

Causes ● An imbalance between the creation and resorption of bone leads to osteoporosis. Non-modifiable factors include genetic predisposition (e.g., *LRP5* gene mutations), aging, and menopause (e.g., estrogen depletion causing osteoclast activity). Smoking, excessive alcohol use, sedentary lifestyles, and insufficient calcium and vitamin D intake are modifiable factors that affect bone remodeling. ● Secondary causes include long-term conditions like rheumatoid arthritis and hyperthyroidism, as well as drugs like proton pump inhibitors, which lower calcium absorption, and glucocorticoids, which suppress osteoblasts. Hormonal abnormalities (such as hyperparathyroidism) or prolonged immobility can cause weakened bones. ● Fracture risk is increased by several conditions, which also alter microarchitecture and decrease bone mineral density. Prevention depends on the early detection of reversible causes.