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Medical Encyclopedia: Testosterone

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Alternative names

Serum testosterone

Definition

A testosterone test measures the amount of testosterone in the blood.

How the test is performed

Blood is drawn from a vein, usually from the inside of the elbow or the back of the hand. The puncture site is cleaned with antiseptic. An elastic band is placed around the upper arm to apply pressure and cause the vein to swell with blood.

A needle is inserted into the vein, and the blood is collected in an air-tight vial or a syringe. During the procedure, the band is removed to restore circulation. Once the blood has been collected, the needle is removed, and the puncture site is covered to stop any bleeding.

For infants or young children, the area is cleansed with antiseptic and punctured with a sharp needle or a lancet. The blood may be collected in a pipette (small glass tube), on a slide, onto a test strip, or into a small container. A bandage may be applied to the puncture site if there is any bleeding.

How to prepare for the test

The health care provider may advise you to stop taking drugs that may affect the test.

How the test will feel

When the needle is inserted to draw blood, some people feel moderate pain, while others feel only a prick or stinging sensation. Afterward, there may be some throbbing.

Why the test is performed

This test is performed when symptoms indicate there may be abnormal androgen (male hormone) production.

In males, the testes produce the majority of the circulating testosterone. The pituitary hormone LH stimulates the testicular Leydig cells to produce testosterone. In females, the ovaries produce the majority of the testosterone. The adrenal cortex produces another androgen, called DHEAS.

In boys, testosterone levels are used to assess early or late puberty. In men, testosterone levels are critical in the evaluation of impotence and infertility. Testosterone levels are obtained in women to help evaluate excess hair growth, virilization (male body characteristics), and irregular menstrual periods.

Normal Values

- Male: 300-1,000 ng/dl
- Female: 20-80 ng/dl

Normal value ranges may vary slightly among different laboratories.

Note: ng/dl = nanograms per deciliter

What abnormal results mean

Increased production of testosterone:

- Precocious puberty
- Androgen resistance
- Ovarian cancer
- Congenital adrenal hyperplasia
- Polycystic ovary disease
- Testicular cancer

Decreased production of testosterone:

- Hypopituitarism
- Testicular failure
- Delayed puberty
- Chronic illness
- Prolactinoma

What the risks are

The risks associated with having blood drawn from a vein are slight:

- Excessive bleeding
- Fainting or feeling lightheaded
- Hematoma (blood accumulating under the skin)
- Infection (a slight risk any time the skin is broken)
- Multiple punctures to locate veins

Special considerations

Veins and arteries vary in size from one patient to another and from one side of the body to the other. Obtaining a blood sample from some people may be more difficult than from others.

More sensitive tests can measure not only the total amount of testosterone in the blood, but can also determine how much of that total amount is "free" or "bioavailable" testosterone.

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