Infertility in women

Summary

- Around 30 per cent of fertility problems originate in the woman.
- Female fertility problems include irregular ovulation, blockages in the fallopian tubes, and abnormalities of the uterus such as fibroids and endometriosis.
- Treatment options include surgery, hormone therapy and IVF.

New life begins when an egg from a woman is fertilised by sperm from a man. Ovulation occurs around 14 days before the start of the menstrual period, when an egg (ovum) is released from one of the ovaries.

The egg is swept into the nearby fallopian tube and ushered towards the uterus (womb). If the egg is fertilised on its journey, it lodges in the womb lining (endometrium). Pregnancy then begins.

The odds of a young fertile couple conceiving by having sexual intercourse around the time of ovulation are approximately one in five every month. A couple isn’t considered to have fertility problems until they have tried and failed to conceive for one year.

Approximately 15 per cent of couples experience fertility difficulties. In most cases, the couple can be helped with assisted reproductive technologies.

Around 30 per cent of fertility problems in couples originate in the woman. Another 30 per cent originate in the man and 30 per cent is found in both partners. No cause is found in around one in 10 couples investigated for infertility. This is called ‘unexplained’ or ‘idiopathic’ infertility.

Because people have children later in life than they used to, age-related infertility affects an increasing number of women and men. Read more about age and reproductive outcomes on Your Fertility website.

Lifestyle factors also affect fertility. Read more on Weight and reproductive outcomes, and Effects of caffeine, alcohol and smoking on reproductive outcomes on Your Fertility website.

Causes of female infertility

Female infertility can be caused by:

- ovulation problems
- polycystic ovary syndrome
- problems with the fallopian tubes
- problems with the uterus
- endometriosis.

Ovulation problems causing female infertility

The menstrual cycle functions by several glands and their hormones working in harmony. For ovulation to occur, a part of the brain called the hypothalamus prompts the nearby pituitary gland to secrete hormones that trigger the ovaries to ripen eggs. Irregular or absent periods indicate that ovulation may be irregular or absent too.

The age of the woman is a significant fertility factor. The chance of pregnancy for a woman aged 40 years and over is only five per cent per menstrual cycle. Ageing eggs are thought to be the cause.

A woman is born with her entire egg supply and, as time passes, these eggs become less viable. Other difficulties for the older woman include increased risk of miscarriage and genetic abnormalities in the unborn baby.
Polycystic ovary syndrome causing female infertility
At ovulation, the ovaries produce small cysts or blisters called follicles. Typically, one follicle ripens to release an egg. In polycystic ovary syndrome, the follicles fail to ripen, forming little cysts at the periphery of the ovary and often releasing male sex hormones.

Read more on polycystic ovary syndrome on our website and on Your Fertility website.

Problems with the fallopian tubes causing female infertility
The sperm fertilises the egg on its journey down the fallopian tube. A blocked or scarred fallopian tube may impede the egg’s progress, preventing it from meeting up with sperm.

Problems with the uterus causing female infertility
The fertilised egg lodges (implants) in the lining of the uterus. Some uterine problems that can hamper implantation include:

- fibroids – non-malignant tumours inside the womb
- polyps – overgrowths of the endometrium, which can be prompted by the presence of fibroids.

Problems with the cervix causing female infertility
At the top of the vagina is the neck or entrance to the uterus, called the cervix. Ejaculated sperm must travel through the cervix to reach the uterus and fallopian tubes.

Cervical mucus around the time of ovulation is normally thin and watery so that sperm can swim through it. However, thick or poor quality cervical mucus can hinder the sperm.

Endometriosis causing female infertility
Endometriosis is a condition in which cells from the lining of the uterus (the endometrium) migrate to other parts of the pelvis. It can damage the fallopian tubes and the ovaries, and significantly alter the movement of the egg and sperm.

Even if the fallopian tubes and ovaries are not damaged, endometriosis can affect the movement of sperm, egg pick-up by the tube, egg fertilisation, embryo growth and implantation.

Diagnosis of female infertility
Investigating suspected infertility requires tests for both the woman and her partner. Tests for the woman may include:

- physical examination – including medical history
- blood tests – to check for the presence of ovulation hormones
- laparoscopy – a ‘keyhole’ surgical procedure in which an instrument is inserted though a small incision in the abdomen so that the reproductive organs can be examined
- ultrasound scans – to check for the presence of fibroids.

Her male partner’s semen may also be analysed to make sure that he is fertile.

Treatment for female infertility
Treatment options for female infertility depend on the cause, but may include:

- surgery
- ovulation induction (using hormone therapy)
- assisted reproductive technologies (ART) including in vitro fertilisation (IVF).

Surgery for female infertility
Female infertility can be caused by obstructions within the reproductive organs. Some of the problems that can be addressed by surgery include:

- fibroids – non-malignant tumours growing inside the uterus
- polyps – overgrowths of the uterine lining (endometrium)
- endometriosis – the growth of endometrial tissue outside the uterus, which can block the fallopian tubes
- abnormalities of the uterus – such as a uterine septum
- ovarian cysts – which can be drained or removed.

These days, most reproductive surgery is performed by 'keyhole surgery' using an operative laparoscope (through the abdomen) or an operative hysteroscope (through the cervix and into the uterus). Occasionally, this may not be possible for a variety of reasons and open surgery (a surgical incision in the abdomen) may be necessary.

**Ovulation induction for female infertility**
Irregular or absent periods may indicate that ovulation is also irregular or absent. However, even women with regular periods may skip ovulation every now and then.

Ovulation can be induced with a range of medications in tablet or injectable forms. Oral medications such as clomiphene citrate (Clomid, Serophene) can dull the response of receptors in the brain to naturally occurring oestrogens in the body. This leads to an increase in the release of hormones from the brain which stimulate ovulation.

Injectable forms of synthetic gonadotrophins, the hormones released by the pituitary gland in the brain that prompt the ovaries to release an egg, can also be used to stimulate ovulation. The response to these medications can be unpredictable and close monitoring of the women is necessary while on them.

Sometimes, the response to synthesised gonadotrophins may be excessive, leading to a condition known as ovarian hyperstimulation syndrome (OHSS). The symptoms include oedema (fluid retention), abdominal pain and bloating. Regular blood tests are used to help fine-tune the dosage and minimise the risk of OHSS and multiple pregnancy occurring.

**Assisted reproductive technologies (ART) including in vitro fertilisation (IVF)**
Assisted reproductive technologies (ART) is the term used for procedures that involve retrieval of eggs from the ovaries and includes. It includes in vitro fertilisation (IVF) and intracytoplasmic sperm injection (ICSI), which is used when there is a male cause of infertility. ART involves hormone stimulation to make the ovaries produce 10–15 eggs rather than the one which normally matures every month. When the eggs are ‘ready’ they are retrieved in an ultrasound-guided procedure.

In the case of IVF the collected eggs are then mixed with sperm from the male partner or a donor, and in the case of ICSI each egg is injected with a single sperm. Two to five days later an embryo is transferred to the woman’s uterus using a thin tube that is inserted through the cervix. If there are more embryos than needed, these can be frozen for future use.


**Risks of assisted reproductive technologies**
Health problems associated with the use of assisted reproductive technologies include:
- ovarian hyperstimulation syndrome (OHSS)
- an increased incidence of multiple pregnancies
- an increased risk of premature labour and low birth weight
- an increased risk of caesarean delivery.


**Pregnancy isn't always possible**
Despite the sophistication of assisted reproductive technologies, they cannot guarantee pregnancy. Success depends on a range of factors, including the reasons for the woman's infertility, her age and the type of technology used.

**Where to get help**
