



FIT FACTS



Osteoporosis

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What is Osteoporosis?

Osteoporosis is a condition where bones become less dense over time, and therefore more prone to fractures.

Normal Bone



Osteoporotic Bone



Risk factors include:

- * Ageing
- * Certain diseases and medications
- * Hormonal changes
- * Family history
- * Lifestyle habits.



If left untreated, osteoporosis can lead to painful and disabling fractures, especially in the spine, hips, and wrists.

Risk Factors for Osteoporosis

Some clues that you might be at risk include:



- * Smoking history
- * Excessive alcohol intake
- * Lifelong low levels of physical activity
- * Chronic opioid/stimulant use
- * History of anorexia nervosa or other eating disorders
- * Early menopause (before age 50)
- * Fractures of spine, hip, wrist, ribs, or pelvis with minimal trauma, such as a fall from standing height or coughing
- * Loss of height
- * Family history of osteoporosis
- * Weight loss (intentional or unintentional)
- * Type 1 or Type 2 Diabetes.



Prevention and Treatment for Osteoporosis

Exercise is a critical intervention for both prevention and treatment of osteoporosis.

Exercise:



- * Improves bone mineral density (BMD)
- * Enhances muscle strength and balance
- * Reduces the risk of falls and fractures
- * Contributes to overall functional independence.

Nutritional factors are equally important.

These include:



- * Adequate intake of calcium, energy, protein and vitamin D (if over 70 when skin production from sun exposure may be insufficient to meet needs).

! However, it is also important to make sure that there are no medical conditions or medications putting you at risk for osteoporosis.

Steps

1

Get a bone density (DXA) scan if:

- * You are over 70
- * You have risk factors or have had a minimal trauma fracture
- * You haven't had a DXA scan in the last 2 years.

2

Speak with your GP about tests to check for conditions that can cause or worsen Osteoporosis, including:

- * Vitamin D deficiency
- * Hyperthyroidism/excessive thyroid replacement
- * Hyperparathyroidism
- * Low estrogen or anti-estrogen medications
- * Low testosterone or anti-testosterone medications
- * Corticosteroid use (e.g., prednisone, prednisolone)
- * Inflammatory chronic diseases (rheumatoid arthritis, inflammatory bowel disease, renal disease and failure, etc.)
- * Effects of certain medications (e.g., chemotherapy, androgen deprivation therapy, anti-epileptics)
- * Frailty, weight loss, or malnutrition.

Steps

3

Lifestyle changes you can make today:



- * Quit smoking
- * Limit or avoid alcohol intake
- * Eat a calcium- and protein-rich diet
 - ! **See Food Facts Booklet**
- * Get 15 minutes of midday sun daily (most effective if under 70), or take a Vitamin D supplement if needed
- * Engage in evidence-based exercise (unless the GP has discovered a condition above that requires investigation/stabilisation first).

Exercise Recommendations for Osteoporosis

Importantly, not all kinds of exercise maintain or improve bone health. For example, simple 'weight-bearing' exercise, such as walking, does not significantly improve bone health.

By contrast, 3 kinds of exercise do have potent effects on bone:

- 1) Progressive resistance training (also known as strength training or weight-lifting)
- 2) Power training (a variant of resistance training where the weight is lifted rapidly and lowered slowly)
- 3) Impact training (such as jumping up or down or running)



In addition, balance training in conjunction with resistance training is the optimal prescription to prevent falls. With the exception of thoracic vertebral fractures (which usually occur spontaneously), preventing falling will prevent most osteoporotic fractures even if the bone density remains low or cannot be improved.

Exercise Recommendations for Osteoporosis

! Thoracic compression fractures may be caused by forward flexion of the spine especially if there is a weight held in front of the body for example, ten pin bowling or yoga or stretching postures which include spinal flexion or torsion. These should be avoided if significant osteoporosis is present.

In addition, high compressive forces on the spine (such as loading the spine with a heavy squat bar on the shoulders) may not be suitable for severely osteoporotic vertebrae and alternative ways of exercising the squatting muscles (gluts, quads and hamstrings) such as a leg press, sumo squat or lunges are more appropriate.

Back extension exercises can be used to strengthen the muscles and bones in the thoracic spine and have been shown to reduce the risk of vertebral fractures.



How to Start Exercise?

If you have never done regular exercise and have concerns about how to start or tailor it to your needs, consult with your GP and/or an Exercise Physiologist with experience in osteoporosis treatment.



If you have significant back or lower extremity arthritis, it is best not to do impact training unless you have been advised it is safe by a health care practitioner.

If you have no immediate medical concerns, please see the links to our videos and fact sheets (pages 9-11) for home-based exercises including resistance training and balance training as a good start.

For more advanced training, it is likely that you will need to exercise in a clinic or gym where you have some supervision as needed and access to equipment for resistance and/or power training, which will result in bigger changes in your bone and muscle health.

Home Based Balance Materials



Balance Fact Sheets

- ✧ [What is balance training?](#)
- ✧ [Why balance exercise is important for your brain](#)
- ✧ [Incorporating balance exercise into everyday life](#)
- ✧ [Preventing pain and injury during balance training](#)



Balance Cards

- ✧ [Obstacles](#)
- ✧ [Circle turning](#)
- ✧ [Crossover walking](#)
- ✧ [Sideways walking](#)
- ✧ [Single leg stand](#)
- ✧ [Tandem walking](#)
- ✧ [Advance level balance training](#)



Balance Videos

- ✧ [Obstacles](#)
- ✧ [Single leg stand](#)
- ✧ [Tandem walking](#)

Home Based Strength Materials: Upper Body



Upper Body

- * [Biceps curl with dumbbell](#)
- * [Biceps curl with resistance band](#)
- * [External rotation with dumbbell](#)
- * [External rotation with resistance band](#)
- * [Forward shoulder raise with dumbbell](#)
- * [Wall push up](#)
- * [Push up - progressions with furniture](#)
- * [Row with resistance band](#)
- * [Side shoulder raise with dumbbell](#)
- * [Triceps chair dip](#)
- * [Triceps pushdown](#)

Home Based Strength Materials:

Lower Body



Lower Body

- * [Chair stand](#)
- * [Hip abduction with ankle cuffs](#)
- * [Hip extension with ankle cuffs](#)
- * [Hip flexion with ankle cuffs](#)
- * [Knee extension with ankle cuffs](#)
- * [Knee flexion with ankle cuffs](#)
- * [Standing plantarflexion](#)
- * [Step ups](#)
- * [Wall squat](#)
- * [Wall squat with ball](#)

Please contact **Professor Maria Fiatarone Singh** AM, MD, FGSA, FRACP and our friendly staff if you would like more information on the management of osteoporosis or any other medical questions you may have.



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