



OSTEOPOROSIS

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WHAT IS OSTEOPOROSIS?



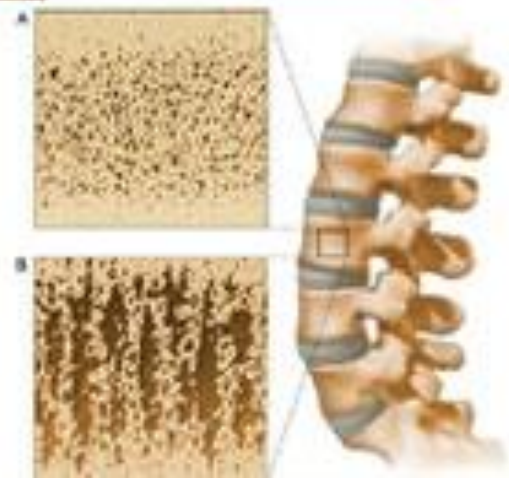
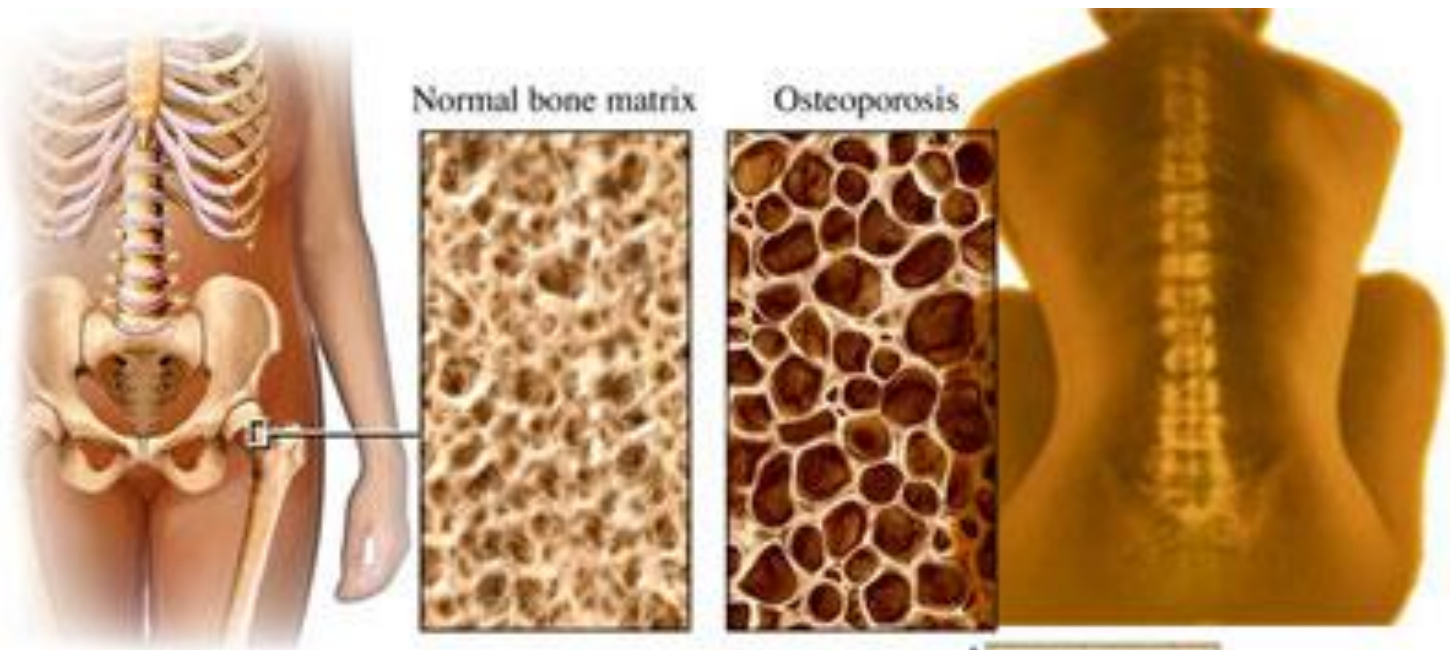
- Osteoporosis is a disease that causes your bones to become weak and brittle
- It is a common disease, and can result in fractures from even simple trauma.
- In fact, it is estimated that a 50 year-old woman has a 40% chance of having an osteoporotic fracture during her remaining lifetime
- Osteoporosis is important because of the problems resulting from these fractures- disability, loss of independence, and even death



WHAT IS OSTEOPOROSIS?

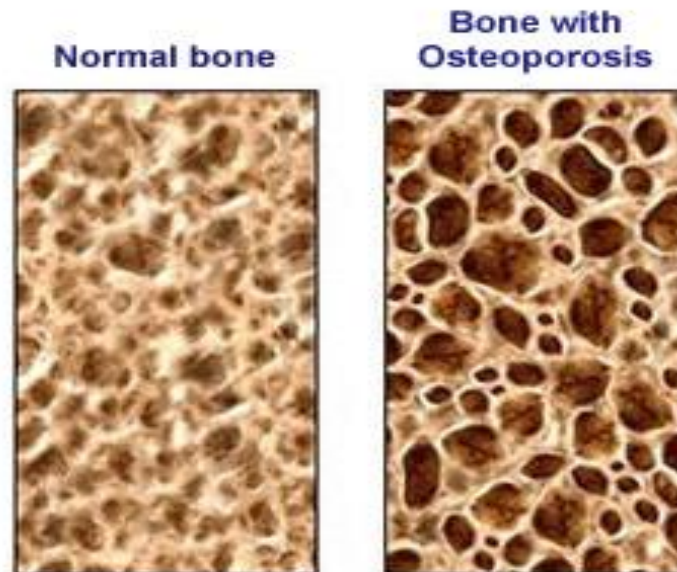
- Osteoporosis is silent because there are no symptoms (what you feel).
- It may come to your attention only after you break a bone.
- When you have this condition, a fracture can occur even after a minor injury, such as a fall.
- Any kind of fracture may occur, but the most common are fractures of the spine, hip, and wrist.
- Osteoporosis is not an inevitable part of aging, but is a disease that can be prevented and treated, provided it is detected early.
- The main goal of treating osteoporosis is to prevent such fractures in the first place.





WHAT CAUSES OSTEOPOROSIS?

- Osteoporosis results from a loss of bone mass (measured as bone density) and from a change in bone structure.
- Many factors will raise your risk of developing osteoporosis and breaking a bone.
- Recognizing your risk factors is important so you can take steps to prevent this condition or treat it before it becomes worse.



COMMON RISK FACTORS FOR OSTEOPOROSIS

- Female
- Postmenopausal (esp. early before 40 yrs)
- Family history of osteoporosis
- Lack of exercise
- Small body frame
- Low calcium intake
- Vitamin D deficiency
- Smoking
- Age (starting in the mid-30s but more likely with advancing age)
- Rheumatoid arthritis, hyperthyroidism, hyperparathyroidism, hypogonadism
- Medications – corticosteroids (Prednisone), excess thyroid hormone, some diuretics (Lasix), and anticonvulsants (Dilantin, Phenobarb, Tegretol)



DO YOU HAVE OSTEOPOROSIS?

- Osteoporosis only causes symptoms when it is far advanced.
- Symptoms include loss of height, deformed spine “dowager’s hump”), unexplained back pain, and fractures.
- It is best to detect problems at an early stage, when treatment is most effective.
- The best test for detecting osteoporosis is **bone densitometry**, done with a technique called “Dual-energy X-ray Absorptiometry” or DXA.



BONE DENSITOMETRY

WHAT IS BONE DENSITY TESTING?

- This is a way of measuring the amount of calcium in a certain amount of bone.
- This is important because the amount of calcium in your bone determines how strong it is.
- If the bone density is very low, then you have osteoporosis and a very high risk of fracturing your bones.
- A standard X-ray is not a good way to measure bone density, because you must lose about 30% of your bone mass before it can be detected this way.
- The most advanced is called **“Dual-energy X-ray Absorptiometry” or DXA.**

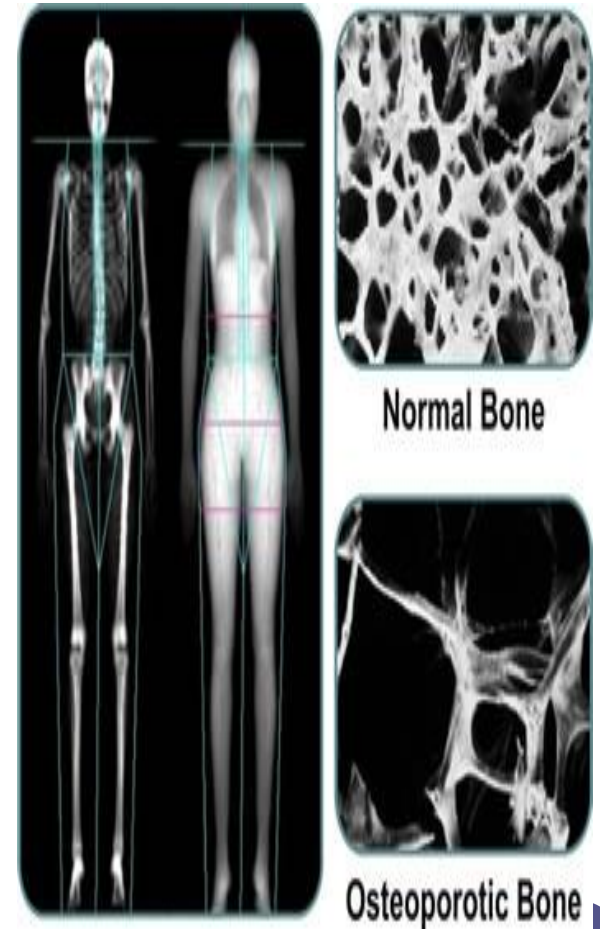


DEXA



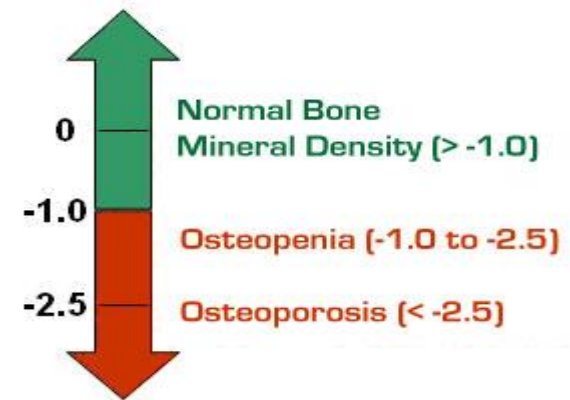
DEXA

- Simple test that measures bone mineral density.
- Often the measurements are at your spine and your hip, including a part of the hip called the femoral neck, at the top of the thighbone (femur).
- The test is quick and painless.
- It is similar to an X-ray, but uses much less radiation.
- Even so, pregnant women should not have this test, to avoid any risk of harming the fetus.



DEXA

- DEXA test results are scored compared with the BMD of young, healthy people.
- This results in a measure called a T-score.



DXA T-score	Bone mineral density (BMD)
Not lower than -1.0	Normal
Between -1.0 and -2.5	Osteopenia (mild BMD loss)
-2.5 or lower	Osteoporosis

- The risk of fracture most often is lower in people with osteopenia than those with osteoporosis.
- But, if bone loss continues, the risk of fracture increases.



WHO NEEDS BONE DENSITOMETRY? {**OSTEOPOROSIS SCREENING**}



- The USPSTF recommends screening for osteoporosis in women ages 65 and older and in younger women whose **fracture risk** is equal to or greater than that of a 65-year-old woman who has no additional risk factors. B Recommendation.
- Postmenopausal women under 65 yr of age who have had a fracture or have one or more risk factors for osteoporosis.
- Recommended only once every two years.
- Periodically assess risk factors for osteoporosis in older men above age 65. Order bone density exam for those at increased risk and if patient is a candidate for drug therapy.



FRACTURE RISK

- advanced aging,
- previous fracture after age of 50,
- small trauma fracture,
- on glucocorticoid treatment,
- recurrent falls,
- family history of hip fracture and current smoking,
- BMD <-3



THE CATEGORIES FOR WHICH BONE DENSITOMETRY IS MOST OFTEN DONE ARE:

- Estrogen deficient women undecided about taking hormones.
- Those with spinal abnormalities or X-ray evidence of bone loss.
- Anyone taking long-term corticosteroid treatment (such as Prednisone).
- Primary hyperparathyroidism with no symptoms.
- Monitoring of therapy for osteoporosis.



HOW IS OSTEOPOROSIS TREATED?

{PATIENT EDUCATION}

- If you have osteoporosis, your health care provider will advise the following:

- Calcium

- Make sure you are getting enough calcium in your diet, or you might need to consider taking supplements.
- The recommended daily dose is 700 milligrams per day for most adults and 1000 - 1,200 mg per day for women over age 50 or men over age 70.



• Vitamin D

- Get adequate amounts of vitamin D, which is important to help your body absorb calcium from foods you eat.
- The recommended daily dose is 400–800 International Units (called IU) for adults younger than age 50, and 800–1,000 IU for those age 50 and older.
- Sunlight is the best natural source of Vitamin D
- Only about 10% of our Vit D intake comes from our diet
- Exposure to sunlight every day between May and September will increase Vitamin D levels
- Your body stores vitamin D for the winter months



- Physical activity

- Get exercise most days, especially weight-bearing exercise, such as walking.
- Bones stay strong if you give them work to do.



- **No alcohol and smoking**
 - Alcohol appears to have an effect on the osteoblasts (bone forming cells)
 - Poorly understood mechanisms
 - Smoking significantly increases risk of fracture, especially hip fracture.



MEDICATIONS TO STRENGTHEN BONES AND PREVENT FRACTURES

- Doctors' decisions should be based on the likelihood of having a fragility fracture in the next 10 years
- For about 5 years but may be long-term
- Usually starts later in life when the risks are highest
- Government or local guidelines may affect prescribing



- A number of medications are available for the prevention and/or treatment (“management”) of osteoporosis.

1) Bisphosphonates

- This class of drugs (often called “antiresorptive” drugs) helps slow bone loss.
- Studies show they can decrease the risk of fractures.
- With all these medications, you should make sure you are taking enough calcium and vitamin D, and that the vitamin D levels in your body are not low.



HOW IS OSTEOPOROSIS TREATED?

Bisphosphonate Medications for Osteoporosis (OP)

Generic drug name	Approved uses for OP	Dosing and form
Alendronate	<p>Prevention and treatment of postmenopausal OP in women</p> <p>Treatment of OP due to use of glucocorticoid medicines</p>	Once-daily or once-weekly pills
Risedronate	<p>Prevention and treatment of postmenopausal OP in women</p> <p>Prevention and treatment of OP due to use of glucocorticoid medicines</p>	Once-daily, once-weekly or once-monthly pills
Ibandronate	Prevention and treatment of postmenopausal OP in women	Once-monthly pills, or every three months by intravenous infusion (often called IV) given through a vein
Zoledronic acid	Same as for risedronate	Once a year by IV



- Take first thing in the morning on an empty stomach
- Swallow the tablet whole with a large glass of tap water
- Do not take any other medication, eat or drink anything except tap water for at least 30 minutes
- Stay upright for 30 minutes
- Wait 4 hours before taking your calcium supplement





Drug 'Holiday'



- This means a period of time not taking bisphosphonates
- Usually after 5 -10 years oral bisphosphonates
- 5 years but review sooner if further fracture
- DXA review via GP referral

- **Adverse effects:**
- Gastric upset
- Muscle and joint pain
- **Very Rare Adverse Reactions**
- ✓ Osteonecrosis of the jaw
 - Always tell your dentist if you are on a bisphosphonate
- ✓ Atypical thigh fracture
 - Review of medication after 5 years treatment
 - Tell your GP if you experience thigh or hip pain

2) Calcitonin

- This medication, a hormone made from the thyroid gland, is given most often as a **nasal spray** or as an **injection** (shot) under the skin.
- Approved for the management of postmenopausal osteoporosis and helps prevent vertebral (spine) fractures.
- It also is helpful in controlling pain after an osteoporotic vertebral fracture.

3) Estrogen or hormone replacement therapy

- Estrogen treatment alone or combined with another hormone, progestin, has been shown to decrease the risk of osteoporosis and osteoporotic fractures in women.



4) Selective estrogen receptor modulators

- These medications, often referred to as SERMs, mimic estrogen's good effects on bones without some of the serious side effects such as breast cancer.

5) Teriparatide

- Teriparatide is a form of parathyroid hormone that helps stimulate bone formation.
- It is approved for use in postmenopausal women and men at high risk of osteoporotic fracture.
- It also is approved for treatment of glucocorticoid-induced osteoporosis.
- It is given as a daily injection under the skin and can be used for up to two years.



YOUNG WOMEN AND PREGNANCY

- Young women who have risk factors for osteoporosis and fractures need to carefully consider their medication options if they are planning a pregnancy.
- None of the drugs for managing osteoporosis has enough safety data available to recommend using them in women who are pregnant or breastfeeding.
- Bisphosphonates, even after you stop taking them, can stay in your body a long time.
- Thus, women who want to become pregnant later should weigh the expected benefits of bisphosphonates against the possible risks.
- If a woman who has taken a bisphosphonate becomes pregnant, she should have her blood calcium levels checked, because they could become low.



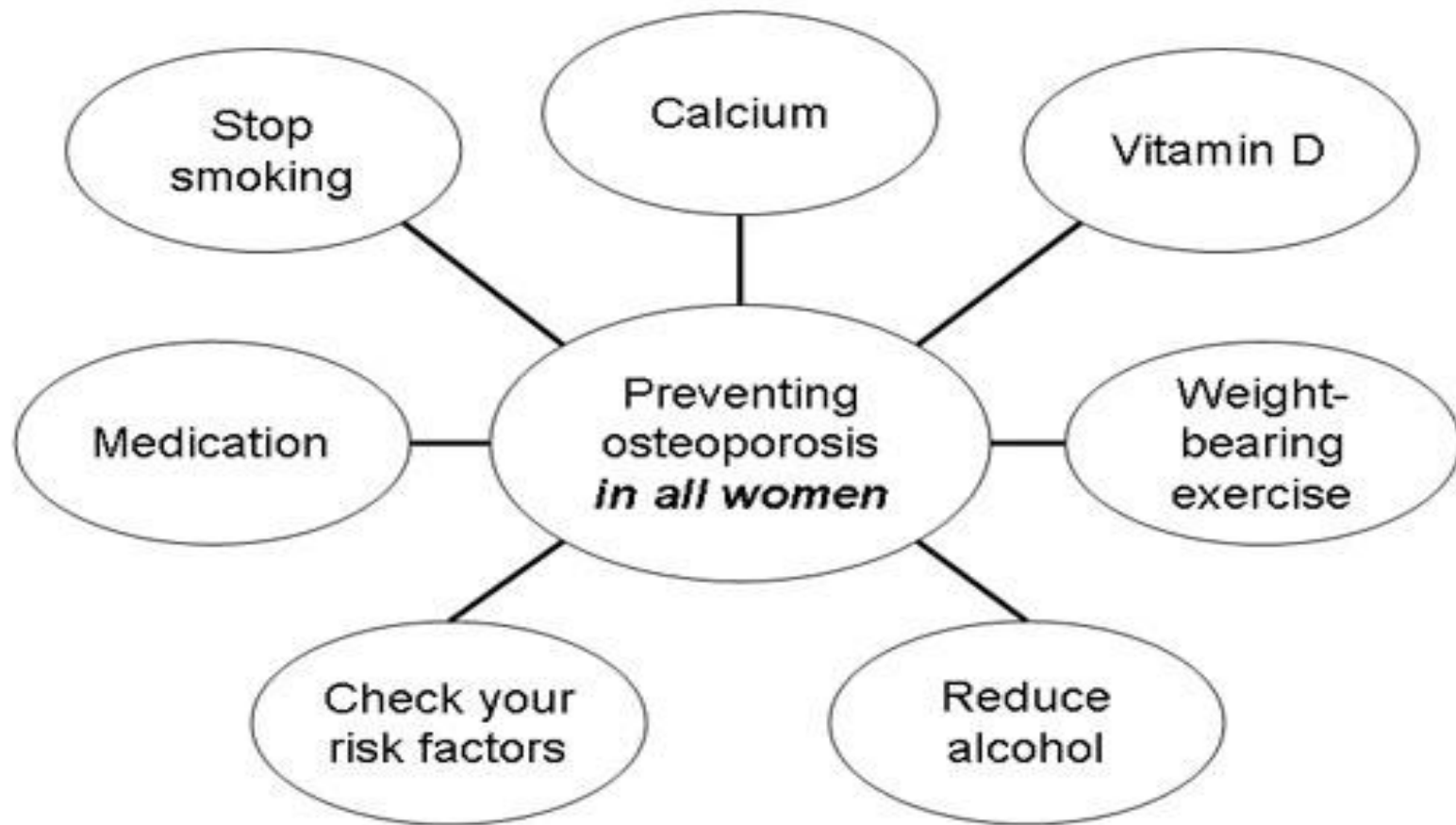
SUMMARY (PREVENTION)

- **Lifestyle changes** may be the best way of preventing osteoporosis.
- Here are some tips:
 - Make sure you get **enough calcium** in your diet or through supplements (roughly 1,000–1,200 mg/day, but will depend on your age).
 - Get **enough vitamin D** (400–1,000 IU/day, depending on your age and your blood level of vitamin D measured by your doctor).
 - **Stop smoking.**
 - **Avoid excess alcohol intake:** no more than two or three drinks a day. (risk increase if >3.5 units of alcohol consumed)
 - **Engage in weight-bearing exercise.** Aim for at least 2½ hours a week (30 minutes a day five times a week or 50 minutes a day three times a week), or as much as you can. Exercises that can improve balance, such as yoga, may help prevent falls.



- You also should get treatment of any underlying medical problem that can cause osteoporosis.
- If you are on a medication that can cause osteoporosis, ask your doctor if you can lower the dose or take another type of medicine.
- Never change the dose or stop taking any medicine without speaking to your doctor first.





WHAT IS THE BROADER HEALTH IMPACT OF OSTEOPOROSIS?

- The most serious health consequence of osteoporosis is a fracture.
- Spine and hip fractures especially may lead to chronic pain, long-term disability and even death.
- The main goal of treating osteoporosis is to prevent fractures.



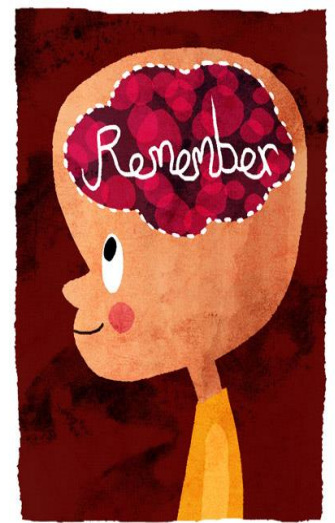
LIVING WITH OSTEOPOROSIS

- If you have osteoporosis, it is important to help prevent not just further bone loss but also a fracture.
- Here are some ways to decrease your chance of falls:
 - **Use a walking aid.** If you are unsteady, use a cane or walker.
 - **Remove hazards in the home.** Remove throw rugs. Also, remove or secure loose wires or cables that may make you trip. Add nightlights in the hallways leading to the bathroom. Install grab bars in the bathroom and nonskid mats near sinks and the tub.
 - **Get help carrying or lifting heavy items.** If you are not careful, you could fall, or even suffer a spine fracture without falling.
 - **Wear sturdy shoes.** This is above all true in winter or when it rains.



POINTS TO REMEMBER

- Make sure there is enough calcium and vitamin D in your diet.
- Be physically active and do weight-bearing exercises, like walking, most days each week.
- Change lifestyle choices that raise your risk of osteoporosis.
- Implement strategies to help decrease your risk of falling.



Osteoporosis



**Eat high-calcium foods, exercise regularly
and do not smoke at young age to prevent ...**





Don't
let
your
bones
age
faster
than
you.

STOP
OSTEOPOROSIS
NOW

For healthy bone consult your doctor