Name – Male Condom (Barrier)/Hormone/Other

How it works. A thin piece of latex used to cover the erect penis. Designed to catch the sperm and prevent it from entering the vagina and fertilizing the egg.

98% effective if used correctly

Advantage - Offers protection against a range of STI's

Advantage - Easy to use/apply

Disadvantage - May interrupt sex

Disadvantage - Can split or tear if there are sharp nails or jewellery

Widely available to buy. Also free from any sexual health clinic or heath centre

Completely suitable for use after birth and during breastfeeding

Name – Female Condom (Barrier)/Hormone/Other

How it works. A soft, thin piece of latex worn inside the vagina. Designed to catch the sperm and prevent it from entering the vagina and swimming up to fertilize the egg.

95% effective if used correctly

Advantage - Offers protection against a range of STI's

Advantage – Doesn't interrupt sex (inserted before sex)

Disadvantage – Can get pushed into the vagina during sex

Disadvantage - Can split or tear if there are sharp nails or jewellery

Not as widely available as male condoms. Can be expensive to buy.

Completely suitable for use after birth and during breastfeeding

Name – Diaphragm (cap) (Barrier)/Hormone/Other

How it works. A small rubber dome/cap that is designed to be inserted into the vagina and cover the cervix preventing sperm being able to swim into the cervix. The diaphragm should be filled with spermicide.

92-96% effective if used correctly with spermicide

Advantage – Can be inserted any time before sex

Disadvantage – Need to be seen by a medical professional to assess size

Disadvantage – Doesn't offer protection against STI's

Disadvantage – The latex can cause irritation

Available from sexual health clinics or health centres

Not suitable for use within 6 weeks of birth. Suitable during breastfeeding

Name – Combined Pill Barrier/(Hormone)/Other

How it works. A pill combining two hormones, oestrogen and progestogen. Taken every day for 21 days. Break for 7 days to have a period. Prevents ovulation, thickens cervical mucus, thins the lining of the uterus

99% effective if used correctly

Advantage – Does not interrupt sex

Advantage – can make period lighter/improve acne

Disadvantage – No protection against STI's

Disadvantage – not suitable for smokers or women over 35

Available from GP or sexual health clinic

Can be used from 21 days after birth and after 6 weeks if breastfeeding

Name – Progestogen Only Pill (POP) Barrier/(Hormone)/Other

How it works. A pill containing one hormone, progestogen. It is taken every day without any breaks. Designed to thicken the cervical mucus and in some cases may prevent ovulation.

99% effective if used correctly

Advantage – Suitable for any age group

Advantage – Useful for those who cannot take oestrogen

Disadvantage – Pill must be taken within a 3 hour window daily

Disadvantage – No protection against STI's

Available from GP or sexual health clinic

If taken within 21 days after birth it offers immediate protection

Name – Contraceptive Injection Barrier/(Hormone)/Other

How it works. The contraceptive injection releases the hormone progestogen into your bloodstream to prevent ovulation, thicken cervical mucus and thin the lining of the uterus.

99% effective if used correctly

Advantage – Don't need to take a pill every day

Advantage – offers protection for 8 or 13 weeks

Disadvantage – NO protection against STI's

Disadvantage – side effects like weight gain, irregular periods, acne

Available from GP and sexual health clinic

If given within 21 days of birth will offer immediate protection. Fine to use while breastfeeding.

Name – Contraceptive implant (Rod) Barrier/(Hormone)/Other

How it works. A small flexible plastic rod that's placed under the skin in your upper arm. Releases hormone progestogen into your bloodstream to prevent ovulation, thicken cervical mucus and thin the endometrium.

99% effective if used correctly

Advantage – Don't need to take a pill every day

Advantage – offers protection for 3 years

Disadvantage – NO protection against STI's

Disadvantage – small procedure to have it inserted/removed

Available from GP and sexual health clinic

If given within 21 days of birth will offer immediate protection. Fine to use while breastfeeding.

Name – Contraceptive Patch Barrier/(Hormone)/Other

How it works. A small patch fixed onto the skin. Use one patch for 7 days, then replace. After 3 weeks break for period. Releases oestrogen and progestogen to prevents ovulation, thicken cervical mucus, thin the lining of the uterus

99% effective if used correctly

Advantage – Doesn't interrupt sex

Advantage – Can be used in the bath/while swimming/playing sports

Disadvantage – No protection against STI's

Disadvantage – Not suitable for smokers or over 35's

Available from GP or sexual health clinic

Not suitable if breastfeeding within 6 weeks of birth

Name – Intrauterine device Barrier/Hormone/(Other)

How it works. A small T shaped plastic and copper device inserted into the uterus (minor procedure) the copper alters the cervical mucus making fertilization difficult. It also makes implantation less likely.

99% effective if inserted correctly

Advantage – Can last from 5 to 10 years

Advantage – Does not interrupt sex

Disadvantage – May be uncomfortable when being inserted

Disadvantage – No protection against STI's

Available from GP or sexual health clinic

Completely suitable for use at 4 weeks after birth and during breastfeeding

Name – Intrauterine system Barrier/(Hormone)/Other

How it works. A small T shaped plastic device inserted into the uterus releasing progestogen. Thickens the cervical mucus, thins the lining of the uterus and in some cases stops ovulation.

99% effective if inserted correctly

Advantage – Does not interrupt sex

Advantage – lasts between 3 – 5 years

Disadvantage – no protection against STI's

Disadvantage – may cause headaches, acne or breast tenderness

Available from GP or sexual health clinic

Completely suitable from 4 weeks after birth and during breastfeeding

Name – Natural family planning Barrier/Hormone/(Other)

It works by tracking body temp, cervical mucus secretions and the menstrual calendar to work out the fertile times in the month. Avoid sexual intercourse at fertile times.

Can be 99% effective

Advantage – no hormones involved

Advantage - doesn't interrupt sex

Disadvantage - takes up to 6 months to learn the signs listed above.

Disadvantage - No STI protection.

Training is required from a fertility awareness expert

Not suitable after birth or during breastfeeding

Name – Emergency Contraception

IUD - This can be fitted to prevent fertilization or implantation.

Morning after (emergency) pill – delay or stop ovulation

Male sterilization

99% effective

The sperm tubes are cut under local anaesthetic. This stops sperm from being present in the semen. Requires serious consideration as it is permanent. However, it can be reversed in some cases.

Female sterilization

99% effective

An operation to have the fallopian tubes cut or sealed. General anaesthetic. It is permanent and the woman should receive counselling.

Factors affecting the decision to have children

- The relationship between partners
- Peer pressure/social expectations
- Genetic counselling
- Changes in lifestyle
- Finances (money)

RO57 Topic Area 1 – Pre-Conception health and reproduction

Knowledge Organiser

Factors affecting pre-conception health

Weight

Being both overweight and underweight can affect a woman's ability to ovulate. For men sperm production is affected by being both overweight and underweight.

Smoking/Alcohol/Recreational drug use

Women - Affects ovulation, egg quality and the ability for the egg to implant itself in the endometrium.

Men – can affect the quantity of sperm produced as well as the quality (misshapen) of the sperm produced.

Age

As **women** get older, it becomes more difficult to become pregnant and the risk of miscarriage increases. Fertility decreases with age, particularly after the age of 35 because both the number and quality of eggs gets lower.

Men's fertility also decreases with age, though to a lesser extent. Men aged over 45 who father babies increase the risk of miscarriage, and the likelihood of mental health and developmental disorders in the child.

Important

Taking **folic acid** tablets before becoming pregnant reduces the risk of Neural Tube defects like **Spina Bifida**

Having up to date immunisations

One example is Rubella (German Measles). Women who are not vaccinated and become pregnant will be advised to stay away from anyone with a rash or suspected Rubella and get vaccinated immediately after the baby is born.

Can't be vaccinated during pregnancy.

Women experience periods differently, but **menstruation** (a period) generally lasts three to seven days, with an average of five days.

Menstrual Cycle

- A period signals the start of the menstrual cycle, when blood flows from the uterus and leaves the body via the vagina.
- A new egg then develops in one of the ovaries.
- About 14 days after the first day of menstruation, the egg is released from the ovary and travels along the Fallopian tube to the uterus.
- The lining of the uterus will be thickened and ready for an egg to be fertilised by sperm. If this occurs, a foetus will start to grow.
- If fertilisation does not occur by the end of the cycle, the blood, uterus lining and egg are flushed out via another period

The signs and symptoms of pregnancy

There are some common signs and symptoms of pregnancy, but not all women will have all of the symptoms. Women also experience signs and symptoms at different rates – this means that some women are further along in the pregnancy than others when they find out that they are pregnant.

Breast changes

For many women changes in the breasts is an early indication that they are now pregnant. The breasts may feel similar to just before a period, becoming larger and feeling tender. Some women may feel tingling and veins may be more visible. The nipples may start to get darker and stand out. This is caused by changes in the hormones produced in the body during pregnancy.

Changes in the menstrual cycle

The first sign of pregnancy is often that periods stop. This is generally the most reliable sign for women who usually have a regular monthly menstrual cycle. There can be some light bleeding (spotting) which is usually linked to the egg implanting itself in the uterus.

Nausea

Feeling sick and nauseous, and/or vomiting when pregnant, is often called 'morning sickness', although it can occur at any time of day. This symptom generally begins around six weeks after a pregnant woman's last period. This is thought to be caused by changes in the body's hormones.

Passing urine more frequently

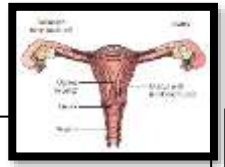
Pregnant women often need to pass urine more frequently. In early pregnancy this is due to changes in the hormone balance in the body whereas in later pregnancy it can be caused by the weight of the foetus putting pressure on the bladder.

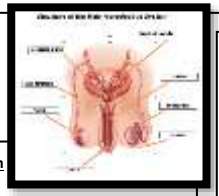
Tiredness

Women may feel tired or exhausted, particularly during the first 12 weeks of pregnancy, because of hormonal changes in the body. These hormonal changes can also cause a woman to feel emotional and upset at this time.

Other changes

There may also be constipation and an increase of vaginal discharge without any soreness or irritation. Again these are linked to an increase in the hormone progesterone.





Female Reproductive system

Ovaries

A woman's two ovaries control the production of the hormones oestrogen and progesterone, which govern the development of the female body and the menstrual cycle. Inside the ovaries are undeveloped egg cells called ova (one cell is called an ovum).

Fallopian tubes

These tubes connect the ovaries to the uterus and are lined by minute hairs called cilia. Each month, one of the ovaries releases an egg into a tube, and the hairs help the egg to reach the uterus by wafting it along the tube.

Uterus/womb

The uterus (also called the womb) is the hollow, pear-shaped muscular bag where the foetus grows and develops. The lining of the uterus is soft, and it is here that an egg will become implanted.

Cervix

This is a very strong ring of muscles between the uterus and vagina, and it is usually closed. It keeps the foetus securely in place in the womb throughout pregnancy. The cervix dilates (opens) during labour to allow the baby to be born.

Vagina

This muscular tube leads downwards, connecting the cervix to the outside of the body. It is here that the man's penis enters the body during sex. Folds of skin called labia meet at the entrance of the vagina, forming the vulva. Urine passes through the urethra, which opens into the vulva but is separate from the vagina.

Male Reproductive System

Testes

The scrotum is a bag of skin that contains two testes. These make millions of sperm – the male sex cells. They also produce hormones including testosterone, which governs the development of the male body.

Sperm duct system/epididymis

The sperm duct system consists of the epididymis, which contains the sperm, and the vas deferens, which are the sperm ducts (tubes) that sperm pass through. Glands produce nutrient-rich fluid – called semen – which mixes with the sperm and carries it.

Urethra

This tube inside the penis carries both urine and semen, but not both at the same time. A ring of muscle controls this.

Penis

The penis consists of the shaft (the main part that goes inside the vagina) and the glans (the tip), which has a small opening. Through this opening, sperm and urine leave the body (separately) via the urethra.

- **Vas deferens**: This is a muscular tube that extends upwards from the testicles, transferring sperm that contains semen to the urethra.
- **Seminal vesicles**: The seminal vesicles are a pair of glands found in the male pelvis. The glands produce many of the ingredients of semen, providing around 70 per cent of the total volume of semen. During ejaculation, the smooth muscle layer of the seminal vesicles contracts, releasing the seminal vesicle fluid.

Identical Twins

One egg is released
It is fertilised by one sperm The embryo splits into two making both babies identical.
They usually share a placenta
Uniovular

Non identical Twins

Two eggs are released. Each egg is fertilised by a different sperm. Two embryos are created. They implant separately in the uterus. Each has its own placenta
Binovular/fraternal

Development of the embryo and foetus

The outer cells of the embryo link with the mother's blood supply, forming the baby's support system – the umbilical cord, amnion and placenta (the baby will receive nutrients through the placenta from the mother).

Amniotic fluid

The amniotic fluid is the protective liquid which is contained in an amniotic sac. This provides a cushion for the foetus, helping to keep it safe from bumps and injury. It also contains nutrients, hormones and antibodies which are important for the baby. At first, the fluid consists of water from the mother's body. As the foetus grows, it is also made up of the baby's urine.

Umbilical cord

The umbilical cord is a tube that connects the foetus to the mother during pregnancy. It has a vein that takes food and oxygen from the placenta to the baby, and two arteries that carry waste from the baby back to the placenta.

Placenta

The placenta is an organ that develops in the mother's uterus during pregnancy. It is attached to the wall of the uterus. The baby's umbilical cord is attached to the placenta. The placenta supplies **oxygen** and **nutrients** to the baby and removes **waste products** and **carbon dioxide** from the baby's blood.

There is a point in the menstrual cycle which either ends with conception and reproduction (a baby being born), or with the woman's body flushing out an unfertilised egg.

Ovulation

This occurs when an egg is released from one of the ovaries and travels along the Fallopian tube, around day 14 of the menstrual cycle. It is moved along by the cilia, and a jelly-like coating stops it from sticking to the sides of the tubes.

Conception/fertilisation

This occurs when a sperm penetrates an egg following ejaculation of sperm from the penis into the vagina. The sperm passes through the cervix and uterus, meets the egg in the Fallopian tubes and loses its tail, which is no longer needed. The egg and sperm then fuse as one cell. The fertilised egg continues along the Fallopian tubes. Between four and five days later, there is a mass of around 16 cells. This forms a ball of tissue (the blastocyst).

Implantation

After around another seven days, the fertilised egg arrives in the uterus and implants itself in the enriched lining. Once it is attached firmly, conception has been achieved and the egg is called an embryo.

Common causes of infertility

Failure to ovulate

Blocked fallopian tubes

Thick cervical mucus

Low sperm count

Poor sperm motility/shape

Cancer treatment

Common treatments for infertility

Drugs to control ovulation

IVF

ICSI

Surgery to repair blocked fallopian tubes

Embryo/egg/sperm donation