

## Preventing Osteoporosis

### Are you a young woman with old bones?

Typically, bones increase in density until a woman reaches age 25 to 35. After that, the density plateaus, and then gradually decreases. Women who don't increase their bone density adequately during adolescence and young adulthood have a greater risk of developing weak bone problems.

Osteoporosis (*the condition of having a reduced bone density compared to that predicted for one's age*) can be the result of a lack of any of the following factors: Calcium, Vitamin D, estrogen, moderate weight-bearing exercise, or adequate body weight.

### The effects of osteoporosis

Stress fractures can and do occur in young women with osteoporosis. These are subtle bone fractures that occur as a result of repetitive stress over time in which bone is unable to withstand the demands placed on it. For people with weak bones from osteoporosis, these fractures can occur from normal repetitive activities such as jogging.

Osteoporosis is often silent in young women. The full effect of weak bones may not become apparent until a woman starts to lose additional bone mass after age 40.

At that point she may develop crippling skeletal abnormalities and stress fractures usually seen only at more advanced ages.

Later in life, severe bone problems can occur. Women may develop rounded backs, lose inches in height from collapsed vertebrae, and suffer serious fractures of the back, hip and other bones. These effects of osteoporosis permanently cripple and disfigure some women.

### Who's at risk?

You may be at risk for osteoporosis if you:

- are not menstruating regularly
- don't get enough calcium in your food on a daily basis
- have a family history of osteoporosis
- are of Caucasian or Asian background (although all ethnicities can develop osteoporosis)
- are using the Depo Provera contraceptive injection and have other risk factors
- are currently or have been on long-term glucocorticoid (steroid) medications
- have certain endocrine disorders such as hyperthyroidism or hyperparathyroidism

Note: Women with more than one risk factor are at increased risk.

### Testing for osteoporosis

A DEXA scan (dual X-ray absorptiometry) is the most commonly used test to evaluate bone density. You should consider being tested if you have:

- not menstruated in more than 6 months
- the appearance of low bone density on a standard X-ray
- certain fractures characteristic of low bone density
- a risk for osteoporosis because of long-term glucocorticoid medica-

tion use or endocrine disorders

- multiple risk factors.

### How is it treated?

Osteoporosis is usually not totally reversible, so prevention and early detection with aggressive treatment are crucial. The most important and well-documented treatment for osteoporosis associated with low weight is to restore and maintain normal body weight and menstrual periods. Calcium and Vitamin D supplements are important, but estrogen and an adequate body weight must also be present for optimal incorporation of calcium into bones. Moderate physical activity leads to increased bone density, but only if menstrual periods are regular.

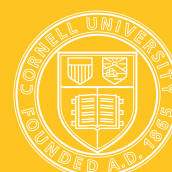
### What medications are available?

Estrogen medications (usually given in the form of oral contraceptive pills) are often prescribed for women with osteoporosis who are not menstruating. Although the benefits of estrogen treatment for osteoporosis in older women has been well documented, estrogen medication alone, in younger underweight women, will not fully treat the problem. A normal menstrual cycle is the best predictor for improvements in osteoporosis because it signals not only the presence of natural estrogen, but also a normal hormonal balance in the body.

Other medications, such as Fosamax, used to treat osteoporosis in women after menopause, have not been approved for use in adolescents and young adults, although controlled trials are underway.

### What can you do if you're at risk?

- If you have or suspect you might have osteoporosis, you can start to improve your health today.
- Acknowledge that you may have osteoporosis and that you can do something about it.
- Get the facts about yourself. Depending on your risk factors, your health care provider may recommend a nutrition evaluation, DEXA Scan or other lab tests.



- Get help. Medical, nutritional and counseling staff can help you normalize your weight, exercise and nutrition.
- Develop a plan. Your health care provider can work with you to help you achieve your goals. Regular health care visits and adequate intake of calcium are important elements to include.
- Stick with it. Osteoporosis is a life-long issue.

### How to build stronger bones and prevent osteoporosis

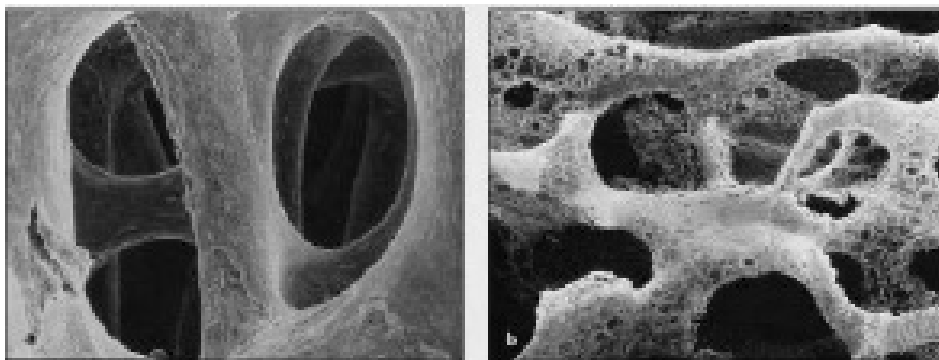
- Maintain an adequate body weight and maximize your nutrition. The best marker for reaching this goal is the presence of regular menstrual cycles. Without the normal estrogen levels associated with normal menstrual cycles, calcium, vitamin D and exercise won't be enough to help.
- Exercise moderately on a regular basis. Weight-bearing exercise such as walking, jogging, dancing, weight-lifting, skiing, skating or racquet sports are best, for a minimum of 30 minutes three to six times a week. *Caution:* When body weight is too low, exercise can have a negative effect on bone density.

- Get enough calcium and Vitamin D daily. The National Institutes of Health recommends that individuals from age 11 to 24 consume 1200 mg-1500 mg of calcium per day. If you have osteoporosis, an eating disorder, or are not menstruating, you should get 1500 mg of calcium per day. The recommended daily intake of Vitamin D is 400 IU per day. Vitamin D is obtained through sunlight, fortified foods such as milk, or multivitamin pills. *Caution:* Calcium intake should not exceed 2500 mg and excessive Vitamin D intake can be toxic.
- Avoid high caffeine intake, high salt intake, high alcohol intake, and smoking. All of these either reduce absorption of calcium from the intestines or increase calcium loss through the kidneys.

### For more information

If you would like more information about osteoporosis, check these websites

- National Osteoporosis Foundation  
[www.nof.org](http://www.nof.org)
- National Institutes of Health  
[www.niams.nih.gov/bone](http://www.niams.nih.gov/bone)



The above electron micrograph illustrates the difference between a normal bone (left) and an osteoporotic bone (right). The healthy bone has a smooth and solid surface where the osteoporotic bone is pitted and eroded with connections in danger of breaking.

Source: Patient Care Archive 1-15-2001, "Bone Mineral Density: Who, when, and how."

This nutrition information is provided by the Cornell Healthy Eating Program (CHEP) at Gannett Health Services. See hours and contact information below.

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#### Fall and Spring Semester Hours:

Monday-Friday	8:30 am-5:00 pm
Saturday	10:00 am-4:00pm
Sunday	building closed

Check the web for hours during breaks, winter and summer sessions: [www.gannett.cornell.edu](http://www.gannett.cornell.edu)

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