Whether this is your first visit or a follow-up, ask your doctor:

- How serious is my bone loss?
- Do I need to take a bone-building drug?
- If so, which are right for me, and why?
- How often should I have my bone density checked?
- What types of exercise help build bone?
- Should I make any changes to my diet?
- Are there any activities I should not do?
- Should I be taking calcium and vitamin D supplements? If so, how much and how often?

Tell your doctor if:

- You think your medications are causing any side effects
- You are trying any alternative or complementary therapies
- You are planning to start an exercise program or change an existing one
Osteoporosis is a condition in which bones become weaker over time.

There are two types of bone tissue. One makes up the hard outer “shell” of your bones. The other is inside the bones and looks like a web. This web is made of protein (called collagen) and minerals (including calcium). Normally, the web is made of many thick strands and is quite dense.

The body constantly breaks down old bone and replaces it with new bone — a process called remodeling. During the first 20 years of life, the body builds new bone more quickly than it removes old bone. We reach our highest bone density in early adulthood — around age 20 or 25. After that, bone mass tends to decline.

Osteoporosis occurs when the body loses more bone tissue than it replaces. That inner bone tissue becomes thinner and weaker. Bones become less dense and lose strength, and are more likely to break easily.

The more bone you have “in the bank,” the better. It’s best to take steps to keep your bones strong when you are young, but it’s never too late to increase your bone mass.

Osteoporosis is painful.

Osteoporosis causes no symptoms unless a bone breaks.

Osteoporosis is most common in older women. But as many as 25% of men over age 50 will break a bone due to this condition.

Osteoporosis only affects women who are past menopause.

Osteoporosis is most common in older women. But as many as 25% of men over age 50 will break a bone due to this condition.

Only older people get osteoporosis.

Certain health conditions (like celiac disease) and some medications (like corticosteroids) can cause osteoporosis in younger people.

You can “cure” osteoporosis with calcium and vitamin D.

You need enough of these nutrients to help maintain bone strength, but they’re not enough to reverse bone loss.

Osteoporosis is unavoidable.

Aging is unavoidable, but osteoporosis isn’t. Many people never develop this condition. Good genes and getting enough calcium, vitamin D, and exercise may be part of the reason why.
Most people with osteoporosis have no symptoms until a bone breaks.

During a physical exam, your doctor may find that you’ve lost some height. Or she or he may notice that the spine of your upper back is starting to curve. Another sign of osteoporosis is a “fragility fracture” — that is, a bone that breaks from a minor injury or during a routine movement.

A bone density test can confirm an osteoporosis diagnosis. There are several ways to measure bone density:

- The most accurate bone density test is a type of x-ray called DEXA (dual-energy x-ray absorptiometry), which measures bone density at the hip and spine. DEXA takes 10 to 15 minutes, uses very little radiation, and is painless.

- An ultrasound of the heel bone can also determine bone density. It is faster and cheaper than DEXA. However, it is not widely available or accepted as an accurate screening test for osteoporosis. Usually, people whose heel ultrasound suggests osteoporosis go on to have DEXA of the spine and hip.

- Blood and urine tests can pinpoint certain causes of osteoporosis — for example, a vitamin deficiency or a thyroid problem.
OSTEOPOROSIS SCREENING

Bone density tests can catch loss of bone mass before it becomes a problem.

A screening test looks for a disease in a seemingly healthy person, in order to catch and treat it early before it causes trouble. But not everyone needs to have their bone density checked. Ask your doctor about screening if you are:

• a woman age 65 or older or a man age 70 or older
• a postmenopausal woman under age 65, or a man age 50 to 70, with one or more risk factors for osteoporosis
• a woman or man with a medical condition (or taking a drug) that places you at high risk for fractures
• a woman going through menopause who has specific risk factors that increase fracture risk (such as low body weight or a prior fracture)
• a woman or man over age 50 who has broken a bone

Your T-score determines bone density and guides treatment.

The DEXA scan or ultrasound will give you a number called a T-score. The T-score shows how close you are to average peak bone density.

▶ If your T-score is –1 or greater, your bone density is considered normal.

▶ If your T-score is between –1 and –2.5, you have lower-than-normal bone density, known as osteopenia — but not osteoporosis.

▶ If your T-score is –2.5 or less, you have osteoporosis, even if you haven’t broken a bone.

The results of your bone density test can help your doctor decide if and when to start you on bone-preserving medications. This test can also help determine whether treatment is working.

What is osteopenia?
The term “osteopenia” means “too little bone.” It is not a disease. It refers to low bone mass that is not severe enough to be osteoporosis. Osteopenia only slightly increases fracture risk. That’s why calcium, vitamin D, and exercise may be all that’s needed to maintain bone health. If you have osteopenia, talk to your doctor about how best to protect your bones.
There are many medications available to treat osteoporosis. Talk with your doctor about which medication may be right for you. Be sure to consider potential benefits and possible side effects. Drugs used to treat osteoporosis include:

- **Bisphosphonates.** These drugs inhibit the breakdown of bone and may also increase bone density. Most are taken as a pill. Some may be given intravenously (into a vein).

- **Selective estrogen receptor modulators (SERMs).** The drop in estrogen after menopause contributes to osteoporosis in older women. SERMs mimic estrogen’s ability to increase bone density.

- **Calcitonin.** Calcitonin is a hormone produced by the thyroid gland. It is taken as a nasal spray. Calcitonin inhibits bone breakdown.

- **Teriparatide.** Teriparatide is a form of parathyroid hormone. It stimulates the growth of new bone. It is taken by a daily injection.

- **Denosumab.** This drug is an antibody that targets a protein involved in bone breakdown. By attacking this protein, it helps stop bone loss.

Your doctor will monitor how well your treatment is working by checking your bone density measurements every one to two years.
GETTING ENOUGH CALCIUM

Adults need 1,000–1,200 mg of this bone-building mineral each day.

Dairy foods provide a lot of calcium, as do plant foods like spinach, dried beans, and nuts. Foods fortified with calcium are another option.

When you can’t get enough calcium from food alone, a supplement can help. There are many to choose from.

**Calcium carbonate** contains the highest amount of elemental calcium. It is best to take this supplement with a meal or snack.

**Calcium citrate.** This form is absorbed more easily than calcium carbonate. You can take it on an empty stomach.

### Selected food sources of calcium

<table>
<thead>
<tr>
<th>Food</th>
<th>Milligrams (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yogurt, plain, 1 cup</td>
<td>415</td>
</tr>
<tr>
<td>Cheddar cheese, 1 ounce</td>
<td>306</td>
</tr>
<tr>
<td>Milk, nonfat, 1 cup</td>
<td>302</td>
</tr>
<tr>
<td>Orange juice, calcium-fortified, 6 ounces</td>
<td>200–260</td>
</tr>
<tr>
<td>Tofu, firm, made with calcium sulfate, 1/2 cup</td>
<td>204</td>
</tr>
<tr>
<td>Salmon, pink, canned, with bones</td>
<td>181</td>
</tr>
<tr>
<td>Spinach, cooked, 1/2 cup</td>
<td>120</td>
</tr>
</tbody>
</table>

*Source: USDA National Nutrient Database for Standard Reference*

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GETTING ENOUGH VITAMIN D

Adults need 600 to 800 IU of this vitamin each day.

Your body produces vitamin D when your skin is exposed to sunlight.

Many people find they can’t get enough vitamin D from sunlight or food and need a supplement. Look for vitamin D₃ — it’s the easiest form for the body to absorb and use.

### Food sources of vitamin D

<table>
<thead>
<tr>
<th>Food</th>
<th>Vitamin D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sockeye salmon, cooked, 3 ounces</td>
<td>450 IU</td>
</tr>
<tr>
<td>Tuna, canned (in water), 3 ounces</td>
<td>150 IU</td>
</tr>
<tr>
<td>Milk, whole, 1 cup</td>
<td>120 IU</td>
</tr>
<tr>
<td>Breakfast cereal* (no milk), 1 cup</td>
<td>100 IU</td>
</tr>
<tr>
<td>Beef liver (cooked), 3 ounces</td>
<td>80 IU</td>
</tr>
<tr>
<td>Egg, 1 large</td>
<td>40 IU</td>
</tr>
</tbody>
</table>

*Artificially vitamin-fortified.  
IU = international units.
Osteoporosis exercises

The right exercise program can help build bone and prevent fractures.

An exercise program for osteoporosis should include four components:

**Weight-bearing exercises** force your body to work against gravity, which helps to strengthen bones. Examples include walking, climbing stairs, playing tennis, and dancing. Do these types of exercises at least three times a week.

**Muscle-strengthening exercises** use weights or your body’s own resistance to work against gravity. Examples include lifting free weights, using a weight machine, working with resistance bands, and lifting your own body weight. Do these types of exercises at least twice a week.

**Balance exercises** improve your ability to hold yourself upright and help prevent falls. Examples include tai chi and yoga. Perform balance exercises at least twice a week.

**Flexibility exercises** keep your muscles limber and joints mobile. They include yoga and stretching. Try to stretch for at least five to 10 minutes after every workout. Hold each stretch for 10 to 30 seconds.

Before you start any exercise program, talk with your doctor.

Osteoporosis exercises

These exercises strengthen the muscles needed to keep you upright and improve balance. Aim for eight to 12 repetitions of each exercise.

**Hip extension:** While holding on to the back of a chair for balance, slowly raise your right leg straight out behind you. Lift it as high as you can without bending your knee. Lower the leg. Repeat with the left leg.

**Bridge:** Lie on your back with your knees bent and your feet flat on the floor. Put your hands next to your hips with the palms down on the floor. Keeping your back straight, lift your buttocks as high as you can off the mat. Pause. Lower back down slowly.

**Chair stand:** Position the chair against a wall. Sit in the chair with your knees bent, feet flat on the floor. Cross your arms and put your hands on your shoulders. Keeping your back and shoulders straight, stand up slowly, using your legs rather than your hands. Slowly sit back down.