



[Home](#) → [Medical Encyclopedia](#) → Bone marrow aspiration

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Bone marrow aspiration

Bone marrow is the soft tissue inside bones that helps form blood cells. It is found in the hollow part of most bones. Bone marrow aspiration is the removal of a small amount of this tissue in liquid form for examination.

Bone marrow aspiration is not the same as bone marrow biopsy. A biopsy removes a core of bone tissue for examination.

How the Test is Performed

Bone marrow aspiration may be done in your health care provider's office or in a hospital. The bone marrow is removed from your pelvic or breast bone. Sometimes, another bone is selected.

Marrow is removed in the following steps:

- If needed, you are given medicine to help you relax.
- Your provider cleans the skin and injects numbing medicine into the area and surface of the bone.
- A special needle is inserted into the bone. The needle has a tube attached to it, which creates suction. A small sample of bone marrow fluid flows into the tube.
- The needle is removed.
- Pressure and then a bandage are applied to the skin.

The bone marrow fluid is sent to a lab and examined under a microscope.

How to Prepare for the Test

Tell your provider:

- If you are allergic to any medicines
- If you are pregnant
- If you have bleeding problems
- What medicines you are taking

How the Test will Feel

You will feel a sting and slight burning sensation when the numbing medicine is applied. You may feel pressure as the needle is inserted into the bone, and a sharp and usually painful sucking sensation as the marrow is removed. This feeling lasts for only a few seconds.

Why the Test is Performed

Your provider may order this test if you have abnormal types or numbers of red or white blood cells or platelets on a complete blood count.

This test is used to diagnose:

- Anemia (some types)
- Infections
- Leukemia
- Other blood cancers and disorders

It may help determine whether cancers have spread or responded to treatment.

Normal Results

The bone marrow should contain the proper number and types of:

- Blood-forming cells
- Connective tissues
- Fat cells

What Abnormal Results Mean

Abnormal results may be due to cancers of the bone marrow, including:

- Acute lymphocytic leukemia (ALL)
- Acute myelogenous leukemia (AML)
- Chronic lymphocytic leukemia (CLL)
- Chronic myelogenous leukemia (CML)

Abnormal results may also be due to other causes, such as:

- Bone marrow doesn't make enough blood cells (aplastic anemia)
- Bacterial or fungal infections that have spread throughout the body
- Cancer of the lymph tissue (Hodgkin or non-Hodgkin lymphoma)
- A bleeding disorder called idiopathic thrombocytopenic purpura (ITP)
- Blood cancer called (multiple myeloma)
- Disorder in which the bone marrow is replaced by scar tissue (myelofibrosis)

- Disorder in which the bone marrow produces too many red blood cells (polycythemia) or platelets (thrombocytosis)
- Disorder in which not enough healthy blood cells are made (myelodysplastic syndrome; MDS)

Risks

There may be some bleeding at the puncture site. More serious risks, such as serious bleeding or infection, are very rare.

Alternative Names

Iliac crest tap; Sternal tap; Leukemia - bone marrow aspiration; Aplastic anemia - bone marrow aspiration; Myelodysplastic syndrome - bone marrow aspiration; Thrombocytopenia - bone marrow aspiration; Myelofibrosis - bone marrow aspiration

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