

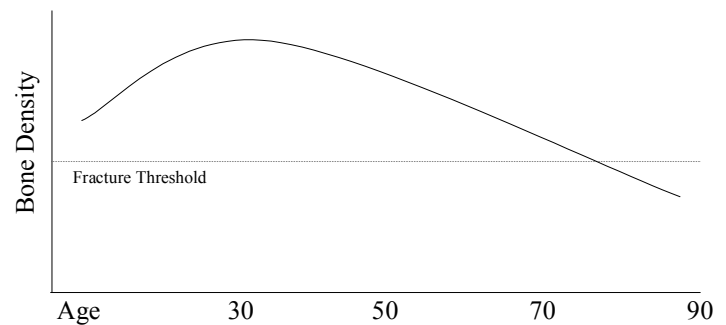
# OSTEOPOROSIS – PATIENT INFORMATION

## WHAT IS OSTEOPOROSIS?

- Osteoporosis is a condition in which the bones are weakened and predisposed to break (fracture). The weakness generally arises because there is a reduced amount of calcium in the bones, and because the support structure within the bones has changed.
- Bones affected by osteoporosis can break even without significant stress on the bone. This means broken bones may occur if you fall or with minimal stress. A fracture like this is called a *fragility fracture*.

## WHAT CAUSES OSTEOPOROSIS?

- In general, we reach the highest bone density at about age 30. From age 30 onward, bone density slowly declines. Osteoporosis occurs when the bone density reaches a level where the bones are weakened sufficiently that they can break easily.
- Common causes of osteoporosis are older age, menopause, and genetics.
- Common correctable conditions that cause osteoporosis include overactive parathyroid glands (hyperparathyroidism), overactive thyroid gland (hyperthyroidism), low vitamin D levels, intestinal malabsorption, and (in men) low testosterone levels.
- Cigarette smoking, heavy alcohol use, lack of physical exercise, and low calcium intake all may contribute to osteoporosis.



## HOW IS OSTEOPOROSIS DIAGNOSED?

- Osteoporosis is usually diagnosed by bone density testing. The standard test is called a DXA scan, which measures bone density at the spine and hip (and sometimes forearm). The bone density is reported using several different numbers. The most important number for predicting the risk of fracture is called the T-score. The T-score compares your bone density to the bone density of a 30 year old. T-scores above -1 (+1 or -0.5 for example) are normal, T-scores between -1 and -2.5 are called osteopenia, and T-scores below -2.5 are called osteoporosis.
- The T-score predicts fracture risk best in women who have gone through menopause. For men or younger women, the T-score is not as good at predicting fracture risk, and it is not as easy to decide which men or younger women should receive medication therapy for osteoporosis.
- Occasionally osteoporosis is diagnosed by other x-ray tests, or is diagnosed when you have a fragility fracture (even though you may not have had bone density testing). In these circumstances your doctor may wish for you to have a DXA scan to help complete your evaluation.

## WHAT ADDITIONAL TESTING IS NEEDED?

- A basic evaluation is generally performed to make sure you do not have a correctible cause for bone loss. Common testing includes blood tests to look for overactive thyroid or parathyroid glands or low vitamin D levels, and a 24-hour urine collection to check calcium balance. Testosterone levels should be measured in men with osteoporosis. Additional testing is guided by the results of your evaluation.

## WHAT ARE THE GOALS OF TREATMENT FOR OSTEOPOROSIS?

- The main goal of treatment is to prevent fractures. Therapy is focused on (1) improving the strength of your skeleton and (2) minimizing your risk for falls or injuries.

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## WHAT ARE THE TREATMENTS FOR OSTEOPOROSIS?

- **Healthy Lifestyle.** Avoiding cigarettes, limiting alcohol intake, eating a health diet, and obtaining regular weight-bearing exercise (like walking) will help maintain your bone strength. It is also very important to avoid situations that put you at risk for falling and breaking a bone. You should be extra careful when walking on the snow and ice, should avoid lifting heavy weights, and should not participate in high-risk sports like rock climbing or downhill skiing.
- **Calcium and Vitamin D.** Making sure you have adequate calcium and vitamin D intake is very important to maximize your bone strength. You should aim to have a total of 1200 mg of calcium and 400-800 IU of vitamin D daily. A convenient way to accomplish this is to take one 600 mg calcium pill (with vitamin D) twice daily. It is best to take this with food. If you drink milk or consume other dairy products every day, you may not need this much extra calcium (talk with your doctor about how much calcium you should take).
- **Bisphosphonates.** These are medicines that include alendronate (Fosamax®), risedronate (Actonel®), and ibandronate (Boniva®). These medicines are very effective at increasing the bone density and reducing the risk of fractures. They are usually prescribed as a pill taken once per week (once per month for Boniva®). Special instructions must be followed when taking these pills to maximize their effectiveness and to decrease the risk of side effects.
- **Estrogen.** In women, estrogen therapy can increase bone density, and may have other beneficial effects like decreasing hot flashes or improving the sense of well-being. Estrogen is no longer thought to decrease the risk of heart disease. Because estrogen therapy can potentially increase your risk of breast cancer, blood clots, and gall-bladder problems, it is important to discuss with your doctor if estrogen therapy is right for you.
- **Raloxifene.** Raloxifene (Evista®) is a selective estrogen receptor modulator (SERM). This means it acts like estrogen in certain body tissues, including the bones. It acts to counteract estrogen in other tissues, such as the breast, and is likely protective against breast cancer. Raloxifene increases the risk for blood clots, and can cause or worsen hot flashes.
- **Calcitonin.** Calcitonin (Miacalcin®) is a nasal spray that increases the bone density slightly, and may decrease the pain from spine fractures.
- **Parathyroid Hormone.** Parathyroid hormone (PTH, Forteo®) is injected under the skin daily. It is reserved for people with very low bone density or those who have not responded to or cannot take other therapies.
- **Hip Protectors.** For those people who have low hip bone density and are at risk for falling, hip protectors have been shown to reduce the risk of breaking the hip. Hipsavers ([www.hipsavers.com](http://www.hipsavers.com), 1-800-358-4477) and Safehip ([www.safehip.com](http://www.safehip.com), 1-877-728-3447) can provide more information about hip protectors.
- **Physical/Occupational Therapy.** You may benefit from a program to improve your strength and balance or a program to improve the safety of your home, particularly if you are at risk for falling.

## HOW WILL I BE MONITORED WHEN I AM ON THERAPY?

- Generally you will have a repeat bone density test after 12-18 months of therapy. This should be done *on the same machine* where you had your original testing performed.
- Sometimes your doctor may ask you to have other blood or urine tests to help monitor your response to therapy.

## SPECIAL NOTE ABOUT OSTEOPENIA

- Osteopenia is a diagnosis made by bone density testing in which the T-score is between -1 and -2.5 (see “How is osteoporosis diagnosed?” on page 1).
- Osteopenia is not a disease. Osteopenia describes a reduction in bone density that is milder than the reduction seen in osteoporosis. More than 50% of 50 year-old women and more than 75% of 70 year-old women have osteopenia.
- The evaluation and therapy options for osteopenia are similar to the options for osteoporosis outlined in this information sheet. The main goal for therapy is to prevent any further bone loss. Medications may or may not be required to treat osteopenia.