

Strong Bones

Most women don't realize how important it is to **protect their bones**. Start now—and thank yourself later

YOU'VE BEEN TOLD since kindergarten, "Drink your milk! It's good for your teeth and bones." And for many years you did just that. Then, as you got into your teens, milk gave way to soda, juice, and coffee.

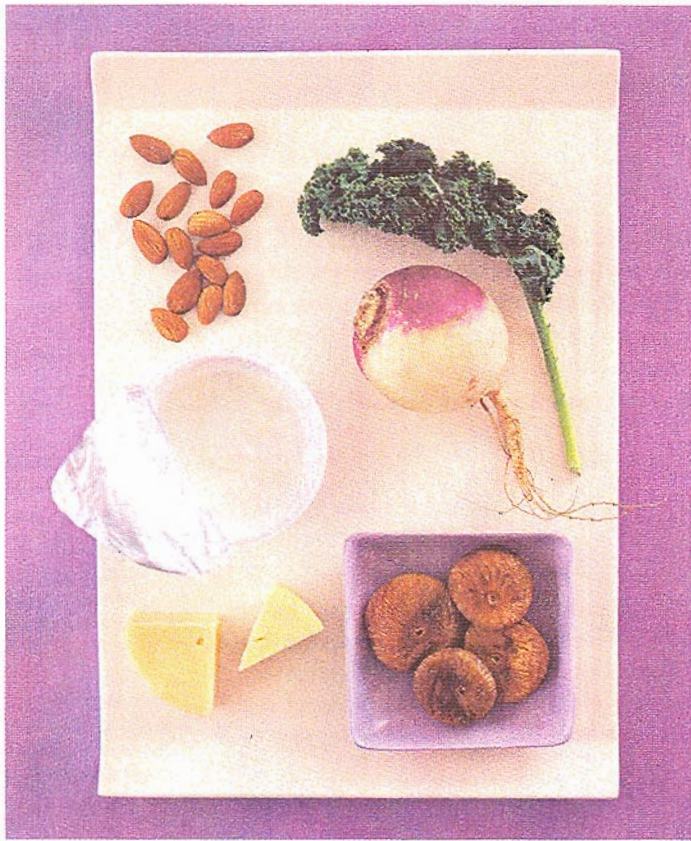
Sound familiar? Only about a quarter of women of childbearing age consume the recommended amount of calcium. And nearly half of all women are short on vitamin D. That's a problem, since insufficient amounts of calcium and vitamin D lead to weak bones and increase the risk of fractures later in life. Each year 300,000 Americans are hospitalized with hip fractures, according to the U.S. surgeon general, and 20 percent of seniors die within a year of this injury.

The good news is that no matter what condition your bones are in, "the damage is reversible," says George Kessler, M.D., the author of *The Bone Density Program* (Ballantine, \$15). And with the right diet, exercise, and, in some cases, supplements, you can begin strengthening your bones today. Here's how.

I have
no history but
the length of
my bones.

Robin Skelton, poet

WRITTEN BY MELANIE HAIKEN
PHOTOGRAPHS BY PETER LAMASTRO



RICH IN CALCIUM
It's not only milk that is loaded with calcium. A half cup of almonds has 185 milligrams, a cup of yogurt has 370 milligrams, four large dried figs have 85 milligrams, and a cup of cooked turnip greens have 200 milligrams. And now that so many foods—including orange juice, breakfast cereals, and even ice cream—are fortified with calcium, you can boost your intake without changing your diet.

Total Cereal: 1,000 milligrams per 3/4 cup.

Tropicana Calcium + Vitamin D Fortified Orange Juice: 350 milligrams per cup.

Breyers Calcium Rich Ice Cream: 300 milligrams per cup.

Nutri-Grain Cereal Bars: 200 milligrams per bar.

Aunt Jemima Buttermilk Pancake & Waffle Mix: 150 milligrams per three to four pancakes.

Bone Builders

A woman's bones reach their peak strength between ages 20 and 30. After that, though, dropping estrogen levels make maintaining bone strength a challenge. This is when it's crucial to start eating the right nutrients and getting plenty of exercise, including resistance training. To begin, follow these guidelines.

CALCIUM. The main role of calcium is to help build bones. In fact, 99 percent of the calcium in your body is found in your skeleton and teeth. However, calcium has other functions, such as helping blood clot and muscles contract. When your body is short on calcium, it steals the mineral from your bones, causing double trouble for your skeleton.

YOU NEED: Women ages 19 to 50 should consume 1,000 milligrams a day in two doses. (That's about six ounces of yogurt, one cup of calcium-fortified orange juice, and two ounces of hard cheese.) Women over 50 need 1,200 milligrams.

VITAMIN D. Vitamin D, which is made in the skin in response to sun exposure, helps your body absorb calcium. Indoor jobs,

sedentary lifestyles, and fear of skin cancer, the National Institutes of Health believe, have combined to leave American women sorely deficient in D. During the winter, the situation worsens. "Most of us lose between 2 and 4 percent of our bone density in the winter months from lack of vitamin D," says Miriam Nelson, Ph.D., director of the John Hancock Center on Physical Activity and Nutrition at Tufts University, in Boston, and the author of *Strong Women, Strong Bones* (Perigee Books, \$15). Unlike calcium, vitamin D can be stored in the body, so it's relatively easy to build levels up.

YOU NEED: Five to 15 minutes of sun without sunscreen two to three times a week; in the winter months, unless you already take a multivitamin, add at least 200 international units (I.U.), the equivalent of two cups of low-fat milk.

VITAMINS C AND K. Vitamin C boosts the production of collagen, which helps lock calcium into the bones. Vitamin K activates the formation of osteocalcin, a protein critical to bone density. We get C from citrus and other fruits, and some vegetables; K is found in cereals, soybeans, and leafy green vegetables.

YOU NEED: Seventy-five milligrams of vitamin C (about one cup of orange juice) and 90 micrograms of vitamin K (about one egg and one cup of raw broccoli).

MAGNESIUM. This often overlooked mineral directs calcium to the bones.

YOU NEED: For women 30 and under, 310 milligrams daily. For women 31 and older, 320 milligrams (about six ounces of halibut, 1/4 cup of cashews, and one cup of oatmeal).

WEIGHT-BEARING EXERCISE. When you jump rope, run, or lift weights, your bones respond to the stress by producing more osteoblasts (cells that fill in bone cavities). The result: Bone density improves.

YOU NEED: About 10 to 20 minutes of weight-bearing exercise most days of the week (see *Exercises for Your Bones*, page 127).

Bone Breakers

While you are focusing on strengthening your bones, be sure to avoid the things that can weaken them, such as

■ **Diets high in animal protein.** Low-carb followers take note: As your body digests protein, acids are released into the blood stream. Your body neutralizes those acids by pulling calcium out of your bones. So avoid eating more than 100 grams of protein a day.

■ **Drinking more than one glass of alcohol a day.** Alcohol can disrupt calcium balance and interfere with the action of vitamin D.

■ **Consuming more than four cups of coffee a day, or roughly 400 milligrams of caffeine.** Experts believe excessive caffeine may cause one to excrete excessive amounts of calcium.

■ **Smoking.** The risk of hip fracture is 55 percent higher in smokers, according to the U.S. surgeon general.

■ **Certain prescription drugs.** Steroids, cortisone, thyroid hormone, lithium, and some blood thinners can block calcium absorption.

How to Take Calcium

Calcium is a finicky mineral. Here are a few tips to consider.

1. Take no more than 500 milligrams at once; your body can't absorb more than that at one time.
2. Spread your dose throughout the day.
3. Don't take calcium with milk or fortified juice—much of the extra calcium will just go to waste.
4. Don't take calcium at the same time as iron or antibiotics, as it can reduce their effectiveness.

Choosing the Right Supplement

If you're not getting enough calcium from your diet, you need a supplement. But what kind? It often comes down to what you can stomach. There are three basic types of calcium: citrate, carbonate, and phosphate (the differences are explained below). Keep in mind, too, that it's best to take a supplement that includes magnesium and vitamins C, D, and K. But if you're already getting those from another source, such as a multivitamin, then you can get away with a simple calcium supplement. Here's the lowdown from experts, along with their favorite products.

If You Tend to Skip Meals

Calcium Citrate (Citracal, Solgar, and store brands labeled "calcium citrate")

PROS: Calcium citrate already contains acid, so it doesn't require stomach acid for absorption. This gives it a big convenience factor: You don't have to take it with a meal. And it doesn't cause constipation.

CONS: Citrate tends to be expensive, and depending on the brand, you may have to take more pills (up to four a day) to get the full recommended daily allowance. A small minority of people find the citric acid in citrate hard on their stomachs.

BRAND	CALCIUM	OTHER VITAMINS AND MINERALS	PRICE*
Citracal (1 caplet)	315 milligrams	Vitamin D ₃ , 400 I.U. (international units)	15 cents
Rainbow Light Food Based Calcium (1 tablet)	500 milligrams	Vitamin D, 100 I.U.; magnesium, 250 milligrams	23 cents
Solgar Calcium Citrate (1 tablet)	250 milligrams	Vitamin D, 150 I.U.	20 cents

If You Hate Swallowing Pills

Calcium Carbonate (Os-Cal, Caltrate, Tums, Viactiv, and most store brands)

PROS: Some experts favor calcium carbonate because it has the highest percentage of elemental calcium and it comes in a chewable form. It's also the easiest form to find in stores and the most affordable.

CONS: Calcium carbonate may cause gas or constipation. And you must take it with or right after a meal, since stomach acid is required to dissolve it. Avoid calcium carbonate that comes from bonemeal, dolomite, or oyster shells, as these have sometimes been found to have a high lead content.

BRAND	CALCIUM	OTHER VITAMINS AND MINERALS	PRICE
Caltrate 600+D carbonate (1 tablet)	600 milligrams	Vitamin D, 200 I.U.	7 cents
Tums regular (1 tablet)	400 milligrams	None	11 cents
Viaactiv 500+D+K Soft Calcium Chews (1 chew)	500 milligrams	Vitamin D, 100 I.U.; vitamin K, 40 micrograms	13 cents

If You Have a Sensitive Stomach

Calcium Phosphate (Posture, Posture-D)

PROS: It is readily absorbed and does not need to be taken with food. Phosphate won't cause digestive problems or stomach irritation.

CONS: It can be hard to find. The pill form is large and may be difficult to swallow.

BRAND	CALCIUM	OTHER VITAMINS AND MINERALS	PRICE
Posture-D Calcium Supplement (1 caplet)	600 milligrams	Vitamin D, 125 I.U.; phosphorus, 266 milligrams	13 cents
Posture-D Chewable Calcium Supplement (1 tablet)	600 milligrams	Vitamin D, 125 I.U.; phosphorus, 125 I.U.	20 cents

*Prices are estimates, per caplet, tablet, or chew.

DON'T DIS DAIRY

One final reason to eat a bone-building diet: Recent studies have found a connection between dairy intake and weight loss. For instance, researchers at Purdue University, in West Lafayette, Indiana, followed 54 young women for two years and found that participants who consumed at least 1,000 milligrams of calcium a day from dairy products lost as much as six or seven pounds. Pass that milk.

Exercises for Your Bones

Bones grow stronger under pressure, so try to do 10 to 20 minutes of weight-bearing sports (like walking) or resistance exercises (like weight lifting) four or five times a week. These exercises, designed by Susan Pagano, the author of *Strength Training for Women* (DK, \$15), are excellent bone builders.



Squat With Weights

1. Standing with your feet parallel and hip-width apart, hold a free weight (8 to 12 pounds for maximum bone building) in each hand. Place your hands on your shoulders, elbows facing forward.
2. Slowly bend your knees, as if you are going to sit down, inhaling as you bend. You can lean forward, but keep your spine straight, your feet flat on the floor, and your eyes forward.
3. Exhale and tighten your buttocks, then push up from your heels to return to a standing position.
4. Repeat 8 to 10 times.



Jump Rope

1. Using an adjustable jump rope (not the plastic kiddie kind), jump rope for five minutes.
 2. Start by jumping straight up in place, counting to 50.
 3. Then switch to "skipping" rope (lifting one foot at a time as if running in place) for another 50 counts.
- If this is too much, start with 15 of each kind of jump and work up to 25, then 50.



Diagonal Push-Up

1. Extend your arms straight out against a wall. Your hands should be shoulder-width apart.
2. Keeping your back straight, lean into your arms, draw your shoulder blades together, and pull your abs in tight to keep your body in a straight line.
3. Inhale and lower your chest to the wall, keeping your elbows close to your sides.
4. Exhale and push back up to the diagonal straight-arm position. If possible, stay on your toes throughout to maintain maximum resistance. If you can't manage this, plant your feet flat, but let your heels roll off the floor during each push-up. Repeat 10 to 15 times.



Bent-Over Lat Row

1. Stand with your feet hip-width apart, holding one 10- to 15-pound free weight in each hand. Let your arms hang at your sides, palms facing in.
2. Bend forward from the hips, keeping your back straight so it is parallel to the ground.
3. Draw your shoulder blades together at the start of each rep and see if you can hold them there throughout the movement.
4. Exhale as you bend your arms, pulling the weights up toward your waist, with your elbows pointing up toward the ceiling.
5. Pause, then inhale as you drop your arms. Repeat 8 to 12 times.

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