

Bone health and cancer treatment



About this booklet

This booklet is about bone health. It is for people who are having, or have had, cancer treatments that may affect their bones. This includes:

- hormonal treatments for breast cancer or prostate cancer
- treatments that cause an early menopause
- treatments that affect testosterone levels
- high-dose steroids or having steroids for 3 months or more.

This booklet explains which factors affect bone health and things you can do to help maintain healthy bones. It also tells you about drug treatments that can improve bone strength.

It does not have information about cancer in the bone. We have information about cancer in the bone in our booklets:

- [Understanding primary bone cancer](#) – for cancer that starts in the bones
- [Understanding secondary cancer in the bone](#) – for cancer that has spread to the bones from a primary cancer somewhere else in the body.

We hope this booklet answers some of your questions. We cannot give advice about the best treatment for you. You should talk to your doctor, who knows your medical history.

How to use this booklet

The booklet is split into sections to help you find what you need. You do not have to read it from start to finish. You can use the [contents list](#) to help you. It is fine to skip parts of the booklet. You can always come back to them when you feel ready.

Quotes

In this booklet, we have included quotes from people affected by cancer who have chosen to share their story with us. To share your experience, visit macmillan.org.uk/shareyourstory

For more information

If you have more questions or would like to talk to someone, call the Macmillan Support Line free on [0808 808 00 00](tel:08088080000), 7 days a week, 8am to 8pm, or visit macmillan.org.uk

If you would prefer to speak to us in another language, interpreters are available. Please tell us, in English, the language you want to use. If you are deaf or hard of hearing, call us using Relay UK on **18001 0808 808 00 00**, or use the Relay UK app.

We have some information in different languages and formats, including audio, easy read, Braille, large print, interactive PDFs and translations. To order these visit macmillan.org.uk/otherformats or call [0808 808 00 00](tel:08088080000).

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What affects bone health?

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What do bones do?

To understand bone health, it is helpful to know more about the bones and how having [cancer and cancer treatment can affect them](#). The risk of bone thinning can increase if you have or have had cancer.

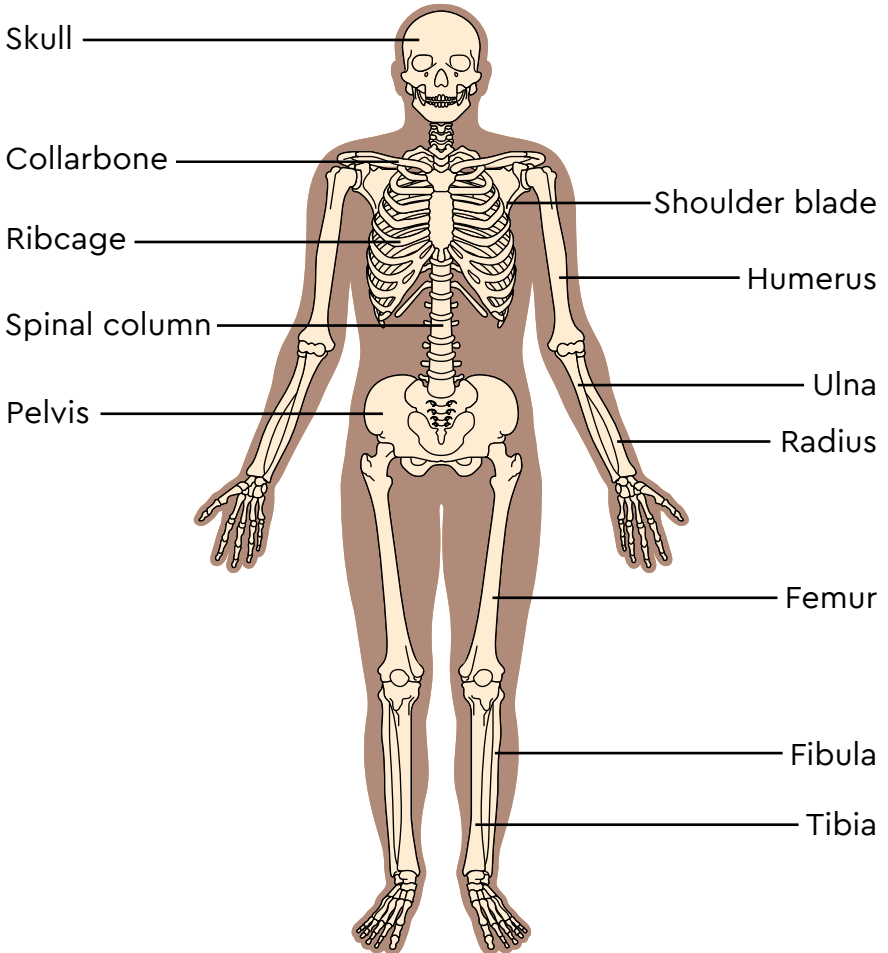
Bones are made from:

- a protein called collagen
- a mineral called calcium
- other minerals and bone cells.

Your bones:

- provide structure, support and protection for your internal organs – for example, the ribs protect the heart and lungs
- work with your muscles so your body can move
- store calcium and other minerals
- contain bone marrow, which is where blood cells are made.

Bones in the body

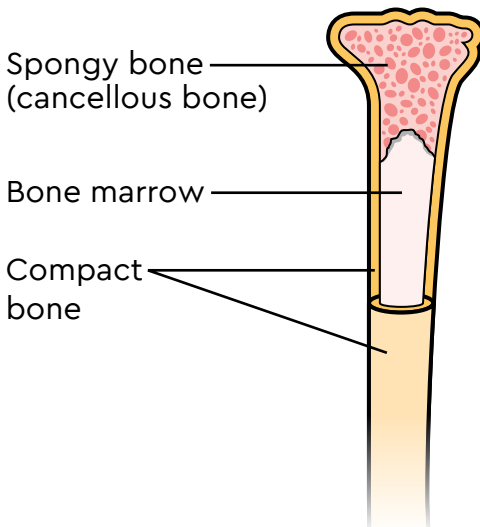


Types of bone

There are 2 types of bone:

- Compact bone is the hard, rigid outer layer on the outside of the bones.
- Cancellous bone is inside the compact bone. Under the microscope, it looks like a honeycomb or mesh with a lot of spaces. It is sometimes called spongy bone because the spaces look like a sponge.

The structure of a long bone



Bone growth and repair

Bones are living tissue. They have a blood and nerve supply to keep them healthy. Bones are constantly being renewed. This helps maintain their strength and shape.

Inside the bones, there are 2 types of bone cell:

- Osteoclasts break down and remove old bone.
- Osteoblasts build new bone.

Our bones stop growing in length by the time we are about 18 years old, but they may continue to grow into our early to mid 20s. Bones continue to increase in thickness (density) until our late 20s and stay about the same until our mid 30s.

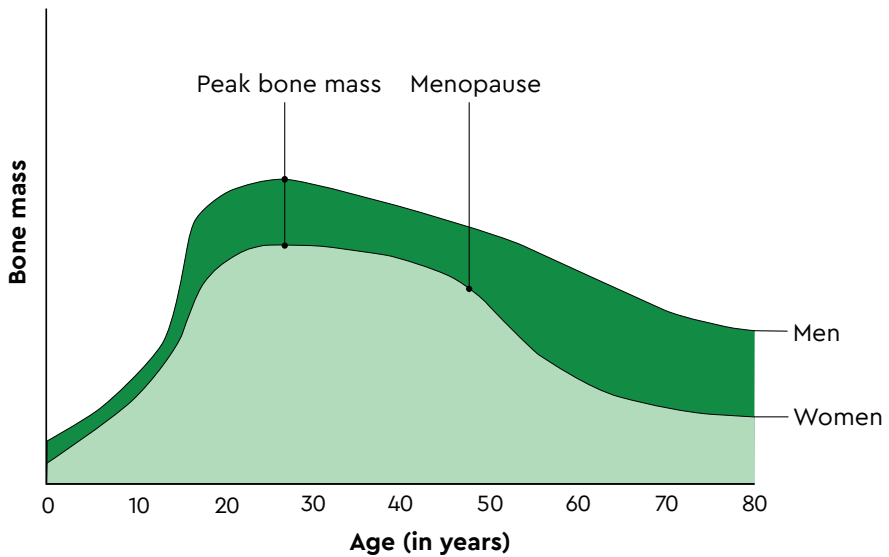
Bone density means how strong your bones are. It is the amount of calcium and minerals in your bone. Denser bones are stronger, and this means they are less likely to break. After our mid 30s, bone density slowly decreases. This is because osteoclasts remove more bone tissue than osteoblasts make. This means the amount of bone tissue starts to decrease.

Bone thinning

As we get older, our bone density slowly decreases. This is called bone loss or bone thinning.

The hard, outer layer of the bones (compact bone) gets thinner and the holes in cancellous (spongy) bone get larger. In time, bones become more fragile. This is why bone fractures are more common after the age of 65.

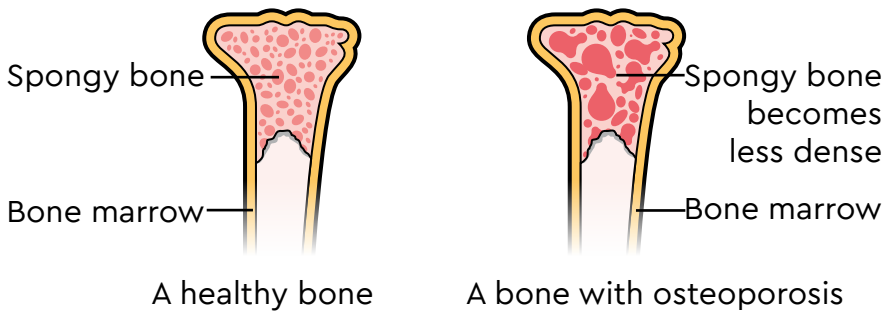
Bone mass at different ages



Osteoporosis

Osteoporosis is when bone density has decreased. This means the bones are weaker and more likely to break (fracture). Some people develop osteoporosis as they get older. Fractures are most common in the wrists, hips and spine.

Osteoporosis does not cause symptoms until a weakened bone fractures. But your doctor can do [tests to assess your risk of osteoporosis](#) and check the strength of your bones. The [results of these tests](#) help doctors decide if you need treatment to lower your risk of osteoporosis and fractures.



Osteopenia

You may be told you have osteopenia. This means your bone density is lower than the average adult, but not low enough to be osteoporosis.

Your doctor can give you advice on things you can do to [help lower your risk of osteoporosis](#).

Factors that affect bone health

Many factors can affect bone health and the risk of osteoporosis. There are some factors you cannot control, such as your age or family history. But there are factors you can try to manage, such as diet and physical activity.

Age

Your bones are strongest in your 20s. [Bone thinning](#) begins in your 30s. The risk of a fracture because of bone thinning increases from the age of 50. Fractures are most common in:

- women and people assigned female at birth over the age of 65
- men and people assigned male at birth over the age of 75.

Menopause

Anyone can develop osteoporosis, but it is more common after the menopause. Before menopause, the hormone oestrogen keeps bones healthy. But after menopause, oestrogen levels decrease, and the bones lose density quicker.

Low hormone levels

Low levels of the hormones oestrogen or testosterone can affect bone density. Oestrogen levels naturally drop after the age of 50. Testosterone levels can also drop after the age of 50, but not as much as oestrogen.

If you are transgender or non-binary, some gender-affirming treatments might also affect your hormone levels and bone health. Ask your GP or gender identity clinic for more information.

Some cancer treatments can lower oestrogen or testosterone levels and increase the [risk of bone thinning](#). For example, this may include [hormonal therapies to treat breast](#) and [prostate cancer](#). If these hormone levels are low, your doctors can talk to you about treatments to protect your bones.

Physical activity

[Being physically active](#) when you are a young adult helps make your bones stronger and denser. Doing regular exercise throughout your life helps to keep your bones strong.

Exercises such as walking, climbing stairs, playing sports, dancing and weightlifting are also good for bone strength. These are called [weight-bearing exercises](#).

We have more information in our booklet [Physical activity and cancer](#).

You can order our booklets and leaflets for free.
Visit orders.macmillan.org.uk or call [0808 808 00 00](tel:08088080000).



Diet

[Eating a healthy balanced diet](#) helps keep bones healthy. To help build bones and keep them strong, it is important to get the recommended amounts of protein, calcium and [vitamin D](#).

You can ask your GP, cancer doctor, specialist nurse or a dietitian what foods you should try to include in your diet and if you need any supplements.

Vitamin D and sunlight

Some foods contain vitamin D, but sunlight is the best natural source. Although it is important to use suncreams to protect from skin cancer, they affect vitamin D levels and bone health. Between May and September, it is recommended to have 10 minutes of sunlight on the bare skin without suncream, once or twice a day. This may depend on your skin type.

In autumn and winter months, it is difficult to get enough sunlight. Getting vitamin D from sunlight can also be difficult if your skin is covered or you are unable to get outside.

During this time, it is recommended everyone takes a daily [vitamin D supplement](#). If your skin also does not get enough sunlight even in the spring and summer months, talk to your doctor about having a vitamin D supplement regularly. People with darker skin might also benefit from taking vitamin D supplements throughout the year.

If you have an African, African-Caribbean or south Asian background, you might not make enough vitamin D from sunlight and may be at risk of a vitamin D deficiency.

Family history of osteoporosis

If one, or both, of your parents has had osteoporosis, you are more at risk of developing it. If you are worried about this, talk to your GP about how to reduce the risk.

Fragility fractures

If you break a bone after falling from a standing height or less, this is called a fragility fracture. After the age of 50, it can be a sign you have weaker bones. This may make you more at risk of having a fracture in the future.



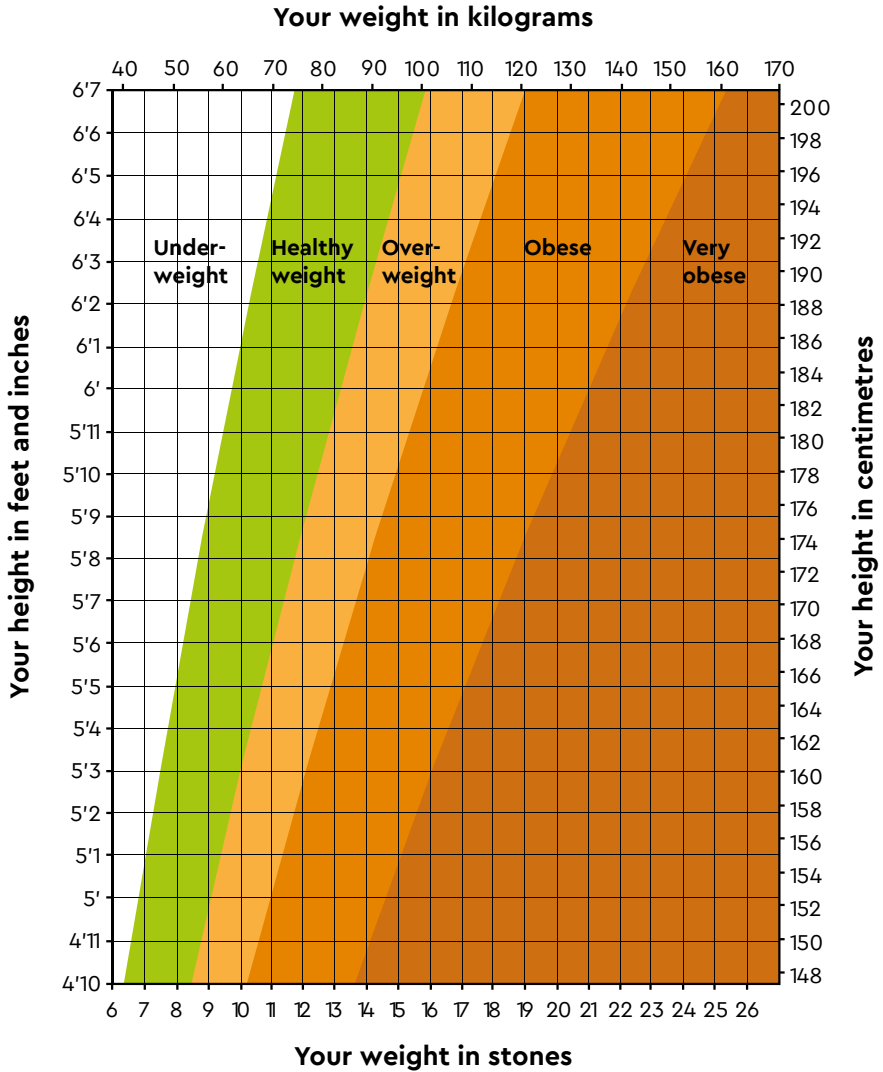
Weight

People who have a low body weight for their height are more at risk of fractures than people who are a healthy weight.

A body mass index (BMI) chart is used to measure if you are a healthy weight in relation to your height. Your BMI is based on your height and weight. Guidelines recommend that for bone health and general health, your BMI should be between $19\text{kg}/\text{m}^2$ and $25\text{kg}/\text{m}^2$.

Your GP, practice nurse, dietitian or other healthcare professional can work out your BMI for you. Or you can use the chart to find your BMI. Find the line that matches your weight and follow it until it crosses the line that matches your height. Speak to your GP or nurse if you are above or below the healthy weight range.

BMI chart



Smoking

Research has shown that smoking:

- reduces bone density
- weakens bones
- increases the risk of osteoporosis.

Using the [NHS Stop Smoking Services](#) improves your chances of success.

Alcohol

Drinking alcohol in moderation is not harmful to bone health. But if you often drink more than the [government guidelines](#) advise, your bone density may be reduced. This can increase your risk of osteoporosis.

NHS guidelines suggest that you should:

- not drink more than 14 units of alcohol a week
- spread the alcohol you drink in a week over 3 or more days
- try to have several alcohol-free days each week.

Drinking alcohol also causes a higher risk of falls, which are a common cause of fractures. [Drinkaware](#) has more information about alcohol and drinking guidelines. Visit drinkaware.co.uk

Medical conditions

Some cancer types and treatment can affect bone health. Other medical conditions that have been linked to lower bone density include:

- diabetes (type 1 and type 2)
- asthma
- inflammatory rheumatic diseases, such as rheumatoid arthritis and lupus (SLE)
- inflammatory bowel diseases, such as Crohn's disease and ulcerative colitis
- long-term liver or kidney disease
- thyroid diseases, such as an overactive thyroid gland and hyperparathyroidism
- having ovaries removed
- eating disorders, such as anorexia
- dementia.

If you have difficulty walking, or a condition that makes you less mobile, this may also lead to a lower bone density.

Medicines

Some drugs may increase your risk of fractures and developing osteoporosis. These include the following:

- Steroids – these are given to treat illnesses such as rheumatoid arthritis and asthma. They may also be used with some cancer treatments.
- Some anti-epileptic drugs – these are used to prevent fits (seizures) if you have epilepsy.
- Some types of [cancer treatments](#).

Cancer treatments and bone health

The risk of bone thinning can increase if you have or have had cancer. This can be because of cancer or its treatment. Some cancer treatments can reduce the levels of the hormones oestrogen or testosterone in the body. This can cause bone thinning.

The treatments that can cause this include some:

- hormonal therapies
- [chemotherapy](#)
- [surgery](#) that affects hormone production, such as removal of the ovaries or testes
- [radiotherapy](#) treatments
- [steroid therapy](#)
- [targeted therapies](#).

Some of these treatments may cause an early menopause and this can affect bone health.

If a treatment or a drug is likely to affect your bone health, your doctor will talk to you about this. They may do a test called a bone mineral density scan (BMD scan) to check the density of your bones. This may also be called a [DXA scan](#). It can show if the bone density is below normal or at risk of a fracture.

Your doctor may give you [treatments to protect you from osteoporosis](#). This is to prevent a bone from breaking. There are other [things you can do to look after your bones and help reduce your risk](#).

Hormonal therapy for breast cancer

The hormone oestrogen can encourage some breast cancers to grow. These breast cancers are called oestrogen receptor positive (ER positive). Some drugs used to treat breast cancer work by reducing oestrogen levels. They include:

- anastrozole (Arimidex®)
- exemestane (Aromasin®)
- letrozole (Femara®)
- goserelin (Zoladex®)
- fulvestrant.

Taking these drugs for several months or more can cause bone thinning and increase the risk of fractures.

Not all hormonal therapies for breast cancer cause bone thinning. The hormonal therapy drug tamoxifen slows down bone loss if taken after menopause. If tamoxifen is taken before having menopause, it is unlikely to lead to [osteoporosis](#).

Ovarian suppression

If you have not been through menopause, your doctor may suggest treatment to stop the ovaries working. Ovarian suppression is treatment that stops the ovaries making oestrogen and causes a temporary menopause. For example, you may be offered the drug goserelin. If you take tamoxifen with goserelin, the risk of bone loss is higher. It is also higher if you are under 45 and your periods have stopped for at least 1 year.

We have more information about these hormonal therapies and ovarian suppression on our website. Visit [macmillan.org.uk/hormonal-therapy-breast-cancer](https://www.macmillan.org.uk/hormonal-therapy-breast-cancer)

Hormonal therapy for prostate cancer

The hormone testosterone stimulates most prostate cancers. Some drugs used to treat prostate cancer work by reducing testosterone levels. A side effect of these drugs is bone loss.

These drugs include:

- goserelin (Zoladex®)
- leuprorelin (Prostap®)
- triptorelin (Decapeptyl® or Gonapeptyl®)
- abiraterone (Zytiga®)
- enzalutamide (Xtandi®)
- apalutamide (Erleada®)
- darolutamide (NUBEQA®).

We have more information about hormonal therapy for prostate cancer at [macmillan.org.uk/hormonal-therapy-prostate-cancer](https://www.macmillan.org.uk/hormonal-therapy-prostate-cancer)

Chemotherapy drugs

Some chemotherapy drugs affect how the ovaries or testicles work. They can reduce the levels of oestrogen or testosterone in the body. The effect may be temporary or permanent. Having lower than normal levels of these hormones before the age of 50 can lead to bone thinning.

Your cancer doctor or specialist nurse can tell you if your chemotherapy treatment is likely to affect your hormone levels or cause an early menopause.

Surgery

Hormone levels are reduced after the following surgeries:

- An operation to remove both testicles.
- An operation to remove both ovaries before menopause (ovarian ablation). This causes a permanent menopause.
- Surgery for some types of brain tumour such as a pituitary gland tumour.

These reduced hormone levels can lead to bone thinning.

Radiotherapy

Radiotherapy to the ovaries

If you have pelvic radiotherapy to the ovaries before menopause, it can:

- affect the way the ovaries work
- reduce oestrogen levels
- cause an early menopause.

This can increase the risk of [osteoporosis](#). We have more information in our booklets:

- [Understanding radiotherapy](#)
- [Understanding pelvic radiotherapy](#).

You can order our booklets and leaflets for free.

Visit orders.macmillan.org.uk or call [0808 808 00 00](tel:08088080000).



Pelvic insufficiency fractures (PIFs)

Radiotherapy can sometimes cause changes to the bone in the area being treated. It is most likely to happen when radiotherapy is given to the pelvic area.

Changes to the bone may mean the pelvis cannot cope with the normal stresses put on it. This may increase the risk of small cracks or fractures. Doctors call these pelvic insufficiency fractures (PIFs).

Pelvic radiotherapy treatment may be used to treat cancer of the:

- womb
- cervix
- prostate
- bladder
- anus
- rectum.

PIFs are most likely to happen in the first 2 years after pelvic radiotherapy. We have more information in our booklet [Understanding pelvic radiotherapy](#).

We have more information about these cancer types on our website at macmillan.org.uk/cancer-types Or you can order our booklets for free.

PIFs do not always cause obvious symptoms. They may show up on a scan that is done for another reason. If they do show symptoms, they can range from a mild ache to severe pain. There may be pain in the lower back or pelvis when moving. This can make walking difficult. Pain is not usually a problem when resting or sleeping.

You are more likely to have a PIF after pelvic radiotherapy if you:

- are over the age of 50
- are post-menopausal
- have a higher risk of [osteoporosis](#).

[Looking after your bones](#) can help to reduce your risk of a fracture.

If you have pain in a bone, always tell your GP or cancer doctor. They can arrange tests to find out what is causing it and give you treatment if needed.

Steroid therapy

Some people have steroids, such as prednisolone and dexamethasone, as part of their cancer treatment. Having high doses of steroids can cause bone loss and increase the risk of fractures. The risk can increase the longer you take them.

Targeted therapies

Targeted therapies are drugs that find and attack cancer cells. Some targeted therapy drugs may affect bone health. Your cancer doctor or specialist nurse can tell you if your treatment may affect your bone health.



Taking care of your bones

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Keeping your bones healthy

There may be changes you can make to your lifestyle to improve or maintain your bone health and reduce your risk of [osteoporosis](#). These changes are also good for your general health.

Eat well

Eat a healthy and balanced diet. Try to include foods that have calcium and vitamin D. This will help keep bones strong and healthy.

A balanced diet includes:

- fruit and vegetables
- protein, such as meat, fish, soya beans and lentils
- carbohydrates (starchy foods), such as rice, bread, pasta, potatoes and whole grains
- milk and dairy products, such as yoghurt and cheese, or non-dairy alternatives
- a small amount of foods that are high in fat, salt and sugar.

We have more information about healthy eating and cancer in our booklet [Healthy eating and cancer](#). You can also get more information from the [British Dietetic Association \(BDA\)](#). Visit bda.uk.com/food-health/food-facts/all-food-fact-sheets.html



“ By eating the most nutritious food I could and by discovering the strengthening effects of yoga, I slowly started to get better. Changing my lifestyle helped me regain control over my life, which gave me so much hope. ”

Dani, diagnosed with breast cancer

Calcium

Public health bodies in the UK recommend most adults should have 700mg of calcium a day. If you have osteoporosis, your doctor may advise that you have 1,000mg a day.

Foods that have a lot of calcium include:

- dairy products – these contain the highest amounts of calcium
- tinned oily fish where you eat the bones, such as sardines
- leafy green vegetables, such as broccoli and curly kale
- nuts
- soya beans, tofu, kidney beans and baked beans
- dried fruit, such as figs, apricots and raisins.

If you have a dairy-free diet, make sure you eat non-dairy foods that have calcium. You may also choose to have products with added calcium. These include some types of fortified non-dairy milks and orange juice. Always shake the container well before drinking. This makes sure the calcium is mixed through the drink.

Foods to avoid

Some foods and drinks can upset the calcium balance in the body. Try not to have large amounts of:

- caffeine
- red meat
- salt
- fizzy drinks that contain phosphates, such as cola.

The [Royal Osteoporosis Society](#) has more information about the amount of calcium in specific foods.

Get enough vitamin D

Vitamin D helps the body absorb calcium. It is important to get enough vitamin D to maintain healthy bones and muscles.

Sunlight is the best natural source of vitamin D. Getting sunlight on your skin every day between 11am and 3pm, from May until September, increases vitamin D levels.

It is recommended that adults get 10 minutes of sun to the skin without sunscreen, once or twice a day. This may depend on your skin type. But take care not to burn, especially during strong sunshine. On cloudy days, it will take longer than 10 minutes to get enough vitamin D.

Your cancer doctor, specialist nurse or GP can advise whether this is safe for you. Some people may need to take more care when out in the sun, especially if they are having cancer treatment.

We only get a small amount of vitamin D from the food we eat. But it is important to include foods in your diet that have a lot of vitamin D, such as:

- oily fish
- red meat
- liver
- egg yolks
- fortified plant-based food products such as non-dairy milk – check the label for information about whether vitamin D has been added.

Some breakfast cereals, yoghurts or margarines have vitamin D added to them, including non-dairy alternatives. You can check the labels to find out.

During the autumn and winter when sunlight levels are low, it is difficult to get enough vitamin D. Guidelines suggest that people take a daily supplement of 10 micrograms (400 IU) of vitamin D. IU stands for International Units.

The government advises that people who are more likely to have low levels of vitamin D consider taking a vitamin D supplement all year round. This includes people who:

- cover their skin when outside
- have black or brown skin
- do not spend regular time outdoors every day, such as people who are housebound or in a care home
- may not be able to get enough vitamin D in their diet throughout the year.

You can buy vitamin D supplements from supermarkets, health food stores and pharmacies. If you are not sure what to buy, ask your GP or pharmacist for advice.

If you are having cancer treatment that increases the risk of osteoporosis, your GP or treatment team may prescribe [vitamin D and calcium supplements](#). If you follow a vegan diet, the [NHS](#) has more information on following a healthy vegan diet.

Keep to alcohol guidelines

If you drink alcohol, keep within the recommended guidelines.

Current drinking guidelines recommend that you drink no more than 2 units of alcohol a day or 14 units of alcohol a week, spread over 3 or more days. It is also recommended that you have a couple of alcohol-free days each week.

One drink is not the same as 1 unit of alcohol. As a guide:

- a single measure (25ml) of spirits contains 1 unit
- half a pint (250ml) of standard strength (3% to 4%) beer, lager or cider contains 1 unit
- half a pint of stronger (5%) beer, lager or cider contains 1.5 units
- a standard glass (175ml) of wine (13%) contains 2 units
- a large glass (250ml) of wine (13%) contains 3 units.

[Drinkaware](#) has more information about alcohol and drinking guidelines. Visit drinkaware.co.uk

Do not smoke

Stopping smoking is good for your bones and your general health. The [NHS](#) offers free information to help with stopping smoking.



Exercise

Physical activity and strength training makes bones stronger. It can also improve your co-ordination and balance, which makes you less likely to fall. Falls are a common cause of [fractures](#), especially as you get older.

When exercising, do not push yourself too hard. If you are not used to exercising, start slowly and increase the amount gradually. At the end of an activity, you should feel warm and slightly out of breath, but not exhausted. With practice, you will soon find you are able to do more.

Talk to your GP, cancer doctor or specialist nurse before starting any exercise programme. If you have a physiotherapist, occupational therapist or dietitian, you can also get some advice from them.

It is important to get advice if you have, or are at risk of, [osteoporosis](#). Your GP, specialist nurse or other healthcare professionals involved in your care can tell you if there are any exercises you should not do. They may be able to tell you if there are any exercise schemes in your area.

Types of exercise

There are lots of different ways to exercise. It is best to find something you enjoy. This will make it easier for you to keep doing it. You need to exercise regularly to get the most benefit.

It is best to do the following types of exercise:

- Activities that raise the heart rate for 30 minutes, 5 times a week. The 30 minutes could be made up of 3 separate 10-minute periods of activity. This type of aerobic activity strengthens the heart and lungs.
- Physical activity that improves muscle strength on at least 2 days each week.
- Exercises to improve balance and co-ordination on at least 2 days each week.

The [Royal Osteoporosis Society](#) has more information on this.

[CanRehab Trust](#) helps people living with and beyond cancer in the UK to become or stay active. It has a register of approved personal trainers and health professionals qualified to provide tailored exercise programmes for people living with cancer.

[Moving Medicine](#) has information about physical activity after a diagnosis of cancer. We also have more information on physical activity after a diagnosis of cancer in our booklet [Physical activity and cancer](#).

Weight-bearing exercises

Exercise that is weight-bearing is particularly good for your bone health. These exercises include walking, jogging, skipping, climbing stairs, dancing and hiking. Swimming and cycling are good for your heart and health but are not weight bearing.

Weight-bearing exercises can be high impact or low impact.

High-impact exercises include:

- jogging
- hiking
- skipping
- racquet sports, such as tennis
- some types of dancing.

Low-impact exercises include:

- walking outside or on a treadmill machine
- using any training machines, including a cross-training machine
- low-impact aerobic exercise
- stair-step machines.

Some people like to go to a gym and attend classes while others may like to join a walking group. Check with your doctor or a physiotherapist if high-impact exercises are safe for you to do. If you have a high risk of fractures, or have had a fracture in the past, you may be advised to only do low-impact exercises.

Strength-building exercises

These exercises strengthen muscles, bones and joints. They may also improve your balance. You can do them with:

- hand weights
- resistance exercise machines
- exercise (resistance) bands.

The [Chartered Society of Physiotherapy \(CSP\)](#) has videos explaining how to do strength-building exercises to make you feel stronger. Always talk to your cancer team before starting any strength-based exercises.



Exercises to improve balance and flexibility

Having flexible joints helps you stay flexible and prevents injuries and strains. Simple stretching exercises are a good way to start. They can also help you relax and reduce stress.

Balance exercises help increase strength as well as balance. It is best to do these stretches as part of your daily routine. They will only take you a few minutes.

Exercises that are good for flexibility and balance include:

- yoga
- tai chi
- pilates
- body balance
- qigong.

If you have [osteoporosis](#), or have had a fracture in the past, avoid sudden movements or exercises where you bend forward and twist your waist. These movements can increase your risk of fractures in the spine.

Next steps

We have more information about physical activity and cancer in our booklet [Physical activity and cancer](#). You can also get more information about physical activity and bone health from the [Royal Osteoporosis Society](#).

The infographic shows the type and amount of physical activity recommended for adults.

Guide to physical activity

Be active		Build strength	Improve balance
	Keep your heart and mind healthy	Strengthen muscles, bones and joints	Reduce your risk of falling
How often?	150 or 75 minutes of moderate activity a week or of vigorous activity a week	2 days a week	2 days a week
Activities	Brisk walk Garden Swim	Run Sport Stairs	Gym Aerobics Carry bags
			Dance Tai chi Bowling

Sit less

Break up long periods of sitting down to help keep your muscles, bones and joints strong.

TV

Sofa

Computer





Tests and treatments

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Tests to check bone health

If you think you are at risk of bone thinning or osteoporosis, talk to your GP, specialist doctor, nurse or other healthcare professional from your cancer team. They can do tests to check your bone health.

Fracture risk assessment tools

Doctors can use an online tool to see whether you are at risk of a [fragility fracture](#).

There are 2 fracture risk assessment tools used called FRAX® and QFracture®. Your doctor may use one of these tools if they are concerned about your bone health or if you have risk factors for bone thinning.

The online tool can work out your risk of developing a fracture. The results will show whether you have a low, intermediate or high risk of a fracture.

When your doctor or nurse uses the online tool, they will ask about your:

- height
- weight
- medical history
- possible risk factors for osteoporosis or fragility fractures.

Dual energy x-ray absorptiometry scan (DXA or DEXA scan)

You may have a dual energy x-ray absorptiometry scan. It is sometimes called a DXA or DEXA scan. This scan may also be called a bone mineral density scan (BMD scan). It checks the density of your bones. If your bone density is low, you have a higher risk of a bone fracture.

Who has a DXA scan?

Your GP or hospital doctor may arrange for you to have a DXA scan if:

- a fracture risk assessment tool shows your risk of fracture is intermediate (between low risk and high risk)
- you are under the age of 40 and have a significant risk of fracture – for example, you have had more than 1 fragility fracture, or have recently taken [high doses of steroids](#)
- you have had an early menopause and not had hormone replacement therapy (HRT)
- you have prostate cancer and are starting treatment with [hormonal therapies](#) that reduce testosterone levels
- you are taking [steroids](#).

You may also have a DXA scan if you have early invasive breast cancer and you:

- are going to start treatment with an aromatase inhibitor and are not having a bone-strengthening treatment
- have had an early menopause because of your treatment
- are going to have [treatment to stop your ovaries working](#).

How a DXA scan is done

During a DXA scan, you lie on a couch on your back, while a scanner moves above your body. The amount of radiation from a DXA scan is much less than from a normal x-ray.

The scan only takes a few minutes and is painless. It is important there are no metal fastenings such as zips in the area being scanned. You may be asked to wear a hospital gown for the scan.

DXA scan results

The results of the scan will show whether you have:

- normal bone density
- low bone density ([osteopenia](#))
- [osteoporosis](#).

Your DXA scan results are given as a number called a T-score. Your T-score is worked out by comparing your bone density with the bone density of an average healthy adult of the same biological sex. Your T-score is the number of units your bone density is above or below the average.

What your T-score means

T-score	What it means
-1 and above	Your bone density is normal.
Between -1 and -2.5	Your bone density is below normal. This is known as osteopenia .
-2.5 and below	Your bone density is low, and your bones are at higher risk of fracture. This score suggests you have osteoporosis .

Your doctor may also talk about a Z-score. This score compares your bone density measurement with someone of the same age. If your Z-score is below -2, your bone density is lower than it should be for someone of your age.

After bone health tests

If tests to check your bone health show you have low bone density or a high risk of fracture, your GP may advise you to:

- eat a healthy, balanced diet
- [expose your skin to some sunlight](#) each day (if this is possible)
- keep physically active
- take [calcium and vitamin D supplements](#)
- increase the amount of [calcium](#) in your diet
- take a drug treatment, such as a [bisphosphonate](#).

We have more information in our booklets [Healthy eating and cancer](#) and [Physical activity and cancer](#).

You can order our booklets and leaflets for free.
Visit orders.macmillan.org.uk or call [0808 808 00 00](tel:08088080000).





Treatments to protect your bones

There are different drug treatments that can help prevent or treat bone loss and reduce the risk of fractures.

Calcium and vitamin D supplements

Your doctor may advise you to take calcium and vitamin D supplements. This may be because you:

- are not getting enough calcium or vitamin D
- are having a treatment that can increase your risk of [osteoporosis](#).

They may do blood tests to check your calcium levels. Or they may organise a [fracture risk assessment](#) or [DXA scan](#) before deciding whether you need to take supplements.

If you need supplements, your doctor may prescribe them for you.

You can buy [vitamin D supplements](#) without a prescription. If you are thinking about buying calcium supplements, always talk to your cancer doctor, pharmacist or GP. They can talk to you about whether you need to take them and what dose you should take. You may be able to get enough [calcium](#) from your diet.

Your GP or cancer doctor may measure your blood calcium levels regularly if you are having [bisphosphonate treatment](#). You may also be prescribed calcium and vitamin D supplements as part of this treatment.

Bisphosphonates

These drugs are widely used. They can help to:

- prevent bone loss caused by hormonal therapy and other cancer treatments
- strengthen bones and reduce the risk of fractures in people with osteoporosis
- prevent cancer spreading to the bone
- treat cancer that has spread to the bone (secondary cancer in the bone or bone metastases).

Bisphosphonates reduce the activity of cells that break down bone ([osteoclasts](#)). This slows down bone loss. Bisphosphonates do not replace lost bone, but they can stop further bone loss. This helps to make the bone stronger.

There are many bisphosphonates used to treat osteoporosis. These include:

- alendronic acid or alendronate (Fosamax®) given as a tablet
- ibandronic acid or ibandronate (Bonviva®) given as a tablet or an injection
- risedronate sodium (Actonel®) given as tablet
- zoledronic acid or zoledronate (Aclasta®) given via a drip (infusion) into the vein (intravenously).

Bisphosphonates used to prevent bone thinning and treat osteoporosis are usually taken as tablets or capsules. You may take them daily, weekly or sometimes monthly.

You take the tablets first thing in the morning on an empty stomach. Take them with a glass of water. You need to sit or stand upright for 30 to 60 minutes after taking the tablets. This helps the drug move quickly into the stomach and reduces the risk of it staying in the throat or gullet, where it can cause irritation. It also helps stop the drug coming back up from the stomach into the gullet. This can happen when you are lying down or bending.

Some people with [osteoporosis](#) may be given bisphosphonates by a drip into a vein. It can usually be given in the outpatient department at the hospital.

“ The steroid treatment was a double dose. I completed the month’s treatment and went for the routine blood test and zoledronate infusion to maintain bone strength. ”

John, diagnosed with myeloma

Side effects of bisphosphonates

Possible side effects include:

- indigestion – this is more likely when taking a bisphosphonate as a tablet
- a sore throat or inflamed gullet (the tube that goes from the mouth to the stomach) – this is more likely when taking a bisphosphonate as a tablet
- pains in your muscles and joints
- flu-like symptoms, which usually settle after the first dose.

Talk to your cancer doctor, specialist nurse, pharmacist or GP if you have any of these side effects.

Tell them before taking any more of this drug, if:

- swallowing is painful or difficult
- you have indigestion that is new or getting worse.

Rare side effects

Thigh bone fractures (atypical fractures)

A small number of people taking bisphosphonates develop fractures in their thigh bone without any obvious cause. Sometimes both thigh bones are affected.

If you have any pain in your thigh, hip or groin, tell your doctor and explain that you are taking bisphosphonates. They can arrange tests to check the thigh bones for any signs of weakness or fracture.

Osteonecrosis of the jaw (ONJ)

A rare side effect of bisphosphonate treatment is osteonecrosis of the jaw (ONJ). It happens when healthy bone tissue in the jaw becomes damaged and dies. This can cause loose teeth and problems with the way gums heal.

The risk of ONJ is very low if you are taking bisphosphonates to treat [osteoporosis](#).

ONJ is more likely to happen when bisphosphonates are given to treat cancer that has spread to the bones (secondary bone cancer) and you are having other cancer treatments. This is because higher doses of bisphosphonates are used to treat secondary bone cancer. It is also more likely if you have poor dental health.

Dental check-up

Before starting bisphosphonate treatment, your doctor will advise you to see your dentist for a check-up. Any dental treatment needs to be done before starting bisphosphonates. This includes making sure any dentures fit well.

It is important to look after your teeth and gums during treatment with bisphosphonates. You should have regular check-ups with your dentist.

It is important to avoid having dental treatment that could affect your jawbone during bisphosphonate treatment. This includes having dental implants put in, or having a tooth or root removed, except in an emergency. It is fine to have fillings, gum treatments or a scale and polish.

If you need dental treatment that could affect the jaw while taking bisphosphonates, tell your doctor before you have the treatment.

Denosumab (Prolia®)

A drug called denosumab may be used to strengthen and protect bones from the effect of cancer or cancer treatment.

Denosumab is given once every 6 months as an injection just under the skin. This is called a subcutaneous injection. If you have denosumab, your doctor may advise you to take [calcium and vitamin D supplements](#).

Denosumab can cause some side effects. These include:

- skin problems
- urinary tract infections (UTIs)
- chest infections
- constipation
- pain in the arms or legs
- a rash.

Rarely, denosumab may cause [osteonecrosis of the jaw \(ONJ\)](#).

Osteonecrosis of the jaw is when healthy bone tissue becomes damaged and dies. You would also need to have a dental check-up and any dental work done before starting denosumab. Let your doctor know if you need any dental work after starting denosumab.

Denosumab may sometimes cause thigh bone fractures that happen with minimal or no trauma.

Raloxifene (Evista®)

Raloxifene is used to treat osteoporosis in people who have been through menopause. It is only used if you cannot take bisphosphonates. You take raloxifene daily as a tablet.

Raloxifene acts in a similar way to the hormone oestrogen. It can:

- reduce the breakdown of bone
- keep the bones strong
- reduce the risk of fractures.

You should not take raloxifene if you have, or have had, breast cancer. This is because raloxifene may make the treatments used less effective. Your doctor can tell you if it can be used after treatment for breast cancer has been completed.

We have more information about these treatments and drugs on our website. Visit [macmillan.org.uk/treatments-and-drugs](https://www.macmillan.org.uk/treatments-and-drugs)



Hormone replacement therapy (HRT)

There are different types of hormone replacement therapy. They can be given as tablets, injections, gels or skin patches.

Oestrogen replacement

The hormone oestrogen helps protect your bones. If your oestrogen levels are low because of cancer treatment, your doctor may give you HRT to replace the oestrogen. This will depend on the type of cancer you have. HRT can help to protect bone health and reduce menopausal symptoms.

HRT may contain oestrogen and progesterone. This is called combined HRT. Or it may contain oestrogen only. It is often given as tablets or skin patches (transdermal patches).

HRT can have benefits for bone health. But there are also possible side effects or risks. The risks and benefits of HRT depend on:

- the type of cancer you have had – it may not be used if you have or have had breast or ovarian cancer
- your risk of cancer of the ovary and breast
- the type of HRT (oestrogen only or combined)
- whether HRT is taken as tablets or skin patches
- your age
- your general health
- whether you have a family history of blood clots.

HRT is not suitable for everyone. Your doctor will tell you if it is right for you. If you are thinking about having HRT, it is important to discuss the possible benefits and risks with your doctor.

Testosterone replacement

If you have a low level of testosterone because of cancer treatment, you can have testosterone replacement to get back to a normal level. This helps increase bone density.

If you have or have had prostate cancer, testosterone therapy may not be suitable for you. Your cancer doctor can talk to you about this.

Treatment with parathyroid hormone (PTH)

The parathyroid glands make parathyroid hormone (PTH). These glands are attached to the thyroid gland in the front of the neck. PTH helps the body absorb calcium and stimulates the body to make bone.

Teriparatide (Forsteo®)

A type of PTH called teriparatide (Forsteo®) is made as a treatment in a laboratory. You inject it just under the skin (a subcutaneous injection). A nurse can teach you how to do this yourself. You have the injection every day for up to 24 months (2 years).

People who have broken bones because of severe osteoporosis may be given teriparatide. It cannot be given to people with cancer in the bone. It is also not suitable for people who have had radiotherapy to an area of bone.

Specialist referral

If your GP or cancer doctor thinks you need specialist advice for osteoporosis, they may refer you to a specialist hospital team.

These teams may include:

- doctors
- nurses
- physiotherapists who work closely with occupational therapists
- pain specialists.



Share your experience

If cancer treatments have affected your bone health, you may find it helpful to talk about it with other people. Sharing your thoughts and feelings with others can help them too. Hearing about how you have coped and what you have done to manage your bone health could help someone in a similar situation.

There are also opportunities to influence future healthcare by sharing your experiences. You could do this by:

- joining a patient group or online forum – visit our Online Community at macmillan.org.uk/community
- volunteering with a cancer charity
- taking part in research
- telling NHS staff what you think about the care you received, or the care you would like to have received.



Further information

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About our information

We provide expert, up-to-date information about cancer. And all our information is free for everyone.

Our information has the PIF Tick quality mark for trusted health information. This means our information has been through a professional and strong production process.

Order what you need

You may want to order more booklets or leaflets like this one. Visit orders.macmillan.org.uk or call us on [0808 808 00 00](tel:08088080000).

We have booklets about different cancer types, treatments and side effects. We also have information about work, financial issues, diet, life after cancer treatment and information for carers, family and friends.

Online information

All our information is also available online at macmillan.org.uk/information-and-support You can also find videos featuring stories from people affected by cancer, and information from health and social care professionals.

Other formats

We also provide information in different languages and formats, including:

- audiobooks
- Braille
- British Sign Language
- easy read booklets
- interactive PDFs
- large print
- translations.

Find out more at macmillan.org.uk/otherformats

If you would like us to produce information in a different format for you, email us at **informationproductionteam@macmillan.org.uk** or call us on [0808 808 00 00](tel:08088080000).

The language we use

We want everyone affected by cancer to feel our information is written for them.

We want our information to be as clear as possible. To do this, we try to:

- use plain English
- explain medical words
- use short sentences
- use illustrations to explain text
- structure the information clearly
- make sure important points are clear.

We use gender-inclusive language and talk to our readers as 'you' so that everyone feels included. Where clinically necessary we use the terms 'men' and 'women' or 'male' and 'female'. For example, we do so when talking about parts of the body or mentioning statistics or research about who is affected.

To find out more about how we produce our information, visit macmillan.org.uk/ourinfo



Other ways we can help you

At Macmillan, we know how a cancer diagnosis can affect everything, and we are here to support you.

Talk to us

If you or someone you know is affected by cancer, talking about how you feel and sharing your concerns can really help.

Macmillan Support Line

Our support line is made up of specialist teams who can help you with:

- emotional and practical support if you or someone you know has been diagnosed with cancer
- clinical information from our nurses about things like diagnosis and treatments from our nurse specialists
- welfare rights advice, for information about benefits and general money worries.

To contact any of our teams, call the Macmillan Support Line for free on [0808 808 00 00](tel:08088080000). Or visit macmillan.org.uk/support-line to chat online and see the options and opening times.

Our trained cancer information advisers can listen and signpost you to further support.

Our cancer information nurse specialists can talk you through information about your diagnosis and treatment. They can help you understand what to expect from your diagnosis and provide information to help you manage symptoms and side effects.

If you are deaf or hard of hearing, call us using Relay UK on 18001 0808 808 00 00, or use the Relay UK app.

You can also email us, or use the Macmillan Chat Service via our website. You can use the chat service to ask our advisers about anything that is worrying you. Tell them what you would like to talk about so they can direct your chat to the right person. Click on the 'Chat to us' button, which appears on pages across the website. Or go to macmillan.org.uk/talktous

If you would like to talk to someone in a language other than English, we also offer an interpreter service for our Macmillan Support Line. Call [0808 808 00 00](tel:08088080000) and say, in English, the language you want to use. Or send us a web chat message saying you would like an interpreter. Let us know the language you need and we'll arrange for an interpreter to contact you.

Macmillan Information and Support Centres

Our Information and Support Centres are based in hospitals, libraries and mobile centres. Visit one to get the information you need and speak with someone face to face. If you would like a private chat, most centres have a room where you can speak with someone confidentially.

Find your nearest centre at macmillan.org.uk/informationcentres or call us on [0808 808 00 00](tel:08088080000).

Help with money worries

Having cancer can bring extra costs such as hospital parking, travel fares and higher heating bills. If you have been affected in this way, we can help. Please note the opening times may vary by service.

Financial advice

Our expert money advisers on the Macmillan Support Line can help you deal with money worries and recommend other useful organisations that can help.

Help accessing benefits

You can speak to our money advisers for more information. Call us free on [0808 808 00 00](tel:08088080000). Visit macmillan.org.uk/financialsupport for more information about benefits.

Help with work and cancer

Whether you are an employee, a carer, an employer or are self-employed, we can provide support and information to help you manage cancer at work. Visit macmillan.org.uk/work

Talk to others

No one knows more about the impact cancer can have on your life than those who have been through it themselves. That is why we help bring people together in their communities and online.

Support groups

Whether you are someone living with cancer or a carer, family member or friend, we can help you find support in your local area, so you can speak face to face with people who understand. Find out about support groups in your area by calling us or by visiting macmillan.org.uk/selfhelpandsupport

Online Community

Thousands of people use our Online Community to make friends, blog about their experiences and join groups to meet other people going through the same things. You can access it any time of day or night. Share your experiences, ask questions, or just read through people's posts at macmillan.org.uk/community

You can also use our Ask an Expert service on the Online Community. You can ask a money adviser, cancer information nurse or an information and support adviser any questions you have.

Macmillan healthcare professionals

Our nurses, doctors and other health and social care professionals give expert care and support to individuals and their families. Call us or ask your GP, consultant, district nurse or hospital ward sister if there are any Macmillan professionals near you.

Other useful organisations

There are lots of other organisations that can give you information or support. Details correct at time of printing.

Bone health organisations

Royal Osteoporosis Society

Helpline **0808 800 0035**

Email nurses@theros.org.uk

www.theros.org.uk

Provides support to people with or at risk of osteoporosis. Aims to increase understanding and awareness of osteoporosis, inform health professionals and fund research into the condition. The helpline is staffed by specialist nurses, and information resources are also available.

General cancer support organisations

Breast Cancer Now

Helpline **0808 800 6000**

www.breastcancernow.org

Provides information and emotional support and other services for anyone affected by breast cancer. Specialist breast care nurses run the helpline. Also offers a peer-support service where anyone affected by breast cancer can be put in touch with a trained supporter who has had personal experience of breast cancer.

Cancer Black Care

Tel **0734 047 1970**

www.cancerblackcare.org.uk

Provides support for all those living with and affected by cancer, with an emphasis on Black people and people of colour.

Cancer Focus Northern Ireland

Helpline **0800 783 3339**

www.cancerfocusni.org

Offers a variety of services to people affected by cancer in Northern Ireland, including a free helpline, counselling and links to local support groups.

Cancer Research UK

Helpline **0808 800 4040**

www.cancerresearchuk.org

A UK-wide organisation that has patient information on all types of cancer. Also has a clinical trials database.

Macmillan Cancer Voices

www.macmillan.org.uk/cancervoices

A UK-wide network that enables people who have or have had cancer, and those close to them such as family and carers, to speak out about their experience of cancer.

Maggie's

Tel **0300 123 1801**

www.maggies.org

Has a network of centres in various locations throughout the UK. Provides free information about cancer and financial benefits. Also offers emotional and social support to people with cancer, their family, and friends.

Penny Brohn UK

Helpline **0303 3000 118**

www.pennybrohn.org.uk

Offers a combination of physical, emotional and spiritual support across the UK, using complementary therapies and self-help techniques.

The Prostate Cancer Charity

Helpline **0800 074 8383**

Textphone **18001 0800 074 8383**

www.prostatecanceruk.org

Provides information and support for prostate cancer patients and their families. Has a telephone helpline with experienced nurses for anyone concerned about prostate cancer. Can also arrange contact with other men with prostate cancer and their families who are willing to talk to people about their experiences. The website has a range of literature available to download or to order free.

Tenovus

Helpline **0808 808 1010**

www.tenovuscancercare.org.uk

Aims to help everyone in the UK get equal access to cancer treatment and support. Funds research and provides support such as mobile cancer support units, a free helpline, benefits advice and an online 'Ask the nurse' service. Equipment and advice on living with a disability.

General health information

British Dietetic Association

www.bda.uk.com

Provides information for anyone interested in food, nutrition and dietetics. Also has a directory of freelance dietitians.

Drinkaware

www.drinkaware.co.uk

Provides independent alcohol advice, information and tools to help people make better choices about their drinking. Also has a web chat, for anyone concerned about their own drinking, or someone else's.

Health and Social Care in Northern Ireland

www.northerntrust.hscni.net

Provides information about health and social care services in Northern Ireland.

NHS.UK

www.nhs.uk

The UK's biggest health information website.
Has service information for England.

NHS 111 Wales

111.wales.nhs.uk

NHS health information site for Wales.

NHS Inform

Helpline **0800 22 44 88**

www.nhsinform.scot

NHS health information site for Scotland.

Stop smoking services

Help Me Quit (Wales)

Tel **0808 278 6119**

Text 'HMQ' to **80818**

www.helpmequit.wales

Offers information, advice and support on stopping smoking
in English and Welsh.

NHS Smokefree Helpline (England)

Tel **0300 123 1044**

www.nhs.uk/better-health/quit-smoking

Offers information, advice and support to people who want to stop
smoking or have already stopped and do not want to start again.

Quit Your Way (Scotland)

Tel **0800 84 84 84**

www.nhsinform.scot/quit-your-way-scotland

Scotland's national stop smoking support service. Offers advice and information about how to stop smoking. You can also chat online to an adviser.

Stop Smoking NI (Northern Ireland)

www.stopsmokingni.info

Has information and advice about stopping smoking. Also links to other support organisations for people in Northern Ireland who want to stop smoking.

Organisations that can help with physical activity

CanRehab Trust

www.canrehabtrust.org

Runs training workshops for health and fitness professionals on developing and providing safe and effective exercise-based cancer rehabilitation programmes.

Moving Medicine

www.movingmedicine.ac.uk

Empowers people to live active and healthy lives, and has information about physical activity after a diagnosis of cancer.

Stronger My Way – Chartered Society of Physiotherapy (CSP)

www.csp.org.uk/campaigns-influencing/campaigns/stronger-my-way

Has videos explaining how to do exercises to make you feel stronger.

Equipment and advice on living with a disability

The Blue Badge Scheme (Department for Transport)

Allows drivers of passengers with severe mobility problems to park close to where they need to go. Local authorities deal with applications and issue badges.

England, Scotland and Wales

www.gov.uk/apply-blue-badge

Northern Ireland

www.nidirect.gov.uk/information-and-services/motoring-travel-and-transport-people-disabilities/blue-badge-scheme

British Red Cross

Tel **0344 871 1111**

www.redcross.org.uk

Offers a range of health and social care services across the UK, such as care in the home, a medical equipment loan service and a transport service.

Disability Rights UK

Tel **0330 995 0400** (not an advice line)

www.disabilityrightsuk.org

Provides information on social security benefits and disability rights in the UK. Has a number of helplines for specific support, including information on going back to work, direct payments, human rights issues, and advice for Disabled students.

Living Made Easy

Helpline **0300 123 3084**

www.livingmadeeasy.org.uk

Provides free, impartial advice about all types of disability equipment and mobility products.

Scope

Helpline **0808 800 3333**

Textphone Use Type Talk by dialling **18001** from a textphone followed by **0808 800 3333**

www.scope.org.uk

Offers confidential advice and information on living with disability. Also supports an independent, UK-wide network of local Disability Information and Advice Line services (DIALs) run by and for Disabled people.

Support for older people

Age UK

Helpline **0800 678 1602**

www.ageuk.org.uk

Provides information and advice for older people across the UK via the website and advice line. Also publishes impartial and informative fact sheets and advice guides.

LGBT-specific support

LGBT Foundation

Tel **0345 330 3030**

lgbt.foundation

Provides a range of services to the LGBT community, including a helpline, email advice and counselling. The website has information on various topics including sexual health, relationships, mental health, community groups and events.

OUTpatients

www.outpatients.org.uk

A safe space for anybody who identifies as part of the queer spectrum and has had an experience with any kind of cancer at any stage. Also produces resources about LGBT cancer experiences. OUTpatients runs a peer support group with Maggie's Barts.

Disclaimer

We make every effort to ensure that the information we provide is accurate and up to date, but it should not be relied upon as a substitute for specialist professional advice tailored to your situation. So far as is permitted by law, Macmillan does not accept liability in relation to the use of any information contained in this publication, or third-party information or websites included or referred to in it. Some photos are of models.

Thanks

This booklet has been written, revised and edited by Macmillan Cancer Support's Cancer Information Development team. It has been approved by members of Macmillan's Centre of Clinical Expertise.

With thanks to: Dr Sophie Barrett, Consultant Medical Oncologist; Professor Simon Crabb, Uro-oncologist; and Dr Santhanam Sundar, Consultant Oncologist.

Thanks also to the people affected by cancer who reviewed this edition, and those who shared their stories. We welcome feedback on our information. If you have any, please contact **informationproductionteam@macmillan.org.uk**

Sources

Below is a sample of the sources used in our information about bone health and cancer treatment. If you would like more information about the sources we use, please contact us at **informationproductionteam@macmillan.org.uk**

Coleman R, et al. European Society for Medical Oncology. Clinical Practice Guidelines – Bone health in cancer: ESMO Clinical Practice Guidelines. Annals of Oncology. 2020. Available from: www.esmo.org/guidelines/guidelines-by-topic/supportive-and-palliative-care/bone-health-in-cancer-patients [accessed April 2024].

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Can you do something to help?

We hope this booklet has been useful to you. It is just one of our many publications that are available free to anyone affected by cancer.

They are produced by our cancer information specialists who, along with our nurses, money advisers, campaigners and volunteers, are part of the Macmillan team. When people are facing the toughest fight of their lives, we are here to support them every step of the way.

We want to make sure no one has to go through cancer alone, so we need more people to help us. When the time is right for you, here are some ways in which you can become a part of our team.

5 ways you can help someone with cancer

1. **Share your cancer experience**

Support people living with cancer by telling your story, online, in the media or face to face.

2. **Campaign for change**

We need your help to make sure everyone gets the right support. Take an action, big or small, for better cancer care.

3. **Help someone in your community**

A lift to an appointment. Help with the shopping. Or just a cup of tea and a chat. Could you lend a hand?

4. **Raise money**

Whatever you like doing you can raise money to help. Take part in one of our events or create your own.

5. **Give money**

Big or small, every penny helps. To make a one-off donation see over.

Please fill in your personal details

Mr/Mrs/Miss/Other

Name

Surname

Address

Postcode

Phone

Email

Please accept my gift of £
(Please delete as appropriate)

I enclose a cheque / postal order /
Charity Voucher made payable to
Macmillan Cancer Support

OR debit my:

Visa / MasterCard / CAF Charity
Card / Switch / Maestro

Card number

Valid from

Expiry date

Issue no

Security number

Signature

Date / /

Do not let the taxman keep your money

Do you pay tax? If so, your gift will be worth 25% more to us – at no extra cost to you. All you have to do is tick the box below, and the tax office will give 25p for every pound you give.

I am a UK tax payer and I would like Macmillan Cancer Support to treat all donations I make or have made to Macmillan Cancer Support in the last 4 years as Gift Aid donations, until I notify you otherwise.

I understand that if I pay less Income Tax and/or Capital Gains Tax than the amount of Gift Aid claimed on all my donations in that tax year it is my responsibility to pay any difference. I understand Macmillan Cancer Support will reclaim 25p of tax on every £1 that I give.

Macmillan Cancer Support and our trading companies would like to hold your details in order to contact you about our fundraising, campaigning and services for people affected by cancer. If you would prefer us not to use your details in this way please tick this box.

In order to carry out our work we may need to pass your details to agents or partners who act on our behalf.

If you would rather donate online go to macmillan.org.uk/donate



Please cut out this form and return it in an envelope (no stamp required) to: Supporter Donations, Freepost RUCY-XGCA-XTHU, Macmillan Cancer Support, PO Box 791, York House, York YO1 0NJ

This booklet is about bone health. It is for people who are having, or have had, cancer treatments that may affect their bones.

It explains what factors affect bone health and what things you can do to help maintain healthy bones.

At Macmillan we know cancer can disrupt your whole life. We'll do whatever it takes to help everyone living with cancer in the UK get the support they need right now, and transform cancer care for the future.

For information, support or just someone to talk to, call [0808 808 00 00](tel:0808808000) or visit macmillan.org.uk

Would you prefer to speak to us in another language? Interpreters are available. Please tell us in English the language you would like to use. Are you deaf or hard of hearing? Call us using Relay UK on **18001 0808 808 00 00**, or use the Relay UK app.

Need information in different languages or formats? We produce information in audio, interactive PDFs, easy read, Braille, large print and translations. To order these, visit macmillan.org.uk/otherformats or call our support line.

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