YOUR BONE HEALTH HANDBOOK

A guide to preventing future fractures
WHO IS THIS BOOKLET FOR?

This booklet is for you if you are approaching retirement or of retirement age. It contains practical advice to help you stay as active and independent as possible now and in the coming years.

You may have spent your lifetime taking care of others; now take a moment to read this to help you take care of yourself.

If you are a younger adult, you may find the information useful for older family members or even for your future self.

The information within this booklet is general in nature and so does not replace any advice from your doctor.
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For many older people, having quality of life means being able to spend time doing things that they enjoy. For some, this means travelling; for others, it may just be meeting up with friends, spending time with grandchildren, volunteering or some other activity.

What does quality of life mean to you? 

1. Doing things you enjoy  
2. Being able to manage on your own  
3. Being financially comfortable  
4. Feeling safe at home  
5. Feeling healthy  
6. Having faith and beliefs  
7. Feeling at peace  
8. Having a positive attitude
Many people value being able to continue managing on their own in their older age. It’s not surprising if you feel this way, since you have spent most of your life taking care of yourself and probably of others too.

Sometimes, you may not realise how valuable something is until you lose it – independence can be one of those things. The ability to move around without fear is an important part of leading an independent life.
Good health is of course important as you age. But bone health is often overlooked. You may not have realised that your bone health is important for you to continue doing everyday things for yourself.

Sometimes, the first sign that your bone health is not as it should be is a broken bone (fracture). There are NO symptoms before a fracture. You cannot feel your bones weakening even if they are at risk of breaking from a minor bump or fall.

Risk factors for weak bones are covered on page 7.

If you haven’t had a fracture, ask your doctor if you need a bone health assessment.

If you have had a fracture, you need to have a bone health assessment. Insist on having your bone health checked if this has not been suggested by your doctor.

Fractures are common in older people

One in 3 women aged over 50 years will experience osteoporotic fractures. As will 1 in 5 men. And those who have experienced fractures before are at higher risk of experiencing another fracture.

Fractures can have serious consequences

Fractures may cause long-term pain, disability and early death. They can also lead to loss of independence and decreased quality of life. A study has shown that fewer than 1 in 3 people who experienced a hip fracture recovered their pre-fracture level of mobility. One year after their hip fracture, four out of 10 people were still unable to walk independently; eight out of 10 people could not go back to driving or grocery shopping. Approximately 1 in 4 people move to a nursing home after their hip fracture. A fracture to your arm can make doing everyday activities like bathing, dressing and cooking very difficult. A fracture to your backbone can cause long-term back pain, loss of height or a stooped posture, and trouble bending and reaching for objects.

The loss of mobility and independence from a fracture may cause you to be house-bound and isolate you from meeting people who are dear to you.
**OSTEOPOROSIS CAUSES BONES TO BE WEAK**

Osteoporosis is a condition that causes your bones to break more easily than normal bones.

![Normal Bone vs. Osteoporotic Bone](image)

Osteoporosis is called a ‘silent’ disease because there are no symptoms until a fracture occurs.\(^3\)\(^6\)

With osteoporosis, a fracture can occur following a minor fall (i.e. a fall from standing height or less) and even without a fall or impact. This type of fracture is known as a ‘fragility fracture’.\(^6\)

**What happens to your bones with age**

**In your 20s:** Your bones are the strongest. This is when you have maximum or peak bone mass. Peak bone mass is different from person to person depending on genetics and lifestyle factors such as diet and exercise. Weight-bearing exercises help build bone density and mass. The higher your peak bone mass, the less likely you are to develop osteoporosis later on.\(^7\)

**From your 30s–40s:** Your bone mass naturally starts to decrease.

**From your 50s:** In women, bone loss becomes quicker after menopause due to the fall in the level of the hormone oestrogen.\(^8\) However, fractures are not a normal part of ageing and can be prevented.
### BUSTING MYTHS ABOUT FRACTURES AND OSTEOPOROSIS

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<tr>
<th>MYTH #1: “Fractures are an inevitable consequence of ageing”</th>
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<td>Some people may tend to dismiss a fracture as just being the result of ageing. However, breaking a bone just from falling over from standing height is <strong>NOT normal</strong>. It is not part of ageing. Anyone over 50 who has a fracture from a minor bump or fall needs to be fully evaluated for osteoporosis and receive treatment.6</td>
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*A broken bone from a fall from standing height or lower is not a normal part of ageing*7

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<th>MYTH #2: “My fracture was an accident”</th>
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<td>An international survey found, nearly half of people with fragility fractures believed their fall was the only cause of their fracture.8 However, they failed to recognise that having fragile bones was the more serious cause.8 Anyone over 50 who has a fracture from a minor bump or fall needs to be fully evaluated for osteoporosis and receive treatment.6</td>
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<th>MYTH #3: “Osteoporosis is an old ladies’ disease”</th>
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<td>Osteoporosis can affect both men and women. Osteoporosis is more common and begins at a younger age in women.6,9</td>
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<th>MYTH #4: “Treatment doesn’t prevent fractures”</th>
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<td>Medical treatments for osteoporosis have been shown to reduce the risk of fragility fractures. These treatments reduce the risk of fractures by up to 70% at the spine and up to 40% at the hip. Non-spinal fractures are also reduced by up to 20%.10 If you have already experienced a fracture, these treatments reduce your risk of further fractures.11</td>
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<th>MYTH #5: “Taking treatment for osteoporosis is riskier than not being treated”</th>
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<td>Every medicine has some potential side effects. There are different types of osteoporosis treatment with different side effects. Serious side effects of osteoporosis treatments are rare. All these proven treatments have shown that their benefits far outweigh any potential risks.10 Speak to your doctor if you are worried about medicine risks.</td>
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WHAT ARE THE RISK FACTORS FOR OSTEOPOROSIS?

Some risk factors are fixed, which means you can’t change them. However, it is good to be aware of them.

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<th>FIXED RISKS</th>
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<td>Older age</td>
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<td>Being female</td>
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<td>Family history of osteoporosis or fracture</td>
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<td>Previous fracture yourself</td>
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<td>Menopause (when your periods stop) or removal of your ovaries through surgery</td>
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<td>Some medical conditions, such as rheumatoid arthritis</td>
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Other risk factors for osteoporosis are more to do with lifestyle, and so there is something you can do about these.12

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<th>CONTROLLABLE RISKS</th>
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<td>Poor nutrition, including low calcium intake</td>
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<td>Lack of vitamin D</td>
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<td>Too little physical activity</td>
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<td>Drinking alcohol heavily</td>
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<td>Smoking</td>
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<tr>
<td>Falls – 9 out of 10 fractures result from falls so reducing falls can reduce fractures13 (see page 14)</td>
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Check your fracture risk factors by talking to your doctor.
How to keep your bones strong

You can do many things to keep your bones strong and reduce your risk of fracture. Most of these lifestyle choices are also part of overall healthy lifestyle. Making lifestyle changes in a group setting (e.g. in an exercise group or with friends) can make it easier and more enjoyable.
Healthy eating

Eating a wide variety of foods is important for a healthy lifestyle and healthy bones. Speak with your doctor about any dietary changes you might need to make to maintain healthy bones. Your doctor may refer you to a dietician who can develop a healthy eating program for you.

Calcium

You need enough calcium because calcium is a major building block of bone. A study has shown many people in Asia have low calcium intake (less than 500 mg/day). Most people need about 1000 to 1200 mg/day of calcium.

Foods that are rich in calcium include milk, cheese and yoghurt. These dairy foods are also high in protein.

Other sources of calcium include:

- tofu
- green vegetables such as broccoli and bok choy
- canned fish with soft bones such as tuna, sardines or salmon
- nuts, especially almonds and Brazil nuts
- calcium-enriched foods. (Tip: Check the nutrition label to compare the calcium content of these foods)

Dehydration can increase the risk of falls. So remember to drink enough water, especially on hot days.

Protein

Protein is an essential component of bone. The protein in bone contributes to the bone’s strength. Protein is also needed for muscle strength. Besides strong bones, you need strong muscles to remain upright and reduce your risk of a fall.

Foods that are high in protein include dairy, lean red meat, poultry and fish. Non-animal sources of protein include lentils, beans, tofu, nuts and seeds.
Getting enough Vitamin D

Your body needs vitamin D to build strong bones. Vitamin D is usually made in your skin when you get some sunshine. If you do not go out into sunshine much, you may not have enough vitamin D.\(^{17}\)

Vitamin D can also be found in oily fish such as salmon and sardines, eggs and liver.\(^{16}\)

People aged over 60 years are generally recommended to have 800 to 1000 IU/day of vitamin D.\(^{37}\)

Ask your doctor if you need to take a vitamin D supplement regularly. Taking Vitamin D and calcium supplements have been shown to help reduce the risk of fractures in older men and women.\(^{37}\)

Avoid heavy drinking

Drinking heavily can increase the risk of bone loss.\(^{35}\) Alcohol can also make you unsteady, which increases your risk of falls.\(^{19}\)

Avoid smoking

Smoking can reduce bone strength. Cutting out smoking can help reduce your risk of fractures as well as the many other ill health effects associated with smoking.\(^{35-39}\)
Stay active and exercise regularly

Exercise can help protect your bone health and keep you mobile and independent.20,21

Regular exercise strengthens bones.22 Improving your muscle strength and balance can also reduce your risk of falls and fractures.23,22

If you have had a previous fracture, exercise is an important part of your recovery.22

Speak with your doctor about an exercise program that is suitable for you. Your doctor may refer you to a physical therapist or another health professional who can develop an exercise program for you. They can teach you how to exercise safely and how to progress to get the most benefit. They can also motivate you and help monitor your progress.

The exercise program may involve different types of exercises:

- **Weight-bearing aerobic exercises** such as brisk walking and stair climbing can help increase bone strength22,23

- **Progressive resistance training** involves using weights or bands to strengthen muscles.23,23 This is important as a way to minimise loss of muscle mass as you age. Strengthening your leg muscles is especially important to reduce your risk of falling.24,25

- **Balance exercises** can help keep you steady on your feet. Balance exercises have been shown to effectively reduce the risk of falling.22

Examples of balance exercises are walking in a straight-line heel-to-toe, Tai Chi or single leg balance (see below).
An example of a balance exercise without the risk of falling is the birddog.

**BIRDDOG**
- Begin on your hands and knees on the floor.
- Raise opposite limbs (e.g. right arm and left leg).
- Hold your balance.
- Switch sides, alternate repeatedly.

### Staying safe while exercising

When you first start, you are usually supervised by a health professional, and then encouraged to continue exercising at home. Before exercising at home, it is important you make your environment safe to reduce the risk of falls.26

- Clear your exercise space of any trip hazards, e.g. electrical cords and lumpy rugs
- Exercise in a well-lit area
- Wear well-fitting shoes with non-slip soles
- Use a sturdy surface such as a bench or table to help steady yourself if needed
- Exercise at a time of day when you don’t feel dizzy or sleepy from any medications you may be taking.

### To get the most out of your exercise:

- Make it regular and ongoing. Your exercise program needs to be tailored to your needs, abilities and interests.
- Make it more challenging over time as you are able (e.g. increase the weight used, the degree of exercise difficulty or how long you do the exercise). Check with your doctor or exercise health professional on how to do this when exercising at home.
Prevent falls to stay fracture-free

The more you do, the more you can do

Falls are a common cause of fracture, so reducing your risk of falls will reduce your risk of fractures. For someone with osteoporosis, even a minor slip can lead to a serious fracture. And if you have had one fracture, you are more likely to have another.

If you have had a fall before, you may be naturally more cautious about falling again. Even if you haven’t had a fall, you may be concerned about falls. The fear of falling is a problem if it makes you less active, less likely to exercise or to do the things you normally enjoy. Doing exercises can actually improve your balance, strength and confidence.
Speak with your doctor about how to reduce your falls risk, especially in terms of your overall health, medications and eyesight.

Medications

Some medications can increase your risk of falling. For instance, some types of medications used to treat insomnia (difficulty sleeping), depression or anxiety can also cause you to feel drowsy, dizzy or unsteady. Some medications may increase the number of times you need to go to the toilet.28

- If you have started a new medication and noticed that you feel more unsteady on your feet or need to go to the toilet more often in the night, let your doctor know.28
- Your risk of falls may increase if you take four or more medications. Ask your doctor or pharmacist to review your medications to check if you still need them and if you are taking them as you should.28
- Remember to also let your doctor or pharmacist know if you take any over-the-counter medications, supplements and complementary medicines. There is a chance these non-prescription items can interact with your medicines, and worsen any side effects of drowsiness or dizziness.28
Health conditions

Some health conditions can increase your risk of falls. For example, if you have low blood pressure, you may feel light-headed or dizzy when you stand up quickly.28

- Any conditions that cause you to feel dizzy or confused can increase your risk of falling. If you notice changes in your health, discuss it with your doctor.

Eyesight

Your eyesight changes with age. You may find it more difficult to judge distances and depth, which makes going up or down steps trickier. You may also notice that your eyes are more sensitive to glare. And your eyes may take longer to adjust to sudden changes in light, such as when you turn off the light at night.13

- It is a good idea to get your eyesight routinely checked every year.33
- If you notice any changes in your eyesight, let your doctor or optometrist know.33
- Keep your glasses clean and always wear the right glasses for your activity. Reading glasses are for reading and distance glasses help with moving around.33
- Give yourself time for your eyes to adjust to any changes to light before you move around.28
- Wear sunglasses or a hat to reduce glare on sunny days.28
There are many practical things you can do to help you stay firmly on your feet.

**Footwear**

Some types of footwear can make it more likely for you to trip or slip up.

- Wear well-fitting flat shoes with non-slip soles and good support.  
- Avoid wearing poorly fitted shoes or slippers.
- Avoid footwear with narrow or high heels.
- Avoid walking around in socks as they pose a slipping risk.

**Clothes**

Loose clothes or clothes that hang too long can catch on things as you walk by and trip you up.

- Adjust the length of clothes that can catch.

**High-risk activities**

If you can, avoid activities that require climbing up a ladder or standing on a chair, for instance to reach a high cupboard or replace a light.

- You could arrange for help for jobs that are at height.
- You may want to store things in a place you can more easily access.
- You could use assistive devices to help with some tasks.
FALL-PROOF YOUR HOME

There are many things you can do to reduce the risk of falling at home. Use the list below to assess your fall hazards and see how you can improve your safety.

Home safety checklist

Tick the ones that apply to you or you want to make.

FLOORS:

☐ Remove trip hazards such as cords or tuck them away under furniture or around skirting boards. If you need another power outlet, have an electrician install one.

☐ Address slip hazards by using non-slip mats for slippery surfaces

☐ Do not over-polish floors to avoid them becoming slippery

☐ Ensure mats and rugs are secured down. Remove mats and rugs that fold in the corners or are lumpy in the middle

☐ Remove torn or stretched carpet

☐ Unclutter corridors and rooms as much as possible

☐ Keep floors clear by picking up books, shoes or any other objects left on the floor

☐ Check for uneven surfaces, e.g. garden paths
LIGHTING:

☐ Ensure living areas and corridors are well lit

☐ Use night-lights and sensor lights that illuminate walkways (indoor and outdoor)

☐ Ensure easy access to lighting, e.g. bedside lamps

☐ Install two-way light switches at each end of corridors, stairs and in living areas with more than one entry

☐ Decrease daytime glare (e.g. sheer curtains or blinds)

STAIRS/STEPS:

☐ Install firm handrails next to steps and stairs

☐ Remove clutter or objects from stairs

☐ Ensure stairs are well lit – you may need an overhead light at the top and bottom of stairs
BATHROOM:
- Use non-slip mats
- Use bath/shower seat and hand-held shower head
- Install grab bars inside the bathtub/shower and next to the toilet
- Ensure toiletries and towels are within easy reach

KITCHEN:
- Ensure items are placed on shelves between waist and shoulder height in cupboards to make it easily accessible. Or use a properly designed step stool with handrails to reach high objects.
PLAN FOR WHAT HAPPENS IF YOU FALL

Thinking about what happens if you fall can help you prepare for it. And it helps you to avoid feeling panicked if you do fall.

Practise getting up from the floor

Try to get up from the floor by yourself. Before you try this, make sure you have someone to help you up if needed. ²⁸

How to get up: ²⁸

1. Roll onto your side.
2. Push yourself into a side sitting position.
3. Crawl or drag yourself onto a chair or sturdy piece of furniture.
4. From a kneeling position, grab the seat of the chair.
5. Bring one knee forward and put that foot on the floor.
6. Push up with your arms and legs, and pivot yourself around.
7. Sit down and rest before trying to move.

Rest at any time you need to. If you don’t succeed the first time, rest and try again.

Adapted from Australian Government Department of Health and Ageing, 2011 ²⁸
Think about how you will get help

How will you call for help in a fall?

- You may want to keep your mobile or cordless phone on you or within reach all the time.\(^\text{28}\)
- You may want to wear a personal alarm if you have one. Setting off the alarm alerts a response service that can help you. It is important that you wear the alarm all the time, even when showering or getting up at night, since you can’t predict a fall.\(^\text{28}\)
- If you live alone especially, you may want to arrange with a family member, friend or neighbour to check in at a certain time each day.\(^\text{28}\)

After a fall

If you are able to call for help, get medical help right away if you need it. Even if you don’t think you need any medical help, make sure you tell your doctor about your fall.
SUMMARY

• Bone health is essential to allow you to remain mobile and maintain independence in your life.

• Fractures are common in older people but it’s not a normal part of ageing and fractures can be prevented.

• Start by speaking to your doctor to see if you need a bone health assessment. If you have had a fracture, insist on having a bone health assessment.

• Keep your bones strong with a healthy diet and regular exercise. Take precautions to minimise your personal risk of falls (e.g. due to medications, eyesight or footwear). Ensure your home is free of falls hazards.

• Write down the changes you will make to your lifestyle and home to keep yourself safe from future fractures.

• Think about how you would respond if you did have a fall.

WHERE TO GO TO FOR MORE INFORMATION

• Learn more about osteoporosis and fractures from: Asia Pacific Fragility Fracture Alliance https://apfracturealliance.org/fractures/#Aboutosteoporosisandfractures

• Check your osteoporosis risk factors at: https://riskcheck.osteoporosis.foundation

• Learn more about osteoporosis from: International Osteoporosis Foundation at https://www.iofbonehealth.org

• Learn more about preventing falls and fractures from: US National Osteoporosis Foundation https://www.nof.org/patients/fracturesfall-prevention/

• Find out about different types of exercises based on level of ability and individual needs from: https://theros.org.uk/media/0o5h1l53/ros-strong-steady-straight-quick-guide-february-2019.pdf

• Get tips on how to exercise at home safely from: https://www.safeexerciseathome.org.au

• Find out about the calcium content of common foods from: https://www.iofbonehealth.org/osteoporosis-musculoskeletal-disorders/osteoporosis/prevention/calcium/calcium-content-common-foods
Use this space to write down the following:

A  Changes to make to improve your bone health

B  Changes to make to your home to reduce your risk of falls and fractures

C  Things to speak to your doctor about at your next appointment (e.g. previous fracture, osteoporosis risk assessment, lifestyle changes to reduce bone loss and fractures, falls risk)
KEEP TRACK OF YOUR HEIGHT

Keep a record of your height every 6 months or so. Tell your doctor if you are getting shorter over time by more than 4 cm.

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