UF IFAS Extension UNIVERSITY of FLORIDA

UF/IFAS PEER REVIEWED FCS3416
doi.org/10.32473/EDIS-FY1559-2026

Osteoporosis: The Silent Disease[1]

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Osteoporosis affects nearly 10 million Americans, most often adults over the age of 50. In osteoporosis, bones become brittle and can easily fracture. It is referred to as "the silent disease" because there are no symptoms, but it could lead to joint pain, loss of stature, and increased risk of fractures of the hip, wrist, and spine (National Institutes of Health, 2023). Currently, there is no cure for osteoporosis. However, with early detection, lifestyle changes and medications can help the disease from progressing further.



Figure 1. What a normal bone would look like (left image; bone is dense with small pores) compared to a bone that has lost density to osteoporosis (right image; bone has larger pores).
Credit: © AG Photography/Adobe Stock.

Osteoporosis vs. Osteopenia

Osteopenia is a precursor to osteoporosis. In osteopenia, there is mild to moderate loss of bone density, as opposed to the more severe osteoporosis. If managed properly, bone fractures and osteoporosis can be prevented.



Figure 2. 3D illustration of normal bone and bone with osteoporosis. As bone density decreases, bones become more porous and fragile, raising the risk for fractures.
Credit: © adimas/Adobe Stock.

Causes of Osteoporosis

Osteoporosis happens when bone mass declines and the structure of bone tissue changes. Risk factors are unavoidable; however, there are specific actions to take now to help your bones become stronger.

Uncontrollable Risk Factors

- Age (risk increases as you get older)
- Being female, especially after menopause
- Family history of osteoporosis
- Small, thin body frame
- Ethnicity (White and Asian individuals have higher risk)

Medical Conditions and Treatments

- Low hormone levels (estrogen in women, testosterone in men)
- Thyroid problems, especially overactive thyroid
- Rheumatoid arthritis
- Eating disorders
- Diabetes
- Celiac disease
- Bariatric surgery
- Inflammatory bowel disease
- Medications, such as:
    - Anticonvulsants (seizure medications)
    - Hormone therapy for cancer treatment
    - Long-term corticosteroid use (3+ months)

Lifestyle Factors (Modifiable)

- Nutrition, especially calcium, vitamin D, and protein intake (Table 1) (National Institutes of Health, 2023)
- Sedentary lifestyle/lack of weight-bearing exercise
- Smoking
- Excessive alcohol consumption

How to Determine If You Have Osteoporosis

Your doctor is key to monitoring your health and leading you to a proper diagnosis. By tracking your height, weight, current medications, and any fractures in your medical history, your doctor can screen you to determine if further testing is necessary. A current test for measuring bone density is dual-energy X-ray absorptiometry (DXA). This test measures the bone mineral density of your skeleton and at various sites that are prone to fracture, such as the hip and spine, and is currently considered the most reliable way to predict future fracture risk (NIAMS, n.d.). In this test, you lay down on a cushioned table while a scanner passes over your body. If you are diagnosed, your doctor will recommend lifestyle changes and medications to help lower your chance of further bone breakage.

Researchers are currently developing new ways to track and monitor bone health, including new scanning technologies that utilize AI to measure bone changes more accurately as we age (Adami et al., 2022).

Making Bone Health Your Priority

Everyone loses some bone density as they age. Over 10 million Americans suffer from osteoporosis. To help prevent osteoporosis and improve your strength without putting too much stress on your bones, make sure you stay physically active, eat healthy and nutritious foods, and consume adequate calcium, protein, and vitamin D.

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Table 1. Recommended dietary allowances for calcium, vitamin D, and protein intake.

Life Stage	Calcium Required (mg/day)	Vitamin D (IU/day)	Protein Intake (grams/day)
Youth, ages 9–13	1,000	600	34
Girls, ages 14–18	1,000	600	46
Boys, ages 14–18	1,000	600	52
Men, ages 19–70	1,000	600	46
Women, ages 19–50	1,000	600	56
Women 50+	1,200	600	56
Women 70+	1,200	800	57
Men 71+	1,200	800	56

[1] This document is FCS3416, a publication of the Department of Family, Youth and Community Sciences, UF/IFAS Extension. Original publication date March 2026. Visit the Ask IFAS website at https://ask.ifas.ufl.edu/ for the currently supported version of this publication. © 2026 UF/IFAS. This publication is licensed under CC BY-NC-ND 4.0.

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