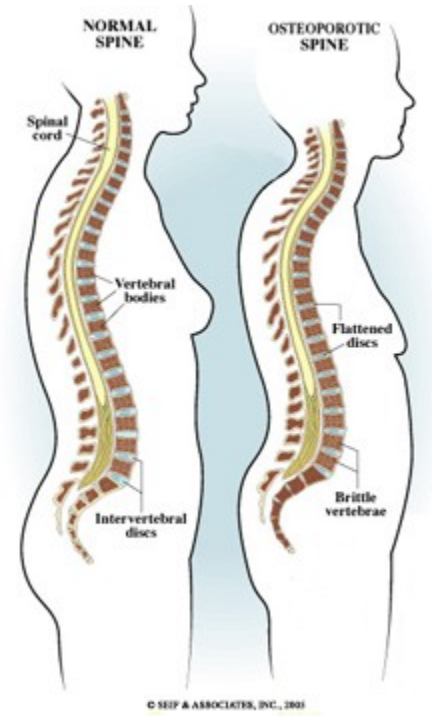
# Osteoporosis

Bones can become stronger or weaker over time due to a number of things. With osteoporosis, bones can become so weak (*brittle*) that they can break easily. Osteoporosis means porous bones (sponge looking). Osteopenia is a less severe weakness of the bones, which places you at risk for osteoporosis. It is important to identify if you have osteoporosis or osteopenia. Breaking (*fractures*) bones (especially hip and spine) is a major cause of going to the hospital, loss of independence and death.




## CAUSES

There are a number of causes and risk factors:

- Gender: women are at a higher risk for osteoporosis than men.
- Age: bone formation slows down with age.
- Ethnicity: for unclear reasons, Caucasian and Asian women are at higher risk for osteoporosis; Hispanic and African-American women are at increased, but lesser, risk.
- Family history of osteoporosis can mean that you are at a higher risk for getting it.
- History of bone fractures indicates you may be at higher risk of another.
- Calcium is very important for bone health and strength. Not enough calcium in your diet increases your risk for osteoporosis. Vitamin D is important for calcium metabolism. You get vitamin D from sunlight, foods or supplements
- Physical activity: bones get stronger with weight bearing exercise and weaker without use.
- Smoking is associated with decreased bone strength.
- Medications: cortisone medications, too much thyroid medication, some cancer and seizure medicines and others can weaken bones and cause osteoporosis.
- Decreased body weight is associated with osteoporosis. The small amount of estrogen-type molecules produced in fat cells seems to protect the bones.
- Menopausal decrease in the hormone estrogen can cause osteoporosis.
- Low levels of the hormone testosterone can cause osteoporosis.
- Some medical conditions can lead to osteoporosis (hyperthyroidism, hyperparathyroidism, B12 deficiency, for example).

## SYMPTOMS

No symptoms are usually felt as bones weaken. The first symptoms are generally related to bone fractures. You may have silent, tiny bone fractures, especially in your spine. This can cause height loss and forward bending of the spine (*kyphosis*).

## DIAGNOSIS

You or your caregiver may suspect osteoporosis based on height loss and forward bending of the spine (*kyphosis*). Osteoporosis or osteopenia may be identified on an x-ray done for other reasons. A bone density measurement will likely be taken. Your bones are often measured at your lower spine or your hips. Measurement is done by a special x-ray called a *DEXA scan*, or sometimes by a specialized CT scan. Other tests may be done to find the cause of osteoporosis (for example, blood tests to measure calcium and Vitamin D), or to monitor treatment.

## TREATMENT

The goal of osteoporosis treatment is to prevent fractures. This is done through medical and nonmedical

treatments. The treatment will slow the weakening of your bones and strengthen them where possible. Measures to decrease the likelihood of falling and fracturing a bone are also important.

Nonmedical

- You should have enough calcium and Vitamin D in your diet.
- **Do not** smoke. If you smoke, ask for help to stop.
- Exercise, especially weight bearing exercise, helps strengthen bones. Strength and balance exercise (Tai Chi) helps to prevent falls.
- There are a number of things you can do to prevent falls listed in the Home Care section below. Ask your caregiver for other advice.

Medical

- You may need supplements if you are not getting enough calcium, Vitamin D and Vitamin B12 for example.
- If you are female and menopausal, you should discuss the option of estrogen replacement or estrogen-like medication with your caregiver.
- Medicines can be taken by mouth or injection to help build bone strength. When taken by mouth, there are important directions that you need to follow.
- *Calcitonin* is a hormone made by the thyroid gland that can help build bone strength and decrease fracture risk in the spine. It can be taken by nasal spray or injection.
- *Parathyroid hormone* can be injected to help build bone strength.
- You need to continue to get enough calcium intake with any of these medications.

## HOME CARE INSTRUCTIONS

- Avoid falls.
  - If you are unsteady on your feet, use a cane or walk with someone's help.
  - Remove loose rugs or electrical cords.
  - Keep your home well lit at night.
  - Avoid icy streets and wet or waxed floors.
  - Hold the railing when using stairs.
  - Watch out for your pets.
  - Install grab bars in your bathroom.
- To pick up objects, bend at the knees. **DO NOT** bend with your back.
- Do not smoke! If you smoke, ask for help to stop.
- You should have adequate calcium and Vitamin D in your diet (speak with your caregiver about amounts).
- Before exercising, ask your caregiver what exercises will be good for you.
- Take any prescription medication exactly as directed.
- Only take over-the-counter or prescription medicines for pain, discomfort or fever as directed by your caregiver. Sometimes stronger pain medication is prescribed. Use only as directed.

## SEEK MEDICAL CARE IF:

- You had a fracture and your pain is not well controlled.
- You had a fracture and you are not able to return to your activities as expected.
- You injured yourself again.
- You develop side effects from medications (especially stomach pain or swallowing trouble while on oral osteoporosis medication).
- You develop new unexplained problems.

## SEEK IMMEDIATE MEDICAL CARE IF:

- You develop sudden, severe pain in your back.
- You develop pain after an injury or fall.

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