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Medical Encyclopedia: Serum magnesium - test

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Alternative names

Mg+2

Definition

Serum magnesium tests the amount of magnesium 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.

In 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

There is no special preparation for this test.

How the test will feel

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

Why the test is performed

This test is performed when an abnormal blood level of magnesium is suspected.

About half of the body's magnesium is found in bone, where it plays a structural role along with calcium, phosphate, and various proteins. In all other tissues, magnesium is among the most abundant of all the electrolytes inside the cell, second only to potassium.

Magnesium is necessary for nearly all biochemical processes, such as the synthesis and use of ATP, the major

source of energy for all cells.

Normal Values

1.8 to 3.0 mg/dL. Normal value ranges may vary slightly among different laboratories.

What abnormal results mean

High magnesium levels may be seen with the following conditions:

- Addison's disease
- Chronic renal failure
- Dehydration
- Diabetic acidosis
- Oliguria

Low magnesium levels may be seen with the following conditions:

- Alcoholism
- Chronic diarrhea
- Delirium tremens
- Administration of excessive insulin
- Hemodialysis
- Hepatic (liver) cirrhosis
- Hyperaldosteronism
- Hypoparathyroidism
- Pancreatitis
- Toxemia of pregnancy
- Ulcerative colitis

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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