HEALTH BASICS

# Testes

The testes are two organs in the scrotum that make sperm and testosterone.

**WHAT IT IS**
Two oval organs that make sperm and testosterone

**WHERE IT COMES UP**
Genital exams, fertility testing, hormone testing, pain or lumps

**WHY IT MATTERS**
Supports fertility, sexual development, bone health, and muscle mass

**WHAT IT IS NOT**
Not a disease or diagnosis

**WHO TO ASK**
Primary care clinician, urologist, or sexual health service

**HOW IT IS CHECKED**
Scrotal exam, ultrasound, semen analysis, or blood tests

## Overview

The testes, also called testicles, are part of the reproductive and hormone systems. "Testis" means one; "testes" means more than one. Most people born with typical male anatomy have two testes.

The testes usually sit inside the scrotum, the pouch of skin below the penis. It is common for one testis to hang slightly lower than the other. The two sides may also differ a little in size.

Behind each testis is a soft, coiled structure called the epididymis. It stores and carries sperm. The epididymis can feel like a ridge or small tube and may be mistaken for a lump. Blood vessels, nerves, and the sperm-carrying tube travel above each testis in the spermatic cord.

Some people have one testis, testes that did not move into the scrotum before birth, or anatomy changed by surgery, injury, hormone treatment, or cancer care. These differences do not define a person's gender or sexual orientation.

## How it works

The testes have two main jobs: making sperm and producing hormones.

Sperm develop inside many tiny, tightly coiled tubes called seminiferous tubules. Support cells within these tubes help immature sperm develop. The process begins around puberty and is controlled by hormones from the brain and pituitary gland, a small gland beneath the brain.

Newly formed sperm move into the epididymis, where they mature and are stored. During ejaculation, sperm travel through tubes called the vas deferens. Fluid from other reproductive glands mixes with them to form semen.

The testes also make testosterone. This hormone contributes to changes at puberty, including a deeper voice, facial and body hair, and growth of the penis and testes. Throughout adult life, testosterone helps support sexual function, sperm production, muscles, red blood cell production, and bone strength.

Testes work best at a temperature slightly below the body's internal temperature. The scrotum helps control this by moving the testes closer to or farther from the body. Cold temperatures, stress, touch, and physical activity can temporarily change their position.

Sperm production and testosterone production are related, but they are not the same. A person may have a typical testosterone level but reduced sperm production, or make sperm while having a hormone problem. A semen analysis and hormone blood tests answer different questions.

## Why it matters for your health

Changes involving the testes may affect fertility, meaning the ability to contribute sperm to a pregnancy. Fertility can be influenced by conditions affecting the testes, hormone signals, sperm-carrying tubes, ejaculation, or a partner's reproductive health.

Testosterone made by the testes affects more than reproduction. Persistently low production can affect sexual function, bone density, muscle mass, energy, mood, and red blood cell levels. These concerns have many possible causes, so a blood test and clinical assessment are needed rather than judging from one change alone.

One healthy testis can often make enough testosterone and sperm. However, this is not guaranteed for every person. Fertility testing may be useful before treatments that could affect both testes, such as some cancer therapies or surgery.

A vasectomy blocks the tubes that carry sperm. It does not remove the testes and is not expected to stop testosterone production. After a vasectomy, semen still contains fluid, but a follow-up semen test is needed to confirm when sperm are no longer present.

## What can go wrong

Testicular torsion happens when a testis twists around the spermatic cord and its blood supply is reduced. It usually causes sudden, severe pain on one side and may cause swelling, nausea, vomiting, or a testis sitting higher than usual. This is an emergency because prompt surgery may be needed to protect the testis.

Epididymitis is inflammation of the epididymis. Infection is a common cause, including some sexually transmitted infections and urinary bacteria. Pain and swelling often develop more gradually than with torsion, but the two conditions cannot always be told apart without an examination.

Orchitis means inflammation of a testis. It may occur with an infection and can occur alongside epididymitis.

Testicular cancer begins when cells in a testis grow abnormally. A painless lump, firm area, enlargement, or new feeling of heaviness should be checked. Many scrotal lumps are caused by something other than cancer, but examination and ultrasound can help identify the cause.

A hydrocele is fluid around a testis. A spermatocele is a fluid-filled cyst near the epididymis. A varicocele is a group of enlarged veins in the scrotum. These conditions are often non-cancerous, but they can cause swelling, discomfort, or fertility concerns.

An undescended testis has not moved fully into the scrotum. It is usually identified in infancy, although some adults may have a history of the condition. It is linked with higher risks of fertility problems and testicular cancer.

Injury can cause bruising, bleeding, or damage within the scrotum. Pain after a minor impact may settle, but severe or continuing pain and swelling need prompt assessment.

## What you can do

If your testes feel normal and you have no relevant medical history or concerns, there may be nothing specific you need to do. There is no standard population screening test for testicular cancer in people without symptoms.

It can still help to know what is usual for your body. Seek routine medical assessment if you notice a new lump, persistent swelling, a firm area, a change in size or shape, ongoing discomfort, or a feeling of heaviness. Do not try to decide by touch alone whether a lump is harmless.

A clinician may examine the scrotum while you are standing and lying down. A scrotal ultrasound uses sound waves to show the testis, epididymis, fluid, and blood flow. It does not

use radiation.

If fertility is the concern, ask whether a semen analysis is appropriate. This measures features such as sperm number and movement. Results may need to be repeated because sperm measurements can change between samples.

If hormone production is the concern, blood tests can measure testosterone and hormones that control the testes. Testosterone results must be interpreted in context, including the time the sample was collected, symptoms, medicines, and other health conditions.

Keep a record of relevant surgery, undescended testis, major injury, infection, fertility treatment, cancer treatment, or hormone treatment. This information can help a clinician choose suitable tests.

Go to an emergency department immediately for sudden, severe testicular or scrotal pain, especially with swelling, nausea, vomiting, or a testis appearing higher than usual. Do not wait to see whether it improves.

Seek prompt same-day care for significant pain or swelling that develops more gradually, fever with scrotal pain, discharge from the penis, pain when urinating, or worsening symptoms after an injury.

## Common questions

Is it normal for one testis to be lower?

Yes. One testis commonly hangs lower, which may help prevent the two from pressing against each other. A small long-standing difference is also common. A new or increasing difference should be checked.

Should both testes feel completely smooth?

The testis itself usually feels smooth and firm but not rock-hard. The softer epididymis lies along the back and upper part. Because it can be difficult to identify structures by touch, arrange an examination for any new lump or firm area.

Do testes make all semen?

No. The testes make sperm. Most semen fluid comes from glands including the seminal vesicles and prostate.

Can one testis be enough?

One healthy testis can often produce adequate testosterone and sperm. Individual results differ, so hormone blood tests or semen analysis may be useful when there is a specific concern.

Does pain always mean cancer?

No. Testicular cancer often presents as a painless change, while pain has many possible causes. Sudden severe pain still needs emergency assessment because torsion must be considered.

Does removing or losing both testes affect hormones?

Yes. Without functioning testicular tissue, the body cannot make its usual amount of testosterone. An endocrinology or urology team can assess hormone levels and discuss appropriate treatment.

## Sources

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- NHS. Testicle lumps and swellings
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