

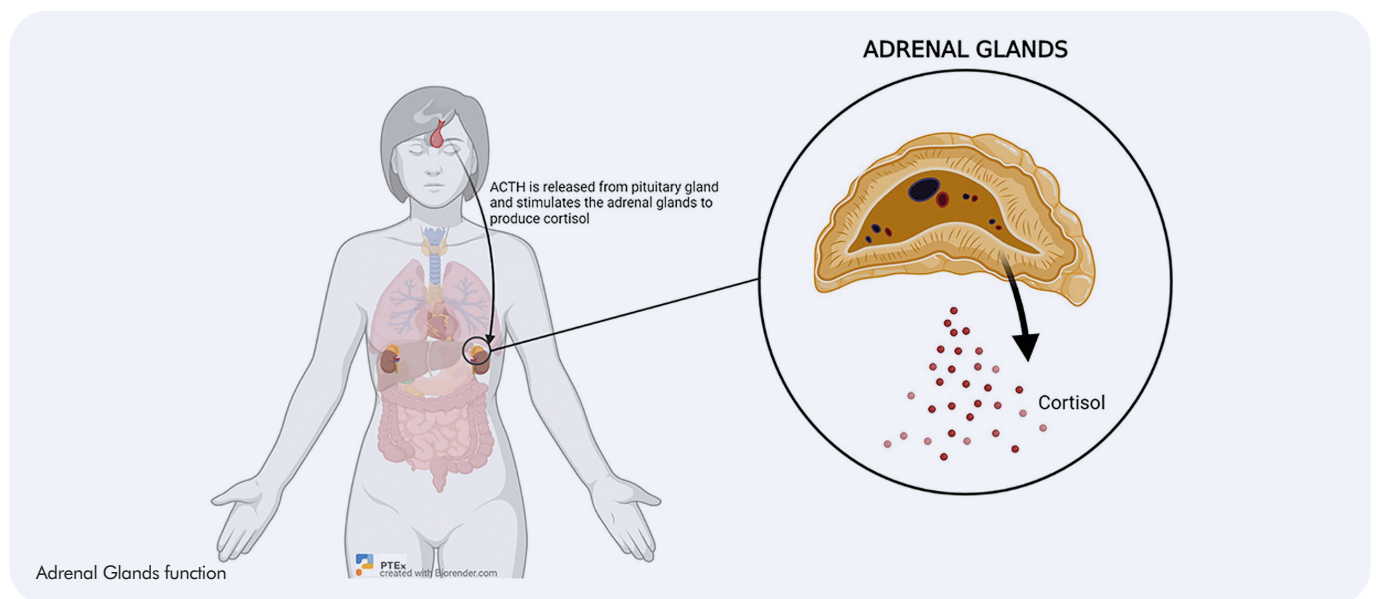


# PATHOLOGY TESTS EXPLAINED

Information about pathology tests to help everyone take control of their health and make the right decisions about their care.

## WHAT YOU SHOULD KNOW ABOUT **YOUR CORTISOL TEST**

Cortisol is a hormone that is essential to many of the body's vital processes. It helps to control energy, fight infection, regulate blood glucose, maintain blood pressure and more. It plays an important role in priming your body to respond to stress – the fight or flight response.



### Keeping your cortisol levels in balance

Cortisol is made by the adrenals, small glands that sit on top of each of your two kidneys. How much cortisol you produce is regulated by the hypothalamus, a cluster of cells located deep within your brain and responsible for keeping your body's nervous and endocrine systems in balance.

The hypothalamus sends signals to the pituitary, a small gland at the base of the brain which in turn releases ACTH – adrenocorticotropic hormone – into your bloodstream. When levels of cortisol fall the hypothalamus sends signals to the pituitary to produce ACTH and this stimulates the adrenal glands to produce more cortisol, and when cortisol levels are too high the opposite happens.

For the right amount of cortisol to be made, the hypothalamus, the pituitary and the adrenal glands must all be functioning properly.

#### High cortisol levels

If your cortisol levels are too high for a long period of time you have a condition called **Cushing's syndrome**. This could be due to a disorder in your hypothalamus, adrenal glands, a problem with your pituitary gland, a pituitary tumour or prolonged use of steroid drugs. Raised cortisol can cause rapid weight gain, high blood pressure, thinning of the bones (osteoporosis), easy bruising of the skin, muscle weakness, mood changes and high blood sugar.

#### Low cortisol levels

If you have too little cortisol may have a condition called **Addison's disease**. This could be due to a problem in the hypothalamus, pituitary, or adrenal glands. Low cortisol can cause fatigue, weight loss, low blood pressure, muscle weakness, and low blood sugar. Addison's disease is a serious condition and requires urgent medical attention.



## Measuring cortisol levels

Stress, trauma, heat, cold, infection, exercise, obesity and debilitating disease influence the amount of cortisol your body makes. In healthy people, blood and saliva cortisol levels follow a daily pattern, called the diurnal rhythm, and are very low at midnight and at their highest level just after waking.

Blood, urine or saliva samples can be used to test for high cortisol levels. Because so many things can influence cortisol levels, a single measurement is not usually enough. If your cortisol levels are not within the normal range further testing is usually required to confirm a diagnosis.

In Cushing's syndrome the diurnal rhythm pattern is usually lost, so measuring late night blood or saliva cortisol is often used if your doctor suspects this diagnosis.

Urine cortisol requires collecting all urine for a 24-hour period and provides information about total cortisol production by your adrenal glands over the whole day. High late-night blood and saliva cortisol and high 24-hour urine cortisol results suggest Cushing's syndrome.

If your doctor wants to make sure that your high levels of cortisol are not just the result of your body being stressed, you may be asked to take a dexamethasone pill the night before having a cortisol test. Dexamethasone acts like cortisol and switches off ACTH production. It helps differentiate between Cushing's syndrome and stress. Otherwise, you may be given a tube to collect your saliva late at night or asked to collect a 24-hour urine sample for cortisol measurement.

A low morning blood cortisol level does not necessarily mean you have Addison's disease and a Synacthen stimulation test is often needed to make this diagnosis. Synacthen is a synthetic form of ACTH that stimulates the adrenal gland to produce cortisol.



## What are reference intervals (reference ranges)?

Some of your results are shown in your report as a comparison against a set of numbers called reference intervals or reference ranges. This is the range of test results considered 'normal' for the general population.

If a result is outside this range, it can be flagged as high (H) or low (L). This does not necessarily mean that anything is wrong and depends on your personal situation. Your results need to be interpreted by your doctor.



### Questions to ask your doctor

- Why does this test need to be done?
- Do I need to prepare (such as fast or avoid medications) for the sample collection?
- Will an abnormal result mean I need further tests?
- How could it change the course of my care?
- What will happen next, after the test?

For more detailed information on these and many other tests go to [pathologytestsexplained.org.au](http://pathologytestsexplained.org.au)



[www.pathologytestsexplained.org.au](http://www.pathologytestsexplained.org.au)

Pathology Tests Explained is the primary national source of consumer information on pathology testing. Information is written and edited by practising pathologists and scientists, including leading experts. This ensures integrity and accuracy.

Pathology Tests Explained is managed by a consortium of medical and scientific organisations representing pathology practice in Australia. More details at: [www.pathologytestsexplained.org.au/about](http://www.pathologytestsexplained.org.au/about)



Please use this QR code to access more information

### My Health Record

You'll find a direct link to the Pathology Tests Explained website embedded in the pathology results pages of your My Health Record and the my health app.

Click on the link to find information about what your tests are investigating or measuring and what your results can tell your doctor.