MUSC
MEDICAL UNIVERSITY of SOUTH CAROLINA

Lab Tests and Results

Serum cortisol measurement

What is this test?

This test measures the amount of a hormone called cortisol in blood. This test is used to help diagnose adrenal gland dysfunction caused by conditions such as Addison's disease and Cushing's syndrome[1].

What are other names for this test?

Serum cortisol level

What are related tests?

Cortisol measurement, free, urine
Metyrapone test
Combined pituitary function test
Cortisol measurement, Saliva
Insulin tolerance test
Low dose dexamethasone suppression test
Rapid ACTH stimulation test

Why do I need this test?

Laboratory tests may be done for many reasons. Tests are performed for routine health screenings or if a disease or toxicity is suspected. Lab tests may be used to determine if a medical condition is improving or worsening. Lab tests may also be used to measure the success or failure of a medication or treatment plan. Lab tests may be ordered for professional or legal reasons. The following are possible reasons why this test may be done:

Adrenal insufficiency
Cushing's syndrome

When and how often should I have this test?

When and how often laboratory tests are done may depend on many factors. The timing of laboratory tests may rely on the results or completion of other tests, procedures, or treatments. Lab tests may be performed immediately in an emergency, or tests may be delayed as a condition is treated or monitored. A test may be suggested or become necessary when certain signs or symptoms appear.

Due to changes in the way your body naturally functions through the course of a day, lab tests may need to be performed at a certain time of day. If you have prepared for a test by changing your food or fluid intake, lab tests may be timed in accordance with those changes. Timing of tests may be based on increased and decreased levels of medications, drugs or other substances in the body.

The age or gender of the person being tested may affect when and how often a lab test is required. Chronic or progressive conditions may need ongoing monitoring through the use of lab tests. Conditions that worsen and improve may also need frequent monitoring. Certain tests may be repeated to obtain a series of results, or tests may need to be repeated to confirm or disprove results. Timing and frequency of lab tests may vary if they are performed for professional or legal reasons.

How should I get ready for the test?

Before having blood collected, tell the person drawing your blood if you are allergic to latex. Tell the healthcare worker if you have a medical condition or are using a medication or supplement that causes excessive bleeding. Also tell the healthcare worker if you have felt nauseated, lightheaded, or have fainted while having blood drawn in the past.

Tell the person doing the test if you are pregnant at the time of the test[2].

How is the test done?

When a blood sample from a vein is needed, a vein in your arm is usually selected. A tourniquet (large rubber strap)

may be secured above the vein. The skin over the vein will be cleaned, and a needle will be inserted. You will be asked to hold very still while your blood is collected. Blood will be collected into one or more tubes, and the tourniquet will be removed. When enough blood has been collected, the healthcare worker will take the needle out.

How will the test feel?

The amount of discomfort you feel will depend on many factors, including your sensitivity to pain. Communicate how you are feeling with the person doing the test. Inform the person doing the test if you feel that you cannot continue with the test.

During a blood draw, you may feel mild discomfort at the location where the blood sample is being collected.

What should I do after the test?

After a blood sample is collected from your vein, a bandage, cotton ball, or gauze may be placed on the area where the needle was inserted. You may be asked to apply pressure to the area. Avoid strenuous exercise immediately after your blood draw. Contact your healthcare worker if you feel pain or see redness, swelling, or discharge from the puncture site.

What are the risks?

Blood: During a blood draw, a hematoma (blood-filled bump under the skin) or slight bleeding from the puncture site may occur. After a blood draw, a bruise or infection may occur at the puncture site. The person doing this test may need to perform it more than once. Talk to your healthcare worker if you have any concerns about the risks of this test.

What are normal results for this test?

Laboratory test results may vary depending on your age, gender, health history, the method used for the test, and many other factors. If your results are different from the results suggested below, this may not mean that you have a disease. Contact your healthcare worker if you have any questions. The following are considered to be normal results for this test:

- Adults [3]:
  - 8 AM to noon: 5-25 mcg/dL (138-690 nmol/L)
  - 8 PM to 8 AM: 0-10 mcg/dL (0-276 nmol/L)

What might affect my test results?

- Results increased in [2]:
  - Depression
  - Hyperthyroidism
  - Hypoglycemia
  - Obesity
  - Pregnancy
  - Stress
- Results decreased in [2]:
  - Cirrhosis
  - Hepatitis
  - Hypothyroidism

What follow up should I do after this test?

Ask your healthcare worker how you will be informed of the test results. You may be asked to call for results, schedule an appointment to discuss results, or notified of results by mail. Follow up care varies depending on many factors related to your test. Sometimes there is no follow up after you have been notified of test results. At other times follow up may be suggested or necessary. Some examples of follow up care include changes to medication or treatment plans, referral to a specialist, more or less frequent monitoring, and additional tests or procedures. Talk with your healthcare worker about any concerns or questions you have regarding follow up care or instructions.

Where can I get more information?

Related Companies

- National Adrenal Diseases Foundation
- Endocrine and Metabolic Diseases Information Service

References

1. Snow K, Jiang NS, Kao PC, et al: Biochemical evaluation of adrenal dysfunction: the laboratory perspective. Mayo Clin Proc 1992; 67(11):1055-65.
2. Tietz NW (Ed): Clinical Guide to Laboratory Tests, 3rd ed. W. B. Saunders, Philadelphia, PA, 1995.
3. Kratz A, Ferraro M, Sluss PM, et al: Case records of the Massachusetts General Hospital: laboratory values. N Engl J Med 2004; 351(15):1549-1563.