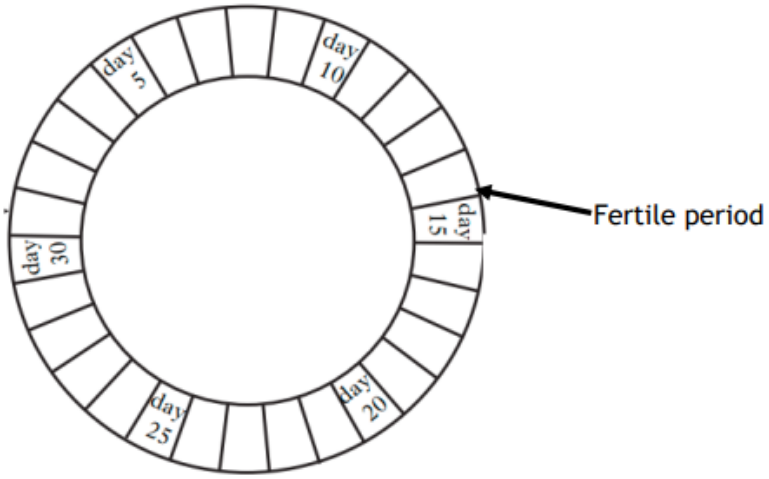
Fertility

Continuous fertility.

Men always produce sperm in their testes throughout the month.

Cyclical fertility

Women are only fertile for a **few days around day 14 (ovulation)** each menstrual Cycle. This is termed the fertile period.



Signs of Fertile period

1. A woman's body temperature rises by around 0·5°C after ovulation

2. Cervical mucus becomes thin and watery

Treating Infertility

1. **Artificial insemination**

   Artificial injection of sperm into the vagina/uterus.

   Several semen samples are collected **over time**.

1. Male has a **low** sperm count.
2. Use of a **semen donor** if male sterile

2. **Ovulation Drugs**

   Stimulate ovulation if a woman is not ovulating/ovulating irregularly.

1. Ovulation drugs Type 1

   Prevent the **negative feedback** effect of **oestrogen** on **FSH** secretion.

2. Ovulation drugs Type 2

   Mimic the action of **FSH and LH**.

   Risk of Super ovulation

   When **multiple mature ova** are released at the same time.

   This is desirable during **IVF programmes** to collect multiple eggs but NOT when couples are trying to conceive naturally using ovulation drugs.

   Risk of Ovulation drugs

   Increased likelihood of **super ovulation** resulting in **multiple births.**

ICSI used when

1. **Defective** Mature sperm
2. **Low** sperm count

Treating Infertility

In vitro fertilisation (IVF) Stages

1. **Surgical removal of eggs** from ovaries after **hormone stimulation**.
2. Eggs are **mixed** with sperm in a **culture dish**.
3. The **fertilised eggs** (zygotes) are incubated until they have formed at least **eight** cells.
4. **Uterine implantation** of zygotes.

Intra-cytoplasmic sperm injection (ICSI)

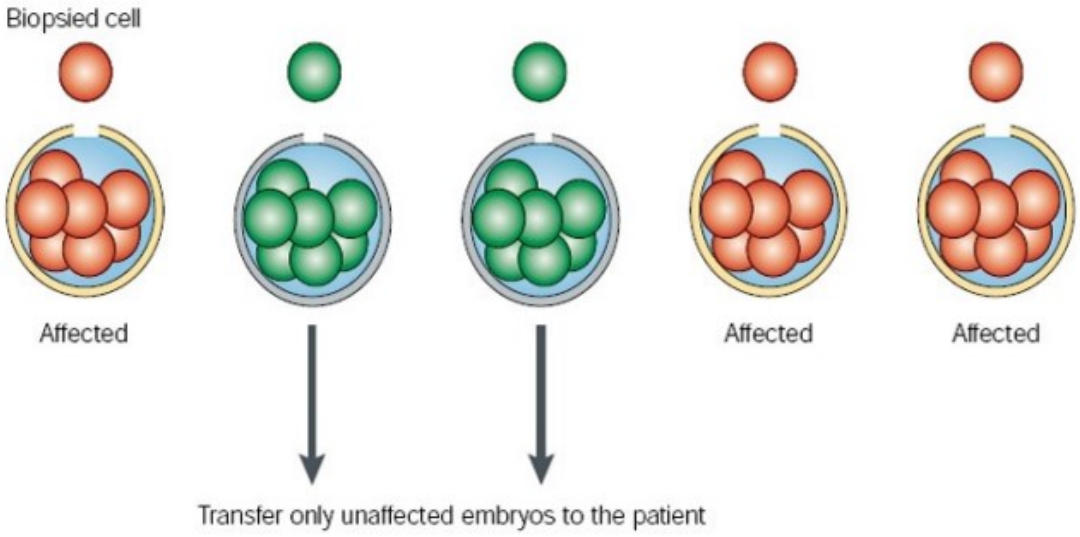
The **head** of the **sperm** is drawn into a needle and **injected directly** into the **egg** to achieve **fertilisation**.

Genetic Disease & IVF

Individuals with family histories of genetic disease may use **IVF to enable PGD** following incubation of zygotes **prior** to uterine implantation.

Pre implantation Genetic diagnosis (PGD)

Screening of zygotes prior to uterine implantation to detect **single gene disorders/ chromosome abnormalities**



Physical/Chemical methods of Contraception

Physical methods of contraception.

Prevent sperm entering uterus,

1. **Barriers**: to prevent sperm meeting egg and resulting in fertilisation.

   Males: condoms

   Females: femidoms OR cap/diaphragm

2. **Intra-uterine devices** (coil)

   Placed in the uterus and **reduce the motility** of the sperm.

3. **Sterilisation procedures**

   Males: **Vasectomy** by cutting/closing **Vas Deferens** in men preventing sperm leaving male body.

   Females: **Tubal ligation** by cutting/closing **oviducts** prevent egg implanting in uterus.

Chemical methods of Contraception

1. Oral contraceptive pill/mini pill

2. Emergency hormone contraceptive pill (morning after pill)

(i) **Oral contraceptive pill**

Contains **synthetic oestrogen & progesterone**

Mimics the natural negative feedback response preventing the release of FSH/LH from the pituitary gland.

(ii) **Mini Pill**

Contains **progesterone only**

Causes **thickening of the cervical mucus** to prevent sperm entry.

(iii) **Emergency hormonal contraceptive pills** (morning after pill)

These drugs deliberately prevent or delay ovulation after unprotected sex.

Effective up to **72 hours** OR **120 hours** after dependent on type.