



Osteoporosis is a common disease in Australia with 1.2 million people estimated to have osteoporosis and further 6.3 million with low bone density. Glucocorticoids, commonly used for asthma, rheumatoid arthritis and other inflammatory conditions, and after organ transplantation, increase the risk of osteoporosis. Up to 50% of people treated with glucocorticoids experience asymptomatic fractures after 3 months of therapy. The risk of fracture increases with age and with the dose and duration of glucocorticoid use. Vertebral fractures are the most common fractures associated with glucocorticoids.

### Osteoporosis

Osteoporosis is a state of low bone mass, which predisposes people to fragility fractures. Osteoporosis is more common in women than men. About 50% of women can expect to sustain fragility fractures in their lifetime. The proportion of women with osteoporosis dramatically increases with age, affecting around 26% of women aged 80 and over. Post-menopausal women are more susceptible to osteoporosis. In Australia in 2015-6, the most common fracture sites were the hip (32%), the forearm (13%) and lumbar spine and pelvis (13%). Fractures in the spine (vertebral fractures) are common in older people, leading to height loss or changes in posture. Hip fracture is a serious and debilitating outcome of osteoporosis, usually requiring hospitalisation and surgery. Fractures may be a source of ongoing chronic pain and disability.

### Mechanism

Glucocorticoids act mainly by slowing down the cells that form new bone. Approximately 30% less bone tissue is produced in people taking glucocorticoids compared to normal conditions. As a result, the bones may gradually lose some of their strength and become more prone to fracture after a minor bump or fall. Bone formation decreases early in glucocorticoid treatment. Glucocorticoids also interfere with the absorption of calcium in the intestine, and the way that the kidneys manage calcium.

They may also reduce the levels of hormones and other factors that are important for maintaining bone health, such as vitamin D. Steroid-induced myopathy

annual rate of 2-5%. The relative risk of clinically diagnosed vertebral fractures doubles in people who receive 2.5 to 7.5mg of prednisolone daily. The risk

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