

Common Gastrointestinal Problems

A Consumer Health Guide

Common GI Problems in Women: Osteoporosis

What is osteoporosis?

Osteoporosis is a common disorder of the bones in which they become weak, fragile and likely to break or fracture easily.

What fractures are most commonly associated with osteoporosis?

Fractures of the spine, the hips and the wrists are most common, but any bone can fracture.

What factors contribute most to the risk of developing a fracture?

Low bone mass or density and an increased tendency to fall down.

What causes low bone mass?

Controllable factors:

- * low calcium and vitamin D intake
- * lack of exercise
- * cigarette smoking
- * excess alcohol consumption
- * excess caffeine
- * medicines, for instance, steroids (prednisone), excess thyroid hormone

Uncontrollable factors:

- * gender (females)
- * race (Asian and Caucasian)
- * slender build
- * heredity (family history)

What can be done to reduce the risk of low bone mass related to the use of steroids?

Prescription steroids, like prednisone, are used to treat some gastrointestinal conditions, such as inflammatory bowel disease and liver disease. Patients on ongoing steroid therapy are frequently advised to supplement with calcium and vitamin D because of the propensity of steroids to deplete calcium.

How can you know whether you have low bone mass?

Bone mass can be measured by a test called *bone densitometry*. This test can measure bone mass in your spine, hips, forearms, and heels. Measurements of bone mass at any of these sites can estimate your risk of developing a fracture.

What conditions make a person more likely to fall?

The use of sedatives, poor vision, Alzheimer's disease and disabilities of the legs all make an individual more likely to fall down. Slippery floors, stairs without railings and throw rugs may increase the risk of falling.

What are the best ways to prevent osteoporosis?

Consume adequate amounts of calcium and vitamin D, get regular exercise, limit alcohol intake, limit caffeine intake, avoid taking steroids or excess thyroid hormone unless absolutely necessary. Estrogen, bisphosphonates, and selective estrogen modulators (SERMS) are medicines your doctor can prescribe to prevent osteoporosis.

How do you ensure you get enough calcium?

The recommended daily calcium intake is 1,000 mg/day in men and pre-menopausal women, and 1,500 mg/day in post-menopausal women. The best sources of calcium are dairy products and calcium-fortified citrus juices. Each serving of a dairy product (1 cup of milk, 1 ounce of cheese, 1 cup of yogurt) or calcium fortified citrus juices (1 cup) has approximately 300 mg of calcium. If you cannot take in enough calcium through your diet, you should speak with your physician about whether to take a calcium supplement, and if so, what kind.

What Everyone Should Know About Osteoporosis

How do you ensure you get enough vitamin D?

The recommended daily vitamin D intake is 400 units. Multivitamins usually contain 400 units per tablet. One or two multivitamin tablets per day will supply all that a person normally needs. More than this should not be taken without a doctor's advice, since vitamin D can sometimes reach toxic levels in the body if too much is consumed. Other forms of vitamin D are available but are more expensive and should be used only in special situations.

What types of exercise are the best for preventing osteoporosis?

Aerobic exercises such as walking, running, and cycling improve bone mass and strength in the lower spine, hips, and legs. Resistance exercises (weight training) strengthens whatever bones are used during the exercise; these are particularly good for the upper spine and the arms. A combination of aerobic and resistance exercises is more beneficial than either type alone. Exercise also helps to improve balance and coordination and thus reduces the risk of falling. For a specific exercise program that is best for you, you should consult your health care provider.

How much alcohol do you have to drink to harm your bones?

More than 2 drinks a day appears to increase the risk of developing osteoporosis.

How much caffeine do you have to drink to harm your bones?

More than 2 servings a day appears to increase the risk of having osteoporosis.

Once osteoporosis is present, how can you treat it?

Most of the same measures that are used to prevent osteoporosis are also appropriate treatment for patients who already have osteoporosis. Therefore, individuals with osteoporosis should have an adequate intake of calcium and vitamin D, exercise regularly, stop smoking, limit alcohol and caffeine consumption and avoid taking steroids or excess doses of thyroid hormone. Medications such as estrogen, bisphosphonates, calcitonin, and selective estrogen receptor modulators (SERMS) are very effective treatment measures for osteoporosis.

How effective are estrogens in the prevention and treatment of osteoporosis?

Estrogen replacement therapy prevents postmenopausal bone loss. Started at or near the time of menopause, estrogens have been consistently found to increase bone mass by about 4% and to markedly decrease the incidence of osteoporotic fractures in postmenopausal women. Estrogen replacement is also highly effective as a treatment for women who have already developed osteoporosis, including women who are more than 15 years past menopause. Estrogen replacement significantly increases bone mass an average of 4% in these individuals.

American College of Gastroenterology
4900 B South 31st Street
Arlington, VA 22206



Common Gastrointestinal Problems

A Consumer Health Guide

Common GI Problems in Women: Osteoporosis (cont.)

What other benefits result from taking estrogen?

Estrogen replacement therapy reduces postmenopausal hot flashes, genital atrophy, and depression. Estrogen has been shown to lower serum cholesterol and LDL cholesterol (the harmful type) and to raise the HDL (the beneficial type). Most studies indicate that estrogen may reduce the risk of having heart attacks. Estrogen also appear to decrease the risk of developing Alzheimer's Disease.

What are the risks and side effects of taking estrogen?

Estrogen replacement therapy increases the risk of having cancer of the endometrium (lining of the uterus); taking progesterone with estrogen effectively prevents this complication. Estrogens also modestly increase the risk of breast cancer. In addition, there appears to be a slightly increased risk of developing blood clots in the legs and pelvis; these clots can sometimes break loose and go to the lungs. All of these complications are more likely to occur with higher doses of estrogens.

What are bisphosphonates?

Bisphosphonates are a group of medications that prevent bone loss. Currently available bisphosphonates include alendronate (Fosamax®), etidronate (Didronel®), and pamidronate (Aredia®). A new medication, residronate (Actonel®) should also be available soon.

How effective are bisphosphonates in preventing and treating osteoporosis?

Alendronate (Fosamax®), given as a 5 mg daily dosage, increases bone mass significantly in postmenopausal women who are not on estrogen. It is therefore an excellent choice in patients who should not or do wish not to take estrogen.

Alendronate (Fosamax®), is the only bisphosphonate currently approved for the treatment of osteoporosis by the FDA. The recommended dose of 10 mg once a day increases bone mass by approximately 8% and markedly reduces the risk of spine and hip fractures.

What are the side effects of taking bisphosphonates?

The main side effect is pain or burning in the lower part of the chest due to the irritation of the esophagus; this occurs in about 5% of patients. Absorption of these drugs is greatly impaired when the pills are taken with food, particularly those that contain calcium. *In order to avoid esophageal problems and to maximize absorption, alendronate should be taken in the morning with a full glass of water and the patient should remain upright and fasting for 30-60 minutes afterwards.* Patients taking alendronate and their physicians need to be sensitive to the potential gastrointestinal side effects, the onset of any gastrointestinal symptom, and the need to consider alternative treatment for osteoporosis and/or concomitant treatment with medications to reduce/improve gastrointestinal symptoms.

What are selective estrogen receptor modulators (SERMS)?

These medications mimic estrogen actions in some of the body's tissues (for example, breast). Currently available SERMS include raloxifene (Evista®), tamoxifen (Nolvadex®) and clomiphene (Clomid®).

How effective are SERMS in the prevention and treatment of osteoporosis?

Raloxifene (Evista®) and tamoxifen (Nolvadex®) have been shown to prevent postmenopausal bone loss. Raloxifene has been approved for prevention and treatment of

What Everyone Should Know About Osteoporosis (cont.)

osteoporosis by the FDA; it increases bone mass by about 2%. And significantly reduces the risk of spine fractures.

Are there other benefits to taking SERMS?

The medications raloxifene (Evista®) and tamoxifen (Nolvadex®) have been shown to reduce the risk of developing breast cancer.

What are the risks and side effects of taking SERMS?

These medications can cause hot flashes and, like estrogen, may increase the risk of developing blood clots in the legs and pelvis.

What is calcitonin?

Calcitonin is a natural hormone produced in the thyroid gland: it prevents bone loss. Because calcitonin that comes from salmon is more potent than calcitonin that comes from humans, salmon calcitonin is more commonly used to treat osteoporosis. Calcitonin is available as a nasal spray (Miacalcin® and Calcimar®).

How effective is calcitonin in preventing and treating osteoporosis?

The administration of calcitonin to patients with osteoporosis increases bone mass by 1-2%. Calcitonin also has significant analgesic properties, reducing back pain in about 80% of treated patients.

What are the risks and side effects of taking calcitonin?

Calcitonin administration may cause nausea and a skin rash. Nasal spray calcitonin may also cause irritation of the inside of the nose.

What other medications may be useful in treating osteoporosis?

Slow release sodium fluoride, growth hormone and parathyroid hormone are under study as possible treatments for osteoporosis. All of these medications increase bone mass significantly but their long term safety and their ability to prevent bone fractures must be demonstrated before they can be approved for general use.

Does osteoporosis only happen to women?

No. Osteoporosis can occur in men, but usually an underlying medical condition is responsible. These conditions should be identified and treated appropriately. For example, men who have low serum testosterone levels should be treated with testosterone replacement therapy. Alendronate (Fosamax®) and calcitonin (Miacalcin®) also can be used beneficially. Men with osteoporosis should have adequate intakes of calcium and vitamin D, should exercise regularly, should stop smoking and should minimize alcohol and caffeine consumption.

American College of Gastroenterology
4900 B South 31st Street
Arlington, VA 22206

