



Getting your bones checked to keep them healthy

Including risk factors for osteoporosis and broken bones

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About this information

This information is for you if you think you may be at risk of osteoporosis or broken bones and want to know what you should do. It's also for you if you have been invited for a bone health check or bone density scan at your hospital or GP practice, and want to know what to expect. You may have been invited for this because you have risk factors, have broken a bone, or because medical investigations have picked up that you have a spinal fracture.

Each GP practice and hospital does things slightly differently. Use this booklet as a general guide about what to expect but be prepared to ask your GP or healthcare professional for more information. You can also visit our website (theros.org.uk) or speak to our specialist nurses. Call free on **0808 800 0035**, email nurses@theros.org.uk, or contact us by **post** – see our details on page 8.

What is osteoporosis?

Osteoporosis is a condition where bones lose strength and are more likely to break. It mainly affects older people.

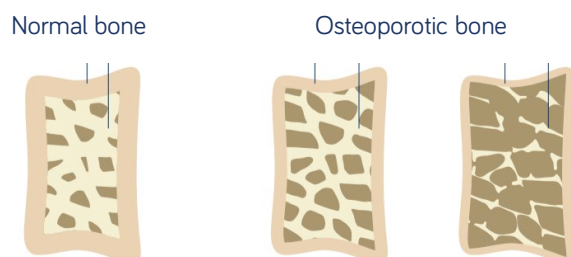
The word 'osteoporosis' means 'porous bone'. Bones have a thick outer shell with a strong structure inside that looks like a honeycomb. With osteoporosis, the holes in the structure get bigger and the bone becomes less dense. Eventually, the inner structure begins to break down. This leads to bones getting weaker and makes them more likely to break.

Broken bones and fractures mean the same thing. When bones break because of osteoporosis, they are sometimes called osteoporotic fractures or fragility fractures. They break with little force or trauma.

These broken bones often occur in the wrist, hip, or spinal bones (the vertebrae). They usually happen after a fall. Spinal fractures (or 'vertebral fractures') can occur without a fall if your bones are weak. This is when bones in your back become squashed or compressed. Sometimes spinal fractures cause height loss, a curved spine (often called 'kyphosis'), and long-term pain.

Osteoporosis is usually linked to the natural bone loss that occurs as we get older and sometimes it is caused by other factors. As we age, we lose more bone than we gain. This means the natural process of bone renewal gets out of balance. As a result, the amount of bone tissue we have reduces. This is often described as 'bone thinning'. It doesn't mean that your bones look any different from the outside and you won't feel any different. It means the outer shell becomes thinner and the inner structure becomes more porous, which can lead to bones losing strength and breaking more easily.

This bone loss starts sometime before we reach the age of 45, but usually we do not lose enough bone to make a difference to our bone strength until we are older. For women, bone loss starts to increase after the menopause because oestrogen levels decrease. Men lose bone more gradually than women.



See our booklets *Better bone health for everybody* and *About osteoporosis and weaker bones for more information about bone health and osteoporosis*

What are the risk factors for osteoporosis and broken bones?

There are many things that can increase the risk of your bones getting weaker and potentially lead to osteoporosis and broken bones. These are often called 'risk factors'. If any of these apply to you, you may need a bone health check to find out whether your bones are weak.

Bone health checks are held at GP practices, hospitals or community clinics. They often include a bone density scan and something called a 'fracture risk assessment'. Together, these can give a more complete picture of your bone health.

Finding out whether you are at risk is important. This is because there are positive actions you can take to reduce your chance of osteoporosis or breaking bones in the future. Safe, effective drug treatments are also available to strengthen your bones if needed. You can also make lifestyle changes to support your bone health.

Genes

Your bone health is partly determined by genes inherited from your parents. For example, research shows that you are more at risk of fractures if one of your parents broke their hip. But there are no specific tests that can assess how your genes might affect your bone health.

Ageing

As you get older, your bones become less dense and more likely to break. Everyone begins to lose bone after the age of about 45 and women lose bone more quickly after the menopause. By the age of 75, about half of us have osteoporosis. Broken bones caused by osteoporosis become much more likely in our 70s, 80s and older.

Ethnicity

Afro-Caribbean people are at a lower risk of osteoporosis and fractures than those of Caucasian or Asian origin because their bones are bigger and stronger.

Sex

Women are at greater risk of osteoporosis and broken bones than men. This is because they tend to have smaller bones than men. Bones also lose strength faster after the menopause, when oestrogen hormone levels decrease.

A history of broken bones

Often the first sign that bones have lost strength is when a bone breaks easily. This might be a broken wrist or hip after a trip or fall from a standing height. Of course, anyone can break a bone, but if you break a bone easily then it's a strong sign your bones have lost strength.

If you fall over quite often, this increases your risk of breaking a bone. People tend to fall more when they are older and less steady on their feet. **See our leaflet *Exercises to improve balance and muscle strength for some exercises that can help you to avoid falling over.***

If you have had a spinal fracture

You might have had a spinal fracture if you have:

- got shorter; or
- a curved spine (often called 'kyphosis'); or
- back pain

Talk to your doctor if you have any of these symptoms. They may suggest a spinal X-ray to check whether you have had a spinal fracture.

Spinal fractures (or 'vertebral fractures') in osteoporosis are different from other broken bones. They are generally 'stable', which means they don't damage the spinal cord or cause paralysis. The bones don't snap but they can squash or compress down on themselves.

People's experiences of spinal fractures vary. It's possible to have one without knowing as sometimes they don't cause any symptoms. You may be unaware until it's spotted in a routine medical investigation. They can also be picked up in a type of bone density scan called a 'vertebral fracture assessment'. Spinal fractures are uncommon before the age of 50, but they can sometimes happen earlier because of another medical condition or medicine.

Other medical conditions

Some medical conditions that can make bones less strong are:

- **Rheumatoid arthritis.**
- **Low levels of the sex hormone oestrogen in women.** This could be due to anorexia nervosa, early hysterectomy (before age 45) with removal of your ovaries, Turner's syndrome, or excessive exercise.
- **Low levels of the sex hormone testosterone in men.** This could be due to surgery for some cancers. Some rare conditions also lower testosterone levels, such as Klinefelter syndrome and Kallmann syndrome.
- **Hyperthyroidism.** This is where levels of thyroid hormone (which affects a variety of the body's functions) are abnormally high.
- **Parathyroid disease.** This is where levels of parathyroid hormone (which regulates calcium levels in the blood) are abnormally high.
- **Conditions that affect the absorption of food,** including Crohn's disease and coeliac disease.
- **Conditions that cause poor mobility,** such as a stroke and Parkinson's disease.

We have leaflets with more information on many of these conditions and their link to osteoporosis. See our website (theros.org.uk) or call us on **01761 471771** for more details.

Other conditions that may be linked to osteoporosis include diabetes and HIV (AIDS). People who have had an organ transplant, have respiratory diseases such as chronic obstructive pulmonary disease (COPD), and who are undergoing treatment for gender reassignment, may also be at increased risk.

Medicines

Some medicines increase your risk of osteoporosis and broken bones, including:

- **Steroid (glucocorticoid) tablets** such as prednisolone, particularly if taken for longer than three months.
- **Some anti-epileptic drugs** such as phenytoin.
- **Some breast cancer drugs** such as aromatase inhibitors (for example, anastrozole).
- **Prostate cancer drugs** that affect the production of the male hormone testosterone (for example, goserelin) or the way it works in the body

Some other medicines may increase your risk, but more research is needed. These include:

- Drugs called proton pump inhibitors (PPIs), used to reduce inflammation of the stomach and oesophagus.
- Diabetic drugs in the glitazone group, including rosiglitazone and pioglitazone.
- An injectable progestogen contraceptive called medroxyprogesterone acetate, also known as Depo-Provera
- Some drugs used for mental health problems, including depression.

Bone strength can improve after treating the underlying condition or stopping a medication, but it's important to talk to your doctor before making changes to your medication. For example, reducing steroids must only happen under medical supervision.

What can I do if I think I'm at risk?

If your healthcare professional thinks you are at risk, they will book you in for a bone health check. The results will help you make decisions about managing your risks - whether you have osteoporosis or not - so it's important to attend. It can also help doctors to decide whether you might need a drug treatment to strengthen your bones.

If you believe you're at risk of osteoporosis but don't yet have an appointment, here's what you can do:

If you are:	
<ul style="list-style-type: none"> • a man under age 45; or • a woman who hasn't yet reached the menopause 	<ul style="list-style-type: none"> • a man over age 45; or • a woman who has gone through the menopause
<p>Discuss your risk factors with your doctor or other healthcare professional. They will decide whether further investigations are necessary.</p> <p>There are some risk factors that are particularly important. One of these is if you have broken a bone easily, especially in your spine or in your hip, wrist or forearm. Another is if you are taking high-dose steroids (glucocorticoids). If either of these apply to you, you may be offered a bone density scan to measure your bone strength.</p> <p>If you have an early menopause (before the age of 45 and especially before the age of 40), you may be advised to take hormone replacement therapy (HRT). This is often prescribed until you are about 50 to help keep your bones strong.</p>	<p>Talk to your doctor or other healthcare professional. They will give you or refer you for a bone health check. This may include a 'fracture risk assessment' to learn about your risk of breaking bones in the next 10 years. The most commonly used tool in fracture risk assessments is called FRAX. You may also be offered a bone density scan as part of your assessment.</p> <p>Your healthcare professional is more likely to consider a fracture risk assessment if you are over 45 or post-menopausal. This is because fractures are much more likely when you are older.</p>

Contact our Helpline for more information. Our specialist nurses can help you decide whether you need to seek medical advice or simply make some changes to your lifestyle.

If you often fall over, talk to a healthcare professional. They can advise if you might benefit from a referral to a clinic in the community or a hospital for advice. They also can check if you have a condition that's causing you to fall and offer advice.

What is a bone density scan and how is it done?

A bone density scan is a quick and easy way to measure how much 'bone mineral' is in certain areas of your skeleton, often in your lower spine and one of your hips. This helps you and your healthcare professional to understand how strong your bones are. Osteoporosis is usually diagnosed from a bone density scan result. **See our booklet *About osteoporosis and weaker bones to find out more about diagnosing osteoporosis and what it means.***

Bone density is usually measured using an X-ray scanner called a DXA (dual energy X-ray absorptiometry) scanner. DXA scanners use low-dose X-rays, so they are safe.

Having a scan takes up to 20 minutes. It does not involve anything uncomfortable such as an operation or an injection, but you will need to lie on a couch on your back, with your legs resting on a cushion. You don't go in a tunnel like in an MRI scan. Some hospitals will ask you to change into a gown for your scan. Others will allow you to stay in your clothing unless it has metal - including zips and underwired bras.

Some bone density scans include a 'vertebral fracture assessment'. This creates specific pictures used to diagnose spinal fractures.

What does my bone density scan result mean?

A bone density scan compares your bone density to 'average'. This is the normal range found in a healthy young adult, because this is when our bones are at their strongest. The lower your bone density measurement, the greater your risk of breaking a bone. This could be in the spine, hip or elsewhere in your skeleton.

Bone density is measured as a 'T-score':

- any result down to -1 is described as normal or average for a young healthy adult
- if your result is between -1 and -2.5, it may be described as osteopenia
- a result of -2.5 or below is described as osteoporosis

Having osteoporosis diagnosed on a scan increases your chance of breaking a bone. This is in the same way that high blood pressure increases your chance of having a stroke.

Osteopenia is not a medical condition. It means that your bone density is lower than the average adult, but not low enough to be diagnosed as osteoporosis. This result is common in most older adults. It is not a concern unless you have other important risk factors, such as having a spinal fracture or taking a high dose of steroids. If you do have these as well, you may be prescribed a drug treatment to help strengthen your bones.

If your bone density result is low, you may need investigations for other medical conditions that could be affecting your bones. If these are treated and get better, your bone strength may improve. **For more information, see our factsheet *Bone density scanning*.**

What is a fracture risk assessment and what does it show?

'Fracture risk assessments' calculate your risk of breaking a bone in the next 10 years. They take into account the results of your bone density scan if you have had one. They also include your height and weight, and other risk factors linked to bone strength.

Your assessment may be done in your GP practice, a 'fracture clinic', or through a 'fracture liaison service' or 'osteoporosis clinic'.

Your healthcare professional will ask you questions about your life and health. They will then use a computer tool, such as FRAX, to combine the information. The tool will calculate your risk of having a fracture in the next 10 years as a percentage, for example, 20%. However, it does not mean that you will be in the 20% of people who will break a bone in the next 10 years.

Sometimes a bone density scan is carried out on its own, without a fracture risk assessment. But it is best practice for a bone density scan to form part of a fracture risk assessment. Together, they provide a more complete picture of your bone health and risk of breaking bones.

What happens when I get my results?

You may not get your results immediately after your bone health check. These are usually sent to the healthcare professional who requested the tests. Your healthcare professional will then discuss the results with you and may recommend you start taking a drug treatment to help strengthen your bones.

You can ask what the local process is and how long it will take to receive the results while at your assessment or scan.

Do you have a high fracture risk?

If you are a man over the age of 45 or a woman who has gone through the menopause, and you have a high chance of breaking a bone, you will generally be offered a drug treatment to strengthen your bones.

If you are younger or pre-menopausal, you might still need a drug treatment. However, your GP will usually discuss your situation with a specialist or refer you to the hospital first.

If you have lower than average bone density (osteopenia), you may also be offered a drug treatment. This can happen if you have specific risk factors for broken bones. For example, if you are undergoing breast cancer treatment or have broken a bone easily. **See our booklet *About osteoporosis and weaker bones* for more information on drug treatments for osteoporosis.**

Do you have a lower fracture risk?

If your fracture risk assessment identifies you as low risk, then you usually won't need a drug treatment to strengthen your bones. Sometimes this can happen even if you have osteoporosis on your DXA scan if you don't have other risk factors. However, you may need to consider taking a drug treatment if your situation changes.

If you have risk factors that will last into the future, you might need to return to your doctor at a later stage to be reassessed. For instance, you might not need a drug treatment immediately but it might be useful to go back to your doctor for further discussion when you reach the menopause or if you break a bone easily.

How can I help myself?

If any of the risk factors on pages 3 or 4 apply to you, there are positive lifestyle changes you can make at any age to help support your bone health. These include:

- eating healthily to ensure you get adequate calcium and vitamin D
- increasing the amount of muscle-strengthening and weight-bearing exercise that you do
- keeping active as you get older and exercising to improve muscle strength, balance and coordination to stop you from falling over
- not smoking
- avoiding excessive alcohol consumption
- maintaining a healthy bodyweight

See our booklet *Better bone health for everybody* for more information.

More ways to get support

If you have any further questions or would like to speak to one of our specialist nurses, here's how to get in touch:

- Contact the specialist nurses on our Helpline. Call Freephone **0808 800 0035** (Monday – Friday, 9am - 12:30pm and 1:30pm - 5pm), email **nurses@theros.org.uk** or send us a letter at **Royal Osteoporosis Society, St. James House, Bath, BA2 3BH**
Our specialist nurses are here to give you the information and support you need through a confidential service. You don't need to have a medical problem to use the service – you are welcome to ask any question you may have.
- Find expert information that will help you understand more about bone health on our website (**theros.org.uk**). You can also order further free printed information from our website or by calling **01761 471771**.
- Find your local support group at **theros.org.uk/support-groups** or by calling **01761 471771**. We have a network of support groups across the UK, which are run by volunteers for the benefit of people affected by osteoporosis and broken bones. Our groups provide essential support and information to local communities by organising regular meetings – both online and face to face – with talks from experts and through sharing experiences about living with osteoporosis.
- Become a member today by visiting **theros.org.uk/membership** or call **01761 473287**. As a member, you'll receive a quarterly magazine as well as exclusive updates and our members-only book, *All about osteoporosis*.

About the Royal Osteoporosis Society

The Royal Osteoporosis Society (ROS) is the only UK-wide charity dedicated to improving the prevention, diagnosis, and treatment of osteoporosis.

With more than 30 years of expertise, we are committed to helping the nation look after its bones and appreciate the importance of bone health for everybody. If you do develop osteoporosis, we're here to help you live well and to empower your healthcare professionals to provide you with the best possible care.

By driving research for the development of new treatments and therapies, we are determined to realise our vision of a future without osteoporosis.

As a charity, we rely on donations to continue our life-changing work. To find out how you can help us be there for everyone who needs us, visit **theros.org.uk/how-you-can-help** or call **01761 473287**.

Together, we can build a future without osteoporosis.