



Causes of Osteoporosis

During childhood and adolescence, the bones within the skeleton are actively growing. By one's early 20's, growth and development of bone is complete. This phase of bone development represents the attainment of "peak bone mass". It essentially is a time when bones are at their 'strongest'.

The peak bone mass that is achieved varies from one individual to the next and primarily reflects what has occurred during growth and development in childhood and adolescence. It is also influenced by hereditary factors as well. Hence an individual who has had adequate intake of calcium, plenty of exercise and not been subjected to any sex hormone deficiencies (e.g. interruption to menstrual periods) during childhood and adolescence will likely achieve a high peak bone mass as compared to the individual who has not had favourable circumstances for bone development during childhood and adolescence.

Normal aging lead to a gradual loss of bone mineral density, usually over several decades, often starting from the late 30's. The higher the peak bone mass that is achieved by the early 20's, then the greater the likelihood of withstanding the effects of normal age related bone loss. Individuals with a low peak bone mass, may not withstand the effects of age related bone loss as well as those who have achieved a high peak bone mass and hence may develop osteoporosis at a younger age.

Certain medical illnesses also effect bone and can lead to the development of osteoporosis, often independent of peak bone mass.

Conditions causing osteoporosis: see below



Below is a list of medical conditions which have been associated with the development of osteoporosis.

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Failure to attain adequate peak bone mass in early 20's

Chronic illness e.g chronic liver disease, chronic renal failure

Thyroid disease, particularly hyperthyroidism or excessive thyroxine replacement

Smoking

Sedentary lifestyle

Excessive caffeine intake (> 5 – 6 cups/day)

Excessive alcohol intake

Lifelong low calcium intake

Increasing age

Genetic factors and Ethnic factors (Caucasian and Asians)

Hormone deficiency states (late menarche, premature menopause, menopausal state, testosterone deficiency in males)

Vitamin D deficiency

Primary hyperparathyroidism

Prolonged immobilisation

Cushing's syndrome or disease

Corticosteroid therapy (doses of prednisolone > 5 – 7.5 mg daily or an equivalent dose of another glucocorticoid for greater than 2 months; any dose of glucocorticoid in the elderly > 65 yrs)

Malabsorptive illnesses eg Coeliac disease, Crohn's disease



Eating disorders (Anorexia nervosa, Bulimia)

Rheumatoid arthritis

Organ transplant recipients

Treatments for certain malignancies e.g breast cancer, prostate cancer