Bone marrow biopsy

This page is about bone marrow biopsy, a test you might have to check if you have lymphoma in your bone marrow.

On this page

What is bone marrow?

What is a bone marrow biopsy?

Who might need one?

Having a bone marrow biopsy

Is a bone marrow biopsy safe?

Getting the results

What is bone marrow?

Bone marrow is the spongy tissue in the centre of some of our bigger bones, such as the thigh bones, the breastbone, pelvis and back bones. The bone marrow is where blood cells are made. It contains basic cells called ‘blood stem cells’ that can develop into more specialised blood cells, such as white blood cells, red blood cells and platelets. The different types of blood cells are then released into the bloodstream.
What is a bone marrow biopsy?

A bone marrow biopsy (also called a ‘bone marrow test’) is a test where samples of bone marrow are taken.

Two types of bone marrow sample are usually taken:

- **bone marrow aspirate**, which takes a little of the liquid found in the bone marrow space
- **bone marrow trephine**, which takes a small sample of harder bone marrow tissue.

The samples are examined under a microscope to see if any lymphoma cells are present. Other tests may also be done on your bone marrow samples.
Who might need a bone marrow biopsy?

Bone marrow biopsy might be done for people with many types of lymphoma. It’s usually only done if your doctor suspects that lymphoma might be in your bone marrow. This test is then part of ‘staging’ of the lymphoma – finding out how far it has spread and how it is affecting you. If lymphoma cells are in your bone marrow, it might affect what treatment you need.

A bone marrow biopsy might also be done as part of diagnosing some types of lymphoma that often affect the bone marrow or blood.

If lymphoma is found in your bone marrow, you might need another bone marrow biopsy in the future to check your response to treatment.

Not everyone with lymphoma needs a bone marrow biopsy. Your doctor decides what tests you need based on your individual circumstances.

What is the process for having a bone marrow biopsy?

Most people who need a bone marrow biopsy have the procedure as an outpatient and do not have to stay in hospital overnight.

How should I prepare?

You should be given information about the procedure and how to prepare for it. You might have blood tests before your procedure to check that your blood clots normally.

Tell your medical team about any medicines, vitamins and other supplements you are taking, or if you have had any reactions to anaesthetics before. If you are taking medicine to thin your blood, you may be asked to stop this before the procedure.
If you feel very anxious, or you found a previous biopsy painful, you might be able to have a sedative to help you relax for the procedure. Sedatives are only available in certain circumstances and in certain centres. They are not recommended for everyone. Some units give ‘gas and air’ (oxygen and nitrous oxide) during the procedure instead of a sedative. Gas and air gives short-acting pain relief that you breathe in yourself when you need it. Discuss the options with your medical team when the test is being planned.

If you are not having sedation, you can eat and drink as normal before the test. If you are having sedation, your medical team can advise you if you need to stop eating or drinking for a time before the test.

**What happens during the procedure?**

Bone marrow biopsies are usually taken from your pelvis (hip bone). You are usually asked to lie on your side and curl up, with your knees pulled up towards your chest. Rarely, the sample is taken from the sternum (breastbone). In this case, you lie on your back. Make sure you are comfortable when you are in the correct position – you need to keep as still as possible during the procedure.

The doctor cleans the area then injects a local anaesthetic to numb it. When the area is numb, the doctor inserts a special needle into the space in the middle of the bone and takes a sample of the **bone marrow fluid**. A second needle is used to take a sample of the **harder bone marrow tissue**.
Figure: Bone marrow biopsy

The needle is removed when the sample has been collected. The doctor or nurse puts a dressing over the area where the needles were inserted.

The whole procedure usually takes 10–15 minutes.

Having a bone marrow test can be uncomfortable but any pain or discomfort is usually brief.

- The local anaesthetic can sting or hurt for a few seconds as it goes in, but the site (area) then goes numb.
- When the liquid is taken there can be a pulling feeling or a sharp pain but this should pass almost immediately.
- When the sample of harder tissue is taken, you might feel a dull ache and a pushing sensation or a feeling of pressure building up, but this also passes quickly.

What happens after the procedure?

You need to stay lying down for 15–30 minutes after the procedure to be monitored to make sure there is no bleeding. You might then be asked to rest in the waiting room and have a drink before you go home.
If you have had a sedative, you will be drowsy for a few hours afterwards. You should not drive home or travel on your own – bring someone with you who can take you home. Do not drive or operate machinery for the rest of the day.

The local anaesthetic wears off after 2–3 hours and the area where the needle was inserted can be sore. If you are uncomfortable, take pain relief such as paracetamol regularly over the next few days. Ask your medical team for advice if you need stronger pain relief or if the pain continues for more than a few days.

You can usually return to your normal activities once any pain has settled down.

Keep your dressing on for at least 24 hours or until any bleeding has stopped. Do not get the dressing or sample site wet during this time.

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**Is a bone marrow biopsy safe?**

A bone marrow biopsy is usually a very safe procedure. Some people have pain after the procedure, but this is usually easily treated with pain relief and gets better within a few days. Seek advice from your medical team if problems persist or are severe.

Serious complications are rare but could include infection or bleeding from the area where the sample was taken.

The area is monitored after the procedure but it can start to bleed again after you go home. If this happens, press down on the area with a dressing until it stops. Contact your medical team if the bleeding doesn’t stop when you apply pressure.

Infection is rare but contact your medical team if you develop **any** of the following:

- fever (temperature above 38°C)
- increased pain at the sample site
- redness or swelling at the sample site.
It can be difficult for you to see the sample site so you might need to ask a relative or friend to check for any signs of bleeding or redness.

Your medical team should give you further information on what to look for and when to seek advice.

**When will I get the results?**

It can take anywhere from a couple of days to a couple of weeks to get the results of your bone marrow biopsy, depending what tests are done on the sample. Usually, your doctor discusses the results with you at your next appointment. Waiting for test results can make you feel anxious but your medical team are gathering important information during this time so that they can give you the best possible treatment.

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**References**

These are some of the sources we used to prepare this information. The full list of sources is available on request. Please contact us by email at publications@lymphoma-action.org.uk or phone on 01296 619409 if you would like a copy.


Further reading

- Tests, diagnosis and staging
- Scans: X-ray, CT, PET and MRI
- Biopsy
- Blood tests
- Glossary
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