

This fact sheet explains the process of providing a semen sample at the clinic, and outlines the various aspects of semen that are examined as part of assessing your fertility and developing a treatment plan.

THE FACTS ABOUT:

Semen analysis

Why do I need a semen analysis?

In around 40% of couples having trouble conceiving, the man's fertility is the main factor or a contributory factor. Checking your semen tells us whether the various features fall within the normal ranges and if not, what treatment may be needed to improve your chances of conceiving. Like blood tests, semen analysis results fall on a spectrum for the various features and it's not usually a simple fertile-infertile result.

Producing your semen sample

Preparing to produce a sample

Before you produce a sample of semen for analysis, you are asked not to have sexual intercourse or masturbate for between two and seven days. This ensures that the tests are as accurate as possible. Shorter or longer periods without ejaculation can cause unreliable results.

Your sample also needs to be produced at a time when you have not suffered from an illness with a fever within three months and have not been exposed to anything toxic to the gonads (for instance radiotherapy or chemotherapy). Please ask us if you are unsure whether a treatment or illness may affect your semen analysis results.

Producing a semen sample

In order to get accurate results a laboratory must have a totally fresh sample of semen to assess. Ideally the sample should be presented to the lab within an hour of production.

This means that if we are checking your semen parameters or if you are producing a sample for use in treatment, we prefer you to produce a sample on site at our clinic.

Samples are usually produced by masturbation or very occasionally by intercourse using a special condom without a spermicide (provided by the clinic). At Life Fertility Clinic, you will be given a private room and unhurried time to produce your sample. Most men find the thought of this a little embarrassing or uncomfortable but our staff will do their best to put you at ease.

In some circumstances we can make an appointment for you to produce a sample at home and bring it into the clinic, provided this can be done within an hour of producing. We will need to give you a particular type of sample pot, specimen bag and some paperwork in advance if you wish to do this.

The same applies if your doctor has requested that you have a semen analysis through an external pathology laboratory. We can provide you with contact details for your nearest lab and a sample pot and specimen bag.

Second sample

Sometimes we may recommend that your semen is checked on two separate occasions but if your first sample is normal, this may not be necessary.

What is assessed in a semen analysis?

A semen analysis looks for abnormalities in the number of sperm present in the ejaculate, the proportion of motile (swimming) sperm and the proportion of 'morphologically normal' sperm (this refers to the shape of the sperm). The World Health Organisation (WHO) redefined normal values for human ejaculate in 2010 as outlined below.

- **Volume:** The normal ejaculate volume is between 1.5 and 6 ml (about a teaspoonful).
- **Number of sperm present:** A normal specimen contains more than 15 million sperm per millilitre of ejaculate.
- **Motility:** This describes the proportion of the sperm in the sample that are swimming. 'Progression' describes how well the motile sperm are moving. The normal proportion of 'progressively motile' sperm is more than 32%.
- **Morphology:** Sperm morphology refers to the shape of sperm. In IVF programs, strict criteria are often used to measure sperm morphology. Men with fewer than 4% normal forms usually fail to fertilise without laboratory help.
- **Anti-sperm antibodies:** These can cause sperm to stick together; reduce their motility or their ability to fertilise the egg so the sample is tested to see if they are bound to the sperm.

Possible results and what they mean

The fertility doctor assesses the results of your semen analysis and also looks at the woman's results and your joint history of trying to conceive. From this, the doctor will make a diagnosis and recommend treatment.

The male factors that may be identified in your semen analysis are shown below. It is not uncommon for more than one deviation in semen characteristics to be seen in the same semen analysis.

Low sperm count (oligozoospermia)

When the number of sperm in your ejaculate is low, the chances of a sperm reaching and fertilising the egg following intercourse is reduced.

In cases where the count is only slightly reduced, intrauterine insemination (IUI) may be an appropriate treatment (see *separate fact sheet*). This simply means the sperm are concentrated before being placed directly into the uterus.

More commonly, IVF (see *separate fact sheet*) may be recommended as fewer sperm are required and fertilisation can be achieved in the laboratory.

In more severe cases, intracytoplasmic sperm injection (ICSI), may be recommended (see *separate fact sheet*). This is an IVF cycle where the sperm is injected directly into the egg in the laboratory.

Reduced motility and/or impaired progression (asthenozoospermia)

When the number of actively swimming sperm in the ejaculate is very low, or if the way the sperm are swimming is not normal, the chances of a sperm reaching and fertilising the egg following intercourse may be reduced.

When it is *just the number* of motile sperm that is low, IUI or IVF may be recommended as the motile sperm can be extracted from the ejaculate and concentrated in the laboratory. However, if the *progressive motility* is severely impaired, the chances of fertilisation through IVF may also be low, so ICSI may be recommended.

Raised levels of abnormal sperm (teratozoospermia)

Abnormal sperm have a reduced capacity to fertilise eggs or form viable embryos. When the number of normal sperm in the ejaculate is below normal, the chance that a normal sperm will reach and fertilise the egg may also be reduced.

In cases of mild teratozoospermia, IUI or IVF may be the best treatment because we can prepare a sample enhanced in the laboratory to maximise the number of normal sperm.

If the number of normal sperm is very low, we may recommend ICSI because the embryologist can examine individual sperm and identify the best sperm for injection into the egg.

No sperm present in the ejaculate (azoospermia)

There are various reasons why there may not be sperm in your ejaculate at all.

Azoospermia can be 'obstructive' which means that it is caused by a blockage in the route between the site of sperm production (the testes) and ejaculation. In some cases, the cause of the blockage may be known, for example a previous vasectomy or failed vasectomy reversal.

Azoospermia can sometimes be 'non obstructive', which means that it is caused by the testes failing (or partly failing) to produce sperm. If there is no sperm present in your ejaculate, the doctor will talk to you in more detail about possible causes and treatment options.

In most cases of obstructive azoospermia, it is possible for a urologist or fertility specialist to surgically extract sperm from the epididymis (PESA) or the testes (TESA) and use the sperm to achieve fertilisation in the laboratory through ICSI. See separate fact sheets about PESA / TESA and ICSI.

If there is no obvious obstruction, an exploratory (or diagnostic) Testicular Sperm Aspiration (TESA) may be carried out to confirm if sperm is being produced.

Sperm ejaculated into the bladder (retrograde ejaculation)

Retrograde ejaculation is often seen in patients with diabetes, after certain types of prostate surgery, after lymph node removal or after spinal cord injuries. If the laboratory suspects this, we will analyse your urine immediately after ejaculation. If sperm are present in the urine, the specimen is checked for concentration, motility and morphology of the sperm. Sperm can then be retrieved and used for assisted reproduction.

Significant anti-sperm antibodies found (immunological infertility)

Anti-sperm antibodies are large protein molecules that bind to sperm in the ejaculates of some men. These antibodies can have quite varied effects on fertility and in some men have no effect at all. They can be caused by testicular trauma, genital infections and previous vasectomy but in most cases their cause is unknown.

In some cases, the antibodies cause the sperm to stick to one another and so reduce the number of free-swimming sperm available to fertilise the egg. Sometimes the antibodies seem to slow the sperm's ability to swim and, in other cases, they appear to directly interfere with the sperm's ability to bind to the egg. Depending on the level of antibodies found in your semen analysis and their effects, we may recommend IUI, IVF or ICSI.

What causes abnormalities in semen?

Abnormalities in the semen are usually due to poor sperm production in the testes but the cause of this is usually unknown. Occasionally abnormalities may be associated with previous infections or illnesses, surgery, smoking or excessive drinking. Also certain drugs, radiation and radiotherapy can affect sperm production. The presence of a varicocele (a condition of increased blood flow around the testicles due to dilated veins) may cause a temperature rise around the testicles, which can affect sperm production and motility.

Complete absence of sperm in the ejaculate as a result of testicular failure may be the result of a chromosomal disorder or previous infections such as the mumps. It can also be associated with problematic descent of the testes into the scrotum.

Is there anything I can do to improve the quality of my semen?

If it is possible that below-normal semen parameters are related to an illness or infection a few months before the semen analysis, then it is worthwhile waiting and repeating the analysis three months later as it may show an improved result. This is about the amount of time that sperm take to be produced.

You may be able to have a positive effect on sperm production with lifestyle changes such as reducing smoking, drinking and recreational drugs. Dietary changes can also have a positive effect on semen.

These modifications are however unlikely to entirely change the characteristics of your semen sample, but will tend to improve them and we find too that the effects vary between men. Your specialist can recommend changes that may be useful for you.

Contact Life Fertility Clinic

The friendly and professional team at Life Fertility Clinic are happy to answer any other questions you may have about semen analysis.