TEST

Semen analysis

A semen analysis measures sperm and semen features that can affect fertility.

WHAT IT MEASURES
Sperm number, movement, shape, and semen volume

SAMPLE
Semen

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually 15 to 30 minutes for collection

RESULTS IN
Usually several days; laboratory turnaround times differ

USED FOR
Fertility evaluation and monitoring after vasectomy

MAIN LIMITATION
Semen quality naturally changes between samples

Overview

A semen analysis is a laboratory test of semen, the fluid released during ejaculation. It is most often used when assessing fertility or checking whether a vasectomy has worked.

The laboratory usually measures:

Some laboratories also report inflammatory cells or immature sperm cells.

This test gives information about one part of fertility. It cannot confirm by itself whether you can or cannot cause a pregnancy.

- Semen volume
- Sperm concentration, meaning sperm per amount of semen
- Total sperm count
- Motility, meaning how well sperm move
- Morphology, meaning sperm shape
- Other features, such as acidity, thickness, and time taken to become liquid

Why the test is ordered

A semen analysis may be ordered when a pregnancy has not happened after a period of regular sex without contraception. Fertility assessment usually considers both partners at the same time because pregnancy depends on several factors.

The test may also be used:

A post-vasectomy semen analysis has a specific purpose and is interpreted differently from a fertility semen analysis.

- After a vasectomy, to check whether sperm remain in the semen
- After surgery or treatment affecting the testicles or reproductive tract
- When there is concern about ejaculation, testicular function, or sperm production
- To help plan fertility treatment
- To monitor recovery after an illness or treatment that may affect sperm

Who should have the test

You may be offered this test as part of a fertility assessment. Testing may be considered sooner when there are known risk factors, such as previous testicular surgery, undescended testicles, cancer treatment, sexual difficulties, or medicines that can reduce sperm production.

A semen analysis may also be appropriate after vasectomy. Follow the timing and collection instructions from the service that performed the procedure. Do not stop using contraception until that service confirms that it is safe to do so.

The test is not a general screening test for cancer, sexually transmitted infections, or overall health.

How to prepare

Follow the laboratory's instructions because collection requirements can differ. For a fertility semen analysis, laboratories commonly ask you not to ejaculate for 2 to 7 days before collecting the sample. A shorter or longer interval can change the result.

You do not need to fast. You can usually eat, drink water, and take your regular medicines. Do not stop prescribed medicine unless the clinician responsible for it tells you to.

Tell the laboratory or requesting clinician about:

Wash and dry your hands and penis before collection if instructed. Do not use ordinary lubricant, saliva, or a standard condom. These can damage sperm or contaminate the sample. A laboratory may provide an approved lubricant or special collection condom if needed.

- Fever or significant illness during the previous few months
- Testosterone, anabolic steroids, or other hormone treatment
- Chemotherapy or radiation treatment
- Recent reproductive surgery
- Any difficulty collecting a complete sample

What happens during the test

You will usually collect semen by masturbating into a clean, wide-mouthed container supplied by the laboratory. Collection may take place in a private room at the clinic or at home if the laboratory allows it.

Try to collect the entire ejaculate. The first portion often contains the highest concentration of sperm. If any is missed, tell the laboratory rather than hiding it; the result can still be considered in context or the test can be repeated.

For a home sample, record the collection time. Keep the container closed and close to body temperature. Deliver it within the laboratory's stated time, often within about one hour. Do not refrigerate or heat it unless specifically instructed.

At the laboratory, the sample is allowed to become liquid and is examined under a microscope. Automated equipment may perform some measurements, while trained staff assess others.

Understanding your results

Your report may show semen volume, sperm concentration, total sperm number, movement, and shape. It may also describe how quickly the semen became liquid and whether other cells were seen.

The World Health Organization publishes reference values based on semen samples from men whose partners became pregnant within a defined period. These values are not a sharp dividing line between fertile and infertile. Results below a reference value do not prove infertility, and results within the reference range do not guarantee pregnancy.

Reference ranges and interpretation vary by laboratory, age, sex, pregnancy status, medicines,

and clinical context. Pregnancy status does not apply to the person providing semen, while laboratory method, age, medicines, collection quality, and the reason for testing are particularly relevant here.

Terms you might see include:

These terms describe laboratory findings. They are not, on their own, a complete diagnosis.

After vasectomy, the main question is whether sperm are absent or whether any remaining sperm meet the service's clearance rules.

- Oligozoospermia: a lower sperm concentration than the laboratory reference
- Asthenozoospermia: a lower proportion of moving sperm
- Teratozoospermia: a lower proportion of sperm with the expected shape
- Azoospermia: no sperm seen in the tested sample

What affects the results

Semen results can change substantially without anything being wrong with the laboratory. Important influences include:

Smoking, heavy alcohol use, cannabis, repeated heat exposure, and other health or lifestyle factors may affect semen quality over time. They do not explain every unexpected result.

- Abstinence time: Recent ejaculation can lower semen volume or sperm count. A long interval may increase the count but reduce movement
- Incomplete collection: Missing the first part can make sperm numbers appear lower
- Transport delay or temperature: Excessive heat, cold, or delayed delivery can reduce measured movement
- Lubricants and condoms: Many ordinary products interfere with sperm
- Fever or significant illness: Sperm production and movement may be affected for several weeks or months
- Medicines and hormones: Testosterone and anabolic steroids can greatly suppress sperm production. Chemotherapy and some other medicines may also affect results
- Recent surgery or treatment: Procedures involving the reproductive tract can change sperm delivery
- Laboratory technique: Morphology assessment involves human judgment and can differ between laboratories

Accuracy and limitations

A semen analysis is useful, but one sample is only a snapshot. Natural variation means a single test can appear abnormal when later samples are within range. It can also miss an intermittent problem.

The test measures sperm features associated with fertility, but it does not directly test whether sperm can fertilize an egg. It also cannot fully assess sexual function, blocked reproductive ducts, hormone problems, genetic conditions, or fertility factors affecting a partner.

Sperm shape is especially difficult to assess consistently. Results may differ between observers or laboratories. For this reason, one isolated morphology result should not usually be interpreted alone.

When a fertility result is unexpected, another semen analysis is often more informative than drawing conclusions from one sample. Depending on the findings and history, blood hormone tests, examination, ultrasound, urine testing, or genetic tests may be more suitable for answering a specific question. Sperm DNA fragmentation testing is a separate test and is not a replacement for standard semen analysis.

Risks and complications

Producing a semen sample has no significant physical risk for most people. Some people find collection difficult, embarrassing, or emotionally stressful, especially in an unfamiliar setting.

There are no radiation, needle, or anaesthetic risks.

What happens next

If the result is within the laboratory's expected range, it will be considered alongside how long pregnancy has been attempted and any findings from both partners. A normal result does not rule out every fertility problem.

If one or more measurements are outside the reference range, routine follow-up may include repeating the test. The timing may allow for natural variation and the several-month process of producing new sperm. Further assessment may review medicines, hormones, previous illness, testicular health, ejaculation, or possible blockage.

After vasectomy, continue contraception until you receive formal clearance. Ejaculations are

needed to clear remaining sperm, but the required timing and number of samples follow the local service's protocol.

An unusual semen result is not usually an emergency. Seek urgent medical care for sudden severe testicular pain, particularly with swelling or nausea, because this can have causes that need prompt treatment. Fever with marked scrotal pain or swelling also needs urgent assessment.

Common questions

Can I drink coffee before a semen analysis?

Usually, yes. Fasting is not needed, and one cup of coffee is unlikely to invalidate the sample. Follow any specific laboratory instructions.

Can I exercise beforehand?

Normal exercise is generally acceptable. Avoid activities that prevent you from following the collection time or transport instructions. Tell the clinician if you have had significant heat exposure, illness, or extreme training.

Does the time of day matter?

Usually less than abstinence time, complete collection, and prompt delivery. Use the appointment or delivery window given by the laboratory.

How long should I avoid sex or masturbation?

For fertility testing, laboratories commonly request 2 to 7 days without ejaculation. Post-vasectomy instructions may be different.

Can I collect the sample at home?

Often, but not every laboratory accepts home collection. Confirm first, use the supplied container, and follow the transport time and temperature instructions.

What if I cannot produce a sample?

Tell the laboratory. They may arrange another appointment, discuss an approved collection condom, or suggest another practical option. Do not use an ordinary condom or lubricant unless approved.

Sources

- World Health Organization. WHO Laboratory Manual for the Examination and Processing of Human Semen , 6th edition, 2021
- American Urological Association and American Society for Reproductive Medicine. Diagnosis and Treatment of Infertility in Men: AUA/ASRM Guideline , 2020, amended 2024
- European Association of Urology. Guidelines on Sexual and Reproductive Health: Male Infertility , 2025
- National Institute for Health and Care Excellence. Fertility Problems: Assessment and Treatment , Clinical Guideline CG156
- American Urological Association. Vasectomy Guideline , published 2012, amended 2015