Disclaimer

The following presentation is for informational purposes only and is not intended to provide medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition. Never disregard professional medical advice or delay in seeking it because of something you have read or seen in this presentation. There is nuance in specific individual cases requiring differing clinical judgement. The information provided here cannot explain all subtleties of bone mass measurement.

This presentation was created in 2025.

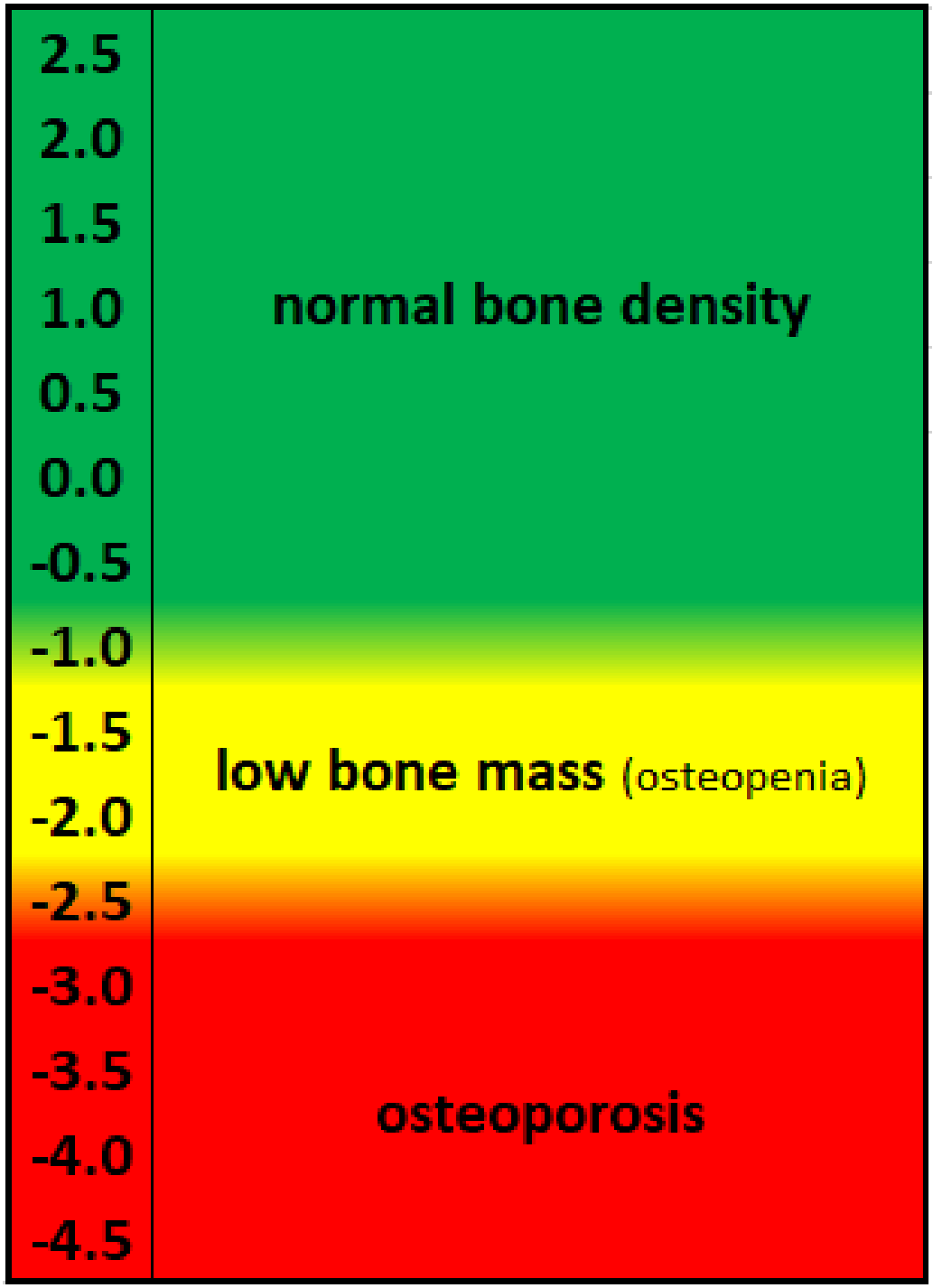
What does it mean if I have poor Bone Density Test Results

Objectives

1. Define osteoporosis and low bone mass.
2. Identify intervention thresholds and the significance of a prior history of bone fractures.
3. Examine “drug holiday” appropriateness.
4. Prepare for a benefit-risk conversation with your provider.

T-scores are used to place you in a normal range or not

- Osteoporosis: bones are fragile, higher risk for fractures.
- Treatments are available to strengthen bones.



What is Osteoporosis?

Osteoporosis is a disease that:

- is characterized by low bone mass, deterioration of bone tissue, and disruption of bone microarchitecture.
- leads to compromised bone strength and increased fracture risk.
- occurs from insufficient bone building and/or too much bone loss.

NIH Consensus Development Panel on Osteoporosis Prevention, Diagnosis, and Therapy. Osteoporosis prevention, diagnosis, and therapy. *JAMA*. 2001;285:785–95.

What is "Osteopenia"?

Osteopenia is:

- not a disease.
  - ISCD-preferred terms are "low bone mass" or "low bone density".
- can result from not reaching peak bone density rather than from bone loss.
  - "Peak" is the average bone density of young adults.

What happens next?

Healthcare providers may consider pharmacologic treatment after appropriate evaluation for postmenopausal women and men ≥ 50 years based on:

- Prior hip or vertebral fracture
- T-score ≤ -2.5 at a valid site
- Low bone mass and increased fracture probability (FRAX® score)

LeBoff M, Greenspan S, Insogna K, et al. The clinician's guide to prevention and treatment of osteoporosis. *Osteoporos Int*. 2022;33(10):2049–2102. 10.1007/s00198-021-05900-y

Decision-making between you and your healthcare provider

- Treatment decisions should be individualized.
- Secondary causes of bone loss should be considered.
- Risk for future fracture depends on age, past fractures, and falls.

Osteoporosis treatment is especially important if you have had a history of a hip fracture, vertebral compression fracture, and/or multiple other fractures.

Bone Fractures

- ***Fracture*** is the medical term for <u>any</u> broken bone.
- Risk is higher for those with osteoporosis or low bone mass.
- Age plays a major role in fracture risk:
  - In younger persons, even at a -3.5 T-score, the risk for fracture is far less than it is with advancing age.

Bone Remodeling

- Gradual replacement of bone over time
  - Resorption = break-down of old bone
  - Formation = build-up of new bone
- Imbalance leads to net bone loss.

How do the medications used to reduce fracture risk work?

- **Anti-resorptive medication** slows bone breakdown.
- **Anabolic medications** stimulate new bone building.

Pharmacological therapies work to re-balance the bone remodeling the process.

Osteoporosis Treatment Options

Anti-resorptive medications

- Oral bisphosphonates (weekly or monthly)
  - alendronate (Fosamax®)
  - ibandronate (Boniva®)
  - risedronate (Actonel®, Atelvia®)
- Bisphosphonate infusion (intravenous)
  - zoledronic acid (Reclast®)
- RANKL inhibitor
  - Denosumab (Prolia®)

Anabolic medications - osteoanabolics

- Sclerostin inhibitor
  - romosozumab (Evenity®)
- Parathyroid hormone analogs
  - abaloparatide (Tymlos®)
  - teriparatide (Forteo®)

Certain treatments require "Drug Holidays"

- A planned, typically temporary, interruption in pharmacologic therapy.
- Only appropriate for bisphosphonates
- Duration may vary

Prolia® should not have a drug holiday.

- Prolia should not be stopped without a plan for "locking-in" your gains.
- Do not delay or stop Prolia without communicating with your healthcare provider.
- Stopping Prolia without a plan can result in the loss of all of the gains.
- Rebound bone loss will increase your risk for multiple spine fractures.

Rare Potential Side Effects

Atypical Femur Fracture (AFF):

- *Notify your healthcare provider if you are experiencing any thigh pain.*

You are at slightly higher risk:

- without drug holidays
- when also taking steroid medication
- when laboratory testing for markers of bone turnover aren't being monitored

Tile L, Cheung AM. Atypical femur fractures: current understanding and approach to management. *Ther Adv Musculoskelet Dis*. 2020;12:1759720X20916983. Published 2020 Aug 21. doi:10.1177/1759720X20916983

Rare Potential Side Effects

Osteonecrosis of the jaw (ONJ):

- Rare, not related to common dental issues

Most jaw pain and the majority of dental problems are **not** related to ONJ.

- To help prevent ONJ, patients should keep up with their preventative dental care and practice appropriate good dental hygiene.
- Noninvasive restorative procedures like crowns, bridges, removeable partials, and dentures are recommended to prevent future surgical procedures.
- You may be asked to complete certain dental work before starting treatment or take a “drug holiday” for more invasive types of dental work.

Have a benefit-risk conversation with your healthcare provider

- Discuss bone density results and treatment options with your provider.
- Report side effects or signs of allergic reaction immediately.

When should I have a follow-up DXA scan?

- Regular testing should be done after initiating or changing therapy.
- More frequent testing may be warranted in higher-risk individuals
  - such as for those with multiple fractures, at older ages, or with very low BMD.

LeBoff M, Greenspan S, Insogna K, et al. The clinician's guide to prevention and treatment of osteoporosis. *Osteoporos Int*. 2022;33(10):2049–2102. 10.1007/s00198-021-05900-y

In summary

- Goal: prevent future bone fractures
- "Osteopenia" is not a disease; risk depends on multiple factors.
- Drug holidays reduce AFF and ONJ risk but not appropriate for Prolia®.
- Maintain good oral hygiene and regular dental care.

Thank you.

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For Clinical Densitometry