



## Correspondence

Dr. Leena Raudasoja, Ph.D.

Hand Surgeon, Orthopaedic and Trauma Surgeon, Helsinki University, Helsinki, Finland.

- Received Date: 25 Aug 2025
- Accepted Date: 05 Sep 2025
- Publication Date: 08 Sep 2025

## Copyright

© 2025 Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International license.

## Osteoporosis- is it a Disease?

Leena Raudasoja

Hand Surgeon, Orthopaedic and Trauma Surgeon, Helsinki University, Helsinki, Finland.  
Terveystalo Health Center, Helsinki, Finland

## Introduction

My mother got a wrist fracture in the 1980s when she was in her sixties and had to stop doing any kind of heavy work. Luckily, she had already retired from farmhouse duties. While trying to do other tasks, though, she complained of weakness in her hand for months. A year after the fracture, she kept mentioning her bent wrist, but by then she was nevertheless able to care for her vegetable garden and make handicrafts. In those days, there was never any suggestion that she should be checked for bone weakness caused by osteoporosis. Maybe she did have osteoporosis; she later fell on the staircase and fractured her ankle.

Nowadays, medicine has progressed. Among elderly fracture patients, osteoporosis checks are now frequent, typically followed by treatment with advanced drugs to arrest the osteoporotic deterioration of the bones [1]. Yet there are still people who don't seem convinced that such treatment is necessary or a good idea. A medical colleague of mine told me about an American friend who'd been diagnosed in the U.S. with osteoporosis after a wrist fracture. Her doctor had recommended treatment with a relatively expensive drug. The friend was sceptical and chose not to start the medication.

I'm a surgeon who has worked with bones throughout my career. When I was in medical school, I was active in sports that involved frequent falls. Despite that, and despite my own mother's bone injuries, I never worried about fracturing a bone. In medical school, we were studying the metabolism of bone, and we learned how it is a living organ [2,3]. The miraculous biological processes of bones that I was studying were explained well in a movie that my small children adored, "[https://en.m.wikipedia.org/wiki/Once\\_Upon\\_a\\_Time...\\_Life](https://en.m.wikipedia.org/wiki/Once_Upon_a_Time..._Life)". The bone cells resembled a small army whose troops fought by melting and building bone. Bone-forming cells, called osteoblasts, build the skeleton in a growing person and keep it in good condition throughout life. These cells work using minerals, vitamins, and hormones. In turn, they produce self-sustaining bone cells called: osteocytes, as well as inert bone

mass that provides long-term hard structures to the skeleton. "The osteocyte-eating cells," osteoclasts are in place all the time and get active when needed. This need arises if the bone gets damaged, e.g., a fracture. Osteoclasts invade the place as armament and "melt" the damaged bone. After that, the osteoblasts are recruited; they produce new bone matrix, and this matrix is mineralized similarly to when bone is growing. This osteoclast-osteoblast communication happens all the time even without a fracture and is of utmost importance for bone health.

These bone cell troops need supervisors to direct them (enzymes, hormones) as well as materials (calcium, vitamin D) to function. When there is a shortage of these resources, bone cells begin to work poorly. This happens especially in women's bones after menopause because of a shortage of oestrogen. These changes cause bones to lose minerals and weaken, coming to resemble a dried sponge with dozens of tiny holes. This osteoporotic bone becomes porous and is prone to fractures even from a small accident. About half of women's bone mass is estimated to disappear when aging, in men it is about 30%. This process of osteoporosis is normal as we get older. Globally, about 18 % of world population suffers from osteoporosis [4].

Osteoporosis itself is not really a problem. The concern is the risk of fracture, and attention should be paid to how fractures can be avoided. The basic recommendations are training body balance, ensuring enough calcium, protein and vitamin D intake, and avoiding slips and cigarette smoking. Yet a consensus has arisen that these precautions alone do not seem to be sufficient. Researchers have pursued the discovery and development of new drugs, one after another, with the goals of treating osteoporosis and thereby preventing fractures. The aim of this pharmaceutical research has been to block osteoclast activity, which in turn obstructs the "melting" of minerals in the bone cells.

Today, the recommendation in most countries with a high standard of living is that after an elderly person gets a wrist, hip, or vertebral fracture, they should be checked for osteoporosis or the milder form of it,

**Citation:** Raudasoja R. Osteoporosis- is it a Disease?. Japan J Res. 2025;6(11):163.

osteopenia. In the examination process, their risk for a new fracture is evaluated with a calculator called the Fracture Risk Assessment Tool, or FRAX. Especially if the special index, an algorithm, shows increased risk for new fractures, the patient is advised to begin osteoporosis medication [5,6]

This large-scale medical assault on osteoporosis has its justifications. As early as 1994, the WHO had proclaimed osteoporosis to be a global problem. In the words of the WHO, it was a “progressive systemic skeletal disease,” and one of the most significant aspects of the challenge it presented was the socioeconomic burden it incurred. For an elderly patient, the cost of a hip fracture during the first year is calculated to be about €30,000. An osteoporotic fracture may also result in an inability to live at home and take care of oneself, and when an old person becomes bedridden, a hip fracture can even result in death [7].

However, the financial considerations involved in drug treatments for osteoporosis are not only a question of the socioeconomic burden to society. There is a flip side, which is the economic impact for the manufacturers of drugs. Identifying osteoporosis in large numbers of the elderly, calculating high fracture risks, and prescribing lifelong regimens of medication brings pharmaceutical companies big financial rewards.

Moreover, the health benefits have started to become less straightforward, and other kinds of costs have emerged. Now that osteoporosis medicines have been in use for some decades, unexpected side effects have appeared that are not innocuous. When bone metabolism is altered and the osteoclast-osteoblast “communication” is blocked, the bone changes from being somewhat elastic to too rigid, like a porcelain cup. When porcelain-like bone breaks, healing does not occur in the same manner as in normal healing. In 2005, orthopaedic surgeons noticed atypical thighbone fractures in patients taking the most common osteoporosis drug, bisphosphonates (8,9). Fractures occurred without a clear injury and healed poorly. These fractures are rare (less than 1/1000 users of the drug) but cause disability and require surgical treatment. The risk increases after years of use [10].

A concern in this regard was also found in the human jawbone in 2003, something especially worrying to dentists [11]. Dentists see the bone cells in their patients’ jaws die off, and subsequent dental problems can result in a chronic ulcer and even gangrene in the lower jawbone. We now know that this dangerous condition occurs even in up to 5% of patients who receive high doses of bisphosphonates along with other cancer drugs (against metastases and chemotherapy related osteoporosis) and about one in thousands of otherwise healthy people. However, there is almost no cure for it because living osteoclasts are “turned off” in the jawbone, which is the most sensitive area of the body to osteoporosis medication.

Previously, recommendations were typically that patients continue taking osteoporosis drugs for the rest of their lives. In 2010, the U.S. Food and Drug Administration (FDA) issued a safety notification, and the American Society for Bone and Mineral Research (ASBMR) issued recommendations because of the found side effects. However, their committee stated in its consensus statement that no regulatory restrictions on the duration of drug use can be supported [12]. After side effects such as these incurable jawbone problems and atypical femoral fractures have become known, many doctors have started to recommend treatment duration of only 3-5 years. There has been public discussion about side effects and that the length of

treatment should be limited [13]. As well, there are well-known researchers in Finland and Sweden who claim overtreatment of osteoporosis to be overmedication [14,15].

Osteoporosis medication does decrease the risk of new fractures by 20-40% [16]. However, it is also true that fractures still occur even with medication. Osteoporosis is common, and most people with it are undiagnosed. Fractures happen to people with normal bones as well: It is the accident that causes the fracture, not osteoporosis.

Perhaps the strangest thing about the vast amounts of research, diagnosis, analysis, and costly medicating that have gone into our current treatment regimen for osteoporosis is that, from an epidemiological standpoint, it is actually still impossible to prevent a significant number of fractures at a societal level, because most fractures occur in individuals who have not undergone any bone density checks and have not had a previous fracture.

Is osteoporosis a disease, or is it just the normal aging of bone? While the weakening of our bones as we grow older is certainly not a welcome development, it is, in fact, just one of the many natural processes that we must adjust to as we age. In its milder forms, such as osteopenia, osteoporosis does not warrant being treated as a disease. It is best to take good care of bones throughout life with adequate exercise, balanced nutrition with enough calcium, vitamins, and protein intake while avoiding unhealthy habits, starting with cigarette smoking.

Maybe my mother could have avoided her later ankle fracture if she had been diagnosed with osteoporosis and treated for it. Still, weak bones did not automatically mean problems in bone healing, which happened uneventfully. Additionally, our American friend tries to keep her bones in good shape through her healthy lifestyle and has not got any new fractures.

## References

1. Siris ES, Adler R, Bilezikian J, Bolognese M, Dawson-Hughes B, Favus MJ, et al. The clinical diagnosis of osteoporosis: A position statement from the National Bone Health Alliance Working Group. *Osteoporos Int.* 2014;25(5):1439-1443.
2. Florencio-Silva R, Sasso GRDS, Sasso-Cerri E, Simões MJ, Cerri PS. Biology of bone tissue: Structure, function, and factors that influence bone cells. *Biomed Res Int.* 2015;2015:421746.
3. Kim JM, Lin C, Stavre Z, Greenblatt MB, Shim JH. Osteoblast-osteoclast communication and bone homeostasis. *Cells.* 2020;9(9):2073.
4. Xiao PL, Cui AYJ, Peng R. Global, regional prevalence, and risk factors of osteoporosis according to the World Health Organization diagnostic criteria: A systematic review and meta-analysis. *Osteoporos Int.* 2022;33(6):2137-2153.
5. Schini M, Johansson H, Harvey NC, Lorentzon M, Kanis JA, McCloskey EV. An overview of the use of the fracture risk assessment tool (FRAX) in osteoporosis. *J Endocrinol Invest.* 2024;47(5):501-511.
6. Niskanen L, Kautiainen J, Kärkkäinen M, et al. Osteoporosis: Current care guidelines. Working group set up by the Finnish Medical Society Duodecim. *Käypä hoito.* March 2025. Available at: [www.kaypahoito.fi](http://www.kaypahoito.fi).
7. Guzon-Illescas O, Perez Fernandez E, Crespí Villarias N, Quirós Donate FJ, Peña M, Alonso-Blas C, et al. Mortality after osteoporotic hip fracture: Incidence, trends, and

- associated factors. *J Orthop Surg Res.* 2019;14(1):203.
8. Kharazmi M, Schilcher J, Hallberg P, Michaëlsson K. Atypisk femurfraktur: En allvarlig komplikation till bisfosfonater. *Läkartidningen.* 2019;116:FS97.
  9. Schilcher J, Koeppen V, Aspenberg P, Michaëlsson K. Risk of atypical femoral fracture during and after bisphosphonate use: Full report of a nationwide study. *Acta Orthop.* 2015;86(1):100-107.
  10. Gehrke B, Coelho MCA, D'Alva CB, Madeira M. Long-term consequences of osteoporosis therapy with bisphosphonates. *Arch Endocrinol Metab.* 2023;68(1):18-26.
  11. Jelin-Uhlig S, Weigel M, Ott B, Imirzalioglu C, Howaldt HP, Böttger S, et al. Bisphosphonate-related osteonecrosis of the jaw and oral microbiome: Clinical risk factors, pathophysiology and treatment options. *Int J Mol Sci.* 2024;25(3):1416.
  12. Adler RA, El-Hajj Fuleihan G, Bauer DC, Camacho PM, Clarke BL, Clines GA, et al. Managing osteoporosis in patients on long-term bisphosphonate treatment: Report of a Task Force of the American Society for Bone and Mineral Research. *J Bone Miner Res.* 2016;31(1):16-35.
  13. Kolata G. Fearing drugs' rare side effects, millions take their chances with osteoporosis. *The New York Times.* 2016.
  14. Järvinen TLN, Michaëlsson K, Aspenberg P, Sievänen H. Osteoporosis: The emperor has no clothes. *J Intern Med.* 2015;277(6):662-673.
  15. Järvinen TL, Michaelsson K, Jokihaara J, Collins GS, Perry TL, Mintzes B, et al. Overdiagnosis of bone fragility in the quest to prevent hip fracture. *BMJ.* 2015;350:h2088.
  16. Kanis JA, Cooper C, Rizzoli R, Reginster JY. Executive summary of the European guidance for the diagnosis and management of osteoporosis in postmenopausal women. *Calcif Tissue Int.* 2019;104(3):235-238.