ROYAL OSTEOPOROSIS SOCIETY
Better bone health for everybody

AN INTRODUCTION TO OSTEOPOROSIS

Contents

What is osteoporosis?

Osteoporosis is a condition where your bones lose strength, making you more likely to break a bone.

Anyone can have osteoporosis. It's most common in older people, especially women who have been through the menopause. But men, younger people, children and pregnant women can also have osteoporosis.

There are medicines to help strengthen your bones if you have osteoporosis. It's important to talk with your doctor about medicines.

It's normal to feel worried about how osteoporosis will affect your daily life. But having osteoporosis doesn't mean giving up activities and interests that are important to you. In general, life should be able to go on as normal – perhaps with just a few adjustments.

"If you receive a diagnosis of osteoporosis… remember you're not alone and the condition is treatable." **Janet, 59**

Does osteoporosis cause broken bones?

Yes – osteoporosis can cause broken bones. But some people with osteoporosis may never break a bone. The breaks usually happen after a fall. You might hear these breaks described as fragility fractures.

Broken bones caused by osteoporosis are most common in the wrists, hips and spine. It's these broken bones that can cause pain, not osteoporosis itself. Broken bones do heal.

Did you know?
A 'fracture' and 'broken bone' mean the same thing.

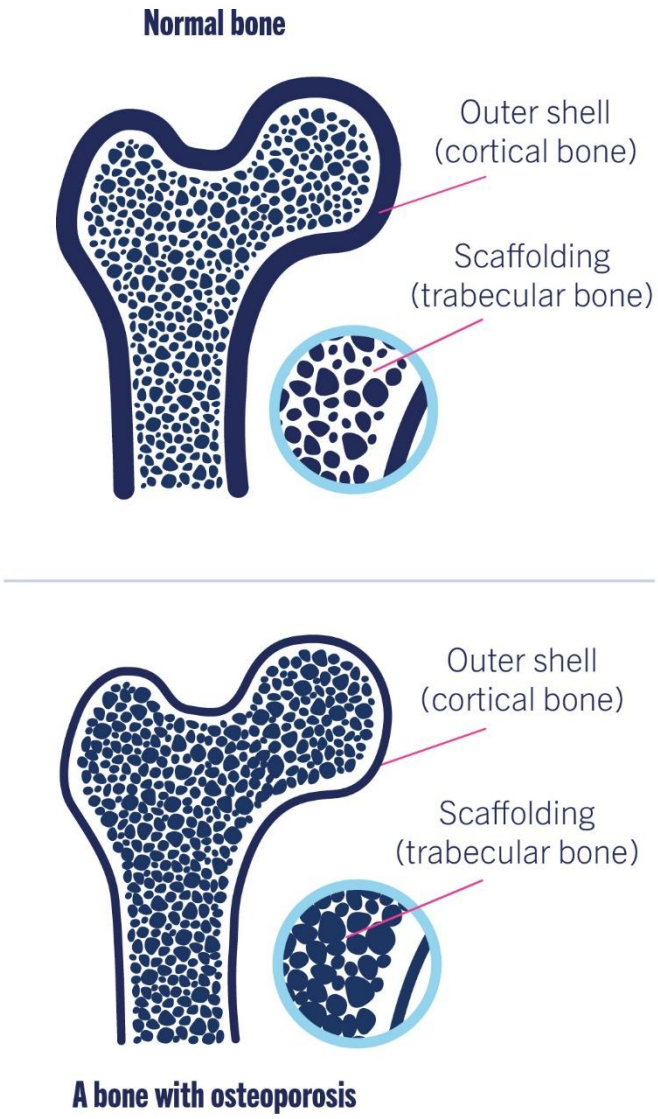
What happens inside bones?

Our bones are made up of:

- a thick shell on the outside called cortical bone
- strong scaffolding on the inside called trabecular bone.

Two types of cells are constantly at work inside our bones. These cells are called osteoblasts and osteoclasts. The osteoblast cells build new bone and the osteoclast cells break down old bone. As long as this process is in balance, your bones stay healthy and strong.

This process can become out of balance and cause changes to the bone. The shell of the bone gets thinner. The scaffolding inside the bone also thins and sometimes breaks down. This is osteoporosis.



There are many things that can upset the balance of the bone cells and increase your chance of having osteoporosis.

What causes osteoporosis?

Many things can increase your chance of osteoporosis.

Genes
Our bone health is largely dependent on the genes we inherit from our parents. If one of your parents breaks a hip, you're more likely to develop osteoporosis and break a bone.

Age
Everyone loses bone strength as they get older. But whatever your age, there are things you can do to help strengthen your bones.

Gender
Women are more likely to have osteoporosis. This is because of hormone changes that happen during the menopause which reduce bone strength.

Women are more at risk if they have an early menopause or hysterectomy (removal of the womb) with removal of the ovaries, before the age of 45.

Some men have medical conditions that cause them to have very low levels of testosterone (male hormone). This can make them more likely to have osteoporosis.

Medical conditions
Some medical conditions can increase your chance of osteoporosis. These include:

- overactive thyroid gland (hyperthyroidism)
- overactive parathyroid glands
- Crohn's
- Coeliac
- rheumatoid arthritis
- eating disorders.

Medicines
Some medicines can increase your chance of osteoporosis. These include:

- steroids such as prednisolone
- anti-epileptic drugs such as phenytoin
- drugs that reduce hormone levels such as certain breast and prostate cancer treatments.

Lifestyle factors
Drinking large amounts of alcohol and smoking can cause osteoporosis.

Visit **theros.org.uk/causes** for more information about risk factors.

"You're the same person you were the day before you broke a bone… it takes time to get your head around it. But the pain goes and you can go back to doing things you love doing, but you might have to adapt some." **Irene, 71**

How is osteoporosis diagnosed?

Osteoporosis is usually diagnosed through a fracture risk assessment and bone density scan. These scans and tests help your healthcare professional find out your chance of breaking a bone and if you need a medicine.

What is a fracture risk assessment?
This is a questionnaire used by healthcare professionals to understand your bone strength. It will assess your likelihood of breaking a bone and if you would benefit from a medicine.

The fracture risk assessment will include your height, weight and other risk factors linked to bone health. It will also include your bone density scan result if you've had one. You don't need to have a bone density scan to be diagnosed with osteoporosis. But it can help your doctor make a decision about treatment for osteoporosis.

What is a bone density scan?
A bone density scan (also known as DXA or DEXA) measures your bone density. Bone density is just one thing that helps us to understand the strength of your bones (like saying that high cholesterol is one risk factor for a heart attack). The lower your bone density, the greater your chance of breaking a bone.

It's a simple, painless scan that uses a very low dose of radiation. This radiation is safe. You'll be asked to lie down for 10 to 15 minutes while an x-ray scanning arm passes over you.

If your bone density is lower than the normal range found in a young adult, you'll be told you have osteoporosis or osteopenia.

What is osteopenia?
Osteopenia means your bone density is lower than the normal range for a young adult. But not low enough to be called osteoporosis.

As bone density is just one part of the fracture risk assessment, you may still be recommended an osteoporosis medicine if you have osteopenia.

The results of a DEXA scan are given as a number known as a T-score. A T-score compares your bone density to the normal range found in a young adult.

Having a diagnosis of osteoporosis on a DEXA scan doesn't give the full picture. The scores help guide if you may benefit from a medicine. Usually, the lower the score, the more likely you are to benefit from an osteoporosis medicine. But your bone density results do not give a complete picture of your bone strength.

To work out your chance of breaking a bone and if you need a medicine, you'll need to have a fracture risk assessment (see page 5).

Visit **theros.org.uk/diagnosis** for more information about scans and tests.

A bone density (DEXA/DXA) scanner.

How is osteoporosis treated?

Osteoporosis medicines help to strengthen bones, making them less likely to break.

If you've been offered a medicine for osteoporosis, this means your chance of breaking a bone is high enough that your bones would benefit from a medicine.

The most common medicines for osteoporosis are called bisphosphonates. These drugs work by slowing down the cells that break down bone. This group of drugs includes:

- alendronate (alendronic acid)
- ibandronate (ibandronic acid)
- risedronate
- zoledronate (zoledronic acid).

Did you know?
It's safe to take a medicine which is called an 'acid'. 'Acid' is just a way of describing the chemical structure of the drug. Lots of things have 'acids' in them, including the food we eat and even our bodies. All of the 'acid' osteoporosis medicines are approved and safe for people with osteoporosis.

Alendronate is usually the first treatment people are offered to help improve their bone strength. There are some cases where bisphosphonates may not be suitable for you.

Other medicines for osteoporosis include:

- denosumab
- hormone replacement therapy (HRT)
- raloxifene
- romosozumab
- teriparatide
- abaloparatide.

Most people will be prescribed an osteoporosis medicine by their GP. But you may need to be referred to a specialist in some cases. You may also be offered calcium and vitamin D supplements.

No one can make you have a medicine if you don't want it. But do take the time to understand the benefits and possible risks – both of taking the medicine and of not taking the medicine.

If you have any questions about the treatment you've been offered, speak to your doctor. They can explain why they've recommended the treatment and tell you about any other treatments that might be suitable.

Did you know?
Osteoporosis medicines are available in different forms including tablets, soluble tablets, liquid medicine, intravenous infusion (IV or 'drip') and injections. Your doctor can help you find the most suitable medicine for you.

Visit **theros.org.uk/treatment** for more information about medicines for osteoporosis.

Recovering from broken bones

Broken bones caused by osteoporosis are most common in the wrists, hips and spine.

Osteoporosis doesn't affect the healing process of bone. So if you do break a bone, it usually heals in about six to eight weeks. But it can take longer for you to be able to use the bone as you did before.

Broken wrist

If you've broken a wrist, you'll usually need a plaster cast until it's healed. This usually takes six weeks. Once the cast is removed, you can start doing exercises to help strengthen your muscles and return to normal activities.

Broken hip

If you've broken a hip, you'll usually need an operation to fix or replace the bone. Recovering from a broken hip can be a long process. You may need a referral to a physiotherapist or social services to help you return to living independently.

Spinal fracture

A spinal fracture is when a bone in your spine becomes compressed or squashed after losing strength. You may hear this called a vertebral or compression fracture. It's not the same as a broken back and it won't cause you to become paralysed. It can be very painful when it happens, but sometimes it's painless. You won't need an operation and you'll usually be able to recover at home.

Spinal bones don't go back to the shape they were before the fracture. They heal in their new compressed shape. This can lead to height loss and a curved spine.

Managing pain

The pain of broken bones can be severe. It often comes on quickly and then it gradually improves. Sometimes a healed bone may continue to cause pain.

There are things you can do to help with pain.

- You can buy some pain-relieving medicine over the counter, including paracetamol and ibuprofen. If over the counter medicines aren't working for you, speak to your GP. They may be able to prescribe stronger pain-relieving medicines or refer you to an NHS pain clinic.
- There are other therapies and treatments you may find help to reduce pain, including physiotherapy and heat and ice packs.
- If you've had painful spinal fractures, exercise to help care for your back can help.

Visit **theros.org.uk/pain** for more information about managing pain after a broken bone.

Looking after your bones

It's never too early or too late to start looking after your bones. A healthy, balanced diet and regular exercise can help to reduce the chance of broken bones.

Healthy eating for your bones

Eating a healthy, balanced diet can help you get all the nutrients you need for your bones. Try to eat meals that have foods from the four main food groups. These are:

- fruit and vegetables
- carbohydrates, like bread, potatoes, pasta and cereals
- dairy and alternatives, like milk and cheese
- protein, like beans, eggs, fish and meat.

Try to cut down on caffeine, sugary drinks and salt.

Calcium and vitamin D are just two nutrients that are important for bones.

Calcium

You can usually get all the calcium you need for your bones from your food.

Calcium is measured in milligrams (mg).

Most adults need 700mg of calcium a day. Your doctor may advise you to increase your intake if you're taking an osteoporosis medicine or are at risk of breaking a bone.

Vitamin D

You can get vitamin D from sunlight, supplements and food.

Vitamin D in food and supplements is measured in micrograms (µg) or international units (IU). 1 microgram of vitamin D is the same as 40 IU.

You can usually get all the vitamin D you need for your bones from sunlight in the summer. You should expose your skin, without sunscreen, to direct sunlight. This should only be for around 10 minutes, once or twice a day. Take care not to burn. You only need to expose the skin on your face and arms.

Our skin can't make vitamin D from the sun in the winter. You should consider taking a daily supplement from the end of September to the beginning of April.

Most adults need 10 micrograms of vitamin D a day. If you have osteoporosis, your doctor may advise you to take a 20 microgram supplement of vitamin D a day. This is to make sure you're getting enough for your bones.

Alcohol and smoking

Drinking more than the recommended levels of alcohol and smoking can harm your bones. This means they increase your chance of broken bones.

There is support available if you're worried you're drinking too much alcohol or want to stop smoking. Speak to your GP for more information.

Visit **theros.org.uk/nutrition** to find out more about healthy habits for your bones, including our calcium-rich food chooser.

Exercise for bones

Three types of exercise and movement can help your bones if you have osteoporosis. These are exercises that:

- help your bone strength and reduce your chance of breaking a bone
- improve your balance and muscle strength to help stop you falling over
- care for your back.

It's important to do exercise you enjoy and at a level that's right for you.

Exercise for strong bones

Bones get stronger when you use them. The best way to help your bone strength is to do **weight-bearing impact** and **muscle-strengthening exercise**.

Weight-bearing impact exercise involves being on your feet and adding an extra force or controlled jolt through your bones. Dancing, jogging, brisk walking and tennis are examples of this.

Muscle-strengthening exercise involves moving your muscles against resistance to make them stronger. Resistance comes from your own body weight, a resistance band or weight.

Exercise for balance and muscle strength

It's important to have good balance and coordination. This is because slips, trips and falls can lead to broken bones. If you're unsteady on your feet, there are some activities you can do to help like dance, yoga, Tai Chi and Pilates.

Did you know?

Exercise is unlikely to cause a broken bone. But if you have osteoporosis, you may need to adapt some exercises to be on the safe side – especially if you have spinal fractures or have had many broken bones.

Care for your back

Safe moving and lifting techniques can help keep your back straight and reduce your chance of spinal fractures.

If you've had spinal fractures, there are some exercises you can do to strengthen your back muscles. These exercises can help with pain and improve posture.

Visit **theros.org.uk/exercise** for more information about exercising safely for bones.

My osteoporosis guide

Use this space to make notes with your healthcare professional.

Key hospital contact

Name: _____

Contact details:

_____

_____

Calcium and vitamin D

My doctor has recommended I have

_____ mg of calcium a day.

_____ micrograms of vitamin D a day.

I'll achieve this by:

_____

_____

Medicine

I have been recommended

_____

Personal goals for example exercise and diet

_____

_____

_____

Getting more information and support

About our health information
Our health information is written by our health information team and is reviewed by healthcare professionals and people living with osteoporosis. We make every reasonable effort to ensure the content is accurate and up-to-date.

Our information is not a substitute for medical advice provided by your own doctor or other healthcare professional.

For more information about osteoporosis visit **theros.org.uk/healthinfo**

To order your free copy of our booklets, including **'Your bones and osteoporosis'** call **01761 471771** or email **info@theros.org.uk**

Support for you
Our specialist Helpline nurses are here to answer your questions or concerns about bone health or living with osteoporosis. You can visit **theros.org.uk/helpline** or call **0300 102 3030.**

Our free BoneMed Online service can support you and answer your questions if you are starting, taking or changing osteoporosis medicine. Visit **theros.org.uk/yourbonemed**

We have a network of support groups across the UK, which are run by volunteers. Our groups provide support by organising regular meetings – both face-to-face and online. Find your local support group and view the online programme at **theros.org.uk/groups** or email **volunteerengagement@theros.org.uk**

Become a member of the Royal Osteoporosis Society and gain access to guidance and support from bone health experts and all the latest information on osteoporosis. Join today at **theros.org.uk/join-us** or call **01761 473287**

"When I came off the call, I felt someone had picked me up, given me a hug and set me on the right path." **Mandy, 65**

About the Royal Osteoporosis Society

We're the Royal Osteoporosis Society – the UK's largest national charity dedicated to improving bone health and beating osteoporosis. And we're here for everyone. We equip people with practical information and support to take action on their bone health.

How you can help

As an independent charity, we don't receive any government funding. So we can only continue to provide our services through the generosity of our supporters.

We would appreciate any donation you're able to give to support our work. If you'd like to donate, visit **theros.org.uk/donations** or call **01761 473287**

Your donation will help us support more people with osteoporosis.

Last review: July **2024** **Next review:** July **2027**