TEST

Dhea-sulfate test

A DHEA-sulfate test measures an adrenal androgen to help investigate hormone-related symptoms.

WHAT IT MEASURES
DHEA sulfate, an androgen made mainly by adrenal glands

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
About five to ten minutes

RESULTS IN
Usually one to three days, varying by laboratory

USED FOR
Diagnosing and monitoring adrenal androgen problems

MAIN LIMITATION
An abnormal result cannot identify its cause alone

Overview

A DHEA-sulfate test measures dehydroepiandrosterone sulfate, usually shortened to DHEA-S, in your blood. DHEA-S is an androgen, a hormone involved in sexual development and other body functions.

The adrenal glands, located above the kidneys, make most DHEA-S. Because of this, the test can help show whether excess androgen may have an adrenal source. However, it cannot identify the cause by itself. Results are considered alongside symptoms, an examination and other hormone tests.

DHEA-S is different from DHEA sold as a supplement. Taking DHEA can raise your blood result.

Why the test is ordered

The test is most often used to investigate possible androgen excess. Reasons for testing may include:

DHEA-S may also be checked when an adrenal or pituitary problem is suspected. Low levels can occur when the adrenal glands do not produce enough hormones, but DHEA-S is not the main test for adrenal insufficiency. Cortisol, adrenocorticotropic hormone (ACTH) and stimulation testing are usually more informative.

The test may be repeated to monitor a known adrenal androgen disorder or response to treatment.

- New or increased facial or body hair
- Persistent acne with other hormone-related symptoms
- Irregular or absent menstrual periods
- Scalp hair thinning
- Rapid voice deepening, increased muscle growth or genital changes
- Signs of puberty earlier than expected
- An adrenal mass found during imaging

Who should have the test

DHEA-S testing is generally intended for people whose symptoms, examination or other results suggest an androgen or adrenal hormone problem. It is not usually a routine screening test for people without relevant symptoms.

In children and teenagers, testing may be considered when development starts unusually early or does not follow the expected pattern. Results must be interpreted using age- and puberty-specific ranges.

The test may also help when testosterone is high or symptoms suggest significant androgen excess. A normal DHEA-S result does not rule out an ovarian cause or every adrenal condition.

How to prepare

Fasting is not normally required. You can usually eat, drink water and have coffee. If other blood tests are being collected, follow their preparation instructions. Coffee with milk or sugar breaks a fast.

Tell the person arranging the test about medicines and supplements, particularly:

Do not stop prescribed medicine unless specifically instructed. Biotin can interfere with some laboratory methods, but whether it needs to be paused depends on the dose and test platform.

DHEA-S changes little during the day, so morning collection is not usually essential. Related hormone tests may still need to be collected in the morning.

- DHEA or products marketed for hormone, energy or anti-ageing support
- Steroid medicines such as prednisone or dexamethasone
- Hormonal contraception or other hormone treatment
- High-dose biotin supplements, sometimes sold for hair and nails

What happens during the test

A healthcare professional places a small needle into a vein, usually in your arm. Blood is collected into a tube and sent to a laboratory. The blood draw normally takes less than ten minutes, and you can usually return to normal activities immediately.

If needles make you feel faint, tell the person collecting your blood. Sitting or lying down may help.

Understanding your results

Your report will show your DHEA-S concentration and the laboratory's reference range. Ranges differ substantially by age, sex and laboratory method. Levels are generally highest in early adulthood and fall with age. Pregnancy, medicines and clinical context also affect interpretation. Use the range on your own report rather than one found online.

A high result may suggest increased adrenal androgen production. Possible causes include an adrenal hormone disorder, congenital adrenal hyperplasia or, less commonly, an adrenal growth. Supplements, medicines and testing interference must also be considered. A high result does not prove a particular diagnosis.

A low result may be expected with increasing age. It can also occur with reduced adrenal or pituitary function, certain medicines, pregnancy or significant illness. Low DHEA-S alone does not diagnose adrenal insufficiency.

The degree of abnormality matters, but there is no single cutoff for everyone. Symptoms and other results, including testosterone, cortisol and ACTH, may change the interpretation.

What affects the results

Age has a major effect. Levels rise through childhood and puberty, peak in early adulthood and then decline. Sex and stage of puberty also affect the expected result.

Pregnancy requires pregnancy-specific interpretation because the placenta uses DHEA-S to make estrogen.

DHEA supplements can raise the result. Steroid medicines may suppress adrenal hormone production, while hormonal contraception and other hormone treatments can also affect concentrations.

High-dose biotin may interfere with some immunoassays and make a result appear higher or lower than it is. Severe illness and impaired kidney or liver function can also affect hormone production, metabolism or clearance.

DHEA-S is fairly stable across the day and menstrual cycle. Ordinary exercise is unlikely to cause a large immediate change, although strenuous exercise may affect related hormones.

Accuracy and limitations

DHEA-S is useful for assessing adrenal androgen production because most circulating DHEA-S comes from the adrenal glands and its level is relatively stable during the day.

The test cannot identify a specific condition by itself. A high result cannot reliably distinguish between supplement or medicine effects, congenital adrenal hyperplasia and an adrenal growth.

A normal result can miss other causes of androgen-related symptoms. Ovarian androgen excess may occur with normal DHEA-S, and some adrenal disorders produce little DHEA-S. Testosterone is often more useful for assessing overall androgen excess. A 17-hydroxyprogesterone test is more appropriate when a particular form of congenital adrenal hyperplasia is suspected.

Unexpected results may be repeated because supplements, antibody interference and laboratory methods can cause false abnormalities. A more specific method, such as liquid chromatography with mass spectrometry, may be used when available.

Risks and complications

The risks are those of a routine blood draw. You may have brief discomfort, a small bruise or feel light-headed. Serious complications are uncommon.

What happens next

A result within the expected range may need no further action if it fits your symptoms and other findings. An abnormal or unexpected result is usually reviewed alongside medicines, supplements and related hormone tests.

Next steps may include repeating the test or checking testosterone, 17-hydroxyprogesterone, cortisol or ACTH. Imaging may be considered when symptoms and hormone results suggest an adrenal cause, but an abnormal DHEA-S result alone does not automatically mean a scan is needed.

Arrange timely follow-up if androgen-related changes develop quickly, such as rapid voice deepening or new genital changes. These symptoms are not usually an emergency, but they need prompt assessment.

DHEA-S testing is not used to assess a possible adrenal crisis. Severe weakness with repeated vomiting, confusion, collapse or loss of consciousness requires emergency care rather than waiting for a test result.

Common questions

Can I drink coffee before a DHEA-S test?

Usually, yes. The test does not normally require fasting. If other tests are being collected, check their instructions; milk, cream and sugar count as food.

Does the time of day matter?

Usually not much. DHEA-S is more stable throughout the day than cortisol or DHEA. A morning appointment may still be requested for related tests.

Can I exercise beforehand?

Normal activity is unlikely to meaningfully affect the result. If several hormones are being tested, avoiding unusually strenuous exercise may make the results easier to interpret.

Should I stop taking DHEA supplements?

Tell the person arranging the test because DHEA can raise the result. Do not change a supplement or prescribed treatment unless you receive specific instructions.

Does my menstrual period affect the test?

DHEA-S changes less across the menstrual cycle than some reproductive hormones. Cycle timing may matter for other tests collected at the same time.

How long will the result take?

Many laboratories report DHEA-S within one to three days. Tests sent to a specialist laboratory may take longer.

Sources

- MedlinePlus Medical Test: DHEA Sulfate Test
- Mayo Clinic Laboratories: Dehydroepiandrosterone Sulfate, Serum
- Martin KA, et al. Evaluation and Treatment of Hirsutism in Premenopausal Women: An Endocrine Society Clinical Practice Guideline. Journal of Clinical Endocrinology & Metabolism . 2018
- American College of Obstetricians and Gynecologists. Screening and Management of the Hyperandrogenic Adolescent. Committee Opinion No. 789. 2019
- US Food and Drug Administration: Biotin Interference with Certain Laboratory Tests