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Medical Encyclopedia: Hematocrit (HCT)

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Alternative names

HCT

Definition

The hematocrit is the percent of whole blood that is composed of red blood cells. The hematocrit is a measure of both the number of red blood cells and the size of red blood cells.

The hematocrit is almost always ordered as part of a complete blood count, which measures the number of red blood cells, the number of white blood cells, the total amount of hemoglobin in the blood, and the fraction of the blood composed of red blood cells (hematocrit).

How the test is performed

Blood is drawn from a vein, usually on 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 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. Cotton or a bandage may be applied to the puncture site if there is any continued bleeding.

In the laboratory, some of the blood is centrifuged (spun in a machine). This forces the cells to the bottom of the container. The cellular portion is compared with the total amount of blood and expressed as a percent. The cellular portion is almost entirely red blood cells. The percent that is white blood cells is very small.

How to prepare for the test

No special preparation is necessary for this test.

For infants and children:

The preparation you can provide for this test depends on your child's age, previous experiences, and level of trust. For general information regarding how you can prepare your child, see the following topics:

- infant test or procedure preparation (birth to 1 year)
- toddler test or procedure preparation (1 to 3 years)

- preschooler test or procedure preparation (3 to 6 years)
- schoolage test or procedure preparation (6 to 12 years)
- adolescent test or procedure preparation (12 to 18 years)

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

The hematocrit indicates the proportion of cells and fluids in the blood.

Normal Values

Hematocrit (varies with altitude):

- Male: 40.7-50.3%
- Female: 36.1-44.3%

What abnormal results mean

Low hematocrit may indicate:

- anemia (various types)
- blood loss (hemorrhage)
- bone marrow failure (e.g., due to radiation, toxin, fibrosis, tumor)
- destruction of red blood cells
- leukemia
- malnutrition or specific nutritional deficiency
- multiple myeloma
- rheumatoid arthritis

High hematocrit may indicate:

- dehydration
    - burns
    - diarrhea
- erythrocytosis (excessive red blood cell production)
- polycythemia vera

This test may be performed under many other conditions and in the assessment of many disease states.

What the risks are

- excessive bleeding
- fainting or feeling light-headed
- 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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