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Preventing Osteoporosis & Fractures

Osteoporosis is a condition in which your bones become weak and brittle and more likely to break (fracture) than normal bones. Osteoporosis is the result of bone mineral (mainly calcium) loss, which can occur as we age.

Osteoporosis is a common cause of fractures in older women. The greatest rate of bone loss occurs in the years immediately following menopause.

Everyone loses bone as they age, but not everyone gets bone thinning to the point that they have osteoporosis. Although genetics and gender play important roles, research has identified key, life-long preventive measures, such as having enough calcium in your diet every day, and doing weight-bearing and resistance (weight-lifting) exercises regularly, that can help avoid osteoporosis.

Risk Factors for Osteoporosis:

- **Menopause (especially early onset**) –Estrogen produced by your ovaries helps keep your bones strong. As you enter menopause, you lose this protective effect.
- **Race** -- Asian women tend to have the lowest bone density, followed by white women. African Americans tend to have higher bone density and slower rate of bone loss.
- **Small Body Build**-- The smaller and more fine-boned your frame, the higher the possibility of fracture since you have less bone to start with.
- **Low Weight** -- Being thin increases your chances of osteoporosis. There are 2 reasons for this: fat cells produce estrogen, so the fewer the fat cells, the lesser the amount of estrogen you produce; also the lower your body mass, the less weight-bearing stress is placed on the bone. Bones need weight-bearing stress in order to grow strong.
- **Family history of osteoporosis** -- If your mother, grandmother, aunt or sister has or had osteoporosis, you are at an increased genetic risk of having it yourself.
- **No pregnancies** -- When you get pregnant, your production of estrogen increases, which helps your body, absorb calcium and make stronger bones.
- **A history of skipped periods because of excessive weight loss or exercise** -- If you stopped having periods for an extended amount of time due to excessive exercise, anorexia or bulimia, you stopped ovulating, which means that your estrogen level dropped.
- **Low calcium diet (especially before age 30)** -- The formative years are important ones for your bones. Peak bone mass is achieved by age 30. If you didn't get enough calcium as a young adult, your bones may never have reached their optimal mass. This means you may have entered menopause with less bone mass than the average woman your age.
- **Other common risk factors include:** thyroid disease, use of systemic steroids and gastrointestinal disease

Bone Density Testing

The best and most accurate test is the ***Dual-energy X-ray Absorptiometery (DEXA).*** DEXA measures bone at the hip and spine. It's an easy procedure that takes about 15 minutes. You lie on an examining table, fully clothed, while a scanner passes over your body, taking a picture of your bones. The amount of radiation used is minimal, about one-twentieth that of a normal chest X-ray and the results are extremely precise. However, your insurance company may not pay for this test unless you have risk factors indicating the test would be beneficial for you.

The DEXA prints out a picture of your bones, showing the density, and a computer measures your density (in grams of calcium per square centimeter) and "scores" your bones. You get two different scores, a **Z score** and **T score**. The Z score compares your bone density with that of an average woman of your age and body size. The T score compares it with an "ideal average woman" who is 30 years old and at her peak bone mass. By looking at your T score, your doctor can determine what percentage of bone you've lost in comparison to the ideal mass; by looking at the Z score, how you stand against the norm for your age. Results are reported as "standard deviations from the mean".

If your bones are *-2.5 standard deviations or more* below the mean, you have osteoporosis. Between -1.0 and -2.5 is referred to as osteopenia. There is recent evidence that the bone density by itself is not enough to predict your risk of bone fracture. New measurements of bone quality are being developed to supplement bone density information. However, if you do have a T-score of -2.5 or below, you are at increased risk of fracture and need to develop a plan with your physician to address this risk. The use of medications to reduce your risk of fracture may be recommended.

What You Can Do To Reduce your risk of Osteoporosis

If you are on estrogen replacement therapy to manage your menopausal symptoms, it will prevent the bone-loss associated with menopause. This protective effect will be lost when you go off your estrogen. It is not recommended that you stay on estrogen longer than is needed for menopausal symptom control.

Here are some other ways to maintain healthy bones and reduce fracture risk:

- **Consider taking a calcium supplement.** While it's a good idea to get your calcium through your diet, it's often hard to do. During menopause, you should aim at getting about 1,500 mgs of calcium a day. If you are not getting that in your diet, it may make sense to take a calcium supplement. If you do take a supplement, it's a good idea to take it twice a day instead of in one dose, because your body can absorb only about 500 mg. of calcium at a time.
- **Eat more greens.** Greens like spinach, broccoli, even iceberg lettuce are high in vitamin K, one of the major bone-strengthening vitamins. Try to get 110 micrograms of Vitamin K daily. The levels of Vitamin K in a half cup portion of different greens are as follows: cooked broccoli - 150 mcg.; cooked spinach - 324 mcg.; iceberg lettuce - 35 mcg., red leaf lettuce - 59 mcg.)
- **Increase your intake calcium-rich foods.** Good bets are low-fat and nonfat dairy products, salmon, sardines with the bones, tofu, figs, tahini and almonds.
- **Cut back on sodas, even diet sodas.** These contain phosphoric acid, sugar and often caffeine which may leach calcium from your bones, inhibit calcium absorption in your GI tract and increase calcium excretion in urine.

- **Steer clear of processed foods.** Processed foods are often high in sodium and phosphorus, both of which increase calcium excretion.
- **Keep an eye on how much coffee or other caffeinated beverages you drink.** Caffeine acts as a diuretic, which increases the amount of calcium you lose in your urine. It may also reduce new bone creation and calcium absorption.
- **Limit sugar and salt.** These appear to cause your body to excrete a higher amount of calcium in your urine.
- **Keep your alcohol consumption on the moderate side.** Alcohol affects your estrogen production, inhibits calcium absorption, and may cut down on your liver's ability to activate Vitamin D.
- **Cut down on red meat.** Red meat is high in phosphorus and protein. Recent studies have found that excess protein in the diet may cause you to lose more calcium in your urine.
- **If you smoke, quit.** Smoking interferes with your estrogen production and function, which increases the loss of calcium from your bones.
- **Be aware of the effect of certain medications on your calcium level.** A number of different medications and drugs interfere with the absorption of calcium. Among them: Antacids containing aluminum, corticosteroids, certain diuretics called furosemides, bulk fiber preparations (like Metamucil) and thyroid hormone. Granted, some of these you can't necessarily stop taking. But if you do take any of these on a regular basis, you may need more calcium.
- **Remember that, for calcium to work, you need to get other vitamins and minerals as well.** Calcium alone doesn't do the trick. To get the most our of your calcium intake, you also need to other vitamins and minerals to help it along. The most important is Vitamin D. Most multivitamins and some calcium supplements contain Vitamin D. Fortified milk, eggs and fatty fish are dietary sources of Vitamin D. Vitamin D is also obtained naturally from the sun. However, in Oregon, we are too far North to depend on the sun as an adequate source. Potassium and magnesium are also important and can be found in fresh fruits, vegetables, nuts and whole grains.

What else can I do to prevent problems?

One of the hazards of having osteoporosis is that if you fall you might break a bone. Your doctor can help you identify risks for you. There are a number of measures you can take to reduce your risk of falling or other accidents including:

- **Make your floor surfaces safe.** Remove anything that you might trip over (eg loose wires and cords) – and keep your floors clear of clutter. Replace any floor surface that you might slip on (eg don't have loose rugs, and make sure any rugs are anchored and smooth – especially on stairs). Don't move furniture to places where someone might trip over them.

- **Avoid slipping on wet surfaces**: In the bathroom, install grab bars and non-skid tape on the bath or showers. In the kitchen, clear up spills on the floor before you slip on them - non-skid rubber mats near the sink and stove can be useful.

- **Shine a light:** to prevent yourself bumping into furniture or slipping, make sure your rooms are well lit. Keep a nightlight on for trips to the bathroom. Don't forget to wear any eyeglasses too.

- **Keep steady:** If you are unsteady on your feet, wear comfortable, rubber-soled shoes that won't slip. Some medications can make you unsteady – ask your doctor for advice. Avoid drinking alcohol if you think it might make you unsteady.

- **Exercise:** This will keep your bones strong, build their density, and fight bone loss. Walking, running, weight-training, stair-climbing, anything that puts stress on your skeletal system is a great way of preventing bone loss and actually increasing bone mass as well. An added bonus: exercise helps you keep your weight down, sleep better, decreases risk of dementia, improves sexual functioning and minimizes symptoms like hot flashes and mood swings.