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[Bone Marrow Aspiration and Biopsy](#) [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 12/2015

Bone marrow is the spongy, fatty tissue found inside larger bones. It produces the following types of blood cells:

- Red blood cells, which carry oxygen to all parts of the body
- White blood cells, which help the body fight infection and disease
- Platelets, which help blood clot and control bleeding

Sometimes doctors need to examine the development and function of these cells. To do this, they may recommend having a bone marrow aspiration and/or a bone marrow biopsy to collect a sample of bone marrow. The results of a bone marrow aspiration and/or biopsy help doctors diagnose the following conditions:

- Blood cancers, including leukemia, lymphoma, or multiple myeloma
- A fever with an unknown cause

- Stem cell disorders
- Rare genetic diseases

Doctors also use these procedures to describe a blood cancer, identify its subtype, and classify or [stage](#) [3] the cancer. These procedures are also used to determine whether treatment is working and to monitor the [side effects of chemotherapy](#) [4].

About the procedure

- A **bone marrow aspiration** is a procedure that removes a sample of the liquid portion of bone marrow.
- A **bone marrow biopsy** removes a small, solid piece of bone marrow.

In both procedures, doctors often take bone marrow from the pelvic bone, which is located in the lower back by the hip. These two procedures are often done at the same time, which is referred to as a bone marrow examination. Your doctor will decide whether you need to have one or both.

The medical team

An oncologist, hematologist, or another medical specialist usually performs a bone marrow aspiration and biopsy. After the procedure, a pathologist examines the collected bone marrow cells under a microscope and summarizes the results in a [pathology report](#) [5] for your oncologist or hematologist.

Preparing for the procedure

When you schedule your procedure, you will get a detailed explanation of how to prepare. There are usually no restrictions on eating or drinking before the test, but talk with your health care team ahead of time to make sure. However, you may not be able to take certain medications, such as blood thinners, before your procedure. Tell the doctor or specialist about all of the medications you currently are taking, and ask whether you should take them on the day of your procedure.

You will also be asked to review and sign a form stating that you understand the risks and agree to have the procedure. Talk with your doctor about any concerns you have about the bone marrow aspiration or biopsy.

During the procedure

Bone marrow aspiration and biopsy procedures may be done in a hospital building, clinic, or doctor's office. When done together, these two procedures usually take about 30 minutes to complete.

Because you will receive a local anesthetic to block the awareness of pain, tell your doctor if you have ever had an allergic reaction to an anesthetic. A doctor may give you a type of anesthesia made up of pain relievers and sedatives so you stay awake but do not feel any pain. This conscious sedation usually allows you to speak and respond during the procedure. But most people have little to no memory of the procedure afterward.

If the pelvic bone is the site of the aspiration or biopsy, you will be asked to lie on your stomach or on your side on an examination table or hospital bed. The skin surrounding the site will be cleaned with an antiseptic solution. A local anesthetic is then injected through the skin into the tissue next to the bone with a small needle. You will feel a slight stinging sensation before the area becomes numb.

If both procedures are needed, the bone marrow aspiration is usually done first. The professional performing the procedure inserts a hollow needle into the numbed area and pushes gently into the bone. Then, he or she removes the center portion of the hollow needle, attaches a syringe to the needle, and withdraws the liquid portion of the bone marrow. You may feel a deep, dull, aching pain for a few seconds, similar to a toothache. It may help to hold a pillow tightly or squeeze another person's hand. After the needle is removed, the pain will go away.

For the bone marrow biopsy, a larger needle is inserted into the same area and guided into the bone. The specialist performing the procedure rotates the needle until a sample of tissue is removed. You may feel pain and pressure as the needle moves into the bone. He or she will then remove the entire needle and place a pressure covering over the site to prevent bleeding.

After the procedure

You will be able to go home shortly after the procedure if it is done in the clinic. However, if you received sedation, the medical team may ask you to lie down for about 20 minutes until its effects wear off. You will also need a ride home, so make arrangements for a ride before the procedure.

Once you are home, keep the area around the pressure covering clean and dry. Ask your doctor when you can remove it, and do not shower or bathe until then. You will likely see some blood on the dressing, which is normal. You can then cover the wound with a bandage until it is fully healed. You may feel discomfort at the needle insertion site for several days, especially when bending over. Some people may also feel pain down the back of their leg. Mild bruising is normal and can occur several days after the procedure.

Tell your doctor if you have any of the following problems after the procedure:

- Fever of 101 degrees Fahrenheit or higher
- Uncontrollable bleeding
- Unusual discharge or severe pain at the needle insertion site
- Any other signs or symptoms of infection

Questions to ask your doctor

Before you have a bone marrow aspiration, bone marrow biopsy, or a bone marrow examination, consider asking your doctor the following questions:

- Who will perform the procedure?
- What will happen during the procedure?
- How long will the procedure take?
- What are the risks and benefits of having the procedure?
- Will I be awake or asleep during the procedure?
- Will I feel any pain during the procedure? If so, for how long? What can be done to reduce the pain?
- How soon can I return to my normal activities after the procedure?
- Can you give me instructions on how to care for the wound?
- When will I learn the results?
- Who will explain the results to me? Will more tests be necessary if the results indicate cancer?

More Information

[Tests and Procedures](#) [6]

[What Is Stem Cell/Bone Marrow Transplantation?](#) [7]

[Donating Bone Marrow](#) [8]

Additional Resources

MedlinePlus: [Bone Marrow Aspiration](#) [9]

MedlinePlus: [Bone Marrow Biopsy](#) [10]

Links

- [1] <http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/tests-and-procedures/bone-marrow-aspiration-and-biopsy>
- [2] <http://www.cancer.net/about-us>
- [3] <http://www.cancer.net/node/25070>
- [4] <http://www.cancer.net/node/24676>
- [5] <http://www.cancer.net/node/24715>
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- [9] <https://www.nlm.nih.gov/medlineplus/ency/article/003658.htm>
- [10] <https://www.nlm.nih.gov/medlineplus/ency/article/003934.htm>