ROYAL OSTEOPOROSIS SOCIETY

Better bone health for everybody

HOW TO LOOK AFTER YOUR BONES

Did you know it's never too early or too late to start looking after your bones?

theros.org.uk

About this book

Whatever your age, background and lifestyle, there are things you can do to help keep your bones strong and lower the chance of broken bones (fractures).

This book is for you if you:

- want to find out how to look after your bones and improve your bone health
- have been told you have a chance of or have osteoporosis
- have been told you have osteopenia.

We're here to help you understand how eating a healthy, balanced diet and regular exercise can help your bones. We also share tips on changes you can make to improve your bone health.

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"I think it's important, especially for younger people, to be aware of osteoporosis. We can do things to help strengthen our bones and reduce the risk of osteoporosis, just by making a few small changes to our lives."

Ed, 25

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.

Looking after your bones is important – just like with your heart and lungs. A healthy, balanced diet and regular exercise can help to lower the chance of osteoporosis and broken bones (fractures). Strong bones don't break easily, which means you can keep doing the things that are important to you.

You may have already made changes to look after your bones but have osteoporosis. This doesn't mean the changes you've made aren't helping your bones. There are just many different things that can increase your chance of having osteoporosis and broken bones, like your genes.

Visit theros.org.uk/info or **call 01761 471771** to order your free copy of **'Your bones and osteoporosis'** for more information about osteoporosis.

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 bones if you have osteoporosis. A healthy, balanced diet and regular exercise are also important.

What is osteopenia?

Osteopenia is a result on a bone density scan (also known as DXA or DEXA). It means your bone density is lower than the average young adult. But not low enough to be called osteoporosis.

Bone density affects how strong your bones are.

Your doctor may recommend an osteoporosis medicine if you have osteopenia. Or they may recommend a healthy, balanced diet and exercise to help your bones.

Healthy eating for your bones

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 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.

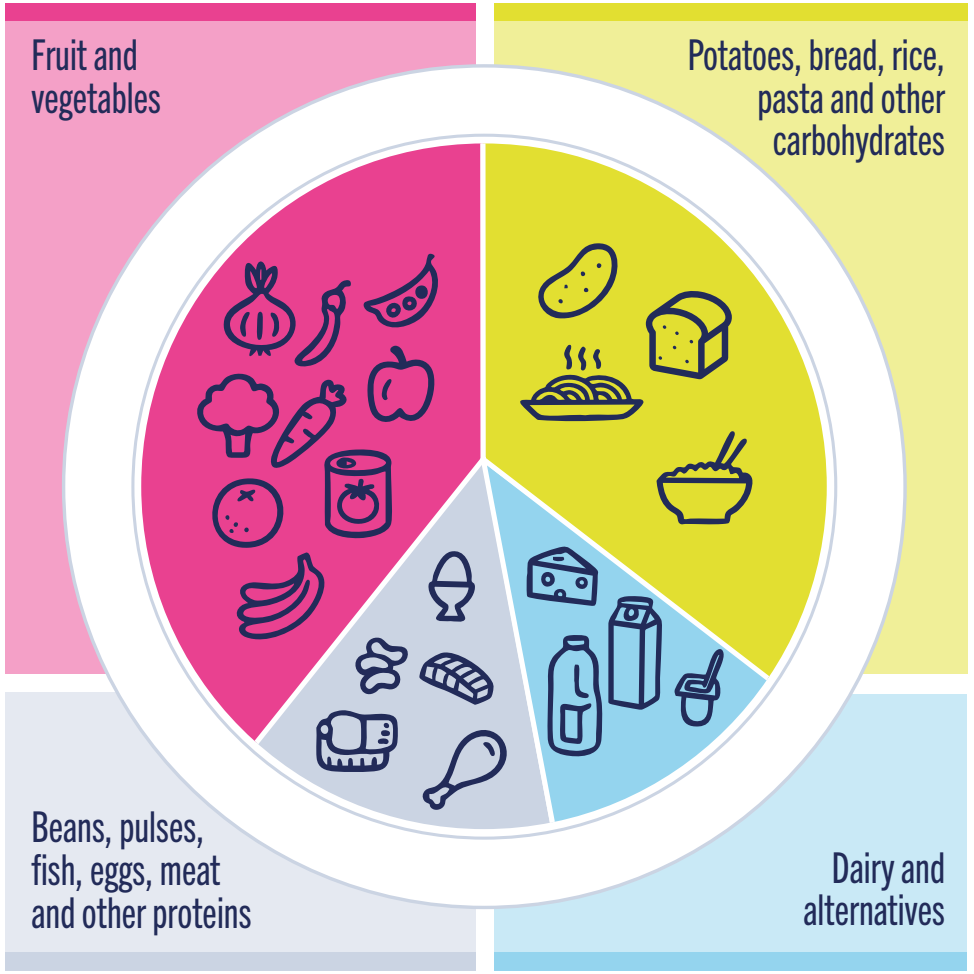
A small amount of fat is important as part of a healthy, balanced diet. You should get the fat you need by eating foods from the four main food groups.

There are no specific foods that are bad for bones. But cutting down on caffeine and cola drinks may benefit your bones.

For more information about the different food groups, take a look at our healthy, balanced meal guide on page 7.

A healthy balanced meal

Use this guide to help you get a balance of healthier food. It gives you an overview of how much of each food group you should have as part of a balanced diet.



6–8 a day

Water, lower fat milk, sugar-free drinks including tea and coffee all count. Limit fruit juice and/or smoothies to a total of 150ml a day.

Calcium

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

There are plenty of foods that are rich in calcium, including:

- dairy products, like milk, cheese and yoghurt
- leafy green vegetables, like broccoli and cabbage but **not** spinach
- fruit, like oranges and dried figs
- carbohydrates, like pasta and rice
- fish, like sardines and mackerel.

Spinach contains high levels of calcium. But the body can't digest it very well.

Did you know?
If you don't eat dairy products, make sure you enjoy plenty of non-dairy calcium-rich foods. Many dairy-free and meat-free products are fortified with calcium. This means calcium has been added to the food. Check the label to find out how much calcium has been added.

How much calcium do I need?
Calcium is measured in milligrams (mg).

Most adults need **700mg** of calcium a day, including if you're pregnant.

There are some health conditions where your doctor may advise you to have less or more calcium. Talk to your doctor if you're unsure how much calcium you should have.

Did you know?
If you're at risk of broken bones or taking an osteoporosis medicine, your doctor may advise you to increase your intake of calcium. This is to make sure you're getting enough for your bones.

Do I need to take a calcium supplement?
You can usually get all the calcium you need for your bones from your food, without taking a supplement.

If you can't get enough calcium from your food, you can use supplements to top-up.

There are two main forms of calcium supplements – calcium carbonate and calcium citrate. Research has shown that both types of supplements are good for bones.

Taking more than the recommended amount of calcium is unlikely to improve your bone strength.

It's possible to have too many calcium supplements. Taking more than 1,500mg of calcium supplements can be bad for your health. It can cause stomach pain, diarrhoea and lead to kidney stones.

Make sure to check the packaging on your calcium supplement and any other supplements you're taking. This is because your supplements may also contain calcium. It's important to find out how much calcium all your supplements provide so you don't take too much.

Did you know?
If you've been prescribed calcium, you may find the amount of calcium on the box is higher than you expect. Your body won't use all the calcium. The amount of calcium that your body should be able to use is called 'available' calcium. And this can be found in the leaflet that comes with your supplement. Always take the number of tablets recommended by your doctor.

The instructions that come with your supplement may say that certain foods may reduce the amount of calcium absorbed by the body. It's true that some foods can affect calcium absorption. But it shouldn't make a difference to your bones. You'll still absorb enough calcium from your supplement.

Calcium-rich food chooser

Use our calcium-rich food chooser to help you get the amount of calcium you need for your bones.

We've given you the approximate amount of calcium in an average portion. This is to help you work out how much calcium is in different types of food and drink. These are just examples. Check the food packaging to find out how much calcium is in your favourite foods.

A portion is the amount of food you eat or drink at one time. Portion sizes change depending on the food. You may eat more or less than the average portion depending on your appetite. This means the amount of calcium you get from a portion may change depending on how much you eat or drink.

Your bones will get the calcium they need if you generally reach the recommended amount from your food on most days.

For example, you would get around 700mg of calcium if as part of a balanced diet, you ate:

- two slices of bread
- one small matchbox size piece of cheese
- three tablespoons of green beans
- one orange
- a handful of almonds
- one tablespoon of raisins
- one glass of calcium-fortified soya milk.

Try to choose a wide variety of foods from the different food groups so your bones can get all the nutrients they need.

Dairy and dairy-free alternatives

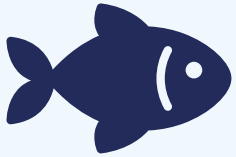
Food	Portion size	Approx calcium (mg)
Milk – skimmed, semi-skimmed or whole	One glass (200ml)	200
Fortified dairy-free milk drinks – soya, almond, hazelnut, coconut or oat	One glass (200ml)	200
Lactose-free milk	One glass (200ml)	200
Cheddar cheese	One small matchbox size piece (35g)	200
Lactose-free cheese	One small matchbox size piece (35g)	200
Paneer cheese	One small matchbox size piece (35g)	200
Yoghurt	Three tablespoons (125g)	200
Fortified soya yoghurt	Three tablespoons (125g)	200
Lassi	One glass (200ml)	200
Fortified soya custard	Three tablespoons (125g)	200
Custard (ready-made)	Three tablespoons (125g)	100
Cottage cheese	Two tablespoons (75g)	100
Parmesan cheese	One tablespoon (10g)	100

Fruit and vegetables

Food	Portion size	Approx calcium (mg)
Kale (boiled)	Four heaped tablespoons (80g)	200
Watercress	One bag (60g)	100
Okra (boiled)	Nine okra (80g)	100
Pak choi	One pak choi (125g)	100
Dried figs	Two figs (30g)	100
Green beans (boiled)	Three tablespoons (100g)	50
Green cabbage (boiled)	Three tablespoons (80g)	50
Broccoli (boiled)	Three tablespoons (80g)	25
Dried apricots	One tablespoon (30g)	25
Raisins	One tablespoon (30g)	25
Orange or easy-peel citrus – tangerines, satsumas	One orange or two easy-peel citrus (80g)	25

Carbohydrates

Food	Portion size	Approx calcium (mg)
Porridge (made with milk)	One bowl (160g)	200
White bread	Two medium slices (90g)	100
Wholemeal bread	Two medium slices (90g)	100
White pitta bread	One pitta bread (80g)	100
Chapatti	One chapatti (85g)	50
Muesli – Swiss style	Three tablespoons (45g)	50
Pasta (cooked)	Two handfuls (dried) (75g)	50
Basmati rice (cooked)	Five tablespoons (dried) (65g)	25



Protein

Food	Portion size	Approx calcium (mg)
Sardines (tinned)	Half a tin (60g)	200
Tofu (calcium-set)	One palm size piece (100g)	200
Sesame seeds	One tablespoon (25g)	200
Tahini	One heaped teaspoon (15g)	100
Salmon (tinned)	One small tin (100g)	100
Scampi in breadcrumbs	Six pieces (110g)	100
Chickpeas	Four tablespoons (150g)	100
Almonds	One handful (30g)	100
Baked beans	Four tablespoons (150g)	50
Red kidney beans	Four tablespoons (150g)	50
Mackerel	One fillet (90g)	25

Calcium meal and snack ideas

- Start your day with a bowl of porridge made with milk or a fortified dairy-free alternative.
- Make a cheese omelette.
- Have sardines or baked beans on toast for a quick meal.
- Make a stir-fry with calcium-set tofu and plenty of vegetables, like broccoli, pak choi and green beans. You could also sprinkle a tablespoon of sesame seeds on top.
- Sprinkle grated cheddar or parmesan on top of your pasta dishes.
- Serve yoghurt and fruit for pudding.
- Add falafel and salad to a white pitta bread.
- Use tahini as a spread in a sandwich.
- Cook a paneer curry with a vegetable samosa served on the side.
- Drink a yoghurt drink like lassi or chaas to stay cool on a hot day.

Visit theros.org.uk/calcium for more information.

"I have changed my diet. It was healthy before but now I have more calcium-rich foods such as almonds, broccoli, sardines and salmon."
Angela, 65

Vitamin D

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.

The sun's rays react with your skin to make vitamin D. In the UK, your skin can only make vitamin D from sunlight between the beginning of April and the end of September. This may vary depending on where you live.

During this time, 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.

It's important to protect babies and children from the sun. This is because they have very sensitive skin.

You can usually get all the vitamin D you need for your bones from sunlight in the summer. Your skin can still make vitamin D on cloudy days but it can take longer.

How much vitamin D do I need?
We can get vitamin D from food and supplements when we can't get enough from the sunlight.

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.

Most adults need **10 micrograms (400 IU)** of vitamin D a day.

Do I need to take a vitamin D supplement?
Everyone should consider taking a daily supplement from the end of September to the beginning of April. This is because we can't make vitamin D from the sun in the winter.

A vitamin D supplement is recommended **all year round** if you:

- don't spend much time outside
- cover up most of your skin when you go outside
- use sunscreen most of the time.

It may be helpful to have a vitamin D supplement all year round if you:

- have dark skin
- are pregnant or breast-feeding.

Did you know?
If you're at risk of broken bones or taking an osteoporosis medicine, your doctor may advise you to increase your vitamin D intake to a 20 microgram supplement of vitamin D a day. This is to make sure you're getting enough for your bones.

Some health conditions and medicines affect the way vitamin D is absorbed and used by the body. You may be recommended higher doses of vitamin D if you have these conditions. Talk to your doctor if you:

- have severe liver or kidney disease
- have a condition that affects the way you absorb food
- take long-term anti-epileptic drugs.

Taking more than the recommended amount of vitamin D is unlikely to improve your bone strength.

It's possible to have too much vitamin D. Taking more than 100 micrograms (4000 IU) a day of vitamin D for a long time can be bad for your health.

Make sure to check the packaging on your vitamin D supplement and any other supplements you're taking. This is because other supplements may also contain vitamin D. It's important to find out how much vitamin D all your supplements provide so you don't take too much.

How can I get vitamin D from food?
Some foods contain a small amount of vitamin D. But it's difficult to get enough vitamin D from food alone. Foods containing vitamin D include:

- oily fish, like herring, salmon and mackerel
- eggs
- red meats

It's important to enjoy these foods in moderation and as part of a healthy, balanced diet.

Some foods such as certain breakfast cereals, bread and yoghurt are fortified with vitamin D. This means vitamin D has been added to the food. Check the packaging to find out how much vitamin D has been added.

We should try to eat one portion of oily fish a week.

Did you know?
You can only get a small amount of vitamin D from food. This means you can eat a healthy, balanced diet and continue your vitamin D supplement dose.

Visit theros.org.uk/vitamin-d for more information.

Other vitamins and minerals

Many other vitamins and minerals can also help your bones.

Vitamin B
There are many different types of vitamin B, like B6, B9 and B12. They help with many functions inside the body, including helping the cells inside your bones to work.

Vitamin B is found in a wide range of foods, including meat, fish, dairy, eggs, nuts, brown rice, bread and fortified breakfast cereals.

Vitamin C
Vitamin C is important for the structure of bone. It's found in many fruits and vegetables.

Vitamin K
There are different types of vitamin K, including K1 and K2.

Vitamin K is important for bone building and healing.

Vitamin K is found in meat, fish, green leafy vegetables, dairy and eggs.

Magnesium
Magnesium helps calcium and vitamin D to work properly in the body. It's found in meat, fish, green vegetables, fruit, dairy, nuts, brown rice, bread and cereals.

Did you know?
If you enjoy a healthy, balanced diet, you're probably getting all the vitamins and minerals you need for your bones. In most cases, you won't need to take a supplement. There's no evidence to suggest taking vitamin B, C, K or magnesium supplements will lower your chance of osteoporosis and broken bones.

Exercise for bones

Exercise and being active is important for your bones. It can help to keep your bones and muscles strong. It can also help your balance so you're less likely to fall over and break a bone.

It's important to do exercise you enjoy and is at a level that's right for you. Even a small amount of exercise can help your bones.

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 exercise and muscle-strengthening exercise.

What is weight-bearing impact exercise?
Weight-bearing impact exercise involves being on your feet and adding an extra force or controlled jolt through your bones. The jolt comes from when your feet hit the ground.

You can get weight-bearing impact exercise in your daily activities. And by doing specific exercises or leisure and sports activities.

The level of impact you get will depend on the type of exercise you do.

Moderate-impact exercise, such as running, dancing or playing tennis, is one of the best types of exercise for your bones. This is because it can help to improve your bone strength.

But low-impact exercise, such as walking or stair climbing, can still help stop the loss of muscle and bone strength.

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. You should stick with low-impact exercise if you have spinal fractures or many broken bones.

Short bursts of activity are ideal for bones, like jogging then walking. Variety is also good for bones. Try to do a range of movements in different directions at different speeds.

How often should I do weight-bearing impact exercise?
If you can, aim to do about 50 moderate impacts on most days of the week to help keep your bones strong. For example, one jump counts as one impact.

If you can't do moderate-impact exercise, try to do 20 minutes of low-impact exercise on most days of the week.

What is muscle-strengthening exercise?
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.

When you make your muscles stronger, your bones respond by renewing themselves. This maintains or improves their strength.

Examples of muscle-strengthening exercises include:

- press-ups
- squats
- lunges.

Carrying shopping, rowing and gardening are also examples of muscle-strengthening activities.

What is progressive muscle resistance training?
Progressive muscle resistance training is the best type of muscle-strengthening exercise for your bones. It involves using weights or resistance bands to build up the work for your muscles to do over time. Start with a weight you can lift easily and gradually increase the weight over time. Make sure to lift the weight in a slow and controlled way. As you train, you'll find the movements get easier as your muscles get stronger.

The movements you do are called repetitions. For example, each time you pull a band or lift a weight is one repetition. You should only be able to do 8 to 12 repetitions before your muscles are too tired to do another one with good technique. Each series of repetitions you do is called a set.

Weights are probably best for bone strength, but bands are a great way to start.

It's important to build up gradually based on your fitness level and muscle strength.

You may want to start progressive muscle resistance training with a qualified instructor at a gym.

How often should I do muscle-strengthening exercise?
Everyone should do muscle-strengthening exercise if you're able to. We recommend you do this type of exercise:

- on 2 to 3 days of the week – leave at least a day's rest in between
- for 20 to 30 minutes – work on your legs, arms and back
- gradually using bands and weights – lift the most weight you can for 8 to 12 repetitions. Build up to three sets of each exercise.

Did you know?
There isn't a specific weight that's safe or unsafe. It's **how** you lift rather than **how much** you lift that matters. Make sure you use good technique when you're lifting something.

Exercise for balance and muscle strength

Slips, trips and falls can lead to broken bones. There are some exercises you can do to keep you steady and strengthen your muscles.

It's very important to have good balance and coordination before you start other types of exercise.

You can stay active by doing regular everyday activities. Be aware of the amount of time you spend sitting down. Make sure to break up long periods of time you're sitting by standing up for a few minutes every hour or so.

"I do exercises at home every day, with small hand weights and resistance bands."
Angela, 65

Balance exercises make your muscles work together in a way that helps keep you steady and less likely to fall. Balance exercises include:

- lifting your heels up and down (heel raises)
- standing on one leg
- sitting to standing.

Stand near a stable surface with one hand on the support while doing these exercises, if you need to.

Dance, yoga, Tai Chi and Pilates can help with balance too.

How much and how often should I exercise to improve my balance?
We recommend you do balance exercises on 2 to 3 days of the week if you're:

- unsteady
- 65 or over
- not doing regular exercise.

Make sure to leave a day's rest in between. You should aim to do up to 10 repetitions.

If you often slip, trip or fall, you should build up to doing balance and muscle-strengthening exercises over at least four months. It may also be helpful to contact your local falls services or leisure service. They can suggest how to tailor exercises to suit your needs.

> *"I keep as active as possible by doing activities I enjoy such as regular walks, Zumba and aerobic classes. I also do Pilates which has improved my core strength, flexibility and balance."*
> **Janet, 59**

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

Visit theros.org.uk/spinal-fractures or **call 01761 471771** to order your free copy of **'Help for pain and other symptoms caused by spinal fractures'** for more information about living with spinal fractures.

More ways to look after your bones

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.

Alcohol and smoking
Drinking more than the recommended levels of alcohol and smoking can harm your bones. They reduce your body's ability to absorb calcium and change how the cells inside your bones work. This means they increase your chance of osteoporosis and broken bones.

It's too early to say whether e-cigarettes ('vaping') are better for your bones than tobacco products.

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

Keeping a healthy body weight
Being a healthy weight lowers your chance of osteoporosis and broken bones. Eating a healthy, balanced diet and doing exercise you enjoy can help you to reach and keep a healthy body weight.

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 healthy living, **visit theros.org.uk/healthinfo** or **call 01761 471771** to order copies of our fact sheets.

Support for you
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**

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

> *"At the support group meeting I met people who experience similar problems, helping one another by sharing experiences, knowledge and practical support. One unexpected benefit of the support group is the emotional support. So valuable when recently diagnosed."*
> **Local support group attendee**

ROYAL OSTEOPOROSIS SOCIETY

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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