TEST

Hormone levels

Hormone level tests measure selected chemical messengers that control body functions

WHAT IT MEASURES
Amounts of selected chemical messengers in blood or other samples

SAMPLE
Usually blood; sometimes urine or saliva

FASTING NEEDED?
Sometimes, depending on the hormone and ordered protocol

HOW LONG IT TAKES
Usually 5 to 10 minutes for a blood draw

RESULTS IN
One to several days, varying by laboratory and test

USED FOR
Diagnosis and monitoring; sometimes screening

MAIN LIMITATION
Levels shift with timing, health, medicines, and body rhythms

Overview

Hormones are chemical messengers made by glands and other tissues. They travel through the blood and help control growth, metabolism, stress responses, reproduction, sleep, and fluid balance.

There is no single test called a complete hormone test. A healthcare professional must choose which hormone to measure based on the question being investigated.

Common examples include:

Most hormone levels are measured in blood. Some tests use urine collected over several hours or an entire day. Saliva is useful for certain carefully selected tests, such as some cortisol measurements, but it is not suitable for every hormone.

- Thyroid-stimulating hormone, or TSH, and thyroid hormones
- Cortisol and adrenocorticotropic hormone, or ACTH
- Testosterone, estradiol, progesterone, LH, and FSH

- Prolactin, growth hormone, and insulin-like growth factor 1
- Insulin, parathyroid hormone, and pregnancy-related hormones

Why the test is ordered

A hormone test may help investigate symptoms or physical changes that could have several causes. These include changes in menstrual periods, fertility, sexual function, growth, weight, energy, blood pressure, thirst, or temperature tolerance.

The test may also be used to:

One hormone may affect another. For example, TSH is made by the pituitary gland in the brain and signals the thyroid gland. Measuring TSH together with a thyroid hormone can provide more information than either result alone.

- Check how well a hormone-producing gland is working
- Investigate a result from another blood test or scan
- Monitor a known hormone condition
- Check the effect of treatment
- Assess hormone production after surgery or other treatment

Who should have the test

Hormone testing is most useful when there is a specific medical question. Testing many hormones without a clear reason can produce mildly unusual results that do not indicate a health problem.

A healthcare professional may arrange testing if your symptoms, medical history, examination, medicines, or another test suggest that a hormone pathway should be checked. Some people need regular testing while taking thyroid hormone, corticosteroids like prednisone or hydrocortisone , testosterone, estrogen, or other hormone-related treatments.

The appropriate tests differ by age, sex, pregnancy status, menstrual stage, and the concern being investigated. A broad commercial "hormone panel" may not include the right hormones, timing, or testing method for your situation.

How to prepare

Follow the instructions on your request form or appointment letter. Preparation is specific to the hormone being measured.

You may be asked to:

Tell the testing service about prescription medicines, non-prescription medicines, supplements, hormonal contraception, and hormone replacement. Biotin, also called vitamin B7, can interfere with some laboratory methods. It is found in some hair, skin, and nail supplements.

Do not stop a prescribed medicine or hormone treatment on your own. The timing of the dose may be part of how the result is interpreted.

- Fast overnight if the test is being combined with glucose, insulin, or other fasting tests
- Attend in the morning for hormones with strong daily rhythms
- Have the test on a particular day of your menstrual cycle
- Avoid strenuous exercise before certain measurements
- Collect every urine sample during a timed collection
- Delay a medicine until after the sample, but only when specifically instructed

What happens during the test

For a blood test, a healthcare worker places a needle into a vein, usually inside your elbow. A small amount of blood is collected into one or more tubes. The draw usually takes a few minutes.

For a urine test, you may provide one sample or collect urine over a set period, often 24 hours. Timed collections require you to follow the start, storage, and finish instructions closely.

For a saliva test, you may spit into a tube or hold a collection device in your mouth. Food, drinks, smoking, toothbrushing, or bleeding gums can affect some saliva samples, so follow the kit instructions.

Some hormone investigations use a stimulation or suppression test. You first provide a sample, then receive a medicine that should raise or lower a hormone. Further samples show how your glands respond. These appointments take longer and require separate preparation instructions.

Understanding your results

Results usually show the hormone name, your measurement, the unit used, and the laboratory's reference range. A reference range describes results commonly found in a comparison group. It is not a firm line between healthy and unhealthy.

Ranges and interpretation vary by laboratory, testing method, age, sex, pregnancy status, medicines, and clinical context. Hormones may also need different ranges for the time of day or stage of the menstrual cycle. Do not compare a result with a range found online if the units or testing method differ.

A high or low result does not identify the cause by itself. Interpretation may require related hormones. For example, a thyroid result is often assessed as a pattern involving TSH and free thyroxine, rather than as one isolated number.

Results close to a laboratory limit may be repeated. A clear change from your previous result can also matter, even if both measurements fall within the stated range.

What affects the results

Hormone production often changes naturally. A result can be accurate for the moment it was collected but still be misleading if timing and context are ignored.

Important influences include:

Rarely, antibodies in a person's blood interfere with the laboratory method. This may produce a result that does not fit with other findings.

- Time of day: Cortisol and testosterone commonly follow daily rhythms. Shift work and disrupted sleep can alter these patterns.
- Menstrual timing: Estradiol, progesterone, LH, and FSH change across the cycle.
- Pregnancy: Pregnancy changes hormone production and the proteins that carry hormones in blood.
- Age and puberty: Many reproductive, growth, and adrenal hormone levels change with age.
- Recent exercise: Strenuous activity can temporarily affect cortisol, prolactin, growth hormone, and some reproductive hormones.
- Stress, sleep, and acute illness: Pain, poor sleep, infection, and the stress of a blood draw can change some levels, especially cortisol and prolactin.

- Medicines: Corticosteroids, thyroid medicines, hormonal contraception, fertility medicines, opioids like oxycodone or morphine , and some psychiatric medicines can alter hormone production or measurement.
- Supplements: High-dose biotin can make some results appear falsely high or falsely low, depending on the laboratory method.
- Kidney or liver function: These organs help process hormones and their binding proteins. Reduced function can change measured levels.
- Binding proteins: Pregnancy, estrogen treatment, liver conditions, and some medicines alter proteins that carry hormones. This may change the total hormone result without changing the active, or "free," amount.
- Sample collection: An incomplete 24-hour urine collection, incorrect storage, or a sample taken at the wrong time can make the result unreliable.

Accuracy and limitations

Modern laboratory hormone tests are generally dependable when the correct test is performed at the correct time. However, no hormone result is always right in every situation.

A test can suggest a hormone problem when none is present. Natural fluctuation, medicines, biotin, binding proteins, or laboratory-method interference can cause this type of false result. Repeating the test using a new sample or a different method may clarify it.

A test can also miss a problem. This may happen when hormone release comes in short bursts, when the sample is collected at an unhelpful time, or when a total hormone level hides an abnormal free hormone level.

A single measurement may therefore be less useful than:

Commercial saliva panels are not interchangeable with validated laboratory tests. Saliva testing is useful for selected purposes, but it cannot reliably assess every claimed "hormone imbalance."

- Repeated measurements
- A related hormone measured at the same time
- A timed urine or saliva collection
- A stimulation or suppression test
- Imaging or genetic testing for a specific clinical question

Risks and complications

A blood draw may cause brief discomfort, a small bruise, or light-headedness. Serious complications are uncommon.

Urine and saliva collection have no significant physical risks, although timed collection can be inconvenient. Stimulation or suppression tests may have additional medicine-related risks, which should be explained before the appointment.

What happens next

Most results are discussed during routine follow-up. The next step may be no further testing, a repeat sample taken under standard conditions, related hormone measurements, or a more specific test.

Do not change or stop hormone medicine based only on a result viewed online. The dose timing, reason for treatment, symptoms, and earlier results all affect interpretation.

A laboratory may flag a result as urgent and contact the requesting service promptly. Independently of the test result, seek urgent medical help for severe weakness with fainting, confusion, repeated vomiting, or rapid deterioration. Call emergency services for loss of consciousness, severe breathing difficulty, or chest pain. These symptoms can have many causes and should not wait for routine hormone follow-up.

Common questions

Can I drink coffee before a hormone blood test?

Sometimes. Black coffee may still affect stress hormones, insulin-related testing, or a required fast. If you were told to fast, have only plain water unless your instructions say otherwise.

Does the time of day matter?

It can. Cortisol and testosterone are often tested in the morning, while other samples may need a specific evening time. Use the time written on your request or collection instructions.

Can I exercise beforehand?

Light daily activity is usually acceptable, but strenuous exercise can temporarily change several hormones. Ask whether you should avoid hard exercise the day before or morning of the test.

Do I need to stop my medicines or supplements?

Do not stop prescribed treatment unless specifically instructed. Report everything you take, including biotin, steroids, contraception, hormone replacement, and non-prescription supplements.

Does my menstrual cycle affect the result?

Yes, for several reproductive hormones. You may need testing on a particular cycle day or a set number of days after ovulation. Record the first day of your last period if asked.

Are home hormone tests accurate?

Some home collection services use accredited laboratories, but sample timing, collection quality, and test selection still matter. A result from an unvalidated saliva panel or a test taken without clinical context may be misleading.

Sources

- MedlinePlus: Thyroid Tests , US National Library of Medicine
- MedlinePlus: Cortisol Test , US National Library of Medicine
- MedlinePlus: Testosterone Levels Test , US National Library of Medicine
- FDA Safety Communication: Biotin Interference with Lab Tests , US Food and Drug Administration
- Testosterone Therapy in Men With Hypogonadism: Endocrine Society Clinical Practice Guideline , Endocrine Society, 2018
- Pitfalls in the Measurement and Interpretation of Thyroid Function Tests , Koulouri and colleagues, Best Practice & Research Clinical Endocrinology & Metabolism , 2013