



**SNS COLLEGE OF ALLIED HEALTH SCIENCES**  
SNS Kalvi Nagar, Coimbatore - 35  
Affiliated to Dr MGR Medical University, Chennai



**DEPARTMENT: ALLIED HEALTH SCIENCES**  
**COURSE NAME: Geriatrics**

**Topic: osteoporosis**



## CASE SCENARIO



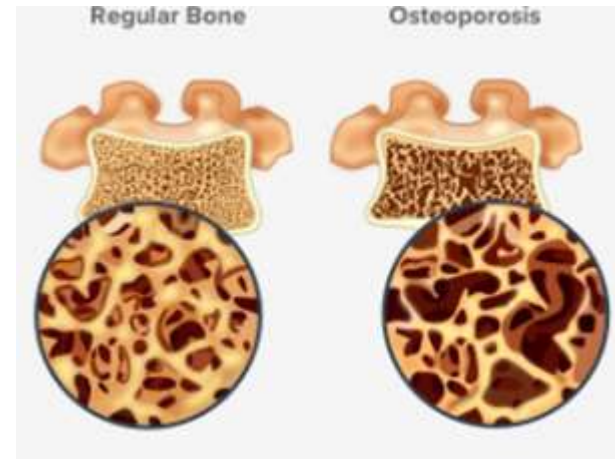
- A 55 year old female presented with a complaints of lower limb pain and not able to satnd or walk for more than 30 mints .How will you assess this patient?



# Introduction



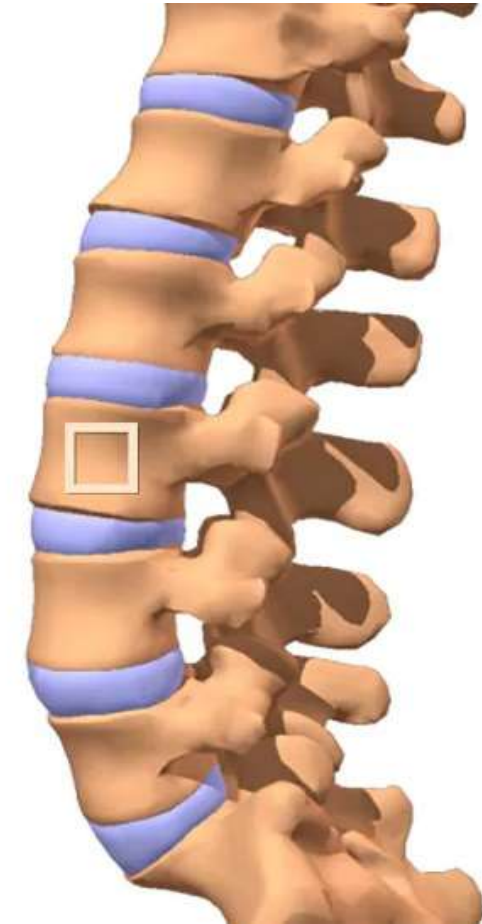
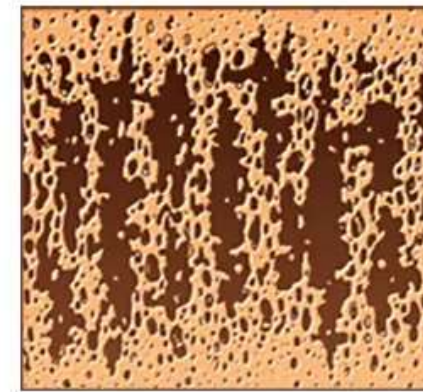
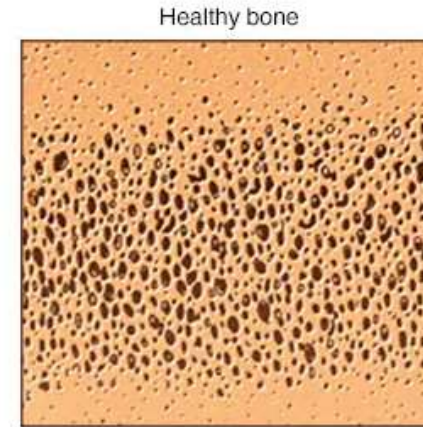
**Definition-**Osteoporosis is a bone disease that develops when bone mineral density and bone mass decreases, or when the structure and strength of bone changes. This can lead to a decrease in bone strength that can increase the risk of fractures (broken bones)



# Etiology

## Causes

Age  
Race  
lifestyle choices  
medical conditions and  
treatments.





# Risk factors



## **Non modifiable**

- sex.
- Age.
- Race.
- Family history.
- Body frame size.
- Hormone levels
- Sex hormones. Lowered sex hormone levels tend to weaken bone

## **Modifiable**

- Thyroid problems. Elevated thyroid hormone can cause bone loss.
- Dietary factors

Osteoporosis is more likely to occur in people who have:

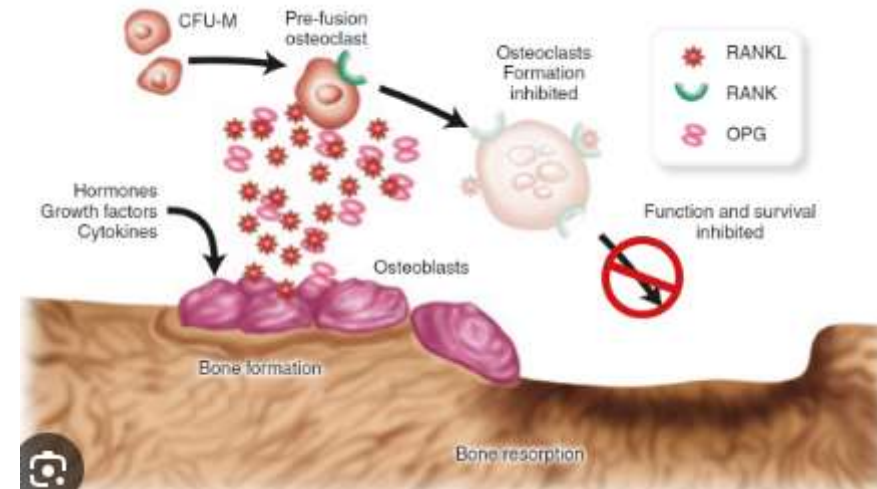
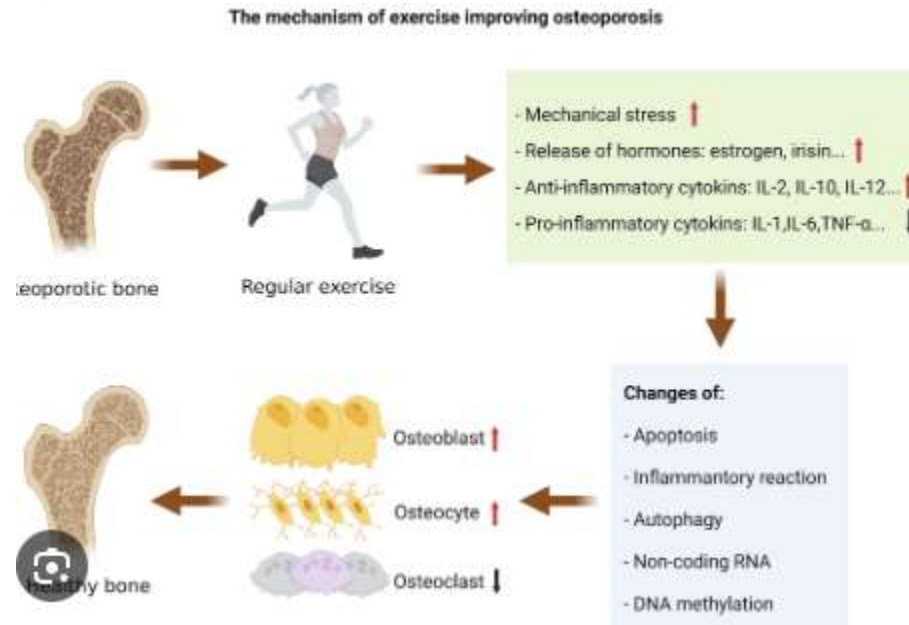
- Low calcium intake. A lifelong lack of calcium plays a role in the development of osteoporosis. Low calcium intake contributes to diminished bone density, early bone loss and an increased risk of fractures.
- Eating disorders. Severely restricting food intake and being underweight weakens bone in both men and women

- Steroids
- Seizures.
- Gastric reflux.
- Cancer.
- Transplant rejection.
- Celiac disease.
- Inflammatory bowel disease.
- Kidney or liver disease.
- Cancer.
- Multiple myeloma.
- Rheumatoid arthritis.

## **Lifestyle choices**

- Sedentary lifestyle.
- Excessive alcohol consumption.
- Tobacco use

# Pathophysiology





## Clinical manifestation

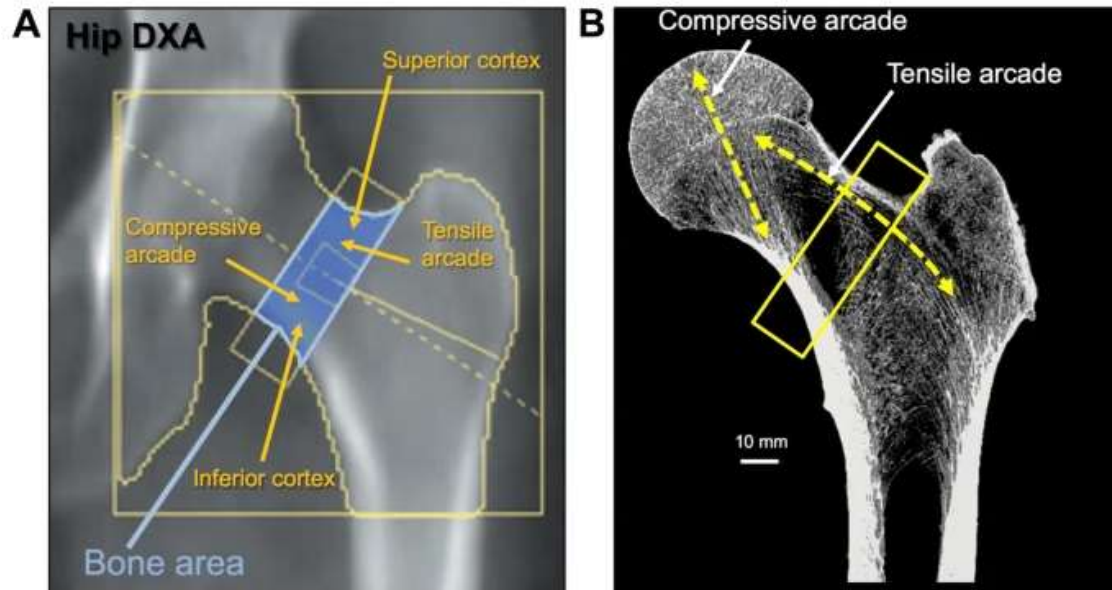


- Back pain, caused by a broken or collapsed bone in the spine.
- Loss of height over time.
- A stooped posture.
- A bone that breaks much more easily than expected.



# Diagnosis

- History collection
- Physical examination
- DEXA scan-A bone density test uses low levels of X-rays to measure the density and mineral content of the bones.







# Management



- **Hormone therapies** like replacement estrogen or testosterone and bisphosphonates. People with severe osteoporosis or a high risk of fractures might need medications, including parathyroid hormone (PTH) analogs, denosumab and romosozumab. These medications are usually given as injections.

## COMMON TREATMENTS FOR OSTEOPOROSIS

### ANTIRESORPTIVES

This category of drugs works by slowing down bone loss, giving your natural bone production a chance to catch up. There are several FDA-approved antiresorptives available.



### ANABOLIC AGENTS

A little more on the aggressive side, these meds activate the cells responsible for new bone formation and are used in more severe cases of bone loss.



### WEIGHT-BEARING MOVES

This isn't the type of exercise that requires you to lift heavy weights. It's the kind that forces you to support your own weight like: walking, dancing, hiking, and yoga.



### MEDITERRANEAN DIET

This is not your typical diet. This plan, which is high in lean meats, veggies, fruits, nuts, and olive oil, can reduce hip bone loss in the course of just one year.





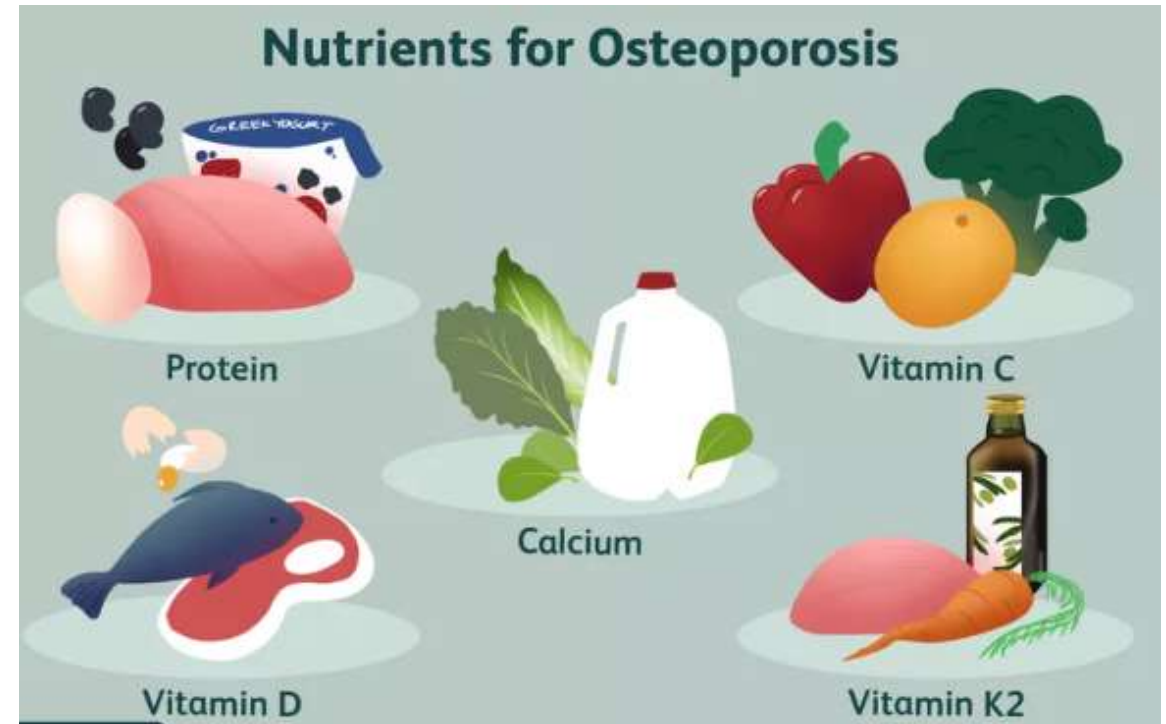
# Treatment



- Vitamin D

Dietary supplements can contain vitamin D2 or vitamin D3. While both are good for bone health, vitamin D3 can increase a person's vitamin D levels to a greater extent and maintain higher levels longer than vitamin D2. This may mean that vitamin D3 is more effective for people with osteoporosis

A dietary supplement is a manufactured product intended to supplement a person's diet by taking a pill, capsule, tablet, powder, or liquid. A supplement can provide nutrients either extracted from food sources, or that are synthetic.





# Medical management



## Antiresorptives

This category of osteoporosis drugs works by slowing down bone loss, giving your natural bone production a chance to catch up. Several types of FDA-approved antiresorptives agents are on the market today, including:

**Bisphosphonates:** These are the preferred first-line medications for osteoporosis. Oral bisphosphonates include Boniva (ibandronate), Fosamax and Binosto (alendronate), Actonel and Atelvia (riesdronate). They're given daily, weekly, or monthly depending on the type. Reclast (zolderonic acid) is a bisphosphonate given via intravenous infusion once a year.

- **RANKL inhibitor:** Prolia (denosumab) is an injection given every six months. However, there is some recent data about increased risk of vertebral fracture after the discontinuation of denosumab, so the need for indefinite treatment needs to be discussed with people before this medication is started.
- **Estrogen:** Hormone replacement therapy (HRT) taken orally or via transdermal patch can help slow bone loss after menopause. Estrogen as an osteoporosis treatment is controversial because it's been linked to health concerns, including breast cancer.
- **Selective Estrogen Receptor Modulators (SERMs):** Evita (raloxifene), for instance, is an oral hormone-like medication that's taken daily. Side effects of SERMs can include hot flashes, increased risk of blot clots, and temporary flu-like symptoms.
- **Tissue Specific Estrogen Complex (TSEC):** Duavee (bazedoxifene) combines estrogen with an estrogen antagonist to treat menopause symptoms. It's shown to increase bone mineral density in the hip and lumbar spine.



# Prevention



- Low-fat dairy products.
- Dark green leafy vegetables.
- Canned salmon or sardines with bones.
- Soy products, such as tofu.
- Calcium-fortified cereals and orange juice.
- Vitamin D
- Regular exercise



## Reference



- The Text Book of Pathology author Nithin chawla
- For further reference –
- [https://youtu.be/jUQ\\_tt\\_zJDo?si=CS\\_PZpc6RtqS0m0](https://youtu.be/jUQ_tt_zJDo?si=CS_PZpc6RtqS0m0)