

# Background info

## Fertilisation

Fertilisation is when a male gamete and a female gamete meet. Once the gametes meet, the female is considered pregnant, and a zygote is produced. The sperm must travel through the cervix, uterus and into the fallopian tubes to penetrate the egg cell's corona radiata with its acrosomal enzyme.

## Hormonal contraception & intrauterine device

One of the newest and innovative forms of contraception is hormonal contraception. These can be contraceptive pills, hormone implants and physical objects that are made to release hormones to prevent fertilisation.

Intrauterine devices or IUDs are small 'T-shaped' physical devices mostly made of plastic and copper and are left in the uterus. There are two types of IUDs, which are hormonal and copper. All of which prevent the union of sperm and egg (fertilisation).

## Difference between hormonal contraceptive & Intrauterine devices

Hormonal contraceptives are methods of contraceptives that release hormonal substitutes or 'synthetic hormones' which prevent the male sperm from fertilising the female egg.

Intrauterine devices are only used by females and come in two types; one releases copper ions from the coiled copper wire. Copper ions are fatal to eggs and sperm. The intrauterine devices also alter the lining of the uterine walls to stop a fertilised egg from implanting itself into the uterine walls.

Hormonal IUDs release levonorgestrel to produce thick mucus in the cervix and thin uterine walls, thus incompatible for fertilised eggs.

# Risks of Intrauterine devices

## Risks of intrauterine devices

Perforation is a risk of IUDs. Perforation is when during the insertion of an IUD, it penetrates through the uterine wall causing damage to organs and heavy bleeding, though it is extremely rare, it can still happen.

Expulsion is when the IUD comes out of the uterus either partly or whole. If it does, it has to be completely removed. If unnoticed, it could lead to the risk of pregnancy.

A limitation on all IUDs is that they **DO NOT protect you against STIs.**



NUVARING (VAGINAL RING)



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# Benefits of IUDs & hormonal contraceptives

## Benefits of IUDs

All IUDs are 99% effective against pregnancy, copper IUDs can last from 5 to 10 years, are easily replaceable, not felt by the woman or the partner and most importantly, they can be used as emergency contraception if sexual intercourse was no more than 5 days prior.

## List of Hormonal Contraceptives

- Hormone implants ~ Implanon NXT
- NuvaRing (Vaginal Ring)
- Contraceptive pills (combined & mini pill)

## Risks of Hormone Implants & NuvaRing

Hormonal Implants for females contain a synthetic hormonal substitute called etonogestrel that acts similar to progesterone. This means that they can cause menstrual irregularities, blood clots in the veins or arteries and can cause cancer in the ovaries or endometrium.

Other less serious side effects include dizziness, back pain, decreased sex drive, mild insulin resistance and, most commonly experienced, the side effect of mood swings/ depression.

Limitations are that it does not prevent STI (Sexually Transmitted Infection).

NuvaRing is a soft ring that is placed at the entrance of the cervix that slowly releases oestrogen and progesterone. Risks of NuvaRing include blood clots, stroke, and heart attacks.

Limitations are that women who are over 35 and smoke should not use Nuvaring, regular replacement and no protection against STI.

# Benefits of Hormonal implantations & Nuvaring

Hormonal implantations are very effective, as almost 100% of women who use hormonal implantations do not fall pregnant. They last around three years and are rather cheap, periods are easier to deal with, easy to remove, and only contain synthetic progesterone and no oestrogen.

NuvaRing is beneficial since it can ease periods, and is extremely effective, a daily pill isn't required, and reliable.

## Natural Methods

Natural methods or 'fertility awareness' is a method that is used to reduce the likelihood that a female falls pregnant without the use of any contraceptive devices. Natural methods include periodic abstinence, withdrawal and lactational amenorrhea method (LAM).

Periodic abstinence is when the female avoids sexual intercourse during certain days of her ovulation when the probability of fertilisation is high. Determining the probability is quite simple. The rhythm method falls under the natural contraceptive methods. When a female is undertaking the rhythm method, it is **assumed** that the egg must ovulate at 14 days if the whole periodic cycle is 28 days. 4 Days ( $\pm$  1) before and after the ovulation, the female must refrain from sexual intercourse (abstinence) since it is the time when mature egg cells are released from the ovaries.

## Risks/ limitations of Periodic abstinence

- Does not protect against STIs
- Least effective as it is very unreliable
- Almost all women do not have cycles with the same day for each month, rarely 28 days
- Abstinence is needed

# Benefits of natural methods & Mechanical barriers

## Benefits of natural methods

- Acceptable for religious groups
- No cost
- No serious side effects
- increased self awareness of fertility

## Mechanical Barriers

Mechanical barriers are physical barriers that stop the sperm from fertilising the egg. Examples of mechanical barriers are diaphragm or cervical cap, condom and femidom.

## Condom

The condom is a mechanical barrier usually made of latex; it covers the penis during sexual intercourse and prevents the semen from entering the vagina. It also prevents the partners from contracting any STI since it physically provides a barrier between the skin of the penis and the vagina, stopping any bacteria or virus from infecting the partner. There are minimal risks associated with condoms, but there is still a risk of the condom breaking, causing the sperm to enter the vagina and causing impregnation, urinary tract infection from pre-applied lube, vaginal or penile irritation, and partner need to cooperate. Benefits include STI protection, cheap, easy to get etc.

## Diaphragm & cervical cap

The Diaphragm and cervical caps are mechanical barriers similar to the condom but shaped like a cap. The size of the Diaphragm must be tailored to the female using the cap. Usually, spermicidal cream decreases pregnancy chances and should be left for 6 hours after ejaculation.

The risks of the Diaphragm are that they can irritate the vagina and make it challenging to insert. Benefits include no use of hormones, diaphragms cannot be felt during sexual intercourse and can be inserted ahead of intercourse. Limitations are that they don't protect against STI, not very reliable unless with spermicide, needs prescription.