Osteoporosis – The Silent Disease

What is Osteoporosis?

Osteoporosis is a disease which causes bones to become brittle, which increases the risk of broken bones. 1 Having osteoporosis means that even a small bump may cause a bone fracture. 1

Osteoporosis most commonly affects bones in the spine, hip and wrist, but can affect any bones. 1 Osteoporosis in the spine can result in postural changes, i.e. stooping. 2

What causes Osteoporosis?

Osteoporosis occurs when bones lose minerals, particularly calcium, faster than they are replaced by the body. 1 This causes a reduction in both bone thickness and density. 1

Osteoporosis mainly affects people over 50, as a person’s peak bone mass is usually reached between the age of 25 and 30 years. 3

Although genetic factors can influence a person’s risk, 1 osteoporosis can largely be prevented by managing lifestyle factors, particularly through exercise and eating a healthy diet.

Symptoms and Effects

Osteoporosis normally shows no symptoms until a fracture occurs. 2 This is why it is often called ‘the silent disease’.

People with fractures can experience chronic pains, disability and even premature death. 1

Who is at Risk?

Osteoporosis affects over 1 million Australians, 1 both men and women. However, women are more at risk due to the rapid decline in oestrogen levels after menopause. 1 Declining oestrogen levels causes an increase in the loss of minerals from the bones. 1 Testosterone levels in men tend to drop more gradually, so the effects are slower to take place. 1

1 Osteoporosis Australia 2014
2 Wikipedia 2015
3 Better Health Channel 2015
Bone health can be inherited, so people whose relatives have been diagnosed with osteoporosis, lost height rapidly, or broken a bone from a minor fall are also at risk of osteoporosis.  

Anybody over fifty who has suffered a bone fracture from a small fall or bump should be examined for osteoporosis.  

People who have already suffered a fracture have an increased risk of another fracture. This is known as the cascade effect. Osteoporosis should be treated as soon as possible to prevent more fractures.

Various medical conditions can have a negative impact on the health of your bones:

- Long term use of corticosteroids (found in asthma and rheumatoid arthritis medication, and other anti-inflammatory medications)  
- Some antidepressants, and medications for breast cancer, prostate cancer and epilepsy  
- Low hormone levels (low testosterone in men, early menopause in women)  
- Thyroid conditions, e.g. parathyroid, or an overactive thyroid gland  
- Conditions which lead to malabsorption, e.g. inflammatory bowel disease, coeliac disease  
- Some chronic diseases, e.g. rheumatoid arthritis, chronic liver or kidney disease  

Some lifestyle factors also increase the risk of osteoporosis:

- Low levels of physical activity  
- Not getting enough calcium, or adequate sun exposure  
- Smoking cigarettes  
- Excessive intake of alcohol or caffeine  
- Weight - people who have a very thin build or who are obese are at risk. Some studies suggest hormones associated with obesity may play a factor.  

Statistics

1. Less than half of Australian adults get their recommended daily intake of calcium (Osteoporosis Australia (OA) 2014).
2. Over 30% of Australian adults have a vitamin D deficiency, to varying degrees (OA 2014).
3. Approximately one third of people over 65 years of age experience a fall each year. An estimated 6% of all falls result in a fracture (OA 2014).
4. Women who have suffered a fracture in their spine are over 4 times more likely to have another fracture within the next year (OA 2014).
5. Medication can reduce spinal fractures by 30-70% and hip fractures by 30-50%, with effects seen 6 to 12 months after beginning treatment (OA 2014).

1 Osteoporosis Australia 2014  
2 Wikipedia 2015  
3 Better Health Channel 2015
How to Prevent Osteoporosis

In many cases, osteoporosis can be prevented by looking after your bones as part of your general health. Regular weight-bearing exercise and an adequate intake of vitamin D and calcium are essential to maintaining bone health. Other lifestyle factors like quitting smoking and reducing alcohol intake have an impact on preventing osteoporosis. People with risk factors should see a doctor, who can give additional advice on preventative measures.

1. Calcium
Calcium intake plays an essential role in preventing osteoporosis. 99% of your calcium supplies are stored in the bones, giving the bones their strength. If there is a deficiency in calcium intake, then calcium is withdrawn from the bone stores for use in other parts of the body. If more calcium is withdrawn than replaced, then your bone density will reduce over time, eventually causing osteoporosis.

Osteoporosis Australia suggests that adults need 1000 mg of calcium every day; this increases to 1300 mg for women over 50 and men over 70 years. It is recommended that your daily calcium intake comes from your diet; however supplements may be necessary in some cases. The most common supplements are calcium carbonate, calcium citrate and hydroxyapatite.

Foods which can increase your calcium intake include: dairy foods, canned sardines and salmon (containing bones), some soy based products, some vegetables (broccoli, silver beet, cucumber, celery, chickpeas), and fortified foods. Dairy products contain much more calcium than other sources. Osteoporosis Australia recommends that 3 serves of dairy are consumed daily.

1 Osteoporosis Australia 2014
2 Wikipedia 2015
3 Better Health Channel 2015
Some of the calcium that is consumed is not absorbed. Factors that can lead to unusually low absorption include:

- Low vitamin D levels
- Excessive intake of alcohol and caffeine
- Diets containing high amounts of phytates (some cereals and bran) and oxalates (eg. rhubarb, spinach)
- Some medications (eg. prednisones) and medical conditions (eg. kidney or coeliac disease)

2. Vitamin D
Vitamin D is important in supporting the growth and maintenance of bones, and regulating the amount of calcium in the blood. The main source of vitamin D for Australians comes from exposure to ultraviolet B light, from the sun. For people with fair skin in the Brisbane region, the required length of sun exposure (as recommended by Osteoporosis Australia) is only 7 minutes per day in summer and 10 minutes in winter. People who have darker skin, spend most of their time indoors, or do not expose their skin to the sun are more at risk of having a vitamin D deficiency. Vitamin D supplements are available.

Food alone cannot provide adequate vitamin D; however oily fish, egg yolks and liver contain small amounts of vitamin D.

3. Exercise
Exercise plays a very important role in preventing osteoporosis. When stress is placed on bones, they are stimulated to strengthen to a degree. To have a proper benefit, exercise should be ongoing and regular, and increase in intensity over time. For improving bone strength, the best exercises include weight bearing exercise (eg. jogging, walking, basketball, tennis) and progressive resistance training (eg. lifting weights). Exercises like swimming and cycling improve general health, but have little impact on bone health.

For older people, exercise is mainly intended to stop muscle and bone loss, and to improve balance to help prevent falls.

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1 Osteoporosis Australia 2014
2 Wikipedia 2015
3 Better Health Channel 2015
Osteopenia

People with osteopenia have a lower than normal bone density, and are at high risk of developing osteoporosis. They should ensure they are taking in adequate calcium and vitamin D, and should also consider an exercise program to strengthen their bones. Risk factors and lifestyle factors should be managed to prevent osteoporosis occurring. This may include: quitting smoking, reducing excessive alcohol intake, and reviewing medications which may have a negative impact on bone health.

Treatment Available

Osteoporosis is diagnosed using a bone density scan, which measures the density of the patient’s bones, usually at the spine and hips. The results indicate whether the patient has healthy bones, low bone density (osteopenia), or osteoporosis. The earlier osteoporosis is diagnosed, the sooner treatment can begin.

Treatment for osteoporosis depends on the individual’s circumstances. There is a wide range of medications and treatments available for osteoporosis. Most medications work by slowing the activity of the osteoclasts (the cells which naturally break down bone), without interfering with the osteoblasts (the cells which replace bone).

Calcium supplements are often prescribed to people diagnosed with osteoporosis. A gradual, progressive exercise program to increase bone strength is also usually recommended.

Bibliography


OA 2014 - see Osteoporosis Australia 2014


1 Osteoporosis Australia 2014
2 Wikipedia 2015
3 Better Health Channel 2015