

Osteoporosis

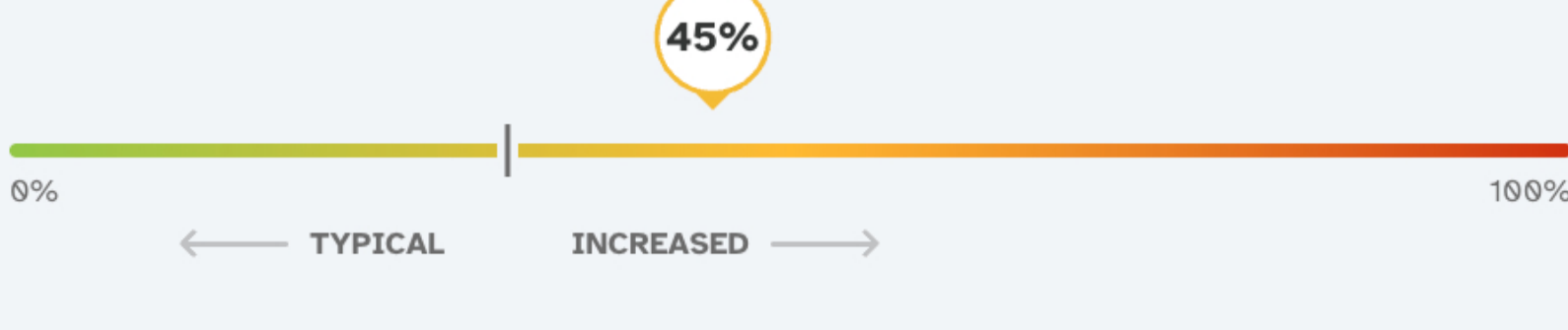
PRS Report

Osteoporosis is a condition in which bone density becomes too low. This makes bones more fragile and prone to breaks (fractures).



Jamie, your genetic result is associated with an **increased likelihood** of developing osteoporosis.

An estimated **45%** of people with genetics like yours develop osteoporosis **by their 70s**. This result takes into account your birth sex and genetic ancestry.



This estimate is based on currently available data and may be updated over time.

Ways to take action

Your overall likelihood of developing osteoporosis also depends on other factors, including lifestyle. Experts agree that certain lifestyle habits are especially helpful for lowering the chances of developing osteoporosis and its complications. Building these habits early in life is ideal, but it's never too late to get started.

- Make exercise part of your daily routine — including weight-bearing exercise (like walking, running, and dancing), strength training, and exercises that improve balance and stability.
- Eat a healthy diet with plenty of vitamin D and calcium.
- Don't smoke, or get help quitting if you do.
- Avoid heavy alcohol consumption.
- Maintain a healthy weight (being underweight is associated with increased risk).
- Reduce your chance of falls that can cause fractures. For example, remove tripping hazards in your home, make sure walking areas are well lit, and wear shoes with non-slip soles.



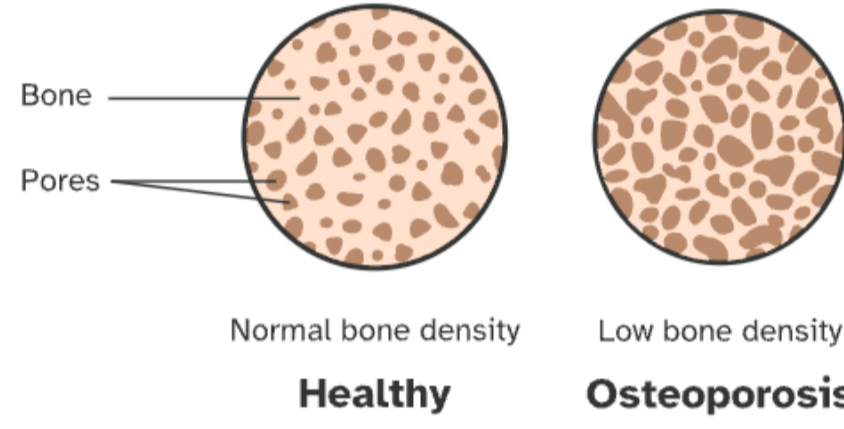
Screening for osteoporosis is recommended for all females over age 65, as well as females younger than 65 with certain risk factors. Screening may also be recommended for males who are over 70 or have certain risk factors. Screening is typically done with a scan of the hip and spine that measures bone mineral density. Talk to a healthcare professional about whether osteoporosis screening is appropriate for you.

[Learn more from the International Osteoporosis Foundation](#)

About osteoporosis

What is osteoporosis?

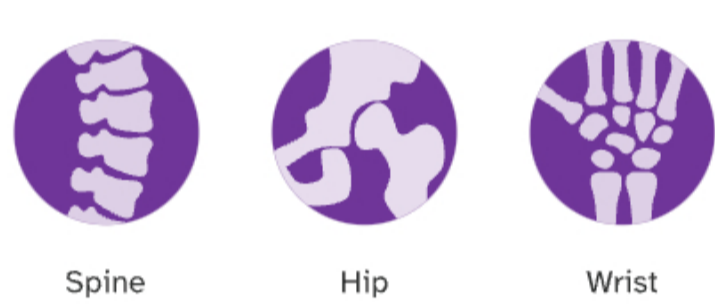
Bone is a living tissue that our bodies constantly replenish by breaking down old bone and replacing it with new bone. As we get older, we start to lose bone faster than we can rebuild it. As a result, bones become more porous, and bone density declines. If bone density gets too low, it's called osteoporosis. When bone density is lower than normal but not yet considered to be osteoporosis, it's called osteopenia. This process happens to some extent for everyone but progresses to osteoporosis more commonly in females.



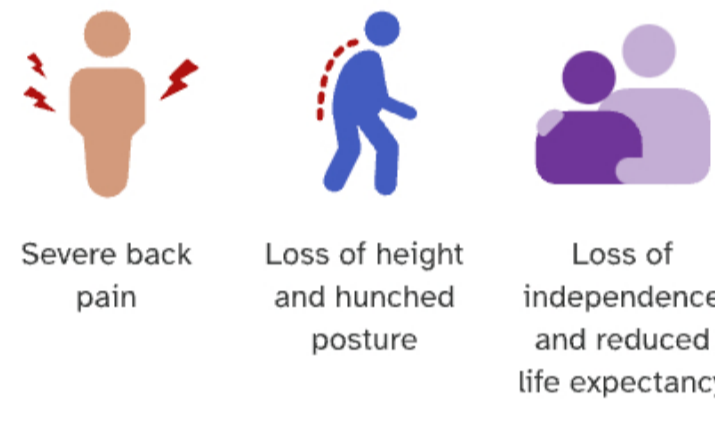
How can osteoporosis impact your health?

Osteoporosis usually has no symptoms until people break a bone — most commonly in the spine, hip, or wrist. These fractures can be caused by minor falls, normal activities like bending or lifting, or can even occur spontaneously. For example, the bones in the spine can develop small fractures, called compression fractures, just from the pressure of gravity. This can lead to severe back pain, loss of height, and a hunched posture. Fractures in the hip are especially serious because they can make it hard to live independently and can cause complications that reduce life expectancy.

Most common fracture sites



Some complications of fractures



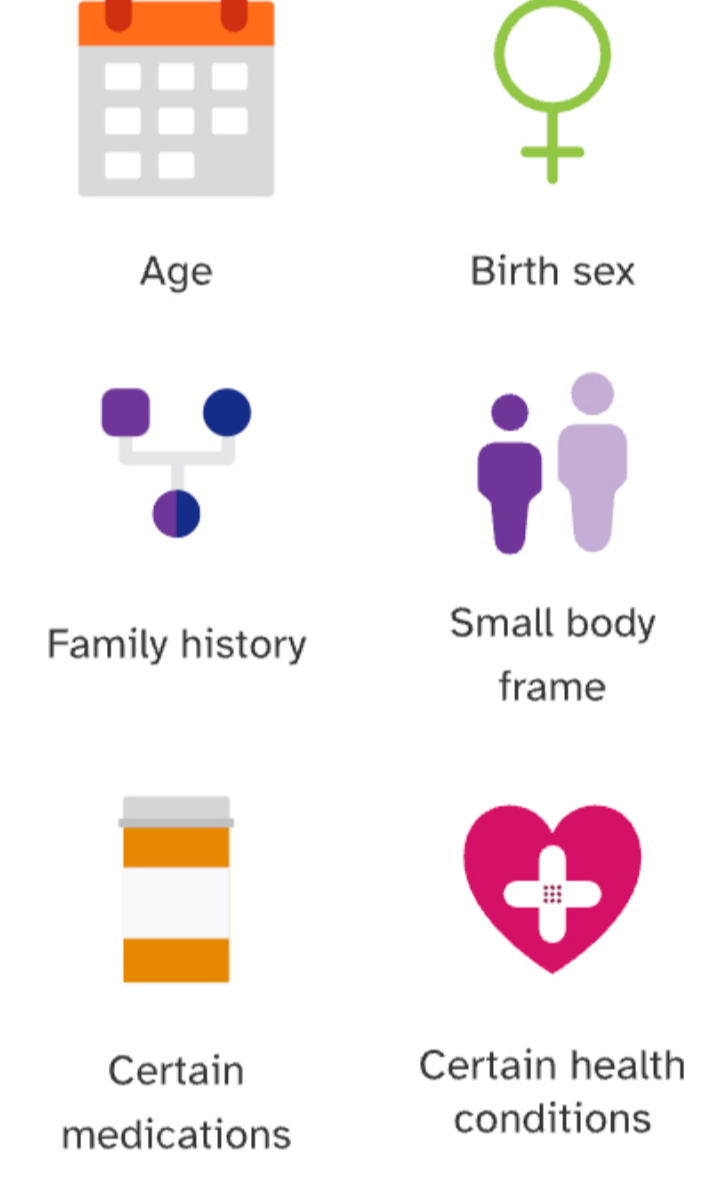
In the U.S., about half of females and up to a quarter of males will break a bone due to low bone density. So it's important to keep bones strong as well as take steps to prevent falls that can cause fractures.

Estimate your chances of developing an osteoporosis-related fracture based on non-genetic factors. (This tool can estimate risk for individuals who are at least 40 years old.)

Other factors that can impact your chances of developing osteoporosis

In the U.S., more than 10 million people have osteoporosis, and another 40+ million have less severe loss of bone density. Besides genetics and lifestyle, some factors that can increase a person's chances of developing osteoporosis and osteoporosis-related fractures include:

- Age (risk increases with age, and those over age 65 are at highest risk)
- Birth sex (osteoporosis is more common in females, and risk increases dramatically after menopause)
- Family history of osteoporosis or hip fractures
- Small body frame
- Certain medications (including corticosteroids like prednisone and cortisone, and some medications used to treat acid reflux, seizures, and cancer)
- Certain health conditions (including celiac disease, hormone disorders, and cancer)



Keep in mind

This report **does not diagnose** osteoporosis. **Consult with a healthcare professional** if you are concerned about your likelihood of developing osteoporosis, have a personal or family history of osteoporosis or hip fractures, or before making any major lifestyle changes.

If you have already been diagnosed with osteoporosis or osteopenia, it is important to **continue any management plan** that your clinician recommends.

This report **does not account for every possible factor** that could impact your likelihood of developing osteoporosis.

This report has not been validated for individuals of certain ancestries, including some people with ancestry from multiple continents.

This report is based on a genetic model **created using data from 23andMe research participants**. It has not been clinically validated and should not be used to make medical decisions.

How we got your result

Methods

This report is based on a statistical model called a polygenic score. It takes into account your genetic results at many genetic markers, your genetic ancestry, and the birth sex you reported in your account settings to estimate the likelihood of developing osteoporosis. We used data from 23andMe research participants as well as data reported in the scientific literature to calculate this estimate. We may update results and estimates over time as the model, available data, or scientific understanding about this condition improves.

About the result

People whose result is associated with odds of developing osteoporosis that are at least 1.5 times higher than average are considered to have an increased likelihood. These results are based on your genetic markers, and random test error at one or more of these markers can lead to a small margin of error in your estimated likelihood of developing osteoporosis. For people whose estimate is near the boundary between typical and increased likelihood, this margin of error may introduce some uncertainty about whether their estimated likelihood is considered "typical" or "increased." Your genetic result is associated with an increased likelihood. Based on the available genetic markers used to calculate your result, there is a less than 1% chance your genetic likelihood estimate could fall on the other side of the boundary and be in the range that is considered typical.

Scientific validity across ancestries

We verified that the model meets our scientific standards for individuals with predominantly East/Southeast Asian, European, Hispanic/Latino, Northern African/Central and Western Asian (Middle Eastern), South Asian, and Sub-Saharan African/African American ancestry.

See our [white paper](#) to learn more about the science behind this report.

Change log

- January 2025: Osteoporosis report created.

Read more:

- [Bone Health & Osteoporosis Foundation. "Prevention." Retrieved October 21, 2024, from https://www.bonehealthandosteoporosis.org/prevention-fractures/prevention/.](#)
- [International Osteoporosis Foundation. "What is osteoporosis?" Retrieved October 21, 2024, from https://www.osteoporosis.foundation/patients/about-osteoporosis/.](#)
- [LeBoff MS et al. \(2022\). "The Clinician's guide to prevention and treatment of osteoporosis." Osteoporos Int. 33\(10\):2049-2102.](#)
- [Mayo Clinic. "Osteoporosis." Retrieved October 21, 2024, from https://www.mayoclinic.org/diseases-conditions/osteoporosis/symptoms-causes/syc-20351968.](#)
- [MedlinePlus. "Osteoporosis." Retrieved October 21, 2024, from https://medlineplus.gov/osteoporosis.html.](#)
- [National Institute of Arthritis and Musculoskeletal and Skin Diseases. "Osteoporosis." Retrieved October 21, 2024, from https://www.niams.nih.gov/health-topics/osteoporosis.](#)
- [Sarafrazi N et al. \(2021\). "Osteoporosis or Low Bone Mass in Older Adults: United States, 2017-2018." Retrieved October 21, 2024, from https://www.cdc.gov/nchs/products/databriefs/db405.htm.](#)
- [U.S. Preventive Services Task Force. "Osteoporosis to Prevent Fractures: Screening." Retrieved October 21, 2024, from https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/osteoporosis-screening.](#)



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