

Osteoporosis and bone fragility fractures in women

Prepared by Professor Terry Diamond, Associate Professor in Endocrinology at the University of New South Wales and Senior Endocrinologist at St George Hospital, and Dr Terry Golombik, Research Fellow at St George Hospital, Sydney, NSW.

What is a bone fragility fracture?

A bone fragility fracture is a fracture that results from the combination of reduced bone strength and a fall or minimal trauma. Bone strength becomes reduced when the density of bone (known as the bone mineral density or BMD) is low and the bone quality is altered.

The bones affected by these fractures are usually those of the hip, spine and wrist. Fractures usually occur as a result of a fall but can be caused by a simple movement or even a sneeze or a cough.

How can I assess my fracture risk?

Your risk of having a bone fragility fracture can be assessed by your doctor who will carry out a risk-factor assessment and refer you for further testing, if necessary.

What is bone mineral density and how is it measured?

BMD is a measure of the amount of bone at a particular site, such as the hip or spine. The recorded value is compared with that of a healthy young woman without osteoporosis. The difference in BMD as it deviates from normal is expressed in T-score values. We rely on BMD to quantitate bone strength because BMD is a good predictor of fracture risk in the elderly.

The machine used to measure BMD is called a dual energy x-ray absorptiometer or DXA. It is similar to an x-ray machine and there is minimal radiation exposure.

What is an abnormal BMD reading?

As fracture risk increases, BMD declines. We define osteoporosis as a BMD T-score of -2.5 or less. However, fractures can also occur in women with higher T-scores (i.e. between -1 and -2.5) and when a number of other risk factors are present.

What other risk factors increase the likelihood of bone fragility fractures?

Other risk factors that can increase fracture risk are listed in the Table on the next page. Some of these factors are fixed (such as age) and others can be modified (such as poor nutrition, smoking, a history of falls). The more risk factors a woman has, the higher is her risk of fracture.

This handout provides information on the different factors that increase fracture risk in postmenopausal women and how this risk can be reduced.



IMAGE ZOOM IMAGES.COM/GETTY IMAGES

A healthy bone lifestyle includes an adequate calcium intake (through diet or supplements), an adequate vitamin D intake (through diet, supplements and/or sun exposure), weight-bearing exercise, and avoidance of alcohol and tobacco.



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Table. Examples of risk factors for bone fragility fractures in postmenopausal women*

Modifiable risk factors	Fixed risk factors
Alcohol consumption	Age
Smoking	Female gender
Low body mass index	Previous fracture
Poor nutrition	Family history of fracture
Eating disorders	Race/ethnicity
Low dietary calcium intake	Long term use of corticosteroid therapy
Vitamin D deficiency	Menopause/hysterectomy
Frequent falls	Rheumatoid arthritis
Insufficient exercise	

* Based on data from the International Osteoporosis Foundation (<http://www.iofbonehealth.org/patients-public/about-osteoporosis/symptoms-risk-factors.html>).

Osteoporosis support services

Osteoporosis Australia
www.osteoporosis.org.au
 Tel: (02) 9518 8140

Osteoporosis Sydney Support Group
www.osteoporosis.com.au
 Tel: (02) 9113 2649

How can I reduce my risk of bone fragility fractures?

You can reduce your risk of having a bone fragility fracture by adopting a 'healthy bone lifestyle'. You should also consult with your doctor to determine whether other simple lifestyle interventions or pharmacological agents are required.

A healthy bone lifestyle includes:

- taking a calcium supplement or increasing dietary calcium intake by drinking a glass of milk and eating a tub of yogurt or block of cheese every day. A total of 1500 to 2000 mg of calcium is required each day
- taking a vitamin D₃ supplement (more than 800 IU daily) or having 10 to 15 minutes of sun exposure on the legs, arms and face, four to five times per week (avoiding the midday heat)
- performing weight-bearing exercise (e.g. brisk walking, hiking, stair climbing, jogging and weight lifting)
- avoiding tobacco and alcohol
- taking part in a falls prevention program if you are at an increased risk of falling.

What happens if I don't take treatment?

Hip fracture is the most catastrophic outcome of a bone fragility fracture, and can result in chronic pain, disability and increased mortality. Women who suffer spinal fractures may develop chronic spinal pain, recurrent chest infections and premature death.

The best course of action is to prevent bone fragility fractures by good medicine and a healthy bone lifestyle. However, it is never too late to treat. MT



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