

How to keep your bones healthy and avoid fractures

Osteoporotic Refracture Prevention Services



Your information

Name

Date of fracture

Type of fracture

Date of operation and orthopaedic surgeon

Type of operation

Admitting physician

Fracture liaison coordinator – Osteoporotic Refracture Prevention clinic

Phone

AGENCY FOR CLINICAL INNOVATION

Level 3, 1 Reserve Road
St Leonards, NSW 2065

PO Box 699 Chatswood NSW 2057
T +61 2 9464 4666 | F +61 2 9464 4728
E aci-info@nsw.gov.au | aci.health.nsw.gov.au
(ACI) 200257, ISBN 978-1-76081-408-3

Produced by: Stacey Kroehnert (Osteoporosis Refracture Prevention Coordinator, Northern NSW Local Health District) in collaboration with Jayne Hyde (Osteoporosis Refracture Prevention Coordinator, Sydney Local Health District) and the ACI Musculoskeletal Network.

Further copies of this publication can be obtained from the Agency for Clinical Innovation website at www.aci.health.nsw.gov.au

Disclaimer: Content within this publication was accurate at the time of publication. This work is copyright. It may be reproduced in whole or part for study or training purposes subject to the inclusion of an acknowledgment of the source. It may not be reproduced for commercial usage or sale. Reproduction for purposes other than those indicated above, requires written permission from the Agency for Clinical Innovation.

Version: 3 Trim: ACI/D21/1558 PCN: 2HACI19 **Date amended:** May 2023

Published Jun 2020. Next review 2026/2027.

ACI429 06/21

© State of NSW (Agency for Clinical Innovation) CC-ND-BY

Introduction

You are receiving this booklet because you are over the age of 50 (or 40 if from an Aboriginal background) and have broken a bone after a slip, trip or fall.

This is known as a minimal trauma fracture and is a warning sign that you may have osteoporosis or fragile bones. You can reduce your risk of breaking another bone by having your bone health assessed and managed appropriately. You may also have been referred to this service following a bone density scan.

This booklet contains information about how you can:

- reduce your risk of another broken bone
- reduce your risk of having a fall
- look after your bones.

If you would like to learn more about exercises for balance and osteoporosis, contact your local:

- hospital physiotherapy department to enquire about falls prevention programs and osteoporosis exercise classes
- contact your local Stepping On coordinator.

To make sure this is right for you, please consult with your health care teams.



Contents

Broken bones or fractures	6
What is osteoporosis	7
How osteoporosis develops	8
Assessment for osteoporosis	9
Improving bone strength - Take calcium	10
Improving bone strength - Get vitamin D	11
Improving bone strength - Exercise	13
Strength exercise - Squats	14
Strength exercise - Sit to stand exercise	15
Strength exercise - Wall push up	16
Balance exercise - Reduce the chance of falling	17
Balance exercise - Single leg standing	18
Balance exercise - Heel to toe standing	19
Balance exercise - Heel raises	20
Improving bone strength - Reduce your risk	21
Reduce your risk of having a fall	23
Medication to improve bone strength	24
Action plan	26
Useful websites and more to explore	27

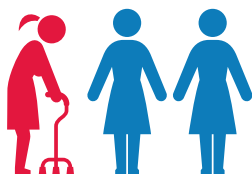
Broken bones or fractures

Each year in Australia, there is a fracture (broken bone) every 3.2 minutes due to poor bone health.

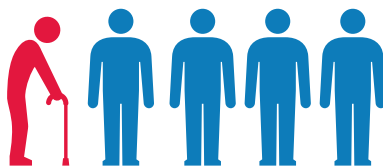


Poor bone health includes those with osteoporosis or osteopenia.

1 in 3
WOMEN
OVER 50



1 in 5
MEN
OVER 50



will experience a fracture caused by poor bone health in their lifetime.*

Osteopenia and osteoporosis may cause broken bones because bones are fragile. Many people don't know their bones are fragile until after they have broken a bone.



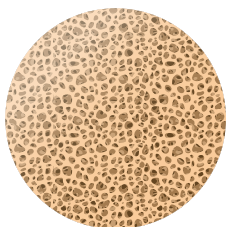
* www.iofbonehealth.org/facts-statistics

What is osteoporosis

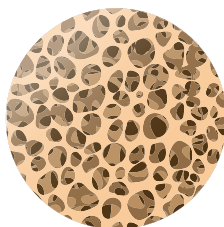
Osteoporosis is a silent disease that weakens bones over time, making them thinner, more brittle and easier to break.

People with bones that are weaker than normal, but are not weak enough to be called osteoporosis, have osteopenia. Many people with osteopenia sustain minimal trauma fractures.

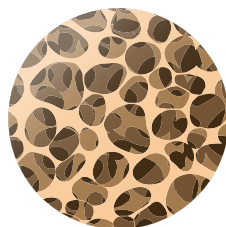
Our bones get thinner and weaker as we age and our hormone levels change. In women, bones weaken after menopause.



Normal bone has a porous honey-comb structure



Bones with osteopenia are weaker than normal



Bones with osteoporosis are thin and brittle

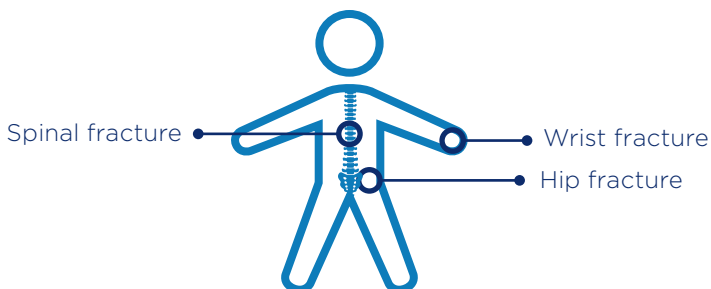
Osteoporosis and osteopenia are treatable and can be controlled with prescribed medications and/or a range of lifestyle changes to reduce your risk of another fracture.

How osteoporosis develops

Thinning bones can be caused by:

- a family history of osteoporosis
- your age
- an inactive lifestyle
- a poor diet with low intake of protein, calcium, vitamin D
- some medicines – such as prednisone, anti-epileptics
- some medical conditions – such as rheumatoid arthritis, coeliac disease, lung conditions
- smoking and drinking excessive amounts of alcohol
- lower levels of bone hormones, such as oestrogen in women and testosterone in men.

Some bones are more likely than others to become weakened by osteoporosis and break – such as the wrist, hip and spine.



Assessment for osteoporosis

Doctors will consider your risk factors, bone mineral density scan and blood test results in assessing for osteoporosis.



1 Risk factors

Looking at risk factors such as family history, lifestyle factors and medical history, helps to determine if you are at risk of osteoporosis.

2 Bone mineral density scan

Dual-energy X-ray absorptiometry scan can diagnose osteoporosis by measuring the thickness (density) of your bones - the lower your bone density, the greater your risk of breaking a bone.

3 Blood test

This may include blood tests for vitamin D, calcium and thyroid levels.

With the correct treatment and management you can reduce your risk of breaking a bone by 50%.

Improving bone strength

Take calcium

Calcium is very important for both building and keeping your bones strong.

If your diet does not have enough calcium, your body will take calcium from the bones for use elsewhere.

To stop this from happening, you need at least 3 serves of calcium a day.

Single serve quantities include:



**1 cup of
milk**



**1 tub of
yoghurt**



**2 slices
of cheese**



**1 cup of
soy milk**



**1 cup of
firm tofu**



**1 can of
sardines
or salmon**

**3
serves
per day**

For more information on calcium rich foods
healthybonesaustralia.org.au/your-bone-health/calcium

For high calcium recipes
healthyfoodguide.com.au

Improving bone strength

Get vitamin D

Vitamin D helps the body absorb calcium from the food we eat to build our bones.

Unlike calcium, vitamin D is naturally produced by our bodies when our skin is exposed to sunlight.

If you have a history of melanoma, please discuss this with your doctor.

How much daily sun exposure do you need to produce a healthy amount of vitamin D?



Summer
Dec - Jan (at 10am or 2pm)

Fair skin
6 - 7 mins

Dark skin
20 - 45 mins



Winter
July - Aug (at midday)

Fair skin
10 mins

Dark skin
30 mins - 1 hr



Improving bone strength

Exercise

Types of exercise that help to build and keep your bones strong are:

- weight bearing, where you support your own body weight
- resistance exercises, where you use a weight or resistance to build strength.

Strengthening exercises should be done at least twice a week.



Some examples of strengthening exercises are:

- weight lifting
- resistance band
- jogging
- racquet sports
- aerobics
- ball sports
- stair walking
- walking.

Strength exercise

Squats



Repeat 8 - 12 times, the last one should feel hard
Do at least twice a week

- Stand with feet shoulder width apart
– make sure you have a safe and sturdy bench or chair in front of you.
- Bend as far into a sitting position as you can without letting your knees go out over your toes.
- Feel the weight on your heels.
- Remember to keep your back straight.
- Hold onto a chair or bench for balance if needed.

Progression

- Add hand weights or a backpack with weights in it.



Strength exercise

Sit to stand



Repeat 8 - 12 times, the last one should feel hard
Do at least twice a week

- Begin seated with feet shoulder width apart, sitting posture with a straight back
- Stand, keeping your back straight.
- Return to the sitting position, controlling your descent.
- Hands placed in a comfortable position (in lap, crossed over chest).

If you need to, start with using your hands to assist with pushing up from the arms of a chair. As your legs get stronger, you will need to use your hands less.

Progression

- Perform from a lower chair.
- Add hand weights or a backpack with weights in it.



Strength exercise

Wall push up



Repeat 8–12 times each, the last one should feel hard. Do at least twice a week

- Face a wall, standing a little farther than arm's length away, feet shoulder width apart.
- Lean your body forward and put your palms flat against the wall at shoulder height and shoulder width apart.
- Maintain your neutral spine.
- Slowly breathe in as you bend your elbows and lower your upper body toward the wall in a slow, controlled motion.
- Keep your feet flat on the floor.
- Hold the position for 3 seconds.
- Breathe out and slowly push yourself back until your arms are straight.

Progression

- Move feet further from the wall or perform with hands on a lower object.
- Hold your position at the wall for a longer time.



Balance exercise

Reducing the chance of falling



When you have weak bones, even a minor trip or fall could result in a broken bone.

Exercises that build muscle strength, agility and balance, and can help to reduce the likelihood of falling include:

- balance exercises
- racquet sports
- dancing
- tai chi
- aerobics.

Balance exercises should be performed every day.



Balance exercise

Heel to toe standing



Heel to toe standing helps keep balance when you have to walk through a narrow space.

- With fingertips resting on something solid to help balance, stand heel to toe, bend your knees slightly and keep still for 10 seconds.
- Vary the exercise with feet close together and one foot halfway in front of the other.
- Remember to change the position of your feet - right foot in front, then left foot in front.

Progression

- Walk slowly, placing your heel to touch the toe of the other foot.



Balance exercise

Single leg standing



- Practice standing on one leg - near a support.
- Alternate legs.

Progression

- Start with holding for 30 seconds and progress to 2 minutes.
- Stand with eyes closed.
- Brush your teeth while standing on one leg.



Balance exercise

Heel raises



Heel raises help with walking and climbing stairs.

- Place your fingertips on something solid to help balance.
- Lift both heels off the floor and stand on your toes for 3 seconds, then slowly lower your heels to the floor.
- Repeat 5 times.

Progression

- Reduce your hand support (let your hands hover over your support).
- Try and do a heel raise with one leg.



Improving bone strength

Reduce your risk

Stop smoking

Smoking reduces the density of bones, making them more likely to break. It also slows down the healing process after a fracture or a break.

Quitline 13 78 48

www.icanquit.com.au

Reduce alcohol intake

Having too much alcohol circulating in your body:

- disrupts your body's ability to balance calcium levels and produce vitamin D – two essential components in bone health.
- increases your chance of falling and breaking a bone.

Get Healthy – Reduce Alcohol 1300 806 258

www.gethealthynsw.com.au/healthier-you/reduce-alcohol/



Reduce your risk of having a fall

Half of all falls occur around the home. There are lots of things you can do to reduce your risk of having a fall.

1 Wear well fitting, closed in shoes and have a regular appointment with your local podiatrist.



2 Ensure your home is free of tripping hazards such as mats, electrical cords and hoses.

3 Have your eye sight checked regularly (at least once a year). Contact your local optometrist.

4 Have a review of your medications. Contact your GP or local pharmacy.



5 Improve your muscle strength and balance by attending a falls prevention program.

Medication to improve bone strength

The aim of treatment with medication is to reduce your risk of another fracture due to osteoporosis.

This medication might be:

- Denosumab (Prolia, Xgeva) – 6 monthly injection
- Alendronate (Fosamax) – tablet taken weekly/monthly
- Risedronate (Actonel) – tablet taken weekly/monthly
- Teriparatide (Forteo) – daily injection for 18 months
- Zoledronic Acid (Aclasta) – yearly injection
- Raloxifene (Evista) – tablet taken daily



Vitamin D and calcium

Vitamin D and calcium are especially important if you are taking prescribed medications for osteoporosis. Correct levels are needed to maximise the effectiveness of your treatment.

You may be directed to take supplements of vitamin D and/or calcium depending on your blood test results.

If you have had a minimal trauma fracture, you may need to start medication to increase your bone strength.

It is important to discuss your treatment options with a doctor.





Action plan

What are you going to change in your life?

>>> IMPROVING BONE STRENGTH

Eat more calcium rich food

Get the right amount of sun

Do more of the right exercises



Stop smoking and drink less alcohol

Review your home for trip hazards

Take medication as prescribed



<<< REDUCING RISKS

Useful websites and more to explore

Healthy Bones Australia

healthybonesaustralia.org.au

- Comprehensive information about osteoporosis, including fact sheets on calcium, vitamin D, exercise and medications

Active & Healthy NSW

activeandhealthy.nsw.gov.au

- Exercises for bone health and balance
- Find an exercise class near you

Know Your Bones

knowyourbones.org.au

- Self assessment guide for bone health

Get Healthy NSW

gethealthynsw.com.au

- Free telehealth-based health coaching

Musculoskeletal Australia

msk.org.au/osteoporosis

- Information about osteoporosis and treatment – calcium, vitamin D, exercise and medication, falls prevention

