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Medical Encyclopedia: Estradiol - test

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Alternative names

E2

Definition

An estradiol test measures the amount of estradiol 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, and an elastic band is placed around the upper arm to apply pressure and restrict blood flow through the vein. This causes veins below the band to fill 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 continued bleeding.

How to prepare for the test

Consult your health care provider about the need to stop taking drugs that can affect test results, including:

- Estrogen therapy
- Birth control pills

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 used to evaluate function of the ovaries, placenta, or adrenal glands, particularly when certain types of ovarian tumor are suspected, or when there is delayed or abnormal development of male or female body characteristics.

In assisted reproductive technology (ART), measuring serum estradiol and taking ultrasound images of ovarian follicles at regular intervals is used to monitor the response of the ovaries to stimulation.

Estradiol (the most important estrogen in the body) is a steroid hormone that has numerous important functions in girls and women. Estradiol is mainly synthesized in and secreted from the placenta, ovarian follicle, and adrenal cortex.

Estradiol is responsible for growth of the uterus, Fallopian tubes, and vagina; promotion of breast development; maturation of the external genitalia; body fat distribution in women; and stopping the process of growing taller. Estradiol stimulates the proliferation of the endometrium (the lining of the uterus that is shed as menstrual flow if the woman does not become pregnant) in the first half of the menstrual cycle.

Estradiol is broken down to estrone and estriol by various target tissues. These compounds appear in the urine.

Normal Values

Male: 10 to 60 pg/ml

Female (premenopausal): 20 to 400 pg/ml

Female (postmenopausal): 5 to 25 pg/ml

Note: pg/ml = picograms per milliliter

What abnormal results mean

Greater-than-normal levels may indicate ovarian tumor.

Lower-than-normal levels may indicate Turner's syndrome.

People with these conditions may also be tested:

- Patients with hypopituitarism
- Infertility patients undergoing assisted reproductive technology (ART)

What the risks are

- 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.

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