Denosumab is also used to treat bone loss in women who are receiving treatment for breast cancer. It is also used to prevent bone problems in patients with bone metastases (cancer that has spread to the bones) from certain types of tumors.
Denosumab is injected under the skin, usually by a doctor or nurse. When denosumab is used to treat osteoporosis, it is usually injected once every 6 months. When is used to reduce fractures from cancer that has spread to the bones, it is usually

Denosumab may cause sides effects. Call your doctor right away if you have a serious side effect such as:

- numbness or tingling around your mouth or in your fingers or toes
- fast or slow heart rate
- muscle cramps or contraction
- overactive reflexes

Less serious side effects of denosumab may include:

- feeling weak or tired
- diarrhea, nausea

This is not a complete list of side effects and others may occur. Ask your doctor for medical advice about side effects.

Selective Estrogen Receptor Modulators (SERMs)

Raloxifene is approved for preventing and treating osteoporosis in postmenopausal women. It is from a class of drugs called selective estrogen receptor modulators (SERMs), which are estrogen-like medications. Raloxifene increases bone density and reduces the risk of spine fractures, but it has not been shown to decrease the risk of non-spinal fractures. Raloxifene also decreases the risk of invasive breast cancer.
Raloxifene is taken in pill form, once a day, with or without meals. While uncommon, side effects may include hot flashes, leg cramps, or blood clots in the legs or lungs. Raloxifene is not

Teriparatide

Teriparatide is a part of the parathyroid hormone molecule, which is a naturally-occurring hormone that regulates calcium levels in the body. Teriparatide treatment stimulates new bone formation, rather than preventing bone breakdown. Because of potential safety concerns, the use of this drug is restricted to men and women with severe osteoporosis—who have a high risk of a fracture—and can be given for no more than two years. Teriparatide is given as a daily, self-administered injection. Side effects are uncommon but may include leg cramps, headaches, and dizziness. This medication is not

Estrogen hormone therapy prevents bone loss and reduces the risk of fracture in the spine and hip. It can also relieve other symptoms of menopause, such as hot flashes and vaginal dryness. Estrogen is usually given in pill form, although it is also available in other forms such as a skin patch or gel.

Studies show that the risks of estrogen therapy—including heart attack, stroke, blood clots, and breast cancer—outweigh its benefits in most older women. For this reason, estrogen therapy is not usually prescribed

solely for fracture prevention. In fact, even when estrogen is used to treat menopausal symptoms, the U.S. Food and Drug Administration recommends that it be used in as low a dose, for

For Men

Alendronate, risedronate, zoledronic acid, teriparatide, and denosumab have been approved to treat osteoporosis in men. Denosumab is also approved to protect bone mass in men taking androgen deprivation therapy for prostate cancer. Although there are fewer studies in men, the effects of these medications on bone mass are similar to their effects in women

The question of whether testosterone supplementation is useful for treatment of osteoporosis in men remains controversial. In men who clearly have low levels of testosterone, treatment with testosterone appears to increase bone density. However, the doses necessary and the best way to administer this treatment are unclear. There is no information about whether testosterone treatment in men is effective in reducing fracture risk.

Finally, the risks of long-term testosterone treatment in older men are unknown. At present, it is generally not recommended that testosterone be used as the primary osteoporosis treatment for men. Other approved osteoporosis treatments

Questions to ask your doctor

How long should I receive treatment?
How do I know the treatment is working?

Dr. Rela Institute & Medical Centre is a multi-specialty quaternary care hospital located in Chennai, India.

The Institute is within the campus of Sree Balaji Medical College and Hospital, which is spread across 36 acres. It has 14 operating theatres with 450 beds, inclusive of 150 critical care beds.

The Institute is conveniently located 10 minutes from the Domestic and International Airport.

The hospital is designed to provide highly specialized care in various departments with a focus on multi-organ transplantation. Prof. Mohamed Rela, a world renowned surgeon in the field of Liver surgery and transplantation is the Chairman and Managing Director of the Institute.

In addition to quaternary & quality care, is also committed to provide day to day primary and secondary care to the local population, with facilities of international standards.

The Institute would provide comprehensive support to international patients travelling for medical treatment such as language assistance, stay, visa and travel.

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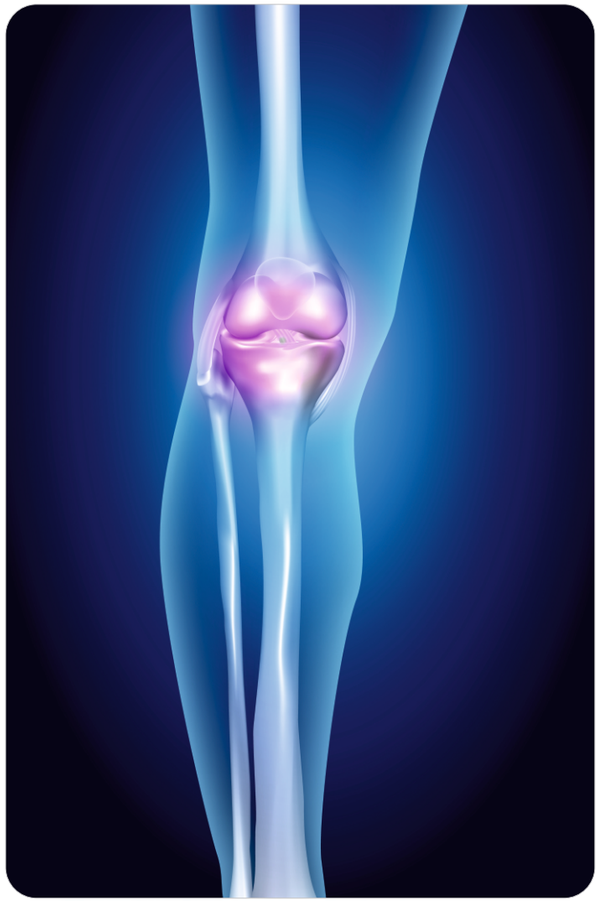

Department of Endocrinology

Osteoporosis

Osteoporosis

Q1 What is osteoporosis?

Osteoporosis is a disease in which bones become weak and are more likely to fracture or break. It is called a “silent” disease because bone loss often occurs without yourself knowing it. Until about age 30, your body forms enough new bones to replace the bones that are naturally broken down by the body (a process called bone turnover). Your highest bone mass (size and thickness) is reached between ages 20 and 25, and it declines after that. After menopause, however, women begin to lose

Osteoporosis develops when bone loss occurs too quickly or when bone formation occurs too slowly.

Q2 Who is at risk for osteoporosis?

In the United States, 44 million Americans are at risk for osteoporosis. Ten million already have the disease. Women make up 80 percent of cases. Certain risk factors make it more

Other factors that can lead to osteoporosis include:

- Hormonal conditions (such as hyperparathyroidism, hyperthyroidism, diabetes, hypercortisolism, or hyperprolactinemia)
- Anorexia nervosa (a condition associated with very poor nutrition and abnormal ovarian function)
- Too much exercise or stress that leads to loss of menstrual

If you have gone through menopause (even if you have been taking hormone therapy for a long time), have had a fracture (bone break), or are considering treatment for osteoporosis, a bone density test (DXA scan) can help determine your risk of fracture. If you are a woman over 65, or a man over 70, and do not have any of these risk factors for osteoporosis, you should still

Q3 Osteoporosis risk factors

- Family history of fractures
- Postmenopausal
- Premenopausal with irregular or no menstrual periods (amenorrhea)
- Thin or small framed body structure
- Caucasian or Asian
- Diet low in calcium and vitamin D
- Little or no exercise
- Cigarette smoking
- Drinking too much alcohol
- Therapy with a steroid (such as prednisone) for any significant length of time
- Having a condition called "rheumatoid arthritis"

Too much bone loss (osteoporosis) can lead to fractures, which can cause serious health risks, including disability and premature death.

Q4 How is osteoporosis prevented and treated?

You can take these steps to prevent bone loss:

- Get enough calcium and vitamin D, either through diet or supplements (at least 1,000–1,200 mg of calcium; at least 400–800 IU of vitamin D daily under age 50 or 800–1,000 IU

- Do weight-bearing exercises and stay physically fit
- Avoid smoking
- Don’t drink too much alcohol

Even with a healthy lifestyle, however, you may still need additional therapy to protect against bone loss and fractures. Your doctor may need to prescribe medications such as:

- Bisphosphonates (alendronate, risedronate, ibandronate, zoledronic acid)
- Raloxifene
- Teriparatide
- Estrogen (when also prescribed for the relief of menopausal symptoms)

All these treatment options are effective, but may have side effects. Talk with your doctor to determine whether you need

Questions to ask your doctor

Am I at risk for osteoporosis?

How often should I have a bone density test?

Should I take calcium and vitamin D supplements? How much do I need?

What else can I do to keep my bones strong?

Should I see an endocrinologist?

Treatment Options

Osteoporosis prevention and treatment include exercise and the right amount of calcium in your diet. Most adults over age 50 need a total of around 1,200 mg daily. The best way to get calcium is through the foods you eat.

You may need calcium supplements if your diet is not providing enough calcium to keep your bones strong. Taking too much calcium, however, can increase the risk of kidney stones and possibly heart disease. Vitamin D helps your body absorb calcium and build it into the bones. Most adults don’t have enough vitamin D in their bodies.

Older men and women probably should take vitamin D supplements. The National Osteoporosis Foundation recommends 800 to 1,000 IU (International Units) of vitamin D3 per day. Younger men and women may need to take vitamin D supplements, too. Very high doses of vitamin D, although very rare, can cause serious health problems, so talk with your doctor about how much is right for you.

A well-balanced diet with calcium-rich foods, plus calcium and vitamin D supplements, however, may not be enough to protect bones and prevent osteoporosis in all people. Everyone's health and family history are different, so the risk of breaking bones differs for each person. Some people may need to take

The U.S. Food and Drug Administration (FDA) has approved several medications for preventing and treating osteoporosis.

Bisphosphonates

Bisphosphonates are used to prevent and treat postmenopausal osteoporosis by slowing bone loss while increasing bone mass. Bisphosphonates help reduce the risk of spine, non-spine, and hip fractures.

The bisphosphonates alendronate, risedronate, and zoledronic acid have also been approved for the treatment of steroid-induced osteoporosis in men and women who need long-term use of medications to treat inflammatory conditions (which can

Bisphosphonate Medications

- Alendronate (Fosamax®). Tablet available in daily and weekly

- Risedronate (Actonel, Atelvia®). Tablet available in daily, weekly, and monthly forms

- Ibandronate (Boniva®). Available in monthly tablet or as an injection once every three months

- Zoledronic Acid (Reclast®). Injection given once a year for treatment, or every two years for prevention

Side effects of bisphosphonates are uncommon, but may include abdominal, bone, or muscle pain. These medications may also cause nausea or heartburn. Tablet forms may cause

High-dose, long-term bisphosphonate therapy, which might be given during cancer treatment, for example, has been linked to osteonecrosis (degeneration) of the jaw bone. This problem happens most often after dental operations. There is also a concern that long-term treatment may increase the risk of so-called atypical femoral fractures—fractures through the shaft of the thigh bone with little or no trauma.

Bisphosphonates are not recommended for premenopausal women who may become pregnant or for people with severely

Denosumab

Denosumab is approved for preventing and treating osteoporosis in postmenopausal women at increased risk for fractures. Denosumab, although approved as first-line therapy to treat bone loss, it's commonly used when patients cannot tolerate other osteoporosis medicines or if other medicines are not working well.