



Myeloma  
Australia


TESTS INFOSHEET

# Understanding the bone marrow biopsy procedure in myeloma

## TESTS INFOSHEET


# Understanding the bone marrow biopsy procedure in myeloma

*This infosheet tells you about the bone marrow biopsy procedure used in myeloma: what it is, how to prepare for it, and what to expect during the procedure and afterwards.*

*Our separate infosheet, [Understanding bone marrow tests in myeloma](#)  describes the different tests that are done on your bone marrow after you have had a bone marrow biopsy procedure.*

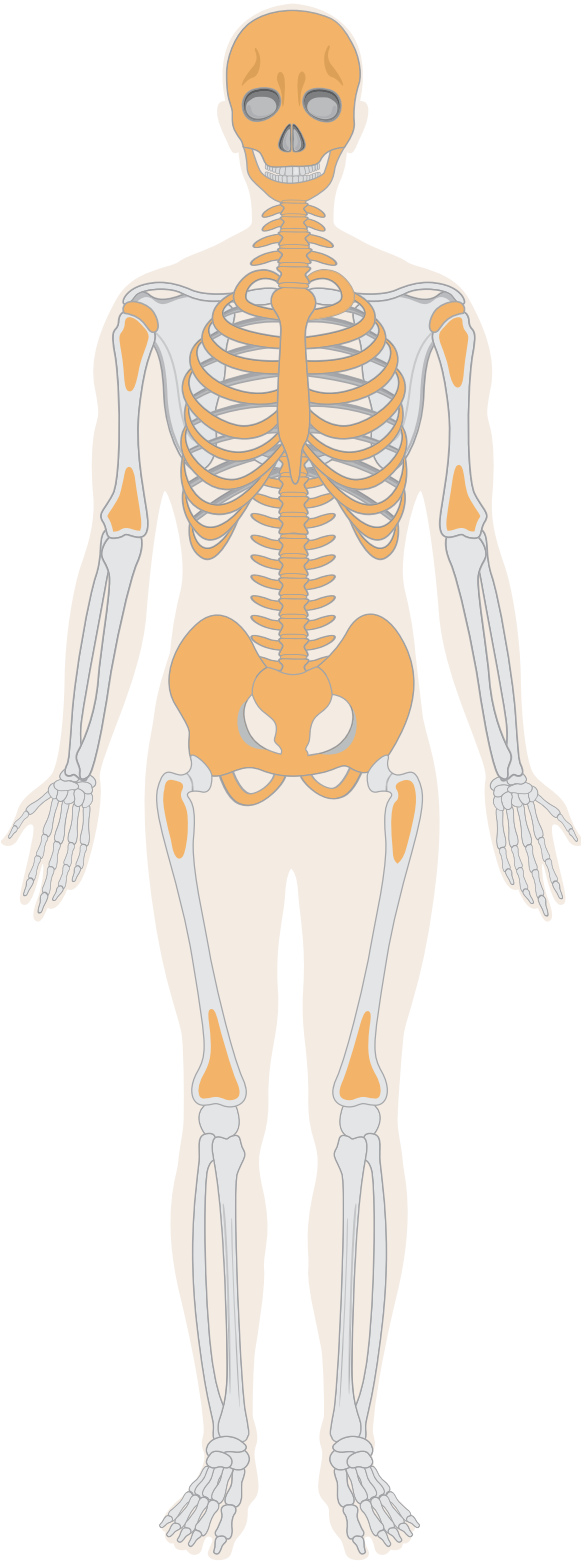
## Things to remember

- **A bone marrow aspirate and biopsy (BMAT) helps confirm your diagnosis and guide your treatment in myeloma.**
- **You will be given clear information and choice.** Your team will explain why it's needed, what to expect, and the risks and benefits. You can ask questions, request an interpreter, and withdraw consent at any time.
- **Preparation makes the day easier.** Your team will advise about fasting, pausing medicines, and blood tests. Arrange transport, wear loose clothing, and plan a quiet day afterwards.
- **A BMAT takes about 20 minutes.** You'll have local anaesthetic and may be offered pain relief or a mild sedative.
- **Some pain or discomfort is normal.** You may feel pressure, pulling, or a brief sharp pain during sample collection. Tell the nurse if it hurts more than this.
- **Most people have mild soreness and bruising afterwards.** Paracetamol and ice packs can help. Avoid anti-inflammatory medicines, and contact your clinic if you have severe symptoms or signs of infection.

If you're reading a printed version of this infosheet, we've used a magnifying glass symbol  throughout to let you know where you can search for more information in the '**Learn more**' section at the end of this infosheet.

## The bone marrow and myeloma

The bone marrow is the spongy material found in the centre of larger bones in our bodies. It is the production centre for blood cells, including our red blood cells, white blood cells, and platelets. Our bone marrow produces approximately 500 billion blood cells per day.



Where bone marrow is found in the body

Myeloma starts in a type of white blood cell called a plasma cell. Plasma cells are found in our bone marrow, where they form part of our immune system, protecting us from infection and disease.

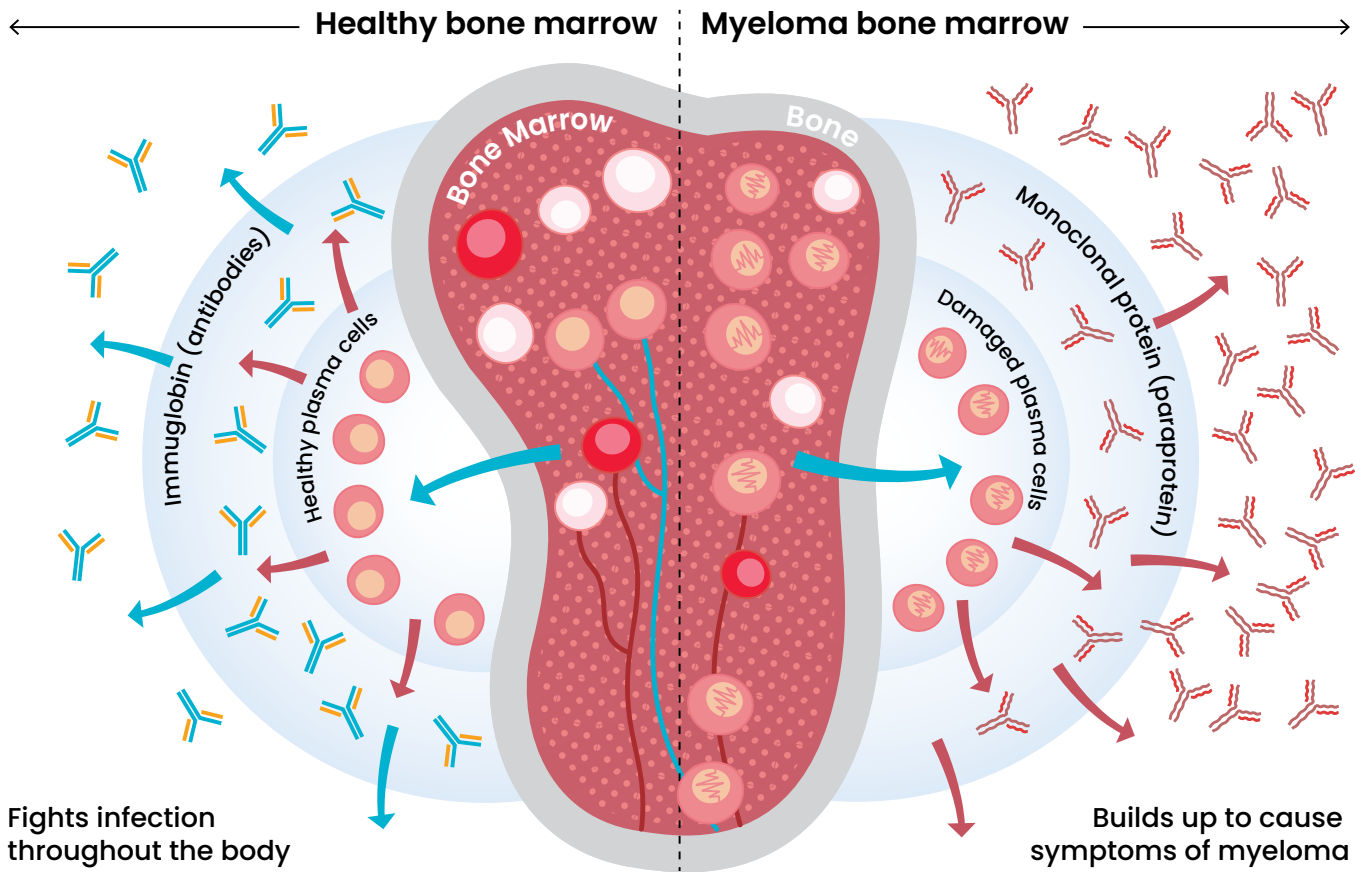
In myeloma, damage occurs to the DNA of developing plasma cells, causing them to change into cancerous myeloma cells. These myeloma cells produce an abnormal protein called *paraprotein* or *M-protein*, which has no useful function in the body. Myeloma cells multiply and spread within the bone marrow, crowding out the normal red and white blood cells and platelets.

***The first time I had a bone marrow biopsy I was nervous and didn't know what to expect. The team at the hospital explained the procedure to me and why it was important. I did feel some pressure and a short sharp sting, but the nurse made sure I was as comfortable as possible throughout the procedure. Even though I can't say I'm looking forward to the next one, I am reassured that I am in good hands.***

**Kai, Western Australia**

***Before my bone marrow biopsy, there were a few of my regular medicines I needed to stop taking to reduce my risk of bleeding. The day before the procedure, I also had a blood test to check that my blood counts were in a safe range. The pharmacist and my nurse consultant were great at making sure I had all the right information about what to do and when – and they sent me home with a clear list of printed instructions. This made me feel very reassured.***

**Gretchen, New South Wales**



Healthy bone marrow compared with myeloma bone marrow

## Testing your bone marrow

*Because myeloma develops in the bone marrow, testing your bone marrow is necessary to confirm your diagnosis. Your bone marrow will also be tested to check how well your treatment is working and can provide specific information that helps your haematologist decide on the best treatment and monitoring for you.*

To test your bone marrow, you will have a procedure called a **bone marrow aspirate and trephine biopsy (BMAT)**. Most people simply call this procedure a bone marrow biopsy or BMAT. We will call the bone marrow biopsy a BMAT throughout the rest of this infosheet.

## What is involved in having a BMAT procedure?

A BMAT uses a thin needle to take a small sample of fluid (aspirate) and a small core of bone (trephine) from your bone marrow – usually from your pelvic bone (hip bone).

# What happens before a BMAT procedure?

## Consent

Before having a BMAT your treating team will explain:

- why you are having a BMAT
- what the procedure involves
- the risks and benefits of having a BMAT.

You will have the chance to ask questions and talk about any concerns you may have.

You will then be asked to sign a consent form that says you understand what your treating team has explained, and that you give permission for the BMAT procedure to be done.

It is important to know that you can decide not to have the BMAT (withdraw your consent) at any time – even after you have signed the consent form.

If you need an interpreter or would feel more comfortable with one, please ask your treating team to arrange this.

## Fasting

You may be asked to fast from food and fluids. This means not having anything to eat or drink for a certain amount of time before your BMAT. Fasting times can be different depending on the medicines you will have during the BMAT and any other health conditions you have. Some people don't need to fast at all.

## Stopping certain medicines

You may be asked to stop some of your usual medicines for a specific amount of time before your BMAT. Make sure your treating team is aware of all medicines you are taking, including prescription and over-the-counter medicines, vitamins, herbs, and other supplements.

## Blood tests

You will have some blood tests before your BMAT. These might be done a few days before, or on the day of your appointment. These blood tests will check:

- your platelet count – the blood cells that help to stop bleeding
- your white blood cell count – the blood cells that help fight infection
- your blood coagulation – to check how well your blood clots.

Your doctor will make sure your blood test results show safe levels before doing the BMAT.

## Inpatient or outpatient

Your BMAT may be performed while you are an inpatient (staying in hospital) or an outpatient (going to the hospital or clinic only for the BMAT procedure, then going home).

## Getting to and from your appointment

If you are having the BMAT as an outpatient, it is important to think about how you will get to and from your appointment. In some cases, you may be able to drive yourself or catch public transport. If you have certain medicines during the procedure, such as a sedative or an anti-anxiety medicine that makes you feel sleepy, you may need someone to drive you home.

## Clothing

You may be asked to put on a hospital gown for your BMAT procedure. In some cases, you may be able to wear your own clothes. It's a good idea to wear clothing that is loose and easy to expose your hip bone. This will also feel more comfortable for you after the procedure compared to tight fitting clothing.

## What happens during the BMAT procedure?

*We've explained the way most BMAT procedures are done in Australia. Your BMAT procedure may be performed slightly differently depending on the hospital or clinic you are going to. Some BMATs are pre-planned, while others may be done more urgently. Your treating team can tell you more about how your BMAT procedure will be done.*

## How long does it take?

A BMAT usually takes around 20 minutes.

## Monitoring

A nurse will monitor you before, during and after your BMAT. They will check your vital signs (blood pressure, oxygen levels, heartbeat and breathing), give you medicines, and make sure you are as comfortable as possible.

## Local anaesthetic (numbing medicine)

You will have a local anaesthetic (numbing medicine) injected into the skin around your hip. This will numb your skin, but you may still feel some pressure, a pulling and pushing feeling, and a short sharp pain when the biopsy is being taken.

Let the nurse know if you feel more pain than this during your BMAT, as they may be able to give you extra anaesthetic or pain relief.

## Other medicines

You may be given some medicine for pain or a mild sedative (medicine that makes you sleepy) so that you feel more comfortable during the procedure. You may need to have an intravenous (IV) cannula put into a vein in your arm for some of these medicines to be given. If you have a central line (such as a PICC, Hickman, Permacath or PORT), the medicines can be given through this, and you will not need a cannula.

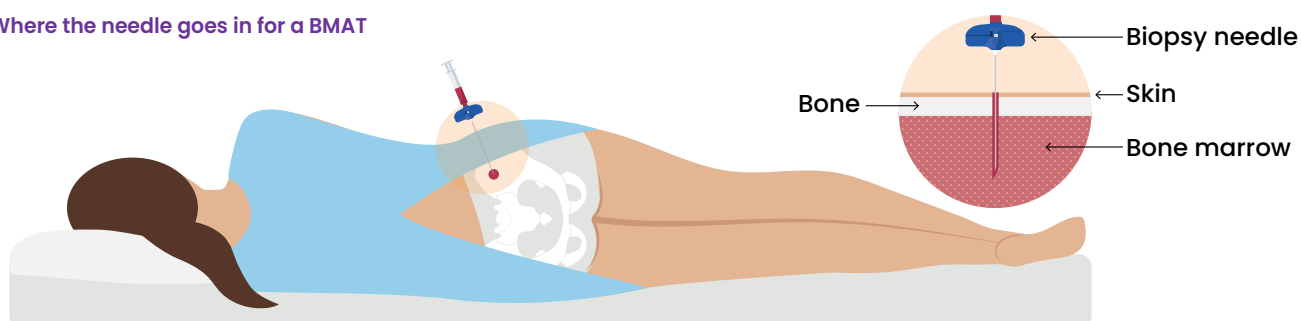


It is very normal to feel nervous or anxious about having a BMAT. Your treating team will do everything they can to help you feel as comfortable as possible. Let your team know if you are feeling very nervous or anxious, or have a history of anxiety or panic attacks. There are medicines they can give to help you feel calmer, and they can suggest other strategies to help.

## Biopsy needle

You will be asked to lie on your side, the doctor will clean the skin around your hip bone, and then make a small cut (incision) into your skin. The thin biopsy needle will be inserted through your skin and bone to reach the bone marrow. A small amount of fluid from your bone marrow will be collected (aspirate), as well as a small sample of bone (trepphine). The image below shows where the biopsy needle goes.

Where the needle goes in for a BMAT



A BMAT is considered a routine procedure, and so it may be performed by a doctor other than your usual haematologist. In some cases, the doctor may ask your permission to have an accompanying doctor attend for training.

## Dressing

After the doctor has taken the bone marrow samples, they will apply some pressure to the biopsy area to prevent any bleeding. They will place a small waterproof dressing on top of the biopsy site where the needle went in. Your treating team will let you know how long to leave this dressing on for.

## What happens to my BMAT samples?

Your bone marrow samples will be sent to a laboratory for examination and testing.

# What happens after a BMAT procedure?

## Monitoring

Depending on any medicines you had during the BMAT, you may need to be monitored for a short amount of time before going home.

## Eating and drinking

You should be able to eat and drink normally after the BMAT is complete.

## Restarting medicines

If you needed to stop any of your medicines before the BMAT, make sure you ask your treating team when you can start them again.

## Getting back to your usual activities

It's usually best to have a quiet remainder of the day planned after your BMAT.

There may be some activities you should avoid for a short time after a BMAT, particularly if you have had a mild sedative. These may include driving, operating machinery, drinking alcohol, strenuous exercise, and signing legal documents. You may need someone to stay with you once you are home.

Ask your treating team when you can go back to your usual activities, and how long you may need someone to stay with you.

## Pain

It's likely that you will feel some level of pain and discomfort around the biopsy area when the local anaesthetic (numbing medicine) wears off. Taking paracetamol and applying ice packs will help ease any pain.

Avoid taking nonsteroidal anti-inflammatories, such as ibuprofen or aspirin (unless your treating team has told you to), as these medicines can increase the risk of bleeding and bruising.

Contact your hospital or clinic if you are experiencing severe pain that doesn't go away with paracetamol or ice packs.

## Bruising

It is common to have some bruising in the area of your BMAT and this should heal over time.

Contact your hospital or clinic if you have a lot of bruising or the bruising is not improving.

## Bleeding

There shouldn't be a lot of bleeding after a BMAT. If you do experience bleeding, apply pressure to the area for 5–10 minutes. You can also apply an ice pack.

Contact your hospital or clinic if bleeding continues.

## Infection

Infection is not common after a BMAT. Contact your hospital or clinic if:

- you have a temperature of 38°C or higher
- your biopsy area is red and/or feels hot to touch
- you notice any pus or oozing from the biopsy area
- you feel generally unwell.



If you do have myeloma, monoclonal gammopathy of unknown significance (MGUS), or smouldering myeloma (SMM), your immune system may be weakened and your body may not be able to fight infection as well as it used to. That is why it's important to always get urgent medical attention for any sign of infection.

## Memory of your BMAT procedure

Some people don't remember their BMAT procedure, especially if they have had a mild sedative. Your memory will return to normal once the sedation wears off.

## How often will I need to have a BMAT procedure?

You will need to have a BMAT as part of the tests done to confirm that you have myeloma.

How often you will need further BMATs varies from person to person and can depend on:

- the treatment you are having
- if you are part of a clinical trial
- if your doctor thinks that your myeloma has become active again (relapse)
- if you have oligosecretory or non-secretory myeloma (these types of myeloma cannot be monitored with blood or urine tests, so may need more frequent BMATs)
- if you have a pre-cursor condition such as monoclonal gammopathy of unknown significance (MGUS) or smouldering myeloma (SMM) that may have progressed to symptomatic myeloma.

Your doctor will only recommend a BMAT when it's needed to help guide your care.

If you have declined to have BMATs, your doctor will talk with you about what this may mean for your ongoing treatment and care.

# What tests are performed on my bone marrow samples?

The tests on your bone marrow aspirate and trephine samples are done to:

- count how many myeloma cells are present in your bone marrow to confirm a diagnosis, response or relapse using the *percentage of plasma cells test*
- look for abnormal proteins on the myeloma cells using a test called *immunophenotyping by flow cytometry*
- find DNA changes (mutations) within the myeloma cells through *cytogenomic testing*
- measure how many myeloma cells are left in your bone marrow after treatment through a newer type of testing that detects *minimal residual disease (MRD)*. At the moment, MRD testing is mainly used in clinical trials. Ask your treating team if this test might be available to you.



Learn more

You can read more about these tests and what they mean in our infosheet [\*Understanding bone marrow tests in myeloma.\*](#)






## Questions to ask your treating team

- Will I be having my BMAT as an inpatient or outpatient?
- Do I need to fast from food and fluids before my BMAT? For how long?
- Are there any medicines I need to stop taking before my BMAT?
- Will I need someone to drive me home?
- What medicines will I be having during the BMAT?
- How long do I need to leave the dressing on my biopsy site?
- When can I start taking my medicines that I stopped before my BMAT?
- When can I go back to my usual activities?
- What medicines can I take for pain?
- Who should I contact if I have a lot of pain, bleeding, bruising, or signs of infection?
- What tests are being done on my BMAT samples? What will the results mean for me?
- When will I get my results back?
- Do I need to pay for any of the tests?



## Learn more


Find more information in these Myeloma Australia resources available from [myeloma.org.au](https://myeloma.org.au).


RESOURCE	NAME	LINK
INFOSHEETS	→  ' <a href="#">Understanding bone marrow tests in myeloma</a> infosheet'	Go to: <a href="https://myeloma.org.au">myeloma.org.au</a> Search for the document using the name following the  icons
	→  ' <a href="#">Understanding paraprotein in myeloma</a> infosheet'	
	→  ' <a href="#">Monoclonal gammopathy of undetermined significance (MGUS)</a> infosheet'	
	→  ' <a href="#">Smouldering myeloma</a> infosheet'	

## More information and support

→ **Our Specialist Myeloma Nurses** are available on our Telephone Support Line to talk with you about any aspect of myeloma, its treatment and management, including providing you with support and practical tips to eat well.

To book a 30- or 60-minute call with a Specialist Myeloma Nurse:

 call **1800 MYELOMA** (1800 693 566)  
Monday–Friday, 9am–5pm AEST/AEDT, or

 go to **myeloma.org.au** and click on the  
'Book a call with a Specialist Myeloma Nurse' button.

 email [nurses@myeloma.org.au](mailto:nurses@myeloma.org.au) to contact a Specialist Myeloma Nurse at any time.

We hope this infosheet has helped you understand more about the BMAT procedure and to prepare for it with confidence. Remember to ask your treating team if you have any questions about your procedure and what you need to do afterwards.



The information in this sheet is not intended to replace medical care or the advice of your treating team. Please talk to your team about the tests they recommend for you.