

METHODS OF CONTRACEPTION

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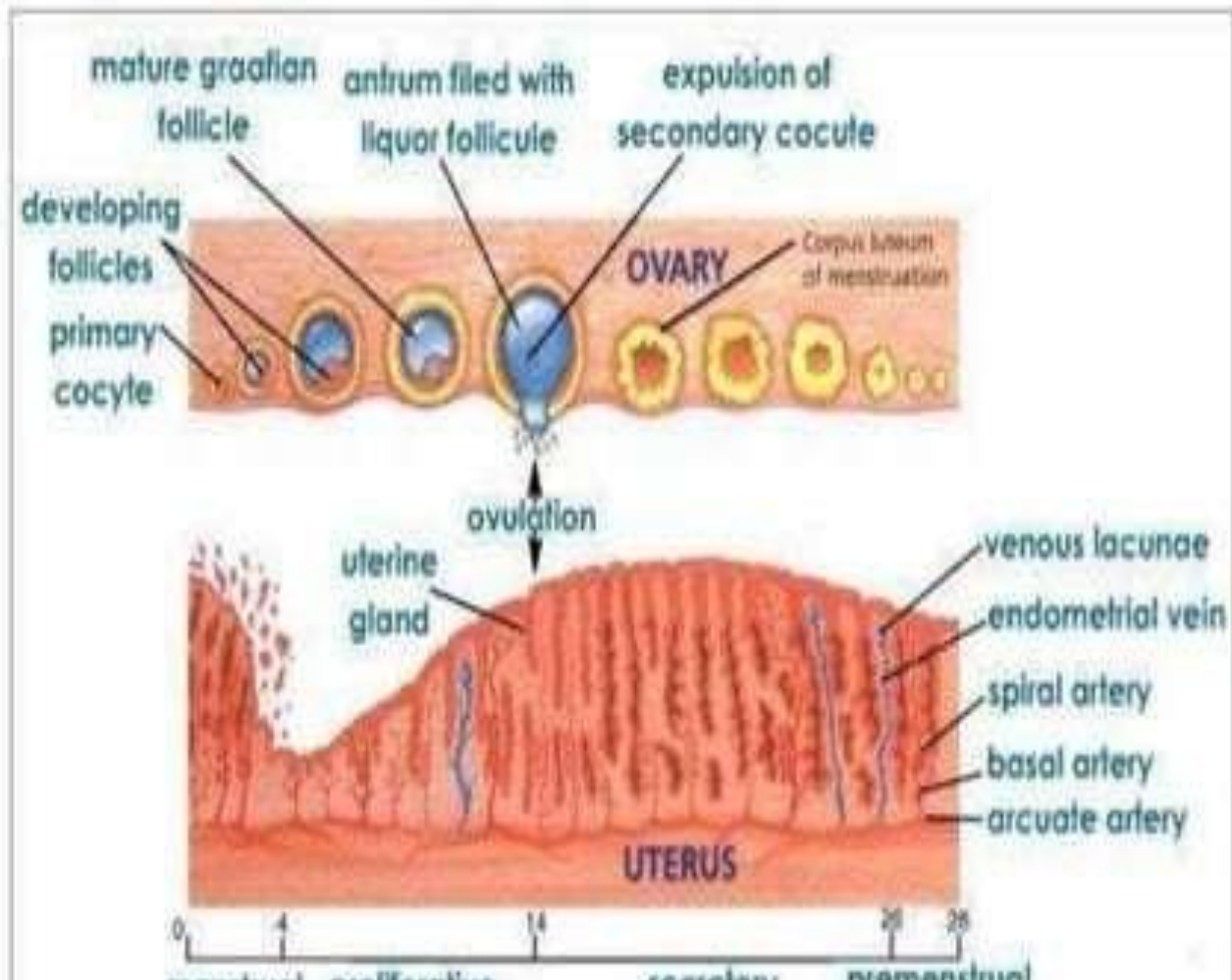
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Specific Learning Objectives (SLO)

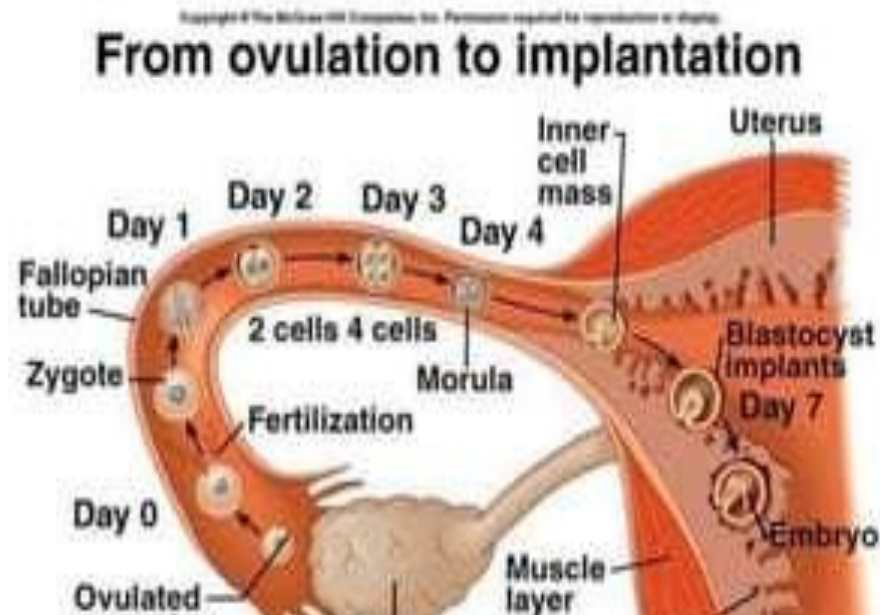
- After the end of the lecture, students should be able to:
 - Describe various family planning methods (temporary as well as permanent).
 - Advantages and disadvantages of various family planning methods.

Menstrual cycle



Contraception

- Contraception means interception in the birth process at any stage ranging from ovulation to ovum implantation.



Definition-

“Methods and practices that allow intercourse yet prevent conception are called contraceptive methods”

Contraceptive methods

Classification

Broadly grouped in two classes:

A. Spacing methods (temporary methods):

1. To space between two children Or
2. To delay birth of first child.

B. Terminal methods (permanent methods):

1. To stop conception when family is completed Or
2. When couple desire no more children.

A. Spacing methods

1. **Barrier methods** : Male & Female condom.
2. **Vaginal methods** : Spermicides, Diaphragm, Cervical cap.
3. **Intrauterine devices (IUDs)** : Lippes loop, Cu T-200, Multi Load-Cu-250. CuT-380A
4. **Hormonal methods** : OCPs, POP, Injectable, Implants.

Spacing methods: cont.

- 5. Non hormonal contraceptive pill –**
Centchromen (Saheli)
- 6. Post-coital contraception (Emergency
contraception) – E-Pill, IUD**
- 7. Fertility awareness based methods (Natural
Methods) – Calendar or Rhythm method,
Basal Body Temp, Cx Secretions**

B. Terminal methods

- 1. Male Sterilization (Vasectomy)**
- 2. Female Sterilization (Tubectomy)**

Spacing Methods

1. Barrier Methods

A. Male Condom

Composition:

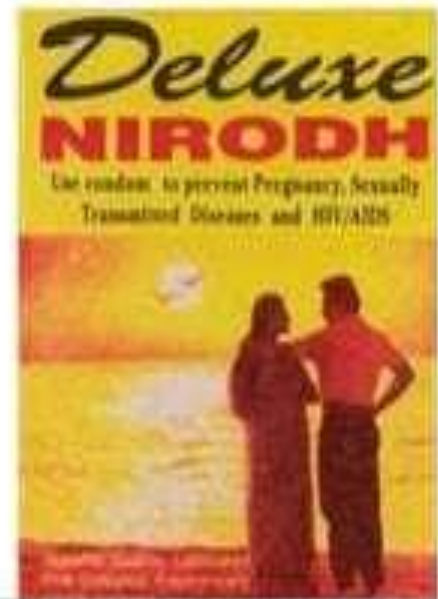
Sheath of latex rubber made to fit over a man's erect penis before intercourse

Mode of action:

Prevents semen deposition in Vagina

Advantages:

1. Inexpensive
2. Protects against STDs/ HIV



Male condom contd.

Disadvantages:

- Require high degree of motivation
- Interfere with sex sensation
- May slip off & tear during coitus due to incorrect use

Contraindication:

- Allergy to latex

B. Female Condom

Composition: Pouch made of polyurethane

Mode of action:

Prevents semen deposition in Vagina

Advantages:

1. Prevents STDs

Disadvantages:

1. Expensive
2. Less effective than male condom

Failure rate

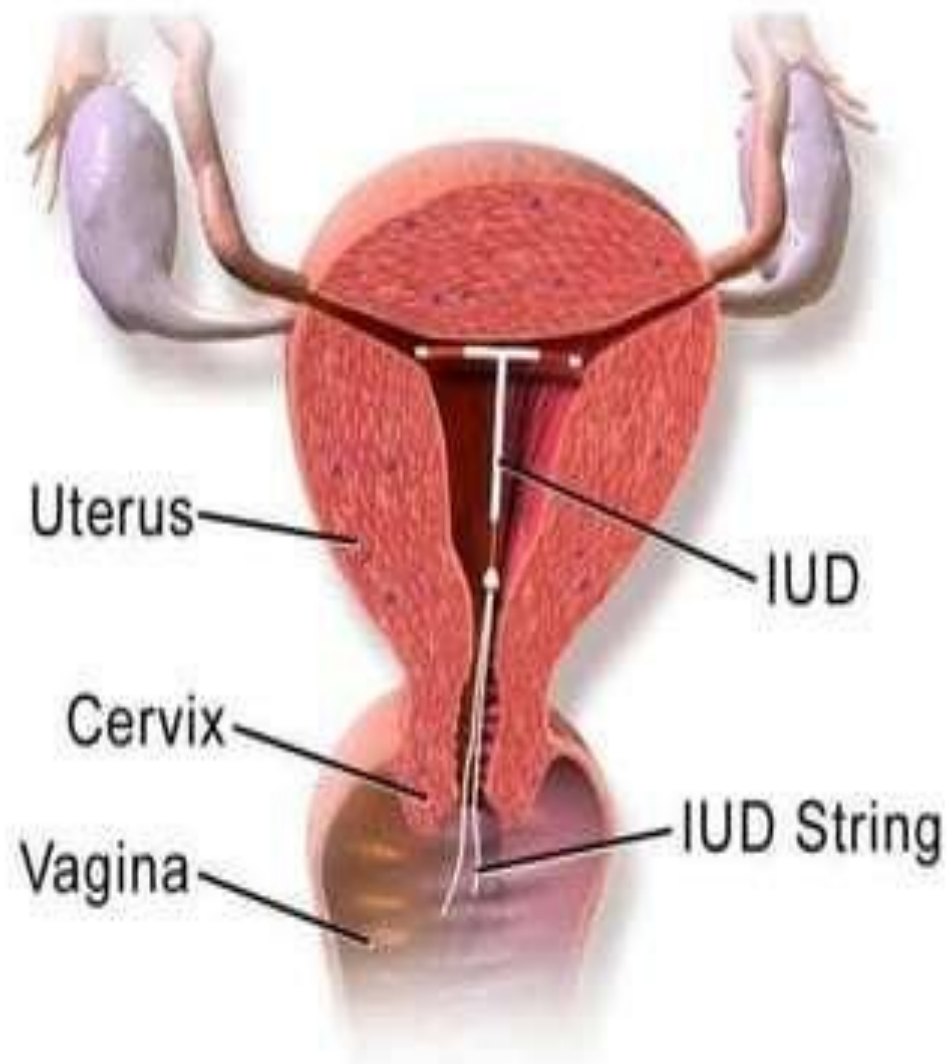


3. Intrauterine Devices (IUDs)

- An IUD usually is a small, flexible plastic frame, often has copper wire or sleeves on it & inserted into a woman's uterus through her vagina.
- IUDs have 1 or 2 strings which hang through the opening of cervix into the vagina to check the presence of IUD



<https://youtu.be/X3Ge3FCEfww>



Intrauterine Device (IUD)

Types of IUD

- **1st generation IUDs**
Inert or non medicated,
e.g. lippes loop
- **2nd generation IUDs**
Contain copper wire or sleeve,
e.g. CuT-200, CuT-220C, ML-375, Cu-T380A etc.
- **3rd generation IUDs**
Hormone releasing IUDs,

First generation

- Inert & non-medicated acts mechanically
- Now only of historical importance

Second generation

- Metallic copper has anti fertility effect
- Are smaller & easier to fit
- Currently 'T Cu-380 A' is used under NFWP (10yrs)
- Multiload devices like CuT 250 are effective for 5 yrs.

Third generation

- Release hormone - Progesterone or Estrogen
- **Progestasert:** Releases progesterone 65µg daily Effective life of 1 year
- **LNG-20 (Mirena)** - Releases levonorgestrel 20µg daily & effective life of 5 years

Intrauterine Contraceptive Devices(IUDs)



First generation-
Lippe Loops



Second Generation-
CuT-380 A



Third generation-
Mirena(Levonorgestrel)

*All IUDs made up of polyethylene/ other polymers

The Paragard TCU 380A

Measures 32 mm (1.26") horizontally (top of the T), and 36 mm (1.42") vertically

First year failure rate ranging from 0.1 to 2.2%

Ability to provide emergency



Hormonal IUD Mirena





Mode of action (IUD)

- **1st generation:**

foreign body reaction in the uterus, impairs the viability of gamete and thus reduces chances of fertilization, rather than its implantation.

- **2nd generation:**

Foreign body reaction **Plus**

i) Alteration in composition of cervical mucus,

ii) Reduced sperm motility and

Mode of action (IUD)

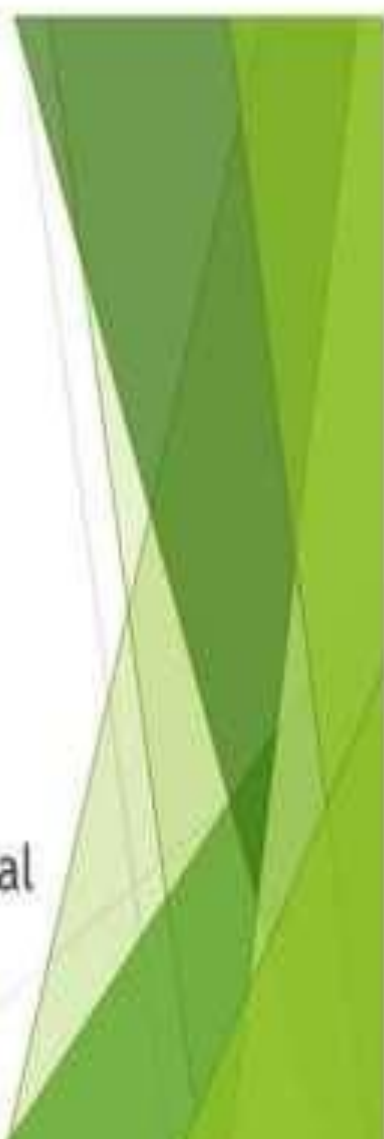
- **3rd generation:**

Mainly local hormonal effects i.e.

increased cervical mucus viscosity thus preventing sperm entry in cervix,

inducing high level of progesterone and low level of estrogen thus making the endometrium unfavorable for implantation.

Ideal candidate for IUD insertion

1. Has at least one living child
 2. No history of pelvic disease
 3. Normal menstrual periods
 4. Willing to check IUD tail
 5. Access to follow-up & treatment of potential complication
 6. Monogamous relationship
- 

Advantages

- Simple and inexpensive procedure
- Single partner motivation required
- Long term effect
- Reversible contraception
- Free from systemic side effects of hormonal contraceptives
- No interference with sex

CONTRAINDICATIONS

- **Absolute**

- Suspected pregnancy
- Pelvic inflammatory diseases
- Vaginal bleeding of undiagnosed aetiology
- Cancer of cervix, uterus, or adnexia and other pelvic tumours
- Previous ectopic pregnancy

- **Relative**

- Anaemia
- Menorrhagia
- History of PID since last pregnancy
- Purulent cervical discharge
- Distortion of uterine cavity (congenital malformation, fibroid)
- Unmotivated person

SIDE-EFFECTS AND COMPLICATIONS

1. Bleeding
2. Pain
3. Pelvic infection
4. Uterine perforation
5. Pregnancy
6. Ectopic pregnancy
7. Expulsion
8. Fertility after removal
9. Cancer and teratogenesis
10. Mortality

- Bleeding

- The commonest complaint is increased vaginal bleeding
- Accounts for 10-20% of all IUD removals
- Bleeding can be in the form of a greater volume of blood loss during menstruation, longer menstrual periods, or mid-cycle bleeding.
- Bleeding may result in iron deficiency anaemia.

- Pain

- Second major side effect leading to IUD removal
- Pain may be in the form of low backache, cramps in the lower abdomen and occasionally pain down the thighs (symptoms usually disappear by the 3rd month)
- Pain can be because of device being incorrectly placed in the uterus, disparity in size, uterine perforation, or infection)

- Pelvic infection

- Pelvic inflammatory diseases is a collective term that includes acute, subacute and chronic conditions of the ovaries, tubes, uterus, connective tissue and pelvic peritoneum and usually the result of infection
- Clinical manifestation of PID are vaginal discharge, pelvic pain and tenderness, abnormal bleeding, chills and fever.
- PID is more 2-8 times more likely to develop in IUD users than non users.
- More common with women having multiple sexual partners

- Uterine perforation

- More commonly occurs when insertions are performed between 48 hours and 6 weeks postpartum
- Conclusive diagnosis of perforation is usually made by a pelvic X-ray

- Pregnancy

- Pregnancy with an IUD should be regarded as potential medical complication with the dangers of infection and spontaneous abortion.
- The options left over are:
- If the woman requests an induced abortion, this is legally available
- If the woman wishes to continue with the pregnancy and the threads are visible, then the device should be removed by gently pulling the threads.
- If the woman wishes to continue with the pregnancy but the threads are not visible, there should be careful examination for the possible complications. If there are any signs of intra uterine infection and sepsis, evacuation of uterus under the cover of broad spectrum antibiotics is mandatory.

Timing of insertion

After childbirth

- Immediately after delivery of placenta (post-placental insertion)
- four to six weeks after childbirth

After spontaneous or induced abortion

- immediately after 1st-trimester abortion (aseptic).
- After 2nd trimester abortion it is advisable to wait till involution of uterus is complete

Menstrual cycle

- Can be inserted any time, during menstrual cycle, if reasonably sure that woman is not pregnant and has not been having sex without contraception. But it should be preferably inserted-

- **During menstruation or within 10 days of beginning of menstruation**

- Insertion during menstruation offers following advantages :
 - *Pregnancy is ruled out*
 - *Insertion is easier due to open cervical canal*
 - *Any minor bleeding caused by insertion is less likely to upset the client*

HORMONAL CONTRACEPTIVES

- Oral pills
 1. Combined pills
 2. Progesterone-only pill
 3. Post-coital pill
 4. Once a month (long-acting) pill
 5. Male pill
- Depot (slow-release) formulations
 1. Injectables
 2. implants

4. Hormonal methods

A. Oral Contraceptives (OCPs)



1. Low dose combined OCPs

- Contain both estrogen & progesterone in low doses
- Two types

Mala- N (free of cost) & **Mala- D** (Rs 3 per packet)

Levonorgestrel (0.15mg) + Ethinyl estradiol (30 micrograms) PLUS Ferrous Fumerate.

One packet contains 28 pills (21 hormonal pills and 7 brown film coated iron tablets)

Under Governmental RCH programmes



21 OCP + 7 iron tablets(60mg ferrous fumarate)
Available free of cost at
PHC,UHTC.



21 OCP + 7 iron tablets(60mg ferrous fumarate)
Available at subsidized cost at
health centres @Rs 3

Levonorgestrel and Ethinylestradiol Tablets with Ferrous Fumarate Tablets BP

Zinnia-F

Hormonal Contraceptive

Each sugar coated white tablet contains:

Levonorgestrel Ph.Eur. 150 mcg

Ethinylestradiol Ph.Eur. 30 mcg

Each sugar coated brown tablet contains:

Ferrous Fumarate BP 75 mg

(equivalent to 24.375 mg of Ferrous iron)

3 BLISTERS OF
28 TABLETS EACH



How to take pills



The standard way to take the pill is to take 1 every day for 21 days, then have a break for 7 days, and during this week you have a bleed like a period. You



The tablets in weeks 1 through 3 contain "active pills" (hormones) that will prevent you from getting your period.

The tablets in week 4 contain "inactive pills" (no hormones). During this week, you will get your period.

28 Day Pill Calendar

★ Begin Pill Cycle Day ☆ Last Pill Of Cycle

S	M	T	W	TH	F	S
★ 1	2	3	4	5	6	7 →
8	9	10	11	12	13	14 →
15	16	17	18	19	20	21 →
22	23	24	25	26	27	28 ☆

Levonorgestrel and

Ethinylestradiol Tablets with Ferrous Fumarate Tablets BP

Batch No. Mfg. Date Exp. Date



21 sugar coated white tablets, each containing
Levonorgestrel Ph. Eur. 150 mcg, Ethinylestradiol Ph. Eur. 30 mcg

7 sugar coated brown tablets, each containing
Ferrous Fumarate BP 75 mg
(equivalent to 24.375 mg of Ferrous Iron)

100% Pure Ferrous Fumarate BP

Manufactured by:

Mfg. Lic. No. G/1072



Pill-teach

- **First pill is to be taken on fifth day of menstrual cycle** and thereafter one pill daily till next menstrual period.
- Contraception is immediate if the woman starts the pill between days 1 and 5 of her cycle.
- If her first pill is after day 5, other contraception is needed for 7 days.
- Take the pill the same time every day, preferably before going to bed at night
- One pill daily for 21 days followed by 7 pill-free days. Some formulations have 7 'dummy pills', rather than the pill-free interval.

- When the bleeding occurs, it is considered to be first day of the next cycle.
- The bleeding that occurs is not like normal menstruation, but is an episode of uterine bleeding from an incompletely formed endometrium caused by the withdrawal of exogenous hormones, hence called withdrawal bleeding.

Missed pill:

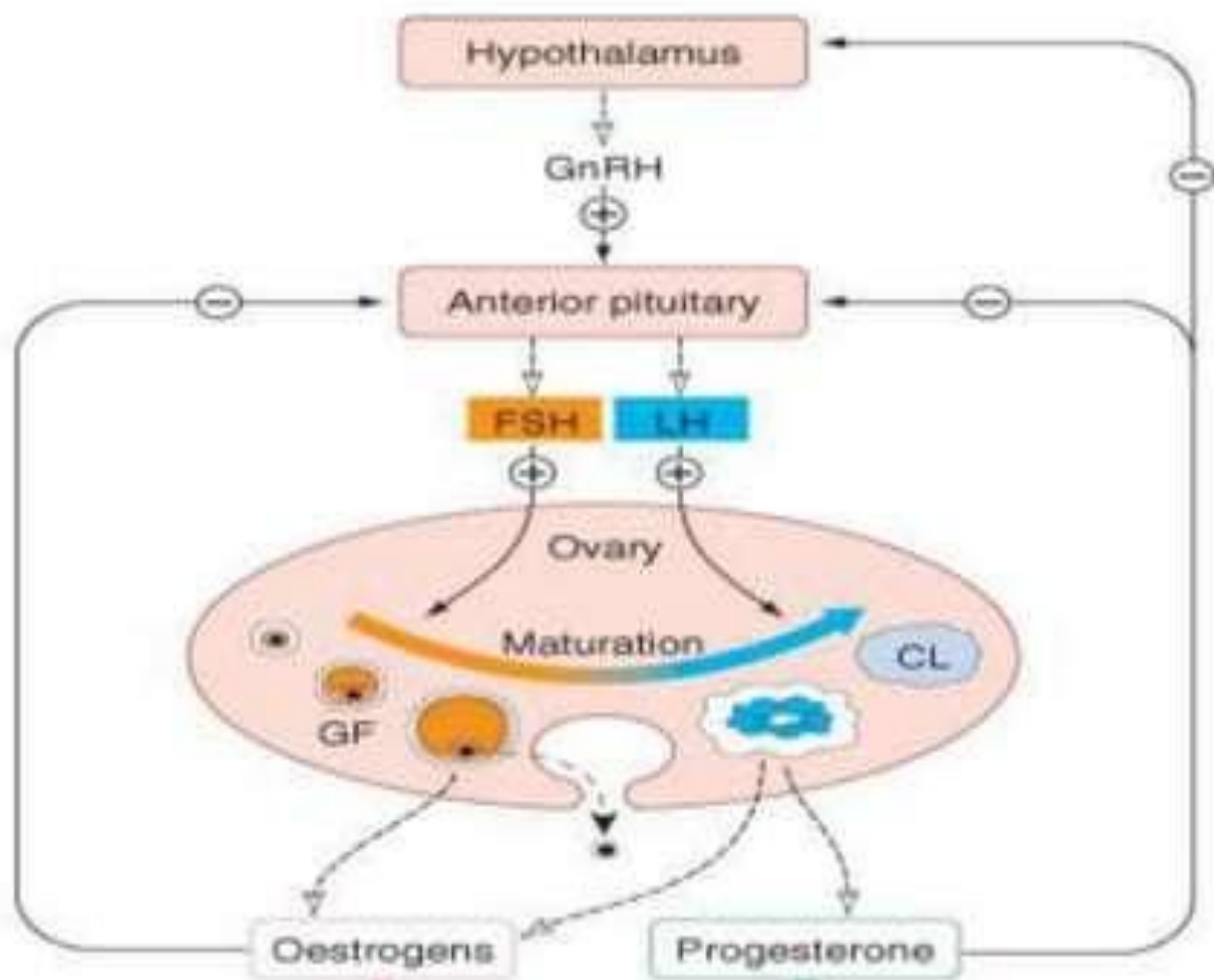
- Missed pills may lead to failed contraception.
- The risk of pregnancy is greatest at the beginning and the end of the pack
- If 1 pill is missed:
 - Take the missed pill as soon as possible
 - Continue the rest of the pack as usual
- If 2 or more pills are missed:
 - Take recent as soon as possible
 - Need additional cover until 7 days

Mode of action

- Prevent the release of ovum from the ovary (***by blocking the pituitary secretion of Gonadotropins***)

Mechanism of action of OC pills

- **Suppression of ovulation** by inhibiting the release of FSH and LH (mainly estrogenic effect)
- Disruption of proliferative and secretory phases of endometrium, **reducing the chances of implantation of ovum.**
- Progestogenic effects **increase the viscosity of cervical mucus.**



Act on reproductive tract and other tissues

Side effects of OC pills

- Mild (no need to withdraw OC)

Estrogenic effects	Progestogenic effects
Nausea	Increase in appetite
Migraine	Weight gain
Breast tenderness	Acne
Mild oedema	Hirsutism (mild)
Withdrawal bleeding which at times fail to occur	Decrease in libido

Side effects of OC pills

- Moderate (may warrant discontinuation of OC)

Estrogenic	Progestogenic
Vertigo	Breakthrough bleeding (spotting)
Leg cramps	Monilial vaginitis (urethral dilatation and bacteriuria)
Uterine cramps	Amenorrhoea (even after stopping OC)
Precipitation of diabetes	

Side effects of OC pills

- Severe(needs stoppage of OC)

Estrogenic	Progestogenic
Thromboembolism	Myocardial infarction
Cholestatic jaundice	Cerebrothrombosis
Gall stones	
Hepatic adenoma	

Contraindications

- **Absolute:**

- Cancer of breast & genitals
- Liver disease
- Previous or present h/o thromboembolism
- Cardiac abnormalities
- Congenital hyperlipidaemia
- Undiagnosed abnormal uterine bleeding

Special problems requiring medical surveillance:

- Age over 40 years,
- Smoking & age over 35 years,
- Mild hypertension
- Chronic renal disease
- Epilepsy,
- Migraine,
- Nursing mothers in the first 6 months
- Diabetes mellitus
- Gall bladder disease
- h/o infrequent bleeding, amenorrhoea

Contraindications of OC pills(absolute)

- Thromboembolic, coronary and cerebrovascular disease or a history of it.
- Moderate to severe hypertension; hyperlipidemia.
- Active liver disease, hepatoma or h/o jaundice during past pregnancy.
- Suspected/overt malignancy of genitals/breast.
- Porphyria
- Impending major surgery- to avoid postoperative thromboembolism.

Contraindications of OC pills(relative)

- Diabetes
- Obesity
- Smoking
- Undiagnosed vaginal bleeding
- Age above 35 years
- Migraine
- Gall bladder disease

Side effects

- Estrogens- ↑ risk of endometrial ca.
- Progesterone- ↑ LDL cholesterol
- Progesterone - ↓ bone mineral density.

Non contraceptive health benefits of oral contraceptives

- The estrogen-progesterone pill is associated with reduced risk of **functional ovarian cysts, ovarian cancer, endometrial cancer, fibrocystic breast disease, bleeding uterine fibroids.**
- The menses become more regular, with reduced blood loss, less premenstrual tension and dysmenorrhoea.

Non contraceptive health benefits of oral contraceptives

- Lower incidence of **ectopic pregnancy, endometriosis, and pelvic inflammatory disease.**
- Combined pills with newer progestins e.g., desogestrel are more safe for women who suffer from weight gain, acne, hirsutism or raised LDL-c because desogestrel lacks androgenic side effects.

Non contraceptive health benefits of oral contraceptives

- A combination pill of estrogen with an anti androgen (cyproterone acetate) is useful for treating **acne and hirsutism**.

2. Progestogen-only pills (POPs)

- Also known as “minipill” or “micropill”.
 - Contains only progestogen.
- Given in small doses throughout the cycle.
 - Commonly used progestogens are Norethisterone & Levonorgestrel.

POPs contd. : Mode of action

- Stops the ovulation in about half of menstrual cycles.
- Render cervical mucus thick & scanty, inhibit sperm penetration.
- Inhibit tubal motility, delay transport of sperm & ovum to uterine cavity.

POPs contd. : Advantages

- Can be used by nursing mothers, no change in quality & quantity of milk.
- No estrogen side effects.
- Very effective during breastfeeding.
- Can be given to older women, less cardiovascular risks.
- Helps prevent: Benign breast disease,

POPs contd. : Disadvantages

- Poor cycle control: irregular periods, spotting in between periods & missed periods.
- Less effective than combined OCPs.
- Side effects: mild headaches , breast tenderness

B. Depot methods

1. Injectable contraceptives

Two types:

I. Progestogen only:

a. DMPA: IM injection of *Depot Medroxy Progesterone Acetate*, 150 mg given every 3 months.

b. NET-EN: IM injection of Norethisterone Enantate, 200 mg is

Injectable contraceptives contd.

II. Combined injectable contraceptives:

- Contains both progestogen & estrogen
- Given at monthly interval, plus or minus 3 days.

Injectable contraceptives contd.

Mode of action, advantages, disadvantages & contraindications are same as hormonal contraceptive pills with an additional advantage, that single motivation provides long term pregnancy prevention, no daily pill taking

2.Implants(Norplant)

Composition:

A set of 6 small silastic (silicone rubber) capsules, containing 35 mg each of levonorgestrel

More recent device comprise of 2 small rods:
Norplant (R)-2

Mode of action: same as POPs

Implants(Norplant) contd.

Advantages:

Same as hormonal contraceptive pills with an additional advantage, that single motivation provides long term pregnancy prevention, up to 5 years, no daily pill taking.

Disadvantages:

- Minor surgical procedures required to insert & remove capsules.
- Other disadvantages are same as hormonal contraceptive pills.

5. Non hormonal contraceptive pill

Composition:

"CENTCHROMAN"

Mode of action:

Prevents implantation through endometrial changes. It has a **strong anti-estrogenic action at peripheral receptor level.**

Dose:

30 mg started on 1st day of menses and taken **twice weekly for 12 weeks and weekly thereafter**

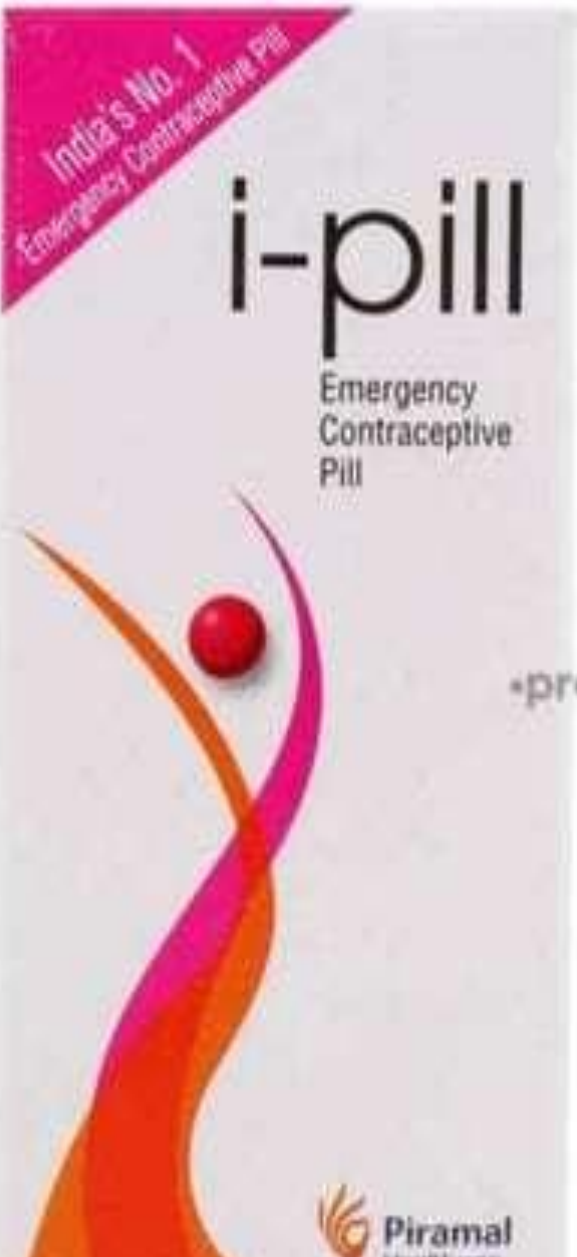
Side effect:

6. Post-coital Contraception (Emergency contraception)

- Also called “morning after” contraception, recommended within 48 hours of an unprotected intercourse. Two methods are available:
 - A) IUD:** simplest technique is to insert an IUD, especially a copper device within 7 days.
 - B) Hormonal:**

Post-coital Contraception contd.

2. Stilbesterol 50 mg daily for 5 days
 3. Levonorgestrel 0.75 mg tab immediately & repeated once after 12 hrs
- C) **RU 486 (Mifepristone):** 25 mg daily orally for 4 days or a single dose of 600 mg



7. Fertility awareness-based methods

Various methods are:

1. Calendar calculation:

A woman can count calendar days to identify the start and end of fertile time.

The shortest cycle minus 18 days gives the first day of fertile period and longest cycle minus 11 days gives the last day of fertile period

2. Cervical secretions:

Also known as "Billings method": When a woman sees or feels cervical secretions, she may be fertile.

Fertility awareness-based methods contd.

3. Basal body temperature:

A woman's resting body temperature goes up slightly around the time of ovulation

4. Feel of the cervix:

As the fertile time begins, the opening of the cervix feels softer, opens slightly, and is moist.

A combination of all these methods can

Advantages

- No physical side effects
- No cost required
- Once learned, may require no further help from health care providers.
- Immediately reversible
- No hormonal side effects
- No effect on breast feeding

Disadvantages

- Not an effective method
- Takes time to learn the duration of menstrual cycle
- Can become unreliable or hard to use if the woman has a fever, has a vaginal infection or is breast feeding
- May not be effective for women with irregular menstrual cycles
- Does not protect against STDs, HIV/AIDS

8. Lactational amenorrhea method

- Use of breast feeding as a temporary family planning method.
- ***A female is naturally protected against pregnancy when:***
 - a. Her baby gets at least 85% of his or her feedings as breast milk and she breastfeeds her baby often, both day and night
 - b. Her menstrual periods have not returned

Advantages

- Effectively prevents pregnancy for at least 6 months
- Encourages the best breastfeeding practices
- No need to do anything at time of sexual intercourse
- No hormonal side effects
- No direct costs, supplies or procedures

Disadvantages

- Effectiveness after 6 months is not certain
- No protection against sexually transmitted infections including HIV/AIDS.
- If the mother has HIV, there is a chance that breast milk will pass HIV to the baby

Effectiveness

- **Effective as commonly used-** 2 pregnancies per HWY in the first 6 months after child birth
- Very effective **when used correctly and consistently-** 0.5 pregnancies per HWY in the

2. Terminal Methods

- Effective contraceptive procedure for couples who have completed their family size

- Currently female sterilization accounts for

about 85 % and male sterilization 10-15% of
all sterilizations in India

Male Sterilization

Method:

Done under LA, a small incision is made in scrotal skin and a piece of vas at least 1 cm removed after clamping and ends ligated and folded back on themselves and sutured into position.

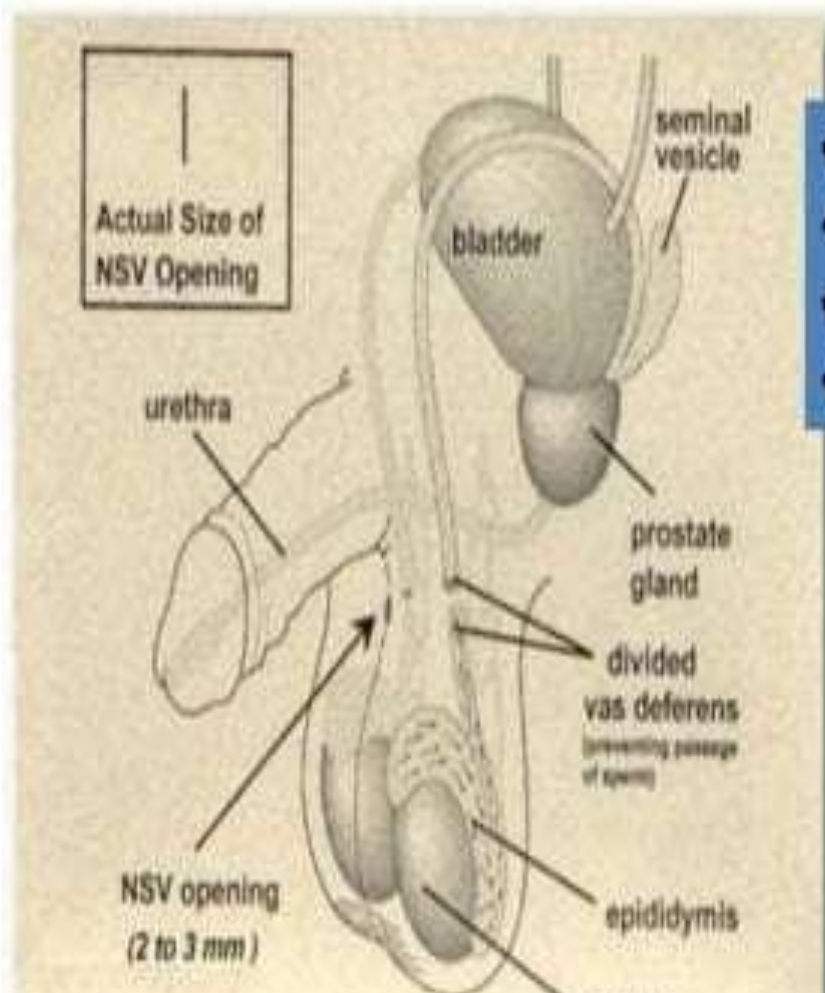
Mode of action:

No sperm in semen.

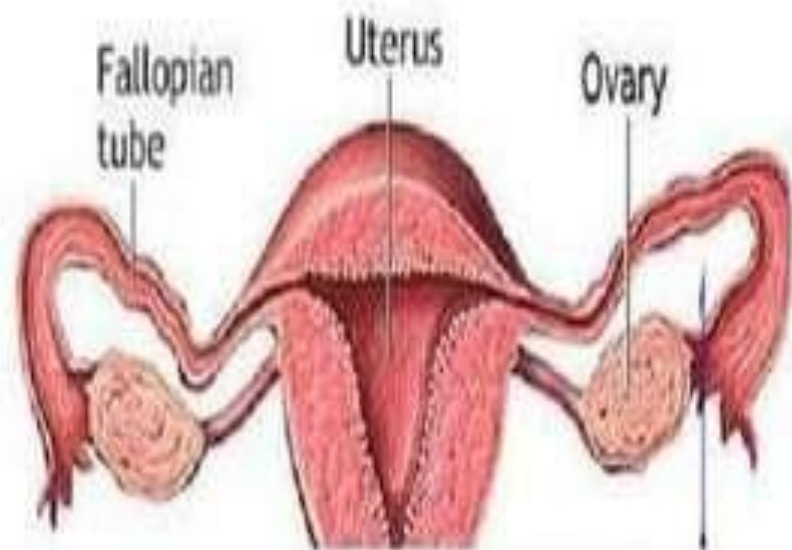
Effectiveness: 0.15 pregnancies per 100 men in the first year after the procedure

Precaution:

Use additional contraceptive procedure until approx. 30 ejaculations or for 3 months after the procedure



- Less Discomfort
- Ten times fewer complications
- No sutures
- Faster recovery



Posisi Rahim dalam Ringga Perut

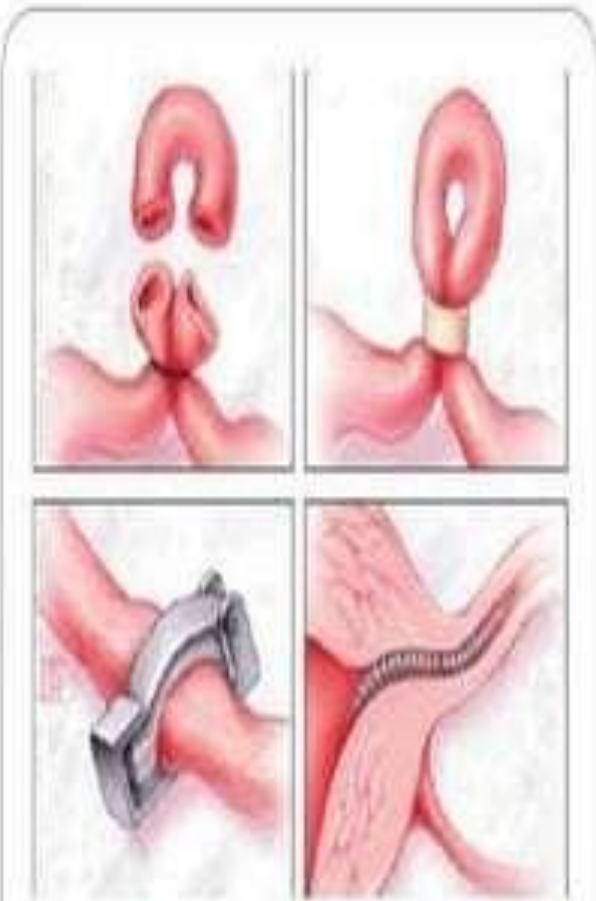


Figure 2 Diagrammatical representation of tubectomy by types of clamping's and IUD Lining.

Advantages

- Very effective
- Permanent: a single, quick procedure leads to lifelong, safe, and very effective family planning
- No interference with sex.
- No apparent long term health risks.
- No supplies to get, and no repeated clinic visits required

Disadvantages

- 1. Complications:**
 - A: common complications: Pain in scrotum, swelling and bruising
 - B: Sperm granules
 - C: Spontaneous recanalization (0-6 %)
 - D: Autoimmune response to sperm
 - E: Psychosocial effects
2. Requires minor surgery by a specially trained provider
3. Reversal is difficult

Female Sterilization

- 1. Laparoscopy:** First the abdomen is distended with CO_2 or NO_2 . A small sub naval incision is made and laparoscope is inserted, after accessing the tubes, they are closed by a clip, a ring, or by electro coagulation.
- 2. Minilap operation:** A small incision (under LA) is made in abdomen just above pubic hair line, uterus is raised and turned with an elevator to bring fallopian tubes under the incision and then each tube is tied and cut, or else closed with a

Female sterilization contd.

Mode of action:

Prevents ovum from being fertilized by the sperm.

Effectiveness:

0.5 pregnancies per 100 women during the first year after the procedure

“Postpartum tubal ligation” is one of the most effective female sterilization techniques. (**failure rate:** 0.05 pregnancies per 100 women yrs during the first year after the procedure)”

Advantages

- Very effective
- Permanent: a single procedure leads to lifelong, safe and very effective family planning
- Nothing to remember, no supplies needed, and no repeated clinic visits required
- No interference with sex
- No long term or hormonal side effects
- No effect on breast feeding

Disadvantages

1. Complications:

a: Pain after the procedure or local infection or bleeding

b: internal infection or bleeding

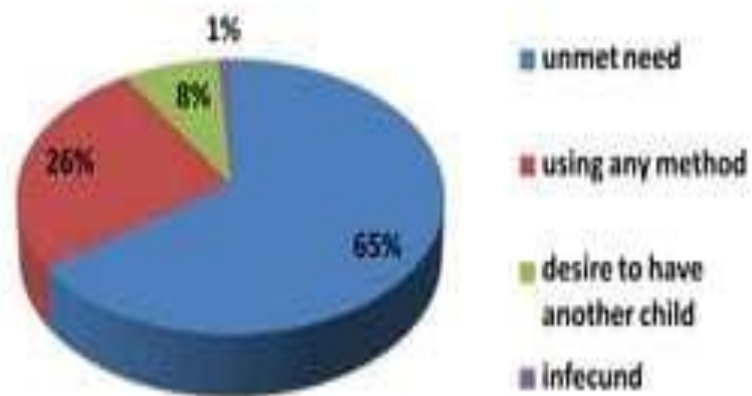
C: Injury to internal organs

2. Requires physical examination and minor surgery by a specially trained provider

3. Reversal surgery is difficult, expensive and not available in most areas

4. No protection against STDs including HIV/AIDS

Unmet Need among Women in the First Year Postpartum



THANK YOU

