

Lifestyle for healthy bones

Written by Dr Louise Newson

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Why does bone health matter?

Bone tissue is made up of cells and blood vessels that help the bone grow and repair itself. The amount of bone tissue you have is known as bone density and is a measure of how strong and healthy your bones are. By your late thirties, your bone density starts to naturally decrease. This loss of bone density makes your bone weaker, less pliable and therefore more susceptible to breaking.

Women are more affected by a loss of bone strength in the years before, during, and after the menopause, as estrogen (the key hormone for protecting and maintaining bone density) rapidly declines during this time. Your bone is breaking down at a faster rate than the body can grow new bone tissue.

It is very important to eat a healthy, well-balanced diet that supports bone

strength and encourages bone repair. It is also vital to live an active life involving exercise that builds and strengthens your bones. Doing this will help reduce the risk of injury to your bones, such as a fall, and also reduce the chance of a bone break if an accident does occur.

One in three women over 50 years will sustain a fracture to the hip for example, and this can have serious consequences to your health. Even after the initial recovery, a hip fracture can affect your ability to carry out daily activities such as eating, dressing, washing or shopping; 40% of women who fracture their hip are not able to walk again without an aid or assistance - the physical and psychological impacts are huge. Once a fracture has occurred, women are five times more likely to experience a second fracture within the next year.

Diagnosing Osteoporosis

Osteoporosis is when the loss of bone density is severe and there is a greater risk of bones breaking. It develops slowly over several years and is often only diagnosed when a fall or sudden impact causes a bone to break. Osteoporosis is not usually painful until a bone is broken, but broken bones in the spine are a common cause of long term pain.

A family history of osteoporosis means you are more susceptible to bone weakening but there are other factors that will increase your chance of having osteoporosis too. Habits such as smoking and heavy drinking damages the bone-

building cells, a diet lacking the important nutrients calcium and Vitamin D does not give the bones what they need to grow new bone tissue and women over 50, who do not take HRT, have inadequate levels of estrogen in the body to protect the bones from deterioration.

If your doctor suspects you have osteoporosis, they can work out your future risk of breaking a bone using an online programme such as FRAX or Q-Fracture. They may also refer you for a bone density scan to measure your bone strength, known as a DEXA scan.

DEXA Scan

This scan is non-invasive and uses a very low dose of radiation, for example, it is not more than every day, background radiation in the street. The scanner calculates the difference between how much radiation enters and exits the bones; the difference represents how much radiation has been absorbed by the bone and other tissues - this measurement is known as bone density. It is, therefore, a measure of quantity rather than quality. The scanner also uses the bone density measurement to compare against people of the same age and sex, giving a good indication as to whether you are at risk of, or have already developed, osteoporosis.

So, apart from taking replacement estrogen, what can be done to prevent your bones from losing their density and does anything actually make a difference or is it an inevitable consequence of ageing? Fortunately, much can be done to strengthen your bones and reduce the chance of them breaking.

You may be offered

a DEXA scan if you have already broken a bone, have arthritis, have been on oral glucocorticoids for more than 3 months, had the menopause under 45 years due to natural onset, surgery, or treatments for cancer, have large gaps (of more than a year) between periods, if you are postmenopausal and also smoke or drink heavily, or if you are underweight with a BMI of less than 21.

All the risk factors need to be considered before having a DEXA scan. Some people need a scan to confirm that their risk of breaking a bone is high enough to need treatment.

A DEXA scan can also be used to determine whether your internal fat is at a healthy level. The scan measures your muscle mass and bone mass, and can give you a percentage of your body's bone, muscle and fat distribution - known as body composition. This is important because your body composition gives an indication of your own health and potential risks in the

An active life that includes bone-strengthening exercise

Bones get stronger as you use them and give them work to do. For exercise to be most effective at keeping bones strong, you need to combine weight-bearing exercise with impact and muscle strengthening exercise. Weight-bearing exercise is when you are standing up and holding your own weight, the impact comes with movement and pressure on

our joints, such as walking, jogging, dancing, or tennis.

Variety in movement is also good for bones, which you can achieve by using different body positions, directions and speeds in the activities mentioned. Short bursts followed by lighter periods of activity also work well.

Weight-bearing with impact

Choose activities that you enjoy and think about how much impact occurs on your joints:

Low impact – walking, marching, stair climbing, gentle heel drops and stamping

Medium impact – dancing, jogging, team and racket sports, skipping and hopping, normal jumping, and stamping

High impact – netball, volleyball, basketball, high jumping, tuck jumps, star jumps, athletic events.

Muscle strengthening exercise

When your muscles pull on your bones it gives your bones work to do. Your bones respond by renewing themselves and maintaining or improving their strength. To strengthen your muscles, you need to move them against some resistance such as, lifting weights or pushing against something, using an elastic resistance band, or using your own body

weight during a press-up. As your muscles get stronger and you find the movements easier, you can gradually increase the intensity of the resistance by increasing the weight you use. Research has shown that this is likely to be the best type of muscle strengthening exercise for bone strength.

How often do you need to exercise to help your bone and muscle strength?

For most people, the Royal Osteoporosis Society recommends about 50 moderate impacts on most days. This could be jumping, skipping, jogging or hopping. If you have spinal fractures or are unable to do moderate exercise, then 20 minutes of lower impact exercise on most days. If you're not physically strong or unable to do regular exercise, aim to avoid prolonged sitting by standing up for a few minutes

in every hour of sitting down.

For muscle strengthening exercise, aim for 2-3 days each week, on non-consecutive days. Exercise for 20 to 30 minutes, working on activities that target legs, arms and your spine. Exercise you do for your bone health should be in addition to the exercise you do for your general health.

Improving balance and flexibility

Activities such as yoga, pilates, and tai chi can also be very beneficial as they work on your balance, coordination and flexibility, which will help your everyday ability to move around, such as getting in and out of cars, loading the washing machine, reaching up to a high shelf on tiptoes, or picking something off the floor. Having good balance and flexibility will

also help to prevent falls occurring.

If you already have osteoporosis, exercise is still important, whatever your age or wellness and whether you have broken bones in the past or not. Being physically active and exercising helps in so many ways and is very unlikely to cause a broken bone.

Food for your bones

Eating and drinking the right things can help support your bone health at every stage of your life, calcium and vitamin D are two nutrients well-known to be important for bones but there are many other vitamins and minerals such as iron that are vital to help your bones stay healthy and strong.

If you enjoy a healthy, balanced diet and eat meals that contain the five main food groups: fruit and vegetables, Iron carbohydrates (bread, potatoes, pasta, rice) beans and pulses, dairy and alternatives (milk, cheese, soya) and proteins (eggs, fish, nuts, seeds and meat) you should be getting everything you need.

Mediterranean diet principles are great for looking after your general health as well as your bones. This means a diet that is high in vegetables, nuts, beans, cereals, fish and unsaturated fats (like olive oil) and low in meat and dairy, can help maintain bone mineral density.

Calcium gives your bones the strength and hardness they need to cope with your everyday activities. Foods that are calcium-rich include: dairy products such as milk, yoghurt, kefir and cheese, green leafy vegetables, other vegetables like cabbage and broccoli, nuts such as almonds, sesame seeds, soft fish bones found in sardines and whitebait, dried fruit, pulses, tofu and fortified foods and drink, like breakfast cereal and alternative plant based milks.

Vitamin D helps your body absorb and use calcium. There are three ways you

can get vitamin D - from safe sunlight exposure, from your diet and from vitamin D supplements, if needed. Foods naturally rich in vitamin D include oily fish, like herring, salmon, sardines and mackerel, and egg yolks. Some foods have vitamin D added to them, such as some bread, some yoghurts, orange juice and cereals. This is normally advertised on the packaging.

is vital for the production of blood in our bodies. Low levels of iron have been shown to contribute to loss of bone tissue (bone strength) in postmenopausal women and individuals with osteoporosis are often deficient in iron. Although meat is rich in iron, it should be consumed in moderation; iron supplements can have undesirable side effects, such as constipation and stomach pain. The good news is that there are many non-meat foods that are a great source of iron, examples of these are spinach, broccoli, kale, swiss chard, lentils, chickpeas, red kidney beans, soy beans, cashews, sesame seeds and baked potatoes.

Gastrointestinal health plays a role in bone mineral density too. A healthy gut increases the amount of minerals helpful for bone-building being absorbed into the bloodstream. Prebiotic foods (garlic, onions, bananas, apples, whole grains, and pulses) and fermented foods (yoghurt, kefir, sauerkraut) work in partnership as foods rich in calcium and foods to help the gut absorb the calcium more readily.

Vitamin D supplement

A vitamin D supplement is a good way of ensuring your body has enough of this important nutrient for your bones, which is much needed during the years around your menopause, especially during autumn and winter months when there is less sunlight. Health recommendations for most people should consider taking a daily supplement containing 10mcg of vitamin D, especially those that are not

outdoors much, as it plays an important role in muscle function and bone health. Low levels of vitamin D can therefore increase the risk of falls and fracture. Most of the vitamin D that your body needs is made in the skin from sunlight, but our skin becomes less efficient in producing vitamin D from the sun as we age. People with darker skin are at higher risk of deficiencies than those with paler skin.

Smoking and alcohol

Smoking slows down the cells that build bone in your body. This means smoking could reduce your bone strength and increase your risk of breaking a bone. People who smoke are also found to be at higher risk of breaking their hip as they get older. However, if you give up smoking, your risk of breaking a bone begins to return to normal.

Drinking a lot of alcohol increases your risk of osteoporosis. In the short term, it also makes you unsteady on your feet, making you more likely to trip, fall and break a bone. Try to stick to the government recommendation of no more than 14 units of alcohol per week. This is approximately a pint of beer or

cider per day, or 1 single measure of spirit, or a small glass (2/3rds full) of wine per day. It's also important for you to have regular days where you don't drink at all.

Through a combination of eating the right foods, being active and leading a healthy lifestyle you can support your body to build and maintain your bones, keeping them strong and healthy for as long as possible.

The Royal Osteoporosis Society (www.theros.org.uk) is a useful resource and provides a wealth of information on looking after your bones.



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