Want to know more?

The charity also produces a wider range of booklets and leaflets on osteoporosis and related issues for both the general public and health professionals.

If you would like to find out more please get in touch:

📞 01761 471 771 or 0845 130 3076
🌐 www.nos.org.uk

An introduction to osteoporosis
What is osteoporosis?

Our bones contain collagen (protein), calcium salts and other minerals. Each bone is made up of a thick outer shell known as cortical bone and a strong inner mesh of trabecular bone which looks like a honeycomb. Osteoporosis occurs when the struts that make up this structure become thin causing bones to become fragile and break easily.

Osteoporosis literally means ‘porous bones’ and is commonly linked to post menopausal women. However men, younger women, children and pregnant women can also be affected.

Did you know?
There are about 230,000 osteoporotic fractures every year in the UK.

What causes osteoporosis?
Two cells are constantly at work in our bones, building new bone and breaking down old bone. Up to our mid-20s the construction cells work harder, building strength into our skeleton. From our 40s onwards, the demolition cells become more active and our bones gradually lose their density.

Women lose bone density faster in the years following the menopause when oestrogen levels drop. This can lead to osteoporosis and broken bones.

Consequences of osteoporosis
Osteoporosis causes bones to break following a minor bump or fall. These broken bones, commonly referred to as fragility fractures, are most common in the wrist, hip and spine, although other parts of the body can also be affected.

Compressed bones in the back (spinal fractures) can lead to loss of height and spinal curvature, while a broken hip often results in both loss of confidence and independence.

Did you know?
Broken bones and fractures are the same thing. Fractures in the spine, caused by osteoporosis, result in the bone becoming compressed or wedge shaped.

Almost one in two women and one in five men over the age of 50 will break a bone due to osteoporosis.
Healthy living for strong bones

Preventing fractures due to osteoporosis

Our genes are key to deciding the potential size and strength of our skeleton, but the way we live our life can also play a part in the amount of bone we invest in our ‘bone bank’ during our youth, and how much we retain in later life.

Healthy balanced eating

Whatever your age or sex, it is vital to make sure that what you eat today will help to keep your skeleton strong for the future.

Aim to eat meals that incorporate a wide variety of foods from the four main groups, including fruit and vegetables, carbohydrates like bread, potatoes, pasta and cereals, milk and dairy products and protein such as meat, fish, eggs, pulses, nuts and seeds.

A healthy, balanced diet will also help provide you with all the vitamins, minerals and energy you need to live life to the full, keep your bones healthy and reduce the risk of other chronic diseases.

Calcium

Calcium is vital for strong teeth and bones because it gives them strength and rigidity. Our bodies contain about 1 kg of this important mineral, 99 percent of which is found in our bones. Most people should be able to get enough calcium through healthy eating, without the need for additional supplements. 700 mg daily is recommended although those with osteoporosis taking drug treatments might benefit from 1000 to 1200 mg a day.

Here are a few examples of some calcium rich foods:

<table>
<thead>
<tr>
<th>Weight (g) (oz)</th>
<th>Food</th>
<th>Calcium content (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3 pint (190ml)</td>
<td>Whole milk</td>
<td>224</td>
</tr>
<tr>
<td>1/3 pint (190ml)</td>
<td>Semi-skimmed milk</td>
<td>231</td>
</tr>
<tr>
<td>1/3 pint (190ml)</td>
<td>Skimmed milk</td>
<td>235</td>
</tr>
<tr>
<td>150g (5oz)</td>
<td>Low-fat yoghurt</td>
<td>225</td>
</tr>
<tr>
<td>28g (1oz)</td>
<td>Cheddar cheese</td>
<td>202</td>
</tr>
<tr>
<td>112g (4oz)</td>
<td>Boiled spinach</td>
<td>179</td>
</tr>
<tr>
<td>112g (4oz)</td>
<td>Baked beans</td>
<td>59</td>
</tr>
<tr>
<td>100g (31/2oz)</td>
<td>Tofu</td>
<td>480</td>
</tr>
<tr>
<td>56g (2oz)</td>
<td>Whitebait (fried)</td>
<td>482</td>
</tr>
</tbody>
</table>

Did you know?

Low fat or fat free dairy products have as much, if not more, calcium as their full fat versions.

Vitamin D

You need vitamin D to help your body absorb calcium. The best source is sunlight, which your body uses during the summer months to manufacture the vital vitamin in your skin. About 15 to 20 minutes of sun exposure to the face and arms three or four times weekly during the summer should provide you with enough vitamin D for the year. However, older frailer people may benefit from a calcium and vitamin D supplement.
Stop smoking
– Smoking has a toxic effect on bone by stopping the construction cells from doing their work. It’s another good reason to try to give up.

Reduce alcohol intake – Excessive alcohol consumption is a significant risk factor for osteoporosis and fractures. The current daily recommended limit, as recommended by the Food Standards Agency, is two to three units for women and three to four units for men. (A unit equals one small glass (125ml) of wine or half a pint (300mls) of beer or cider.)

Did you know?
Current smokers are most at risk of breaking bones easily so quitting is always worth it.

Exercise and strong bones
Another way your skeleton can grow stronger is if you do regular weight-bearing exercise. This is any kind of physical activity where you are supporting the weight of your own body, for example jogging, aerobics, tennis, dancing and brisk walking.

If you have osteoporosis and are at high risk of breaking bones, you may need to be careful of vigorous, high impact exercise. After all, broken hips occur in older people when their bones are frail and they fall. But remember, it’s important to stay active and find something you enjoy.

Swimming, gardening, golf and Tai Chi may help to maintain balance and co-ordination and help to reduce your risk of falling.

Frailer people may need specific exercises from a physiotherapist or a referral to a falls prevention service at a local hospital.
Diagnosing osteoporosis and assessing your risk of fracture

The factors that increase your risk of osteoporosis and fractures include:

- **Genes** – Our bone health is largely dependent on the genes we inherit from our parents. If one of your parents has broken a hip, you are more likely to have a fracture yourself.

- **Age** – Bone loss increases in later life so by the age of 75 about half of the population will have osteoporosis. As you get older, bones become more fragile and more likely to break generally, whatever your bone density.

- **Gender** – Women have smaller bones than men and they also experience the menopause which accelerates the process of bone turnover.

- **Race** – People who are Black Afro Caribbean are at a lower risk than those of Caucasian or Asian origin because their bones are bigger and stronger.

- **Low body weight** – If you have low BMI (body mass index) below 19kg/m² you are at greater risk of developing osteoporosis and fractures.

- **Falling** – Older people who are at risk of falling are more likely to have fractures especially of the hip after the age of 75 years.

- **Previous fractures** – If you have already broken bones easily, including in the spine, then you are much more likely to have fractures in the future.

Other factors which may put you at greater risk include:

- Rheumatoid arthritis
- Low levels of the sex hormone oestrogen in women as a result of early menopause, having a hysterectomy with removal of ovaries (before the age of 45), anorexia nervosa or taking drugs such as aromatase inhibitors for breast cancer
- Low levels of testosterone in men following surgery or treatment for some cancers
- Conditions that affect the absorption of food such as Crohns or Coeliac disease
- Conditions that cause long periods of immobility
- Taking corticosteroid tablets such as prednisolone for other medical conditions for over three months
- Drinking excessive amounts of alcohol
- Smoking

Diagnosing osteoporosis on a scan

Osteoporosis is currently diagnosed on a bone density scanning machine when the amount of bone you have, as measured on the scan, is found to be significantly lower than average. The lower your bone density the higher your risk of breaking bones.

Central dual energy X ray absorpimetry (DXA) scanning is currently the most accurate and reliable method. It is a simple, painless procedure that uses very low doses of radiation. You will be asked to lie down for 10-15 minutes while an x-ray scanning arm passes over you to take an image of your spine and hip. These scanners are usually in hospitals although not all hospitals have one.

Bone density scans are only recommended for people who are considered to be at high risk of having an osteoporotic fracture. Your GP will discuss your risk factors with you and then decide whether a referral is necessary. If you think you are at risk then talk to your GP to discuss whether a scan would be useful.

Assessing fracture risk

Although a diagnosis of osteoporosis will increase the risk of a fracture, many other factors will also contribute to your risk. Some of these risk factors, such as the risk of falling, may be tackled by lifestyle changes. Others relate to bone strength and may be improved by taking drug treatments.

When doctors decide who needs drug treatment to reduce their risk of a fracture, they are moving towards using ‘fracture risk assessment’ rather than simply diagnosing osteoporosis. For this they use a fracture risk assessment tool called FRAX™. Measurement of bone density may form part of this assessment but may not always be necessary.
Drug treatments to reduce risk of fractures

The treatment of osteoporosis depends on a number of factors including your age, sex, medical history and which bones you have broken. Osteoporosis drug treatments aim to strengthen existing bone, to help prevent further bone loss and most importantly, reduce the risk of broken bones.

The following are the main drug treatments for osteoporosis:

- **Bisphosphonates**: alendronic acid / alendronate (Fosamax), etidronate (Didronel PMO), ibandronate (Bonviva) and risedronate (Actonel) – Available in tablet form on a daily, weekly or monthly basis. Ibandronate is also given as a three monthly injection. Another bisphosphonate, zoledronic acid (Aclasta) is given as a yearly infusion via a drip in the arm.

- **Calcium and vitamin D** – Often prescribed to older people to help prevent broken hips.

- **Selective estrogen receptor modulator (SERMs) (raloxifene)(Evista)** – Prescribed to reduce the risk of spinal fractures in women after the menopause.

- **Strontium ranelate** – Appears to affect both cells that build bone and those that break it down thus reducing the risk of hip and spinal fracture. It comes in powder form that is mixed in water and taken daily.

- **Parathyroid hormone (PTH) treatment** – Available in the form of teriparatide (Forsteo or Preotact) to reduce the risk of spinal fracture. The drugs are self administered as daily injections, given over a period of 18-24 months. They are only available from specialists and are generally prescribed to those who have suffered a number of spinal fractures.

There are other treatments that are generally only prescribed when others are not appropriate, including calcitonin (Miacalcic) and calcitriol (Rocaltrol). Hormone replacement therapy (oestrogen for women and testosterone for men) is no longer prescribed as a first line osteoporosis treatment for women because of long term risks of blood clots and breast cancer. Testosterone is prescribed to men with low hormone levels to strengthen their bones.

Drug treatments for fragile bones and osteoporosis can reduce fracture risk by about 50 per cent.
Recovering from broken bones

Joan Hutchings

Joan had both ovaries removed before the age of 40 and suffered a compression fracture in the spine at 55. At the time, Joan received very little support from her GP and was prescribed pain killers and bed rest to help alleviate the pain.

Over the years, Joan’s condition deteriorated and since her very first fracture has suffered as many as 30 broken bones (including both wrists, 12 vertebrae, a number of ribs as well as her breast bone). She has also lost nearly nine inches in height.

In the early 1980s, Joan moved house and her new GP referred her to a specialist. This was when she was finally diagnosed with osteoporosis and started to receive the treatment she was so desperately in need of.

Joan now leads a healthy life, taking regular exercise and maintaining a balanced diet. If you would like to help people like Joan, please follow the simple steps on the following pages and join us in our work, or make a donation towards the fight against osteoporosis.

“I shall be forever grateful to the National Osteoporosis Society and its helpline for all the encouragement and help they have given me, especially in those early years when I was in such pain.”

CASE STUDY

Bones heal in 6-8 weeks but pain and other problems may continue for longer. Recovering from a broken hip can be a long process and you may need a referral to a physiotherapist and social services to help you recover.

Compressed or wedge shaped bones in the spine (spinal fractures) are sometimes very painful but not always. Long term chronic pain may continue even after bones have healed due to changes in posture and the strain this puts on muscles and ligaments. Exercises to help strengthen the muscles that support the spine can be helpful.

Simple over-the-counter pain relievers, or stronger pain relieving drugs prescribed by your GP, can also make a big difference if taken properly. A referral to an NHS pain clinic may sometimes be necessary. Drug free ways to manage pain include physiotherapy, hydrotherapy (exercise in water) or using a TENS (transcutaneous electrical nerve stimulation) machine. Self management courses such as the ‘Expert Patient Programme’ may be helpful.

Complementary therapies, like acupuncture, homeopathy, the Alexander Technique and aromatherapy, may also be of some benefit.

Some specialists sometimes use a surgical procedure called percutaneous vertebroplasty or kyphoplasty to help with painful spinal fractures.
About the National Osteoporosis Society

The National Osteoporosis Society is the only national charity dedicated to improving the prevention, diagnosis and treatment of osteoporosis.

We provide a wide range of services to help people learn how to prevent osteoporosis or to manage living with the disease and the fractures it causes.

Our Helpline Service

Our Telephone Helpline Service is open every weekday between 9am and 5pm and is staffed by a team of nurses who have specialist knowledge of osteoporosis and bone health. Every year we respond to approximately 14,000 enquires on a range of issues relating to the fragile bone disease by telephone, email and letter.

You can contact the Helpline nurses in the following ways:

- **0845 450 0230** or **01761 472 721**
- **nurses@nos.org.uk**
- **National Osteoporosis Society, Camerton, Bath BA2 0PJ**

Become a member of the National Osteoporosis Society

Join the National Osteoporosis Society today and support the only UK-wide charity dedicated to improving the diagnosis, prevention and treatment of osteoporosis. Our members play a key part in the charity, supporting our efforts to improve treatment and adding their voice to our UK-wide campaigns.

**By becoming a member you will receive:**

- Four copies of our magazine Osteoporosis News a year
- An invitation to our Members’ Day / Annual General Meeting
- Access to discussion forums and a special members-only area of our website

**Your membership fee will help us to:**

- Provide a Helpline service staffed by a team of osteoporosis nurses
- Fund vital research in the field of osteoporosis
- Lobby governments and health bodies to provide better treatments for people with osteoporosis
- Provide up to date publications on all aspects of osteoporosis.

You can join the National Osteoporosis Society today for just £15. Either fill out the attached form, call us or visit our website:

- **01761 473 119**
- **www.nos.org.uk**

“When I was first diagnosed I rang the helpline nurses. I don’t know what I would have done without them on the end of the phone. They handed me a lifeline.” Sue Reid, Hants
We need your help!

As an independent charity, the National Osteoporosis Society can only continue to provide these services with the generosity of our supporters and members of the public. Donations are always welcome! Please complete the attached form or visit www.nos.org.uk.

Alternatively, how about holding or taking part in a sponsored event, or get your company involved? We can help you with ideas, fundraising advice and provide a range of materials to publicise your activities.

Volunteering

Do you have a few hours to spare each month? Would you be interested in volunteering for a worthwhile cause? There are a number of ways you can volunteer for the National Osteoporosis Society and help improve the lives of people with osteoporosis.

It is possible to help either as an individual volunteer with specialist skills, such as public speaking, fundraising, campaigning, educating the young or working with the media, or within one of our support groups.

By volunteering for the National Osteoporosis Society, you can put your spare time to good use, while providing a valuable source of life experience to the charity.

Robert Rees, who has been a Volunteer Ambassador to the charity for a number of years, says:

“I didn’t realise quite what a difference I could make by fundraising and giving talks to all kinds of people about my experience of fractures caused by osteoporosis and how the charity helps others like me. The sense of achievement has given me a new purpose in life and takes my mind off the pain I suffer from constantly. Why don’t you consider doing something similar to help? I am sure you won’t regret it!”

Support groups

We have a network of over 100 Support Groups across the UK. Our Groups provide essential support and information to their local communities by organising regular meetings with talks by external speakers and offering advice about living with osteoporosis.

They also organise exercise classes, hydrotherapy and social events for their members, raise funds for local and national projects and lobby politicians and health care providers.

To find out more about individual volunteering please contact us:

01761 473 120
volunteering@nos.org.uk

To find out more about fundraising please contact us:

01761 473 137
fundraising@nos.org.uk

“Last year when I was feeling at my lowest after several spinal fractures, I joined my local support group. The group reassured me and made me feel that there was hope.”

Local Support Group Volunteer
Giving for growth

1 Your name and address (Please use block capitals)

Name: __________________________
Address: _________________________
Postcode: ________________________
Telephone: _______________________ Email: ____________________________

2 I would like to:

Become a member of the National Osteoporosis Society for £15 [ ]
Make a donation [ ]

3 Payment details:

(a) I enclose a cheque for £ __________
(b) I would like to make a regular gift to the National Osteoporosis Society by Direct Debit of £ __________ per month per quarter per year (please make sure you’ve filled in your Bank’s details overleaf).
(c) I would like to pay by credit/debit card

Please debit £ __________ from my Visa/MasterCard [ ] Maestro CAF card

Card Number ____________________________
Maestro only ____________________________
Issue Number (Maestro only) ____________
Start Date M M Y Y Expiry Date M M Y Y

Signature(s) ____________________________ Date ____________

Data Protection Information
The National Osteoporosis Society may contact you to keep you informed of future appeals and promotions. If you are NOT happy to be contacted, please tick this box [ ].
The National Osteoporosis Society can raise extra funds by occasionally inviting carefully selected partner organisations and charities to write to our supporters. If you would NOT like to receive these, please tick this box [ ].

Help support our work
There are many other ways in which you can engage with our work and help the millions of people with osteoporosis. By filling out this form you will be expressing your interest and we will send you information accordingly:

We can provide information about (please tick those that apply):
[ ] Encouraging your employer to support us or make us charity of the year
[ ] Taking part in one of our fun challenges and events or organising your own
[ ] Remembering us in your will and leaving a legacy
[ ] Volunteering opportunities

Alternatively call our credit card donation line on 01761 473111

Instruction to your Bank or Building Society to pay by Direct Debit

Please complete this form and return it to:

The Finance Department,
National Osteoporosis Society,
Camerton, Bath, BA2 0PJ

Name and full postal address of your Bank or Building Society

To: The Manager Bank/Building Society

Address

Postcode

Name(s) of account holder(s)

Bank/Building Society account number

Branch sort code Originator’s Identification Number

Reference (For office use only) 7 5 5 9 6 5

Instruction to your Bank or Building Society

Please pay the National Osteoporosis Society Direct Debits from the account detailed in this Instruction subject to the safeguards assured by the Direct Debit Guarantee.

I understand that this Instruction may remain with the National Osteoporosis Society and, if so, details will be passed electronically to my Bank/Building Society. Banks and Building Societies may not accept Direct Debit Instructions for some types of account.

Signature(s) ____________________________ Date ____________

The Direct Debit Guarantee

This Guarantee is offered by all banks and building societies that take part in the Direct Debit Scheme. The efficiency and security of the Scheme is monitored and protected by your own Bank or Building Society.

If the amount to be paid or the payment dates change the National Osteoporosis Society will notify you 14 working days in advance of your account being debited or as otherwise agreed.

If an error is made by the National Osteoporosis Society, you are guaranteed a full and immediate refund from your branch of the amount paid.

You can cancel a Direct Debit at any time by writing to your Bank or Building Society. Please also send a copy of your letter to us.