



Protecting Your Bone Health

About one out of every two women will suffer from osteoporosis compared to one in every eight men. Osteoporosis, which is preventable and has no visible symptoms, causes brittle bones and can result in hip, spine, or wrist fractures. These kinds of major breaks may seriously limit mobility and physical ability, and cause significant disability and even death. Unfortunately, many women are unaware that they are experiencing bone loss until they are diagnosed with osteoporosis by bone density testing - or experience a fracture. This guide is intended to provide you with the information you need to help prevent osteoporosis and improve bone health.

Osteoporosis - a major health risk

The statistics on osteoporosis show that it is a major health problem, especially as we continue to live longer. • 44 million women in the United States have osteoporosis. Nearly half of all women will experience an osteoporotic fracture at some point in their lifetime.

- A woman's risk of hip fracture is equal to her combined risk of breast, ovarian, and uterine cancer.
- Osteoporosis is under-diagnosed and under-treated.

Assessing your risk

After the onset of menopause, women are at higher risk than men for developing osteoporosis because of a decrease in estrogen. Bone loss usually begins around the age of 35 and increases rapidly after menopause.

Risk factors for osteoporosis

- Caucasians and Asians have a higher risk
- A history of rheumatoid arthritis, an overactive thyroid, anorexia nervosa, or liver disease?
- Absence of menstrual periods for more than a year
- Lack of physical activity?
- Menopause, especially early menopause before age 40
- More than two alcoholic drinks per day
- Diet lacking in dairy products, calcium supplements, and vitamin D
- Steroid medication
- Family history of osteoporosis or major fractures (hip, spine)?
- History of a bone fracture as an adult (especially without a history of significant trauma)
- Cigarette smoking
- Thin stature

Prevention

To reduce your chance of developing osteoporosis, it is important to understand what you can do throughout your lifetime to prevent the disease.

Childhood to menopause

Throughout your life, nutritional and lifestyle factors affect the health of your bones. Simple adjustments can make all the difference later on in life. Bone mass in women increases dramatically during the teenage years, between approximately 16 to 30 years of age. This is why it is especially important that girls and young women get adequate calcium and vitamin D (which helps the body absorb calcium) in their diets. Calcium and vitamin D should be an essential part of your diet now and throughout your life. Weight-bearing exercise should become part of your

routine. Smoking and excessive alcohol consumption also contribute to bone loss and should be avoided (for this reason as well as multiple other reasons.)

Menopause to age 64

During this life stage you need to assess your risk for developing osteoporosis. You should seek the assistance of your doctor who can help determine if you are at risk or have developed the disease. Lifestyle, nutrition, and any treatment changes can be made based on what your doctor recommends. If you have at least one major risk factor for osteoporosis (see page 4), you should have a bone density test. If you have a history of fracture as an adult, whether you are on estrogen or not, you should also be tested. Your doctor may also recommend a bone density test in other circumstances.

Age 65 and older

If you are 65 or older, you should have a baseline bone density test to determine the condition of your bones and to see if you have osteoporosis. Lifestyle and nutritional approaches, as described above, continue to be important.

General Prevention Tips

There are steps you can take to reduce your risk of osteoporosis or slow down the process of bone loss.

- If you smoke or drink excessive amounts of alcohol, you should stop because both habits contribute to bone loss. Also, when you quit smoking and decrease alcohol intake, your overall quality of health will improve.
- A diet rich in calcium is important for bone health. Universal recommendations on bone health suggest that women, from the onset of menarche through age 18, should have 1,300 mg of calcium a day. From age 19 to menopause, 1,000 mg of calcium a day is recommended. After menopause, women should have 1,200 mg of calcium a day. Adults should also have 800 to 1,000 units of vitamin D daily, according to recent studies. (See Appendix)
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Screening for osteoporosis

If you are concerned about bone loss, or want to start on a course of prevention today, your doctor can help assess your risk of osteoporosis and give you more information on prevention. You can start by asking your doctor the following questions.

- How high is my risk of osteoporosis?
- How can I prevent bone loss?
- Should I have a bone density test?
- What medications are available to help prevent and treat osteoporosis?

Testing for osteoporosis

Fortunately, there is a quick and easy test available to assess the health of your bones.

Dual energy x-ray absorptiometry, or DEXA, is a very useful and accurate test. DEXA can assess the health of your bones by measuring their mass with dual x-ray using a very low level of radiation (much less than a routine x-ray).

Many health insurance plans now cover FDA-approved bone density testing, depending on your age and doctor's recommendation.

Preventive Options

Estrogen (e.g. Premarin®, Prempro®, Premphase®, or Estrace®), alendronate (Fosamax®), risedronate (Actonel®), zoledronic acid (Reclast®), ibandronate (Boniva™), raloxifene (Evista®), and parathyroid hormone (Forteo®) are medications that have been shown to increase bone density and decrease the risk of fracture.

Estrogen

A recent study by the Women's Health Initiative, demonstrated that women taking estrogen in combination with progesterone, or hormone replacement therapy (HRT), had lower rates of spine, hip and other fractures; but was at slightly increased risk for breast cancer, blood clots, stroke, and heart attacks. Currently, HRT is recommended only for short-term use to treat troubling postmenopausal

symptoms such as hot flashes. Estrogen and progesterone increase bone mass during treatment. However, **HRT should be used for only a short period** of time. After discontinuation, another medication may be necessary to prevent bone loss or treat osteoporosis. **New data from the WHI**

revealed that – even for women at a higher risk for fracture – the risks from estrogen and progesterone are greater than the benefit.

Alendronate and Risedronate Alendronate (Fosamax®) and risedronate (Actonel®) are medications

from the same family, called “bisphosphonates.” These drugs increase bone density and decrease fracture rates. Both medications should be taken on an empty stomach with a full glass of water. For 30 minutes after taking the medication, you should not have anything to eat or drink and you should avoid lying down. Both medications are now available in a once-a-week dose. Alendronate is available combined with vitamin D. Risedronate is also available for dosing as one tablet for two days once a month.

Ibandronate

Ibandronate (Boniva™) is a once-monthly oral bisphosphonate that decreases spine, but not non-spine, fractures (such as hip, wrist). This medication should be taken with a full glass of water 60 minutes before eating, drinking or taking other oral medications.

Zoledronic acid

Zoledronic acid (Reclast®) is an intravenous medication that reduces the incidence of spine, hip, and non-spine fractures. This medication is approved for use as once year 15-minute infusion for the treatment of osteoporosis. Women may develop flu-like symptoms following this medicine, which disappears spontaneously over the next few days. Talk with your doctor to determine which of these medications is appropriate for your condition. Doctors may advise women with a history of stomach problems or heartburn to avoid taking an oral bisphosphonate; such women will be eligible for intravenous osteoporosis medication. Women with severe kidney disease should also not take these medications.

Raloxifene

Raloxifene (Evista®) is part of an exciting class of drugs that act like estrogen in some tissues of your body, and as an anti-estrogen in other tissues. Raloxifene acts like estrogen in that it increases bone density and decreases spine fractures, but not non-spine fractures. It also lowers total cholesterol levels in the blood. An additional advantage is that it may act as an anti-estrogen at the breast and decreases the risk of invasive breast cancer (FDA-approved for this indication). Like estrogen, however, raloxifene increases the risk of blood clots and should be avoided in women who have had blood clots in the past. Raloxifene does not prevent urinary tract symptoms nor reduce hot flashes, and in some cases, may even make a woman’s hot flashes worse.

Parathyroid Hormone

FDA-approved treatment for osteoporosis is daily injections (self-administered) of parathyroid hormone (Forteo™), or PTH. A recent study showed that postmenopausal women who injected PTH daily for almost two years had lower rates of vertebral and other non-spine fractures. The main side effects include nausea, headaches, and occasionally, small rises in the blood calcium level. PTH is usually used in women with osteoporosis or those who did not respond to the medications listed above.

Treatment of Osteoporosis

If you have osteoporosis, there are treatment options that will help strengthen your bones. Even if you already have been diagnosed with osteoporosis, medications such as alendronate (Fosamax®), risedronate (Actonel®), zoledronic acid (Reclast®), calcitonin (Micalcin®), and raloxifene (Evista®), or parathyroid hormone (Forteo™), can still help strengthen your bones.

All adult women should have between 800 and 1,000 IUs of vitamin D (see Appendix) a day. Also, talk to your doctor about a safe exercise program and activities that will help strengthen your bones without increasing the risk of a fracture. You should also get as much exercise as possible - preferably 45 minutes of combined weight-bearing activity and strength training two to three times a week. You can break up the time into 20-minute intervals. Weight bearing exercises include walking, tennis, and aerobics. Medications you take for other health conditions (particularly steroids) can contribute to bone loss. If you take a medication for a chronic health condition, ask your doctor if it could affect your bones and, if so, what actions can be taken to protect your bones.

Osteoporosis is preventable and treatable.

Appendix

Daily Recommendations for calcium and vitamin D

Every day you should incorporate three to four servings (300 mg calcium) of calcium into your diet. Remember you need 1,000 mg if you are premenopausal and 1,200 mg if you are postmenopausal.

<i>Dairy products: Serving Size</i> Calcium (mg)	<i>Fruits: Serving Size</i> Calcium (mg)	<i>Vegetables: Serving Size</i> Calcium (mg)	<i>Grains: Serving Size</i> Calcium (mg)
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American cheese 1 oz. 174 Blue cheese 1 oz. 150 Buttermilk (<1% fat) 1 cup 657 Cheddar cheese 1 oz. 204 Cottage cheese 1 cup 126 Frozen yogurt 1 cup 200 Ice cream 1 cup 176 Milk 1 cup 300 Parmesan cheese 1 oz. 390 Soy milk (calcium-fortified) 1 cup 200-300 Soy milk (not calcium-fortified) 1 cup 10 Yogurt (non-fat) 8 oz. 294	Cantaloupe 1 cup 18 Dried figs 10 269 Orange juice (calcium-fortified) 1 cup 300 Orange (medium) 1 52 Raisins 1/2 cup 35	Asparagus (cooked) 1 cup 43 Broccoli (cooked) 1 cup 70 Carrots (cooked) 1 cup 48 Chickpeas (cooked) 1 cup 80 Collard greens (cooked) 1 cup 148 Green beans (cooked) 1 cup 58 Kidney beans (cooked) 1 cup 74 Lima beans (cooked) 1 cup 55 Potatoes (mashed w/milk) 1 cup 292 Soybeans (cooked) 1 cup 131 Spinach (cooked) 1 cup 245	Cereals (calcium-fortified) 1 cup 300 <i>Total® cereal</i> 1 cup 1000 Oatmeal (cooked) 1 cup 300 Rice (cooked) 1 cup 21 Wheat bread (enriched) 1 slice 32 Others: Serving Size Calcium (mg) Almonds 1/2 cup 150 Salmon 4 oz. 300
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Calcium Supplements

Since the average American diet contains only 800 mg of calcium daily, most women should take a calcium supplement. Supplements containing calcium citrate or calcium carbonate are best. Calcium citrate is the most absorbable form of calcium and can be taken on an empty stomach. Calcium carbonate offers more calcium per pill but does not absorb as well and needs to be taken with meals. You should talk to your doctor or dietitian to decide which calcium supplement is right for you.

Calcium carbonate: Elemental Calcium per tablet (mg) Vitamin D (IU)	Calcium citrate: Calcium per tablet (mg) Vitamin D (IU)	Soft Chew tablets: Calcium per tablet (mg) Vitamin D (IU)
Caltrate 600+D® 600 400 Caltrate 600+D® plus minerals 600 400 Nature Made 600+D® 600 200 Os-Cal 500+D® 500 200 Os-Cal Ultra® 600 200 Os-Cal Extra D® 600 400 TUMS Regular Strength® 200 0 TUMS E-X Extra Strength® 300 0 TUMS Ultra® 400 0 TUMS 500® 500 0	Citracal 250+D® 250 200 Citracal+D® 315 200 Citracal Petite® 200 200	Nature Made Cal burst +D® 500 200 Viactiv® 500 100 Citracal Creamy Bites® 500 200 Posture® D Chewable 600 125 Caltrate 600+D® Chewables 600 400

Vitamin D

Vitamin D is essential to normal bone growth and plays an important role in helping your body absorb calcium. Recent data indicate that 800-1,000 units of vitamin D daily is safe and necessary to achieve vitamin D levels that are associated with reduced fractures. We recommend a multivitamin with vitamin D3 (cholecalciferol) rather than vitamin D2 (ergocalciferol). Cholecalciferol results in a preferred steady-state vitamin D level. Milk is fortified with vitamin D – one cup provides 100 IUs of the vitamin. Be aware that other milk products, such as cheeses and yogurts, are not made from vitamin D-fortified milk. Salmon, herring, mackerel, and sardines also contribute substantial amounts of vitamin D. Many vitamin supplements and calcium supplements contain vitamin D. It is important to read the labels to ensure you get appropriate vitamin D amounts and the preferred vitamin D3 preparation.