

Male Fertility

Male factor infertility affects around 1/3 of all couples having trouble conceiving. One in 20 men in Australia experience some form of infertility. Fortunately, most causes are readily diagnosed and can be treated or overcome to help a couple have a baby.

Male reproductive system

Men produce new sperm every day of their life. After sperm is produced, it travels along a long tubular system maturing along the way, before exiting via the ductal structures called vas deferens and then out the urethra as part of the ejaculate. The entire process of sperm production and maturation takes just under 3 months.

There are four key components necessary to achieve satisfactory sperm production and a pregnancy:

- Normal hormonal stimulation from the pituitary gland
- Normal sperm production in the tubules of the testes
- An unobstructed sperm pathway
- Effective natural sperm delivery

Diagnosis

A semen analysis is the most important test in the evaluation of a male's fertility. The test provides an accurate measurement of the number of sperm [stated in millions per ml], the motility of the sperm, their size and shape as well as the volume and consistency of the sample.

A normal semen analysis result will show a sperm count of at least 15 million sperm per ml, with at least 40% of the sperm showing forward progressive movement. A minimum of 4% of the sperm should be normally formed and anti-sperm antibodies should affect less than 50% of the sperm.

Common causes

Causes of male infertility include lifestyle factors, problems with sperm production and/or quality, sperm antibodies, chromosome and DNA abnormalities, hormonal problems and erectile and ejaculation difficulties.

Effects of age & lifestyle

While the effect of age on a man's fertility is not as significant as it is with women, there is a decline in the quality of sperm after the age of 45. After this age, men have higher rates of fertility complications as their sperm volume, motility and morphology (shape) declines and the likelihood of damage or breaks to the sperm DNA increases.

Sperm antibodies

It has been estimated that as many one in 16 men produce antibodies to their own sperm. These antibodies can interfere with sperm motility and fertilisation. A blood test, in conjunction with a semen analysis, can confirm the presence of sperm antibodies.

Sperm DNA fragmentation

The genetic material contained with the nuclear part of the head of a sperm is known as chromatin. The integrity of the chromatin is important and the amount of that chromatin that is damaged is critical as affected sperm may not be able to fertilise eggs. The sperm of most men have at least a small component of their chromatin damaged in some way. This damage can be detected using a test called Sperm Chromatin Structure Assay (SCSA).

Treatments

There are not many treatments that will improve the quality of the sperm themselves. However there are a number of treatments available to help a couple make the best of sperm quality as it is, and achieve a pregnancy including:

- Lifestyle changes
- Simple drug treatments such as Gonadotrophin to improve sperm numbers
- Intrauterine insemination if sperm abnormalities are not too severe
- In-vitro fertilisation with Intra-cytoplasmic Sperm Injection (ICSI) for severe sperm abnormalities which involves injecting a single sperm into each egg to achieve fertilisation
- Micro-epididymal sperm aspiration or (MESA) to surgically retrieve sperm from the epididymis if there are no sperm in the ejaculate or from the testes themselves with Testicular Sperm Aspiration (TESA)
- Digital High Magnification for high levels of DNA fragmentation to view and select the healthiest sperm.
- Donor insemination

