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Understanding Osteoporosis

How to protect your bones, prevent fractures, and maintain independence

Osteoporosis occurs when bones gradually become weaker and more likely to break. It is especially common after menopause, but men can develop it too. Bone is living tissue: when old bone is lost faster than new bone is formed, bone strength decreases. Most people feel no symptoms until a fracture occurs, often in the hip, spine, or wrist.

The purpose of treatment is not simply to improve a number on a scan. It is to prevent fractures so you can remain active and independent.

How is osteoporosis diagnosed?

A **DXA (DEXA)** scan is a painless, low-radiation test that measures bone density, usually at the hip and spine. The result is called a T-score:

DXA T-score	Meaning
–1.0 or higher	Normal bone density
Below –1.0 but above –2.5	Osteopenia (low bone mass)
–2.5 or lower	Osteoporosis

Your T-score is only part of your fracture risk. Your clinician also considers age, previous fractures, family history, medical conditions, medications, and likelihood of falling. Some people with osteopenia benefit from treatment.

Four foundations of stronger bones

1. Calcium and vitamin D — Most women age 51 and older and men age 71 and older need about 1,200 mg of calcium daily from food plus supplements if needed. Milk, yogurt, cheese, fortified foods, and certain vegetables are useful sources. Vitamin D helps absorb calcium; many people receiving osteoporosis treatment are advised to take approximately 800–1,000 IU daily, individualized to their needs. More is not necessarily better.

2. Exercise — Combine weight-bearing activity (walking, dancing, stairs), progressive resistance training (weights or bands), and balance exercises (such as tai chi). If you have severe osteoporosis or a prior spinal fracture, ask which bending, twisting, or high-impact movements should be avoided.

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3. Fall prevention at home — Keep walkways clear and well lit, remove loose rugs, use handrails, wear supportive shoes, check your vision, and review medicines that can cause dizziness or sleepiness.

4. Medication when appropriate — Healthy habits are essential, but people with **osteoporosis,** certain fragility fractures, or high calculated fracture risk may need medication to meaningfully reduce the chance of breaking a bone.

Osteoporosis medicines (brand names and generic names):

Two major approaches are used: **antiresorptive medicines** slow bone breakdown**; bone-building medicines** increase new bone formation. The choice depends on your fracture risk, kidney function, other medical conditions, and preferences.

Antiresorptive Medicines that slow bone breakdown:

- **Fosamax (alendronate)** 10 mg. — An oral bisphosphonate, taken weekly.
- **Actonel (risedronate)** 5mg. — An oral bisphosphonate, taken monthly
- **Boniva (ibandronate)** 150 mg. — A bisphosphonate given orally, taken monthly. Its evidence for preventing hip fractures is less established than for some alternatives.
- **Reclast (zoledronic acid)** — An intravenous bisphosphonate generally administered once yearly for osteoporosis.
- **Prolia (denosumab)** — An injection every six months. FDA-approved **biosimilars i**nclude **Jibanti (denosumab-bbdz).** Treatment with either one must NOT be stopped or significantly delayed without a follow-on plan because rapid bone loss and spinal fractures can occur.

Medicines that build bone:

- **Forteo (teriparatide)** — An injection that stimulates new bone formation, generally reserved for people at very high fracture risk.
- **Tymlos (abaloparatide)** — An injection for selected high-risk patients.
- **Evenity (romosozumab-aqqg)** — Monthly injections for a limited treatment course. It both increases bone formation and slows breakdown. It carries a cardiovascular warning; it should not be started following a heart attack or stroke within the preceding year.

After bone-building treatment, an *antiresorptive medicine* is usually prescribed to maintain the gains.

Estrogen-related treatments and bazedoxifene:

Estrogen replacement therapy in women is **preventive** by reducing progressive postmenopausal bone loss and decreasing the risk of vertebral (spine) fractures.

> **Note:** Long-term estrogen replacement (over 10 years) has **not** demonstrated any increased risk of breast cancer. Data supports beneficial bone and cardiovascular effects of estrogen replacement when started early in menopause.

Evista (raloxifene) 60 mg. — A *selective estrogen receptor modulator* **(SERM)** that can reduce spinal fractures in postmenopausal women. It has not shown the same hip-fracture protection as certain other treatments and can increase blood-clot risk.

Duavee (conjugated estrogens/bazedoxifene) — A combination medicine used in selected postmenopausal women with a uterus for certain menopausal indications, including prevention—not treatment—of postmenopausal osteoporosis. It is not yet a first choice for older women with established osteoporosis.

Bazedoxifene alone was studied in clinical trials and reduced new spinal fractures, but it is not FDA-approved in the United States as a stand-alone osteoporosis treatment. Like other SERMs, it carries concern about potential blood clots in genetically predisposed patients.

What about medication safety and dental health?

All medicines have potential risks, but for many people at high fracture risk, the benefit of preventing hip and spinal fractures outweighs treatment risks. Rare complications of some antiresorptive medicines include osteonecrosis of the jaw and *unusual* thigh-bone fractures. Maintain routine dental care, tell your dentist which bone medicine you use, and discuss planned major dental procedures with your clinician.

How long will I need treatment?

Treatment is individualized. Some people can take a supervised break after five years on certain bisphosphonates; others need ongoing treatment. Prolia (denosumab) should never be discontinued without a transition plan. A repeat DXA scan is often considered after one to two years, depending on the treatment and clinical situation.

Other habits that help

Avoid smoking and excessive alcohol, eat enough protein, maintain a healthy body weight, and review medicines or medical conditions that may contribute to bone loss, including long-term corticosteroids or excessive thyroid hormone replacement.

The most important message

Osteoporosis is treatable. Nutrition, exercise, fall prevention, and the right medication when needed can reduce fractures and help you maintain mobility, health, and independence. Talk with your clinician before starting, stopping, or changing treatment.

Further reading

Komm BS, Chines AA. Bazedoxifene: the evolving role of third-generation selective estrogen-receptor modulators in the management of postmenopausal osteoporosis. Ther Adv Musculoskeletal Dis. 2012;4(1):21–34. doi:10.1177/1759720X11422602.

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