

Understanding Osteoporosis

What is Osteoporosis?

Osteoporosis is a chronic condition that weakens bones, making them brittle and more likely to fracture. The disease primarily affects the hips, spine and wrists, but can impact any bone in the body. Key indicators of osteoporosis include:

- Reduced bone density
- Increased bone fragility
- A higher propensity for fractures even with minimal stress

How does Osteoporosis occur?

Osteoporosis develops when the balance between bone resorption (breakdown) and bone formation is disrupted. This can be due to several factors:

- **Age:** peak bone mass is generally achieved by the mid-20s, after which bone density begins to decline.
- **Hormonal Changes:** oestrogen in women and testosterone in men have protective effects on bone mass. Postmenopausal women experience a sharp decline in oestrogen, increasing their osteoporosis risk.
- **Nutritional Deficiencies:** inadequate intake of calcium, Vitamin D and other nutrients.
- **Lifestyle Factors:** sedentary lifestyle, smoking and excessive alcohol consumption.

Managing Osteoporosis

Managing osteoporosis requires a comprehensive approach that includes dietary, lifestyle and medicinal interventions. Calcium, Magnesium and Vitamin D supplementation play a critical role in prevention and management, while medical treatments such as bisphosphonates, SERMs, PTH analogues, and Denosumab are crucial for those with established osteoporosis.

Supplements for prevention and management

These supplements can help prevent and manage osteoporosis. For your convenience, we stock these at the clinic:

- **Calcium** is essential for bone formation and maintenance. Numerous studies indicate that calcium supplementation, especially when combined with Vitamin D, can help to slow age-related bone loss and reduce fracture risk. However, it is important to balance intake as excessive calcium can lead to kidney stones or cardiovascular issues.



Good sources of calcium: Dairy products, green leafy vegetables (e.g. broccoli and kale), fortified foods (e.g. orange juice and cereals).

Recommended Supplements:

Recommended dose: 1,200 mg per day for women aged 51 and older, and men aged 71 and older. Do not exceed 2,500 mg per day to avoid potential side effects. The best formulation is calcium citrate (meta-analysis shows a reduction in fracture risk with a daily intake of 1,000-1,200 mg, particularly when combined with Vitamin D).

- **Vitamin D** is crucial for calcium absorption in the intestines. Several clinical trials have shown that Vitamin D supplementation alone or with calcium can decrease fracture risk in older adults and those who have low levels of Vitamin D.

Good sources of Vitamin D can be found in sunlight exposure, fatty fish (e.g. salmon, trout and mackerel) and fortified foods.

Recommended Supplements:

Recommended dose: 800-1,000 IU (20-25 mcg) per day for adults aged 50 and older. Do not exceed 4,000 IU (100 mcg) per day, particularly in individuals with low baseline levels. The best formulation is Vitamin D3 (clinical trials indicate that 800-1,000 IU daily helps reduce the rate of fractures and supports overall bone health).

- **Magnesium** plays a role in converting Vitamin D into its active form which supports calcium absorption. Studies suggest that higher magnesium intake is associated with increased bone mineral density in the elderly.

Good sources of magnesium: nuts (e.g. almonds and cashews), seeds, whole grains and leafy green vegetables.

Recommended Supplements:

Recommended dose: 310-320 mg per day for women and 400-420 mg per day for men. Higher magnesium intake is associated with increased bone density. The best formulation is magnesium citrate, glycinate or carbonate. The oxide form is best avoided as it is poorly absorbed.

- **Vitamin K2** helps proteins bind calcium, ensuring it is stored in bones and teeth rather than arteries and soft tissues. Research suggests that Vitamin K2 supplements can improve bone density and reduce fracture risk, although more extensive studies are needed.

Good sources of Vitamin K2: leafy green vegetables (e.g. spinach and kale), fermented foods (e.g. natto) and some cheeses.

Recommended Supplements:

Recommended dose: 100-200 mcg per day. There is no established upper limit, but consult with a healthcare provider, especially if on blood thinners. The best formulation is the MK-7 form. Emerging studies suggest that 100-200 mcg per day can improve bone health and reduce fracture risk.

- **Collagen** a structural framework for bones and joints. Preliminary studies indicate that collagen peptides may support bone health by improving bone mineral density and overall bone strength.

Recommended Supplements:

Recommended dose 5-15 grams per day, divided into smaller doses. The best formulation is Type 1 and in hydrolylate or collagen peptide form. Preliminary research supports these doses daily for improved bone mineral density and joint health.

Medical Treatments

- **Bisphosphonates** inhibit osteoclast activity, thereby reducing bone resorption and maintaining bone density. Clinical trials have demonstrated that bisphosphonates significantly lower the risk of both vertebral and non-vertebral fractures.

Common Bisphosphonates: Alendronate, Risedronate, Ibandronate, Zoledronic Acid.

- **Selective Oestrogen Receptor Modulators (SERMs)** mimic the bone-preserving effects of oestrogen without some of the hormone's potential side effects. Studies show that SERMs can reduce the incidence of vertebral fractures in postmenopausal women.

Common SERMs: Raloxifene.

- **Parathyroid Hormone (PTH) Analogues:** stimulate bone formation by activating osteoblasts. Clinical studies have shown significant increases in bone mineral density and reductions in fractures, particularly in the spine.

Common PTH Analogues: Teriparatide, Abaloparatide.

- **Denosumab** is a monoclonal antibody that inhibits osteoclast maturation, thereby reducing bone resorption. Clinical trials have shown that Denosumab significantly increases bone mineral density and reduces fracture risk in various populations, including postmenopausal women, and men receiving hormone therapy for prostate cancer.

Common Drugs: Prolia.

The seven warning signs of osteoporosis you should never ignore

Many people don't realise they have osteoporosis until their bones begin to break. Here are the early signs and ways to prevent the condition.

Known as a "silent disease," osteoporosis often develops undetected. It affects one in three women and one in five men over age 50 and is a leading cause of disability and premature death in the UK. Despite excellent treatments available to slow bone breakdown and promote renewal, many remain unaware of their condition until it's too late. Recognising symptoms and seeking diagnosis is crucial to accessing treatments. So, what are the warning signs, and how can we assess our risk?

Early Warning Signs

- **Low Bone Density**

Bone density is measured through a DEXA scan, a quick and painless procedure using X-rays. It provides a T-Score, comparing your bone strength to the average population. DEXA scans are available via medical referral on the NHS or privately. For early diagnosis, consider using online tools like the FRAX tool or the Royal Osteoporosis Society's risk checker.

- **Decreased Grip Strength**

Grip strength declines with age and is linked to bone density, especially in menopausal women. Less muscle mass can indicate lower bone mass.

Later Warning Signs

- **Back Pain**

Back pain may indicate osteoporosis when it results from spinal fractures. These often occur undetected as vertebrae weaken and collapse. Specific back pain types, such as pain worsening **when leaning forward**, may signal a fracture.

- **Loss of Height**

Loss of more than 4 cm in height may suggest spinal collapse and should be assessed.

- **Stooped Posture**

A stooped posture can indicate broken spinal bones, affecting body support.

- **"Pelvic Crush"**

A reduced space between the hip bone and the lowest rib may signal vertebra collapse, as can a protruding stomach.

- **Fracture**

Bone breaks from minor trauma, like falls, can be red flags, often indicating osteoporosis.

How to Prevent Osteoporosis

- **Avoid Smoking**

Smoking reduces bone-producing cells and calcium absorption.

- **Nutrition**

Ensure adequate calcium, vitamin D, protein and other essential nutrients through a balanced diet.

- **Exercise**

Engage in weight-bearing and muscle-strengthening activities to improve bone strength.

- **Maintain a Healthy Weight**

Avoid being underweight, as it can lead to frailty and lower oestrogen levels.

- **Consider HRT****

Hormone Replacement Therapy may help mitigate bone loss during menopause.

- **Moderate Alcohol Consumption**

Excessive alcohol affects bone health and increases fall risks.

If you have questions or are unclear on any of the points, be sure to let us know. You can email us at: enquiries@chiropractic-clinic.com or visit our website www.chiropractic-clinic.com