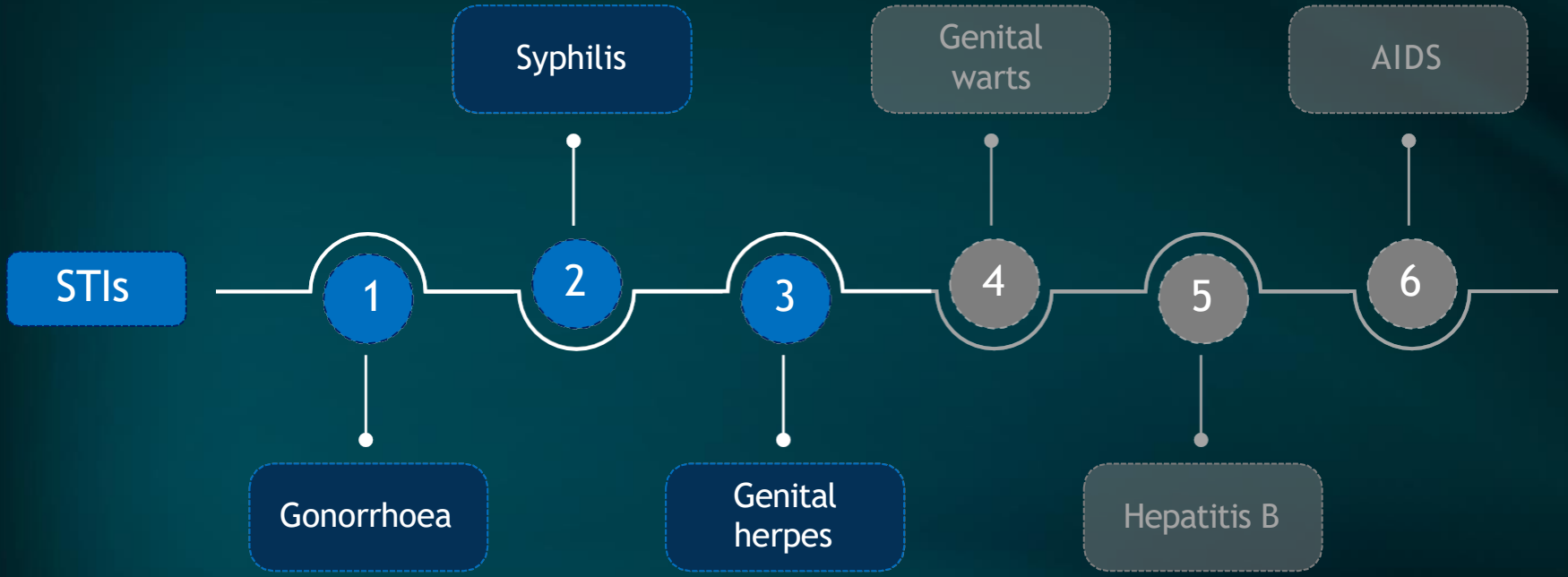
Syphilis

Treatment

Antibiotics



Sexually Transmitted Infections





Genital Herpes

Genital Herpes

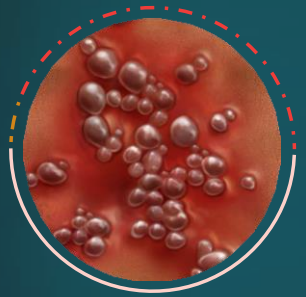
Causative organism	Type
Herpes Simplex Virus Type 2 (HSV-2)	Virus



Genital Herpes

Symptoms

Infectious sores in





Penis



Mouth



Anus



Vagina

Genital Herpes

Symptoms



Itchiness



Body pain



Fever

Genital Herpes

Transmission

Unprotected sex



Vaginal

Oral

Anal

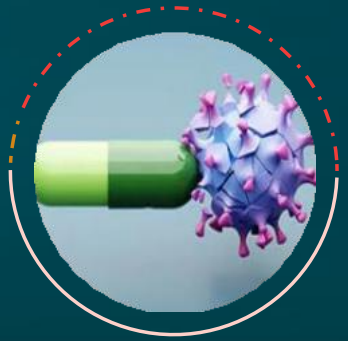
Direct contact with sores



Genital Herpes

Treatment

- Cured by the immune system of the body



Antiviral drugs



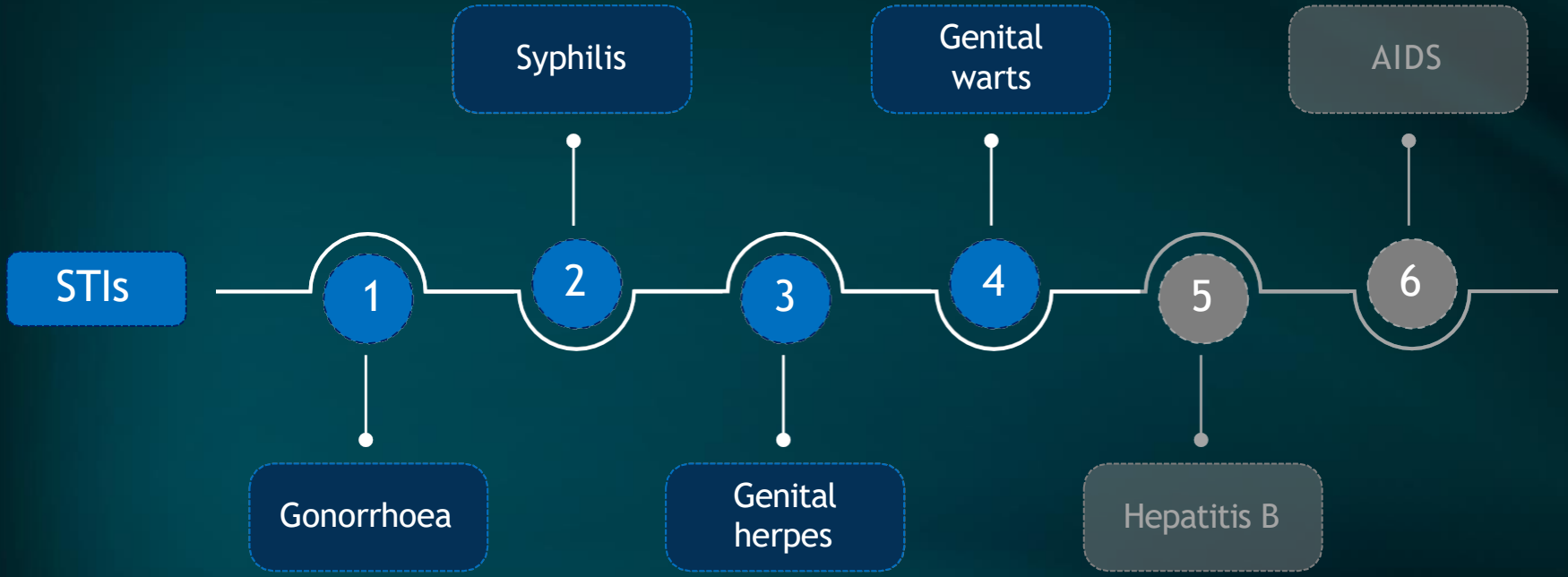
Petroleum jelly

Antivirals

Antivirals are the medicines which are used to minimize symptoms and infectivity of the viruses.

Examples - Acyclovir, retroviral, etc

Sexually Transmitted Infections

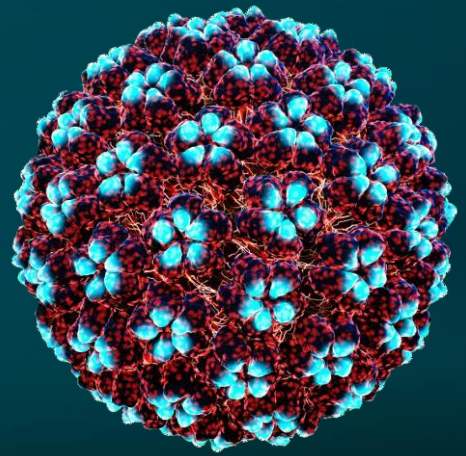


Genital Warts



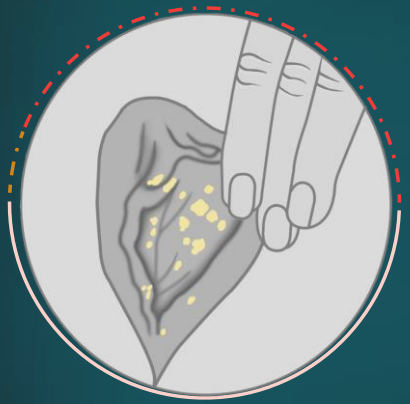
Genital Warts

Causative organism	Type
Human Papilloma Virus (HPV)	Virus



Genital Warts

Symptoms





Painful warts on genitals

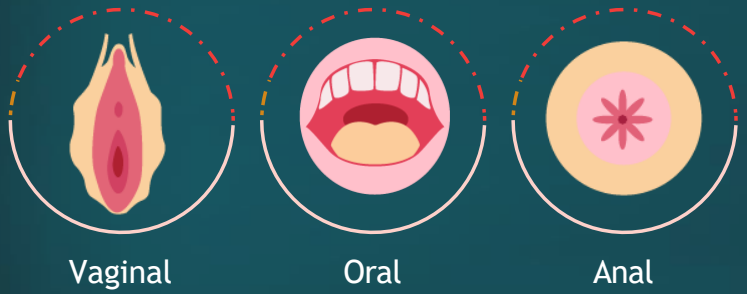


Itching

Genital Warts

Transmission

Unprotected sex

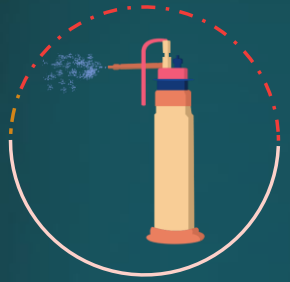


Direct contact with warts



Genital Warts

Treatment



Cryotherapy



Antiviral Injections

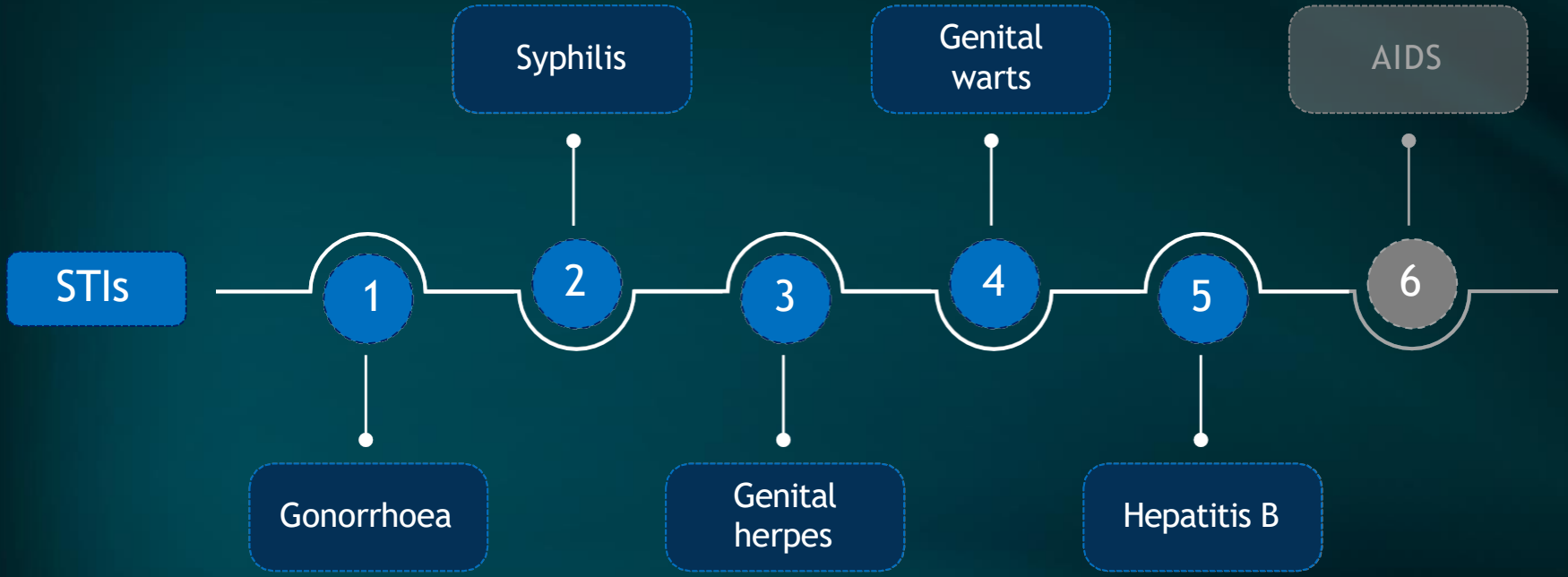


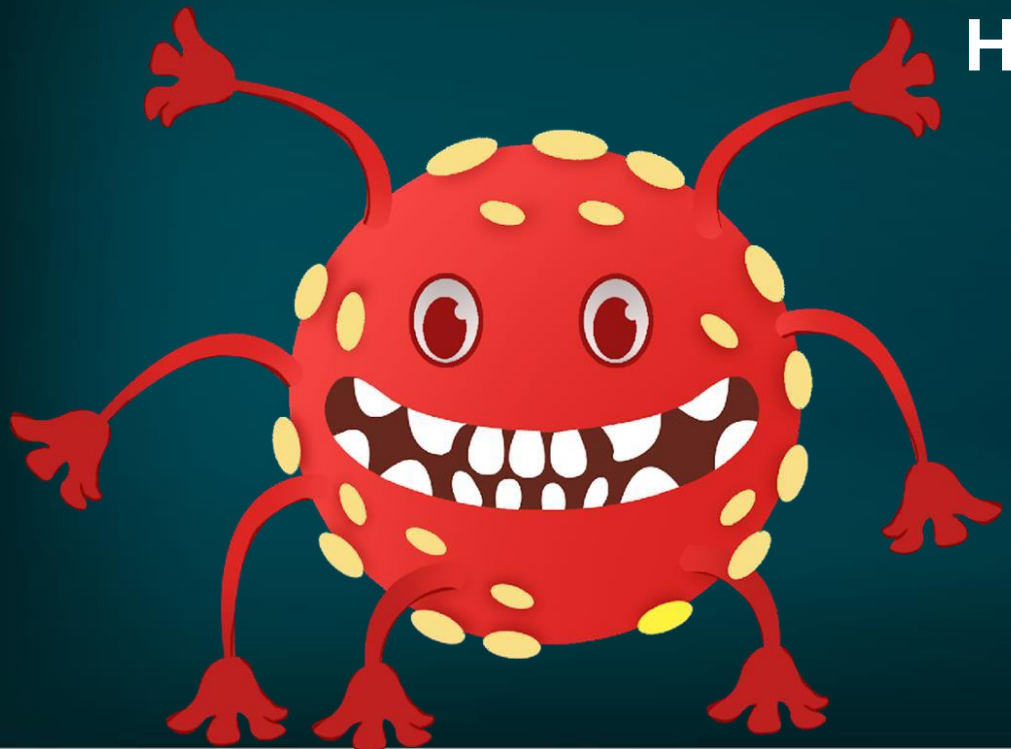
Surgery



Disinfectant gel

Sexually Transmitted Infections





Hepatitis B

Hepatitis B

Causative organism	Type
Hepatitis B Virus (HBV)	Virus



Hepatitis B

Symptoms



Fever



Jaundice



Vomiting



Headache



Weakness



Abdominal pain

Hepatitis B

Transmission



Organ transplant



Infected needle



Blood transfusion



Mother to baby

Hepatitis B

Treatment

Hepatitis B

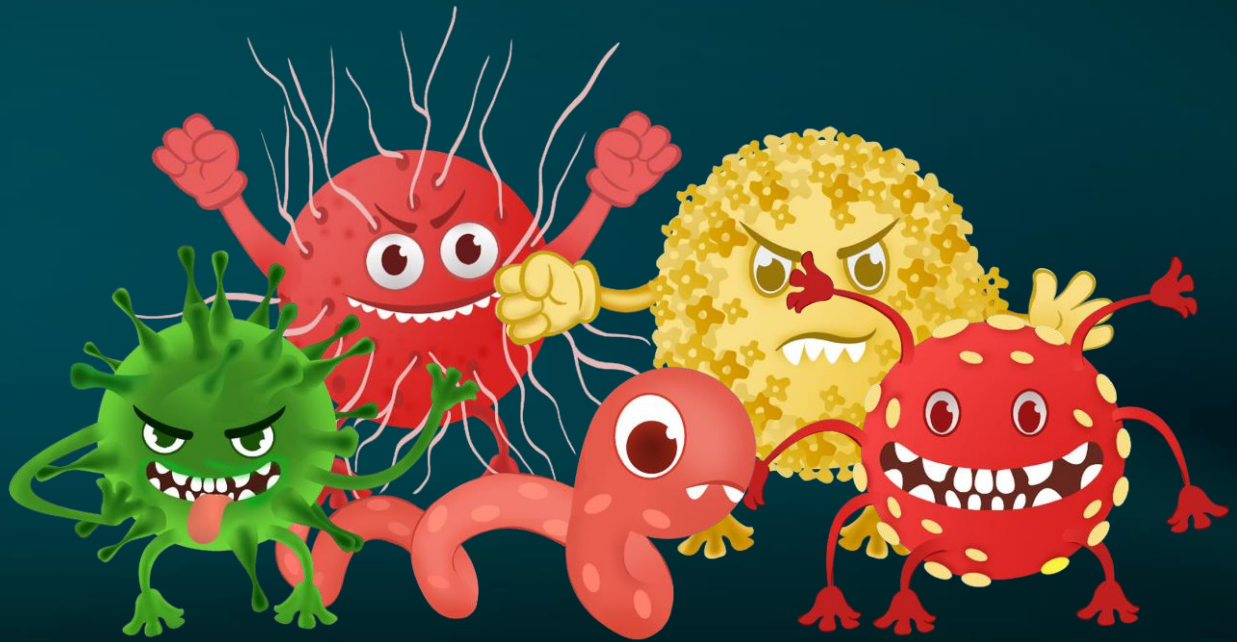
Acute

- Short term disease
- Cured by plenty of rest and fluid diet

Chronic

- Long term disease
- Antiviral drugs to control viral spread

Did You Know?

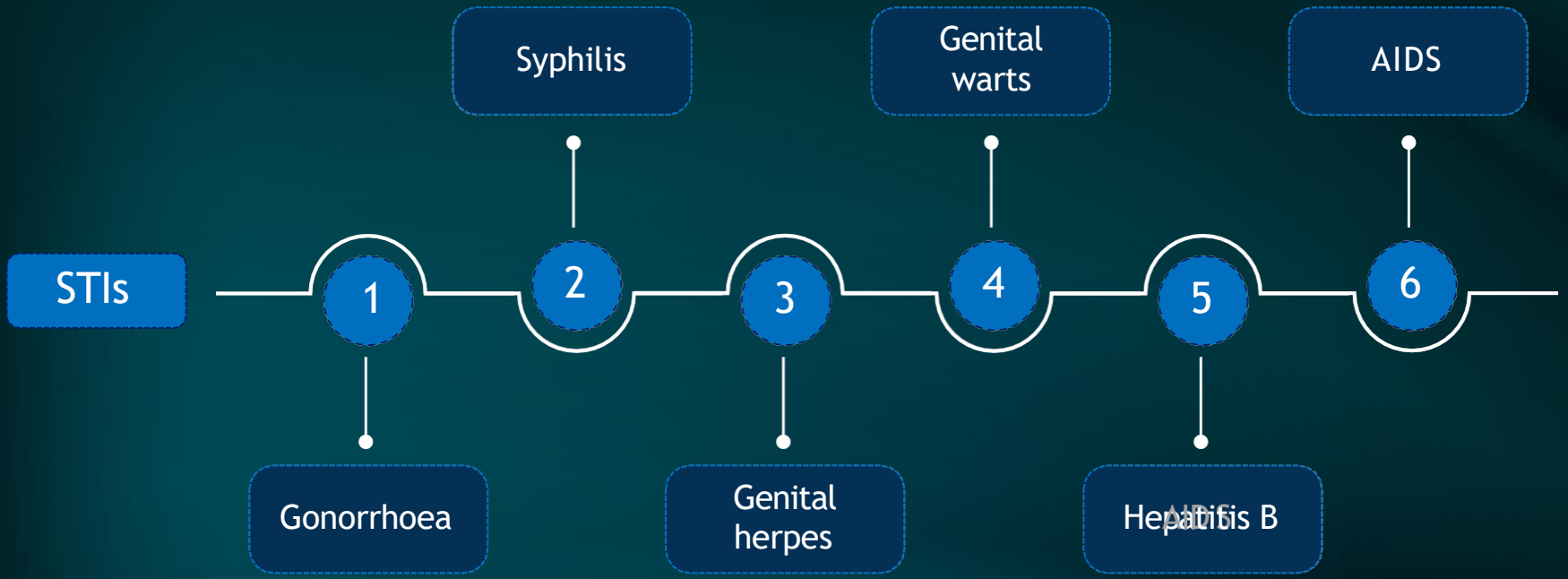


Did You Know?

Around 5 to 9 lakhs people lose their lives annually all over the world because of AIDS



Sexually Transmitted Infections



AIDS

Causative organism	Type
Human Immunodeficiency Virus (HIV)	Virus



AIDS

Symptoms



Fever



Body pain



Body rash



Itchiness



Weakness



Chills



Sore throat

AIDS

Transmission



Unprotected sex



Infected needle



Blood transfusion



Mother to baby

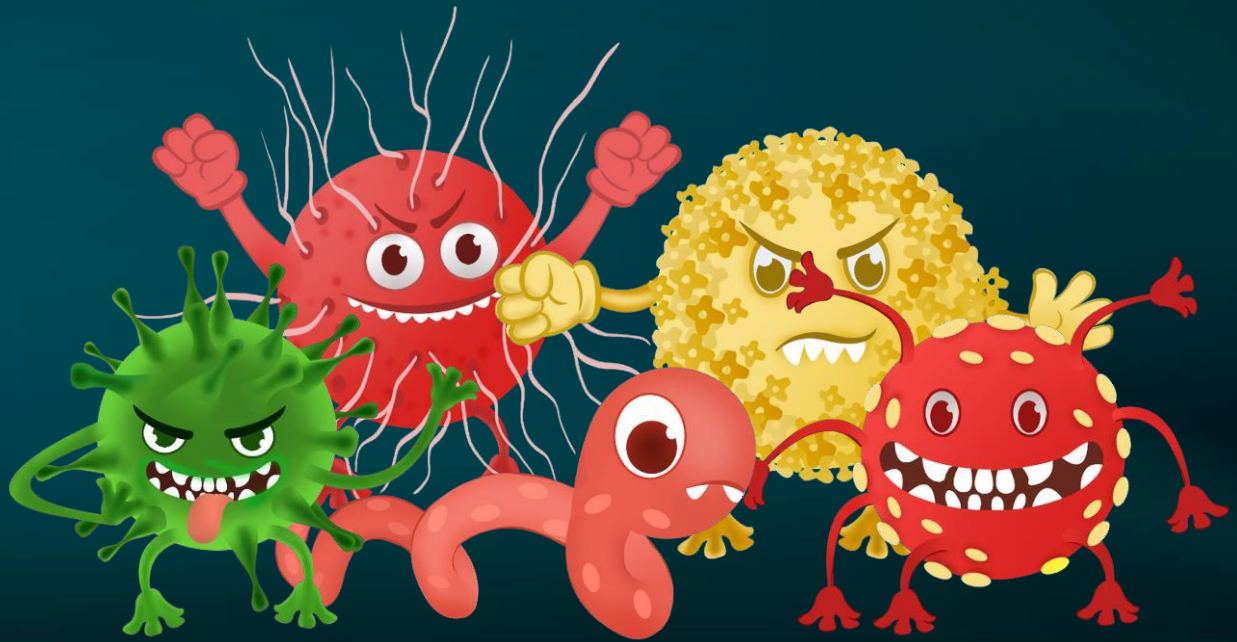
AIDS

Treatment



- No complete cure as of now
- Drugs (antiretrovirals) are used to prolong the life of the patients

Two more STIs...



Trichomoniasis

Causative organism	Type
Trichomonas vaginalis	Protozoa



Trichomoniasis

Symptoms



Burning sensation during urination



Vaginal discharge



Genital irritation

Trichomoniasis

Transmission

Sex



Vaginal

Oral

Anal

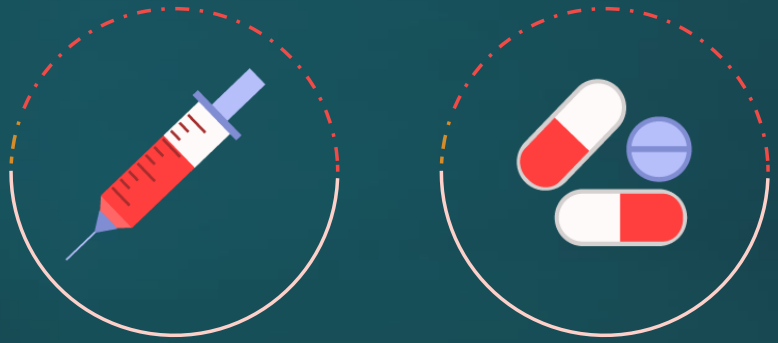
Unprotected sex



Trichomoniasis

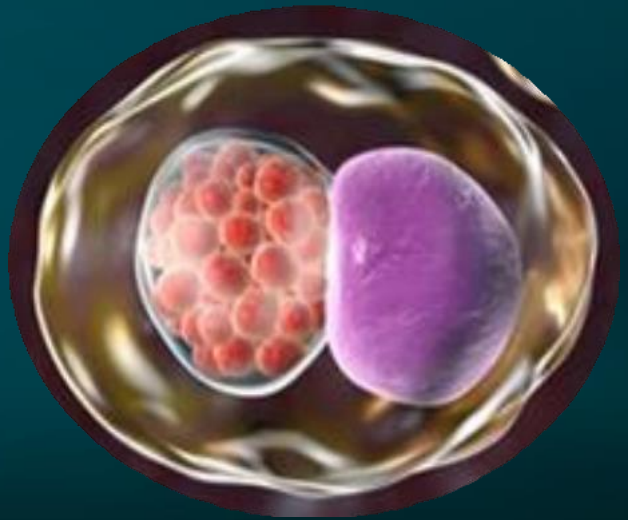
Treatment

Drugs



Chlamydiasis

Causative organism	Type
Chlamydia trachomatis	Bacteria



Chlamydiasis

Symptoms



Vaginal discharge



Testicular pain



Bleeding



Fever

Chlamydiasis

Transmission

Sex



Vaginal



Oral



Anal

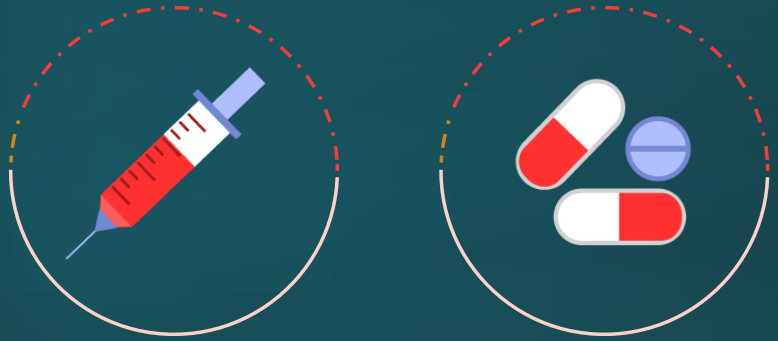
Unprotected sex



Chlamydiasis

Treatment

Antibiotics

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