

Osteoporosis

[Osteoporosis](#) is a degenerative skeletal disease characterized by a deterioration of bone tissue. Patients with osteoporosis are at risk of suffering multiple fractures and other serious disabilities. Approximately 10 million Americans over age 50 suffer from osteoporosis, according to the US Surgeon General's office, and another 34 million are at risk of developing the disease.

Initial references to the potential role of cannabinoids in the protection against the onset of osteoporosis appear in the scientific literature beginning in the early 1990s.¹ To date, however, no controlled clinical trials exist assessing the administration of cannabis or cannabinoids for this indication.

Preclinical data indicates that cannabinoid administration slows the development of osteoporosis, stimulates bone building, and reduces bone loss in animal models.² Follow up research published in the *Annals of the New York Academy of Sciences* reported that the activation of the CB2 cannabinoid receptor reduces experimentally-induced bone loss and stimulated bone formation.³ Investigators have also reported that mice deficient in the [CB2 cannabinoid receptor](#) experienced age-accelerated bone loss reminiscent of human osteoporosis.⁴ More recently, Israeli investigators at Hebrew University Bone Laboratory assessed the ability of CBD administration to promote healing in rats with mid-femoral fractures. Researchers reported, "CBD markedly enhanced the biomechanical properties of the healing femora after 8 weeks."⁵

A 2017 population study reported "no association" between cannabis use and bone mineral density, even among subjects at higher risk for the condition.⁶

Scientists speculate that one of the primary roles of the endocannabinoid system is to maintain "bone remodeling at balance, thus protecting the skeleton against age-related bone loss,"⁷ leading some experts to believe that cannabinoids may be "a promising target novel target for anti-osteoporotic drug development."⁸

REFERENCES

¹ Vratislav Schrieber. 1995. [Endocrinology 1994-1995](#). *Casopis Lekarů Ceských* (Czech Republic) 134: 535-536.

² Ofek et al. 2006. [Peripheral cannabinoid receptor, CB2, regulates bone mass](#). *Proceedings of the National Academy of Sciences of the United States of America* 103: 696-701.

³ Itia Bab. 2007. [Regulation of Skeletal Remodeling by the Endocannabinoid System](#). *Annals of the New York Academy of Sciences* 1116: 414-422.

⁴ Ofek et al. 2006. op. cit.

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⁵ Kogan et al. 2015. [Cannabidiol, a major non-psychoactive cannabis constituent enhances fracture healing and stimulates lysyl hydroxylase activity in osteoblasts](#). *Journal of Bone and Mineral Research*. In Print.

⁶ Bourne et al. 2017. [Cannabis use and bone mineral density: NHANES 2007-2010](#). *Archives of Osteoporosis* 12: 29.

⁷ Bab et al. 2009. [Cannabinoids and the skeleton: from marijuana to reversal of bone loss](#). *Annals of Medicine* 41: 560-567.

⁸ Itia Bab. 2007. op. cit.