



**ROYAL
OSTEOPOROSIS
SOCIETY**

Better bone health for everybody

YOUR BONES AND OSTEOPOROSIS

theros.org.uk

About this book

We answer the most common questions about osteoporosis.

This book is for you if you:

- have recently been told you have osteoporosis
- have started an osteoporosis medicine
- would like to understand more about osteoporosis and osteopenia

We know that being diagnosed with a new condition can cause lots of different feelings. You may feel worried, confused or frustrated. Or you may feel relieved that you finally have a diagnosis.

Having osteoporosis doesn't mean giving up the 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.

The Royal Osteoporosis Society is here to help you understand osteoporosis and make a choice about treatment that is right for you.

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“I was shocked when I was first diagnosed with osteoporosis. My advice would be to find out as much as you can about the condition.”

Angela, 25

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.

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

There are medicines to help strengthen your bones if you have osteoporosis. It's important to talk to your doctor about medicines. A healthy, balanced diet and exercise are also important.

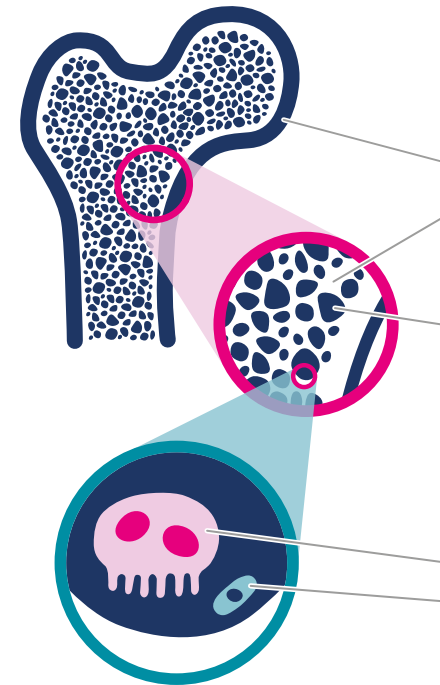
Why do bones matter?

Bones have many jobs in the body. They protect your organs, store minerals and make blood cells. They also give your body structure. This enables you to move around and do the activities you enjoy.

What happens inside bones?

Bones change throughout your life. There are cells inside your bones that work to keep them strong. This process is called **bone remodelling**.

Bone remodelling



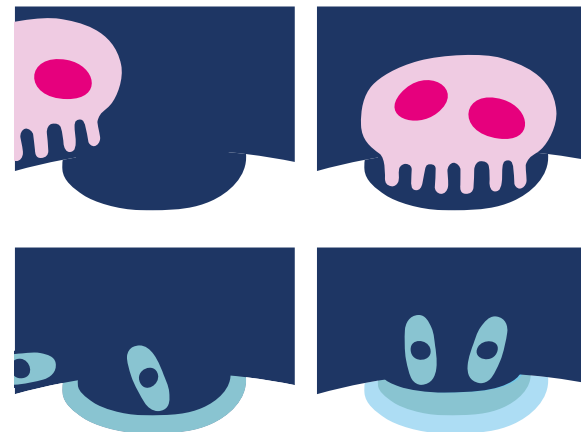
Our bones are made up of two types of living tissue:

- a thick outer shell called **cortical bone**
- strong scaffolding inside the bone called **trabecular bone**.

There are holes inside the scaffolding.

There are two types of cells constantly at work inside our bones:

- osteoclast cells.
- osteoblast cells.



Osteoclast cells break down old bone.

Osteoblast cells build new bone.

As long as this process is in balance, your bones stay healthy and strong.

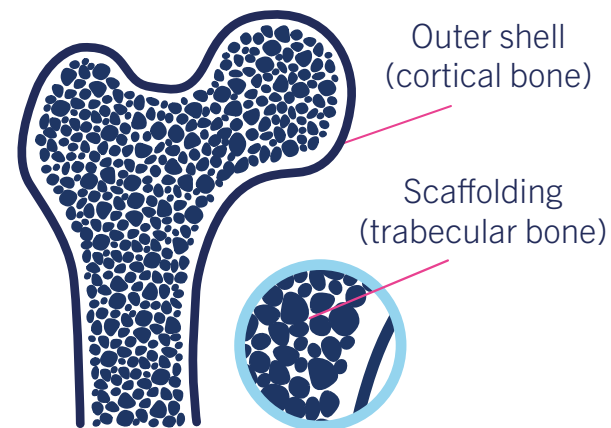
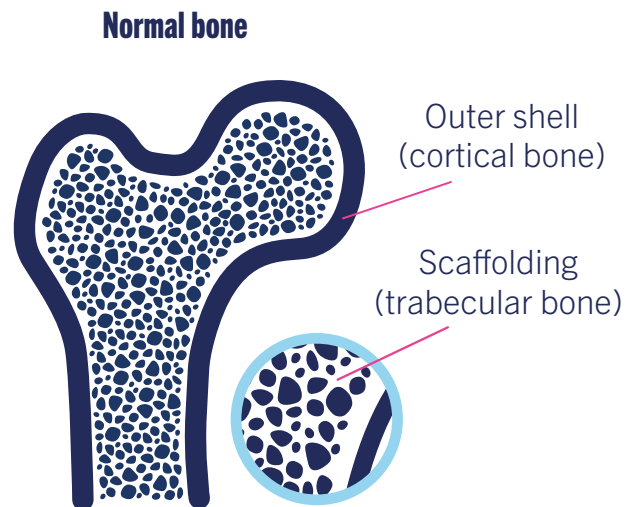
What happens inside bones with osteoporosis?

When the bone remodelling process becomes out of balance, it causes 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.

Did you know?

The thinning happens on the inside of the bones. This means your bones won't look any different. You also won't feel any different.



A bone with osteoporosis

What causes osteoporosis?

Many things can increase your chance of osteoporosis. These are sometimes called risk factors.

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 have osteoporosis and break a bone. There are no specific tests that can assess how your genes might affect your bone health.

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

Osteoporosis can affect both women and men.

Women are more likely to have osteoporosis. This is because the level of oestrogen (female hormone) gets lower during the menopause. This lowers bone strength.

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

Did you know?

One in two women and one in five men over the age of 50 will break a bone because of osteoporosis.

Medical conditions

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

- overactive thyroid gland (hyperthyroidism)
- overactive parathyroid glands (parathyroid disease)
- rheumatoid arthritis
- liver disease
- eating disorders
- conditions that affect the absorption of food such as Crohn's or coeliac
- conditions that cause poor mobility such as stroke or Parkinson's disease.

Some conditions increase the chance in men alone. This is because they cause very low levels of testosterone (male hormone) in the body. The conditions include:

- Klinefelter syndrome
- Kallmann syndrome
- injury to the testicles.

Lifestyle factors

Drinking large amounts of alcohol and smoking can cause osteoporosis.

Being a healthy weight reduces your chance of osteoporosis.

Medicines

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

- steroids such as prednisolone
- anti-epileptic drugs such as phenytoin
- breast cancer treatments such as anastrozole
- prostate cancer drugs such as goserelin.



There are also some medicines that may increase your chance of osteoporosis. But we **don't** have enough evidence to be sure if there is a link. These include:

- certain drugs used to protect the stomach and food pipe such as omeprazole
- the diabetic drugs pioglitazone and canagliflozin
- an injectable contraceptive known as Depo-Provera
- some drugs used for mental health conditions such as citalopram.

What can I do if I think I have osteoporosis?

If you think you may have osteoporosis, discuss your risk factors with your doctor. If your doctor thinks you have osteoporosis, they will normally book you in for a bone health check. This usually involves a fracture risk assessment and sometimes a bone density scan.

Visit [theros.org.uk/causes](https://www.theros.org.uk/causes) for more information about risk factors.

How is osteoporosis diagnosed?

Osteoporosis is usually diagnosed through a fracture risk assessment and bone density scan.

Fracture risk assessment

A fracture risk assessment is a questionnaire used by a healthcare professional to understand your bone strength. The most common fracture risk assessment is called FRAX. It will assess your chance of breaking a bone and if you would benefit from an osteoporosis medicine. The fracture risk assessment will include your height, weight and other factors linked to bone strength. It will also include your bone density scan result if you've had one.

Bone density scan

A bone density scan (DXA / 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).

On the day of the scan, you will be asked to lie on your back, on a firm couch. A scanning arm passes over your body and takes images of your spine and hips.

The spine and hips are two of the most common places where bones break. Sometimes you will also have your wrist scanned.

Most people have a good experience with this scan. You **don't** go into a tunnel or need an injection.

A bone density scan uses very low dose X-rays to measure the density of your bones. This means it's very safe.



What do my results mean?

The result of your bone density scan may be given as a number called a T-score. A T-score compares your bone density to the normal range found in young, healthy adults.

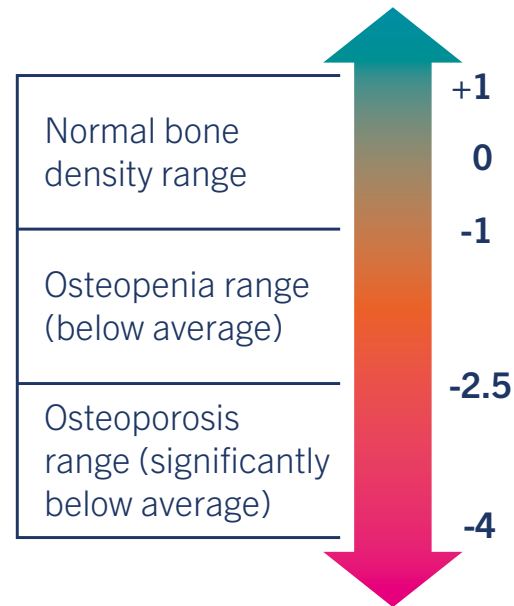
Normal (+1 to -1) – Your bone density is in the normal range for a young adult.

Low bone density (-1 to -2.5) – Your bone density is slightly below the normal range for a young adult. This is known as the **osteopenia** range. This score is expected in older adults.

Osteoporosis (-2.5 and below) – Your bone density is much lower than the normal range for a young adult. This is also known as the osteoporosis range.

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 scan results do not give a complete picture of your bone strength. This means you could be told you are in the osteoporosis range but would **not** benefit from medicine.

Or you could be in the osteopenia range and be recommended medicine. This is why a full fracture risk assessment is so important.



Depending on the results of your bone density scan and fracture risk assessment, you may be offered:

- an osteoporosis medicine
- lifestyle advice that can help to strengthen your bones
- further tests, such as a blood test
- a follow-up scan to monitor your bone density in two to five years.

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

How is osteoporosis treated?

Osteoporosis medicines help strengthen bones, making them less likely to break. Medicines can help you stay independent and live well.

As well as taking a medicine, a healthy, balanced diet and regular exercise is important for your bone health.

Did you know?

Osteoporosis medicines are not pain-relieving, so they won't reduce the pain caused by broken bones. But there are other treatments and ways to manage pain from broken bones. Visit theros.org.uk/pain for more information.

Why have I been offered a medicine for osteoporosis?

A healthcare professional will offer you an osteoporosis medicine if your chance of breaking a bone is high enough that you would benefit from a medicine.

Before recommending a medicine, a healthcare professional will consider lots of things, including:

- your age and gender
- if you have broken any bones before

- if you have any other medical conditions
- your fracture risk assessment results
- the different types and forms of medicines available
- your own thoughts and feelings about treatment.

All of this helps them understand your needs and the medicine that is likely to work best for you.

What are my treatment options?

Everyone's treatment journey is different. There are several types of medicines for osteoporosis. The most common medicines are bisphosphonates. Alendronate (a bisphosphonate) is usually the first treatment that people are offered to help improve their bone strength. But this may be different for you.

There are some cases where bisphosphonates may not be suitable. Your doctor can help you find the most suitable medicine for you.

Did you know?

Osteoporosis medicines are available in different forms including tablets, soluble tablets, liquid medicines, intravenous infusion (IV or 'drip') and injections.

“ I take alendronate once a week. I like my cup of coffee when I get up, not a full glass of water. But it becomes a habit. I read the news and catch up on messages while waiting for the all-important cup of coffee. After four years, I’ve had no side effects and no more fractures.”

Irene, 71

Use our table of osteoporosis medicines to find out more about the different treatments. It’s important to check with your doctor how often you take your medicine as this can vary.

All of the medicines are very effective at strengthening bones and reducing the chance of broken bones.

Osteoporosis medicine	Brand name	Medicine type	How often do you have the medicine?	How long do you take the medicine?
Alendronate (also called alendronic acid) Bisphosphonate	Fosamax® and Binosto®	Tablet, soluble tablet or liquid medicine	Once a week	5 to 10 years (or longer in some cases)
Risedronate Bisphosphonate		Tablet	Every day or once a week	5 to 10 years (or longer in some cases)
Ibandronate (also called ibandronic acid) Bisphosphonate	Bonviva®	Tablet or injection	Tablet is taken once a month Injection is given every three months	5 to 10 years (or longer in some cases)
Zoledronate (also called zoledronic acid) Bisphosphonate	Aclasta®	Intravenous infusion (IV or 'drip')	Once a year	3 to 6 years (or longer in some cases)
Teriparatide (also known as parathyroid hormone treatment)	Forsteo®, Terrosa®, Movymia® and Sondelbay®	Injection	Every day	2 years
Abaloparatide	Eladynos®	Injection	Every day	18 months
Raloxifene		Tablet	Every day	Ongoing with regular review
Denosumab	Prolia®, Stoboclo®	Injection	Every six months	5 to 10 years (or longer in some cases)
Romozosumab	Evenity®	Injection	Once a month	1 year
Hormone replacement therapy (HRT) for women (oestrogen and progesterone)		Tablets, skin patches, implants, sprays and gels	Varies	Ongoing with regular review



It is your choice whether to have a medicine. But do take the time to understand the benefits and possible risks – both of taking a medicine and of **not** taking one.

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 osteoporosis.

It is helpful to think about what is important to you when making a decision about taking an osteoporosis medicine. Consider the questions below and talk to your healthcare professional if you're unsure.

- Do you feel you know enough about osteoporosis and your bone health?
- Do you feel you know enough about the possible benefits and side effects?
- Are you worried about side effects?
- Can you imagine yourself taking the medicine?
- Are there any things that might make taking the medicine difficult?
- How would you feel if you decided not to take the medicine and then broke a bone?

Making a decision about treatment

It is important to learn all you can about your treatment options, so you can decide what is right for you. Talk to a healthcare professional so you fully understand your situation. You can ask them as many questions as you need to about the information they give you, including the patient information leaflet that comes with your treatment. This leaflet contains important information about your medicine. If you don't have a copy, ask your healthcare professional for one.



Any medicine can cause side effects and it's normal to feel worried. Most people won't experience any problems. Especially if the osteoporosis medicine is taken correctly.

Most osteoporosis medicine side effects are mild and will often disappear after a short time. There are some side effects that can happen after years of taking an osteoporosis medicine. But these are very rare.

It's important to remember why you were offered the treatment. It's because your chance of breaking a bone without treatment is higher than your chance of experiencing a side effect. Medicines can help you stay independent and live well.

How do I get the best out of my medicines?

Your healthcare professional will tell you when to take your medicine and how often. There are many things you can do to get the most out of your treatment.

- **Take the treatment for the amount of time advised by your doctor.** Try to fit your medicine into your routine.
- **Read the instructions that come with your treatment and follow them carefully.** This will lower the chance of side effects and ensure that the medicine works to its full potential.
- **Eat a well-balanced diet.** A healthcare professional may also prescribe you calcium and vitamin D supplements.

If you have problems or side effects, talk to a healthcare professional. You may be able to try a different medicine.

How long should I take my medicine for?

Osteoporosis medicines are normally given for several years. You may be on the same medicine during this time or swap to a different medicine.

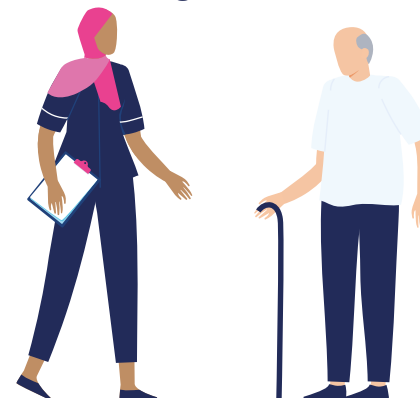
Your healthcare professional should review your osteoporosis medicines and bone strength every three to five years.

At your review, your healthcare professional will ask about any side effects. They will also check that the medicine is working.



How do I know if my medicine is working?

You will not feel any different when taking an osteoporosis medicine. But this does not mean it is not working. Research shows they are working in the background. They are helping to strengthen your bones and stop them from breaking.



Healthcare professionals can also assess if a medicine is working. They may ask you if you have:

- broken any bones while taking treatment and how many
- got shorter or your posture has changed – this is because spinal fractures can cause height loss.

You may be offered a bone density scan two to five years after you start your medicine. This is to help see if the medicine is working.

Bone density scans only show one part of what's happening in the bones. Medicines can improve bone strength in ways that are not measured by the scan.

If you break a bone while taking your treatment, it doesn't necessarily mean the medicine isn't working. No medicine completely prevents broken bones, it just lowers the chance. But if you continue to break bones easily, you may be recommended a different medicine.

Can I stop treatment?

You can stop taking osteoporosis medicines. But it's important to talk to your doctor, nurse or pharmacist if you stop. **Do not stop denosumab without talking to a healthcare professional first. This is because denosumab wears off quickly. Stopping denosumab can cause broken bones if you don't switch to another osteoporosis medicine.**

If you're taking bisphosphonates, you may be recommended to pause your medicine after a few years. This lowers the chance of rare side effects. Your medicine will continue to strengthen bones for a few years after you stop taking it. After a few years, you may be advised to start it again, if it would benefit your bones.

Is there a natural alternative to medicine?

People often want to know if they can improve their bone strength without taking a medicine. Healthy habits, like a healthy, balanced diet and regular exercise, are important for your bone health. But if you have a high chance of broken bones, the best way to reduce your chance of broken bones is to take an osteoporosis medicine **and** have healthy habits.

What will happen if I don't have a medicine?

If you decide not to take a medicine, it's likely your bones will get weaker over time. This means your chance of breaking a bone will increase.

Some people may never break any bones, while others may break several. Everyone's chance is different, so it's important to understand your own situation and make a decision that's right for you.

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





Looking after your bones

As well as having medicine, there are many things you can do to look after your bones and lower the chance of them breaking.

Eating a healthy, balanced diet can help you get all the nutrients you need for your bones.

It's important to eat a wide variety of foods. Try to eat meals that have foods from the four main groups. These are:

- fruit and vegetables
- carbohydrates, like bread, potatoes, pasta and cereals

- dairy and plant-based alternatives, like milk and cheese
- protein, like beans, eggs, fish and meat.

A small amount of fat is important as part of a healthy, balanced diet. You should get the fat you need by eating a balance of the foods from the four main food groups.

Calcium gives your bones the strength and hardness they need to cope with everyday activities.

Most adults need 700mg of calcium every 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.

If you eat a balanced diet, you should get all the calcium you need.

Vitamin D helps your body to absorb and use calcium. It also helps to keep your muscles strong.

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. Everyone should consider taking a 10 microgram daily supplement from the end of September to the beginning of April.

If you're at risk of broken bones or taking an osteoporosis medicine, your doctor may advise you to increase your intake to a 20 microgram supplement of vitamin D a day.



Exercise and being active is important for your bones.

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

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

As well as a healthy, balanced diet and regular exercise, you can look after your bones by:

- reducing the amount of alcohol you drink
- stopping smoking
- reaching and keeping a healthy body weight.

Visit [theros.org.uk/healthy-bones](https://www.theros.org.uk/healthy-bones) or call **01761 471771** to order your free copy of '**How to look after your bones**' for more information on food and exercise that can help your bones.



Living with osteoporosis

If you're living with osteoporosis, you may be wondering what this means for you and whether normal daily activities might result in broken bones. It's important to remember that not everyone with osteoporosis will break a bone. And even if you have broken a bone, you can often continue doing the things that are important to you.

We've answered some common questions about living with osteoporosis.

I eat well, exercise and don't smoke or drink. Why do I have osteoporosis?

A person's chance of osteoporosis depends on many different things. A balanced diet, exercise and stopping smoking can lower the chance of osteoporosis. But there are some things you can't change such as age and genetics. This means it's not always possible to prevent osteoporosis. But making these healthy changes is still important for your bones and can lower your chance of broken bones.

Do I need to stop being active or change my activities now that I have osteoporosis?

Exercise and activity are important to help strengthen your bones. So it's important to stay active after being told you have osteoporosis. You should be able to continue doing the activities you did before.

If you have broken a bone in your spine (spinal fracture), you may need to adapt some activities.

Talk to a healthcare professional if you are unsure what exercises are right for you.

Visit theros.org.uk/exercise for more information about how to exercise safely for your bones.

What can I do to keep myself steady?

It's important to have good balance and coordination. This is because slips, trips and falls can lead to broken bones. If you've noticed your balance isn't as good as it was, you can lower your chance of falls by:

- avoiding clothes that are long and trailing
- talking to a healthcare professional about changing any medicines that make you feel dizzy
- choosing shoes and slippers that have a patterned tread – these are less slippery than smooth soles
- keeping your glasses clean and hearing aids maintained
- removing trip hazards such as loose rugs
- making adjustments to your home such as handrails or letterbox cages.

Can osteoporosis be cured?

There isn't a cure for osteoporosis. But you can lower the chance of broken bones by taking an osteoporosis medicine.

I've been told I have severe osteoporosis. What does this mean?

Severe osteoporosis can mean different things for different people. It can mean you have a very high chance of breaking a bone. And it can mean you've already broken a bone because of osteoporosis such as your hip, wrist or spine.

Will osteoporosis shorten my life expectancy?

Having osteoporosis doesn't shorten your life expectancy. But if you have other medical conditions that cause poor health, broken bones can lead to complications. Some medical conditions can also affect how you recover from a broken bone. That's why it's important to reduce your chance of breaking a bone.

Will osteoporosis and broken bones affect my job?

You should be able to keep working.

There are some adjustments you can make to lower the chance of broken bones in the workplace. Especially if your job involves heavy lifting.

They include:

- reducing the size of loads you lift
- reducing repetitive bending, twisting and turning
- using safe moving and lifting techniques to keep your back straight.

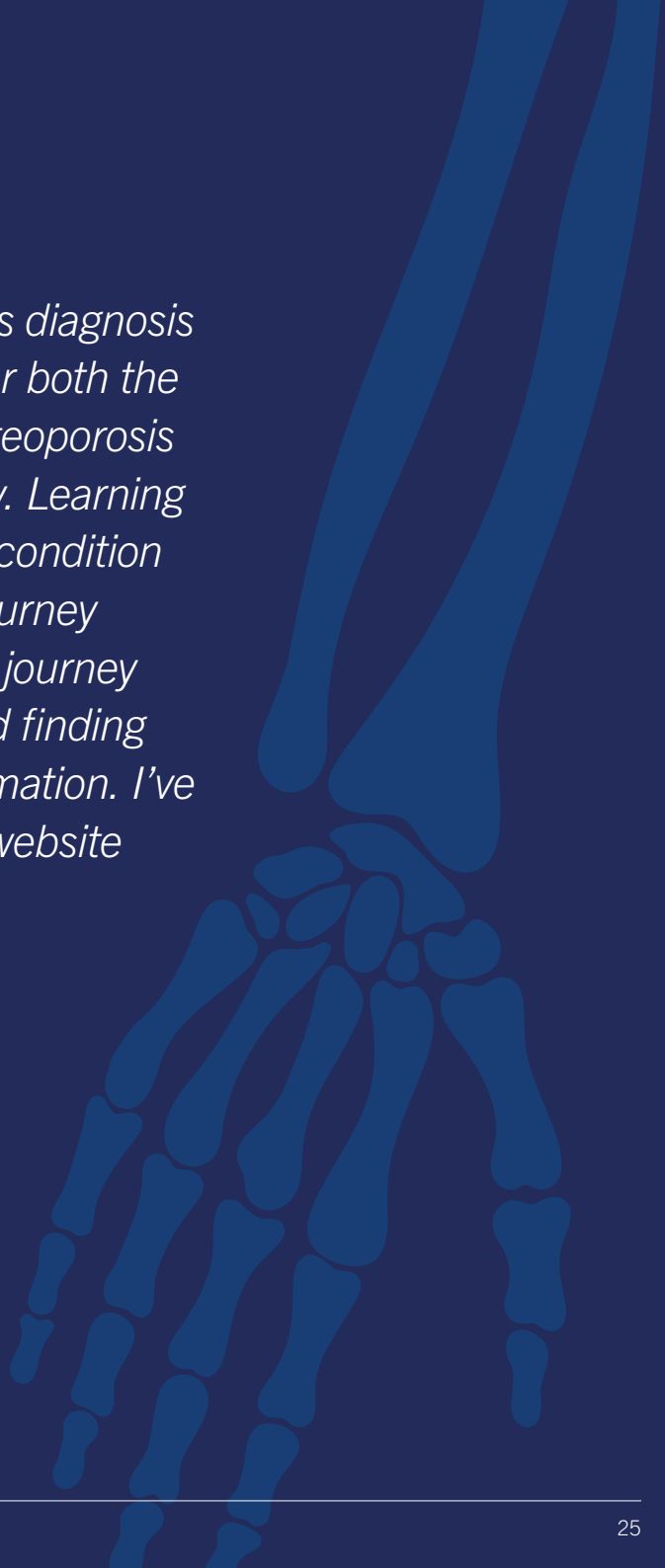
It's important to tell your employer if you feel unable to safely carry out tasks you were able to do before or need some adjustments. Your employer has a duty to make reasonable adjustments in the workplace to accommodate your needs. And this protects you from unlawful discrimination on the grounds of disability.

Can I get financial help?

Osteoporosis itself doesn't make you eligible for disability-related financial support. But you may be able to get financial help if you have broken bones that make it hard to do everyday tasks, get around or work.

You may also be able to get financial support if you're caring for someone with broken bones.

Visit theros.org.uk/living for more information about living with osteoporosis.



“An osteoporosis diagnosis can be scary for both the person with osteoporosis and their family. Learning to live with the condition is a personal journey and part of the journey revolves around finding balanced information. I've used the ROS website extensively.”

Annette, 65



Getting more information and support

About our health information

Our health information is written by the 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. Please always talk to a healthcare professional to discuss your bone health.

ROS is not responsible for and we cannot accept liability for misinterpretation, misuse of information, loss, harm or damage arising from any reliance on or use of the information or guidance provided.

For more information about osteoporosis visit theros.org.uk/healthinfo or call **01761 471771**.

Support for you

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

The Bone Health and Osteoporosis UK online community is a welcoming and safe space for you to share your experiences with others. Whether you're living with osteoporosis or supporting someone, our community is here for you. Visit theros.org.uk/online-forum

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. Regardless of where you live, you can join an online meeting from anywhere in the UK. Find your local support group and view the online programme at theros.org.uk/groups or email volunteerengagement@theros.org.uk

Our specialist Helpline nurses are here to answer your questions or concerns about bone health or living with osteoporosis. Visit theros.org.uk/helpline

Join the Royal Osteoporosis Society and, from just £3 a month, we'll always be in your corner. Whether you need information to make sense of your diagnosis, or guidance on ways to live well with osteoporosis, we're here for you. No matter what the future has in store. Join today at theros.org.uk/join-us or call **01761 473287**

“ At the support group meeting, I met people who experienced similar problems, shared their experiences and offered emotional support which I found so valuable when I was recently diagnosed.”
Support group attendee



Better bone health for everybody

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.

Working with healthcare professionals and policy-makers, we're influencing and shaping policy and practice at every level. We're driving the research and development of new treatments, to beat osteoporosis together.

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.

To find out about volunteering, visit theros.org.uk/volunteer-with-us

President: Her Majesty The Queen

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