Osteoporosis: Hormone Therapy is Superior for Prevention & Treatment

Women's Wellness Center | Columbia Hormone Health

What Causes Osteopenia and Osteoporosis?

Bone is living tissue, constantly remodeled to repair damage and maintain strength. **Estrogen (E)** and **testosterone (T)** are key regulators of this process.

- **Osteoblasts (bone-building cells) and osteoclasts (bone-resorbing cells) both have E and T receptors.**
- **Osteocytes, which coordinate remodeling, have T receptors only. *It is important not to overlook T as a therapy*.**

As T levels begin to decline (30's to 40's), bone density starts to regress. When E production ceases at menopause, bone loss dramatically accelerates—osteoclast activity outpaces osteoblast repair—leading to **osteopenia** (low bone density) or **osteoporosis** (very low density with elevated fracture risk).

Why Low Bone Density Matters

Osteoporotic fractures—especially of the **hip or spine**—can be devastating. Up to **25% of hip-fracture patients over age 70 die within a year of complications**. **Two-thirds** never regain prior function. About **half** never walk comfortably again. The decision to use hormone therapy in midlife profoundly influences health decades later, helping to prevent fractures and preserve long-term independence.

Exercise and Supplements – No Good Without Hormones

Weight-bearing exercise supports bone health but cannot rebuild density if hormones are depleted. Calcium and vitamin D are important for growing bones, yet after skeletal maturity (reached in mid 20's) they do little to prevent or reverse bone loss. Osteoporosis is not caused by mineral deficiency—it is a **hormone deficiency**. High calcium intake alone does not improve strength or resistance to fracture.

Estrogen and Testosterone: The Foundation of Bone Health

No therapy has proven more effective than **hormone replacement** for preventing postmenopausal bone loss. Hormone therapy **reduces spine and hip fractures by up to 50%**.

- **Estrogen helps maintain bone density by slowing resorption.**
- **Testosterone promotes new bone formation and strength through its anabolic effect.**

After the 2002 WHI study, use of hormone therapy declined sharply, and pharmaceutical companies introduced numerous costly "bone drugs." Yet **bioidentical estrogen and testosterone**, molecularly identical to natural hormones, remain the most physiologic and effective approach.

Why Hormone Therapy Is Superior to Pharmaceutical Drugs

Pharmaceutical bone agents may stabilize bone **temporarily** but carry risks such as:

- **Gastrointestinal irritation (nausea, heartburn, ulcers)**
- **Joint and muscle pain, leg cramps, dizziness, headache**
- **Serious complications: Atypical femur fracture, Jaw necrosis, Increased incidence of esophageal or bone cancer**

Most non-hormonal drugs are limited to **2–5 years of use** due to safety concerns. After discontinuation, bone loss resumes and fracture risk returns. Hormone therapy, by contrast, **maintains stable bone remodeling indefinitely**, preserving bone density, resilience, and strength, and **is safe for lifelong use**, with continuous benefit.

For both prevention and treatment of osteoporosis, bioidentical estrogen and testosterone offer the most natural, effective, and enduring protection—supporting stronger bones, better health, and quality of life throughout the years ahead.

Laura Grant, MD, MSCP, Board-Certified Ob/Gyn, Menopause Society Certified Practitioner 11.22.2025

References for Estrogen and Testosterone Therapy for Osteoporosis

1. Tu KN, Lie JD, et al. *Osteoporosis: A Review of Treatment Options*. P T. 2018 Feb;43(2):92-104.
2. M Savvas, et al. *Increase in bone mass after one year of percutaneous oestradiol and testosterone implants in post-menopausal women who previously received long-term oral oestrogens*. Br J Obstet Gynaecol. 1992, Sep;99(9):757-60.
3. A Turner, et al. *Testosterone increases bone mineral density in female to male transsexuals: a case series of 15 subjects.* Clin Endocrinol (Oxf). 2004 November ; 61(5): 560–566.
4. M Notelovitz, *Androgen effects on bone and muscle*, Fertil Steril. 2002 Apr;77, Suppl 4:S34-41.
5. A Bluming, 2018, *Estrogen Matters*, Little, Brown Spark.
6. G Donovitz, 2020, *Testosterone Matters More*, Wheatmark.

11.22.2025