Osteoporosis in men

What is osteoporosis?
Osteoporosis is a disease usually affecting older women and men. It is a problem of the skeleton that lessens bone strength and increases the risk of fracture. Bone strength is measured by bone mineral density and bone quality. Most bones, except those of the face and head, can be affected by osteoporosis; however, the most common sites of fractures are the hip, spine, wrist and ribs.

How common is osteoporosis?
One in three men in Australia over 60 will fracture a bone due to osteoporosis. The disease affects more women than men; however, when fractures happen in men it is more likely to shorten their life, probably because osteoporosis in men is often present together with other serious illnesses.

How does osteoporosis happen?
Osteoporosis happens when bones lose minerals, such as calcium, more quickly than the body can replace them (increased bone turnover), leading to a loss of bone thickness (bone mass or density). With thinner and less solid bones, even a minor accident can cause serious fractures.

At what age in men does bone mass begin to fall?
Peak bone thickness or mass is when bones are at their strongest; in men this normally happens in the early 20s. Bone thickness falls gradually, with up to 25 per cent of peak bone thickness being lost by the age of 50 in men.

Do all men get osteoporosis as they age?
Since men continue to gradually lose bone thickness as they get older, the chance of osteoporosis increases with age. There is no sudden increase in the rate of osteoporosis in men, as seen in women after menopause; however, the ongoing gradual loss of bone thickness in men significantly reduces bone strength and increases the chance of fracture in older men.

What causes osteoporosis in men?
Testosterone, the male sex hormone, is important for the health of a range of body functions including the growth and maintenance of bone strength. Testosterone can be converted to oestrogen in men, and oestrogen is important for regulating the rate of bone turnover.

In some men, low testosterone levels may cause bone thinning, a decrease in muscle mass and increase the rate of bone turnover so bones become less solid. Men with confirmed androgen deficiency (low testosterone levels) are therefore more likely to have bone fractures compared to men with normal testosterone levels.

Low testosterone levels are not the only cause of osteoporosis in men. A range of factors, including genetic factors, can have a strong influence on bone mass.

What other hormones can cause osteoporosis?
Very high levels of the stress hormone cortisol leads to rapid bone loss and is an important cause of osteoporosis in men. The most common cause of high levels of cortisol is corticosteroid medicines (often used for asthma, arthritis and kidney disease) such as prednisolone. In men taking a corticosteroid medicine, it is important to closely monitor bone density and osteoporosis treatment is often started earlier to prevent bone loss.

High levels of thyroid hormone and parathyroid hormone may also cause osteoporosis in men.

Can trauma or too much exercise cause osteoporosis in men?
Some osteoporosis in men is caused by trauma linked to excessive exercise and poor nutrition, which leads to low levels of testosterone.

Too much exercise can put bones under a high level of stress, causing bones to fracture easily. However, for most men regular physical activity can lower the risk of fractures by improving muscle mass, balance and bone strength.

Men who do little exercise should speak to their doctor first about an exercise plan that will help to avoid injury.

What are the risk factors for osteoporosis in men?
Lifestyle factors including low levels of physical activity, smoking, excessive alcohol intake, and low calcium or vitamin D levels may increase the rate of bone loss.

Other factors linked to osteoporosis include a previous fall or fracture, family history of osteoporosis and being underweight (may be due to chronic disease).

Some medicines, such as corticosteroids and anticonvulsants (commonly used for epilepsy and some psychiatric problems), can also speed up the first signs of osteoporosis.

Androgen deprivation therapy (ADT), used in the treatment of some prostate cancers, acts by turning off the body's testosterone production and is an
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Bone density test

A bone density test is useful in men with osteopenia (low bone density) or osteoporosis. Men who have a T score of -2.5 or lower have osteoporosis and are at high risk of getting a bone fracture; they should talk to the doctor about treatment. A man with osteopenia (low bone density) may be able to lower his risk of further bone loss and/or fracture with lifestyle changes.

Who should have a bone density test?

A bone density test is useful in men with the following:
- a previous diagnosis of osteoporosis
- symptoms such as loss of height or past fractures
- rheumatoid arthritis
- chronic kidney or liver disease
- an overactive thyroid
- using corticosteroids for more than 3 months
- taking certain anti-convulsive medicines
- androgen (testosterone) deficiency, including ADT for prostate cancer
- a family history of osteoporosis
- aged 70 years or older
- smoke or consume excessive amounts of alcohol
- a low body mass index (less than 20)
- inflammatory forms of arthritis
- malabsorption from the intestines
- high urine calcium levels.

How is osteoporosis treated?

There are medicines that may stop further bone loss or even improve bone mass, and also prevent spinal fractures. The most common medicine used to treat osteoporosis in men is a bisphosphonate. This may be taken as a weekly or monthly tablet, or a yearly intravenous (into the vein) infusion.

Denosumab is another option for treatment and is given with a small injection every 6 months.

Naltrexone (a drug to prevent heroin withdrawal) can also lower his risk of further bone loss and/or fracture with lifestyle changes.

Can testosterone replacement therapy lower the risk?

Returning testosterone levels to normal in men who have confirmed androgen deficiency (low testosterone levels) can improve bone density. There is no evidence that testosterone therapy improves bone density in men with normal levels of testosterone and it is not recommended.

Why is it important for men to maintain good bone health?

Often the only time a man realises he has osteoporosis is when he breaks a bone. Many men do not realise that osteoporosis is not a disease that only affects women or older people.

Having a healthy lifestyle including a diet with enough calcium and normal vitamin D levels, increasing weight-bearing exercise, and paying attention to bone health from childhood throughout life, are the best ways for men to lower their risk of osteoporosis.