

**BONE HEALTH**

Protect Your Bones with These Essential Nutrients to Maintain Strength and Mobility

Combine key nutrients like calcium, phosphorus and magnesium with healthy lifestyle choices to prevent osteoporosis and fractures.

Women are three times more likely than men to suffer from osteoporosis, so it's especially important for women to be proactive about maintaining strong bones. According to the National Osteoporosis Foundation, women's risk of a hip fracture due to osteoporosis is equal to their risk of breast, ovarian and uterine cancer combined.

Bone health is a complex subject, but it is manageable if you look at each factor individually. Along with calcium and vitamin D, other nutrients are required to form and maintain strong bones. Lifestyle also plays a major role.

What are bones made of?

Bone is composed of three major components, according to Naina Sinha, MD, an assistant professor of medicine at Weill Cornell Medical School and a metabolic bone disease specialist.

"The first component is the group of minerals that contribute



To keep your bones strong so you can stay active and prevent fractures, your body needs essential nutrients—calcium, vitamin D, protein, phosphorus, magnesium, potassium, vitamin K—along with weight-bearing exercise.

to bone structure," says Dr. Sinha. "Calcium and phosphate are the primary contributors, but mag-

nesium, phosphorus, potassium and vitamin K also are important for bone health."

The second component is the bone cells that build up and break down bones. "A common misconception about bones is that they are hard and dead, but in reality, bone is living tissue," explains Dr. Sinha. The bone cells, osteoblasts and osteoclasts, constantly fix small fractures, called microfractures, that occur in bones every day and result from normal activity, a process known as "bone remodeling."

The third component is collagen, a protein that keeps bones strong and flexible.

Raw materials

Your diet is the primary source of the building material required for healthy bones. "Your bones need many nutrients to stay mineralized; your skeleton must get enough calcium to keep up with the process of bone

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remodeling,” says Dr. Sinha. The best dietary sources of calcium are dairy food and leafy green vegetables such as spinach and kale (see chart).

Vitamin D does not actually contribute to bone’s makeup, but without it, calcium can’t be absorbed properly, so it’s also a mandatory ingredient. However, “Vitamin D is more difficult to get in the diet than calcium because it is found in very few foods, mainly in fatty fish like salmon, mackerel and cod,” says Dr.

Sinha. Vitamin D is manufactured in the skin after sun exposure, but you may not get enough sun exposure to make adequate vitamin D, especially during the winter months. “Also, most lotions now have sun protection factor (SPF) in them to reduce the risk of skin cancer, and this further decreases the skin’s ability to make vitamin D,” points out Dr. Sinha. Given these factors, your doctor may recommend that you take vitamin D supplements.

Magnesium, phosphorus, potassium and vitamin K are other micronutrients needed for strong bones. Dr. Sinha recommends eating a variety of fruits, vegetables, and legumes (beans, peas and lentils) to get adequate amounts of these nutrients (see chart).

Lifestyle factors

In addition to diet, lifestyle choices you make have a significant impact on your bone health.

“Weight-bearing exercise can stimulate new bone formation,” says Dr. Sinha. Aim for at least 30 minutes of weight-bearing activities at least five days a week. Weight-bearing activities include walking, jogging, dancing and lifting weights or using weight machines. (Biking and swimming are not weight-bearing activities.)

If you smoke, talk to your doctor about a smoking cessation program. “Smoking makes it harder for your body to absorb calcium,” says Dr. Sinha. She also recommends limiting alcohol intake, since consuming more than two alcoholic drinks per day has been shown to decrease bone formation. 🍷

NUTRIENTS NEEDED TO BUILD STRONG BONES	
NUTRIENT	FOOD SOURCES
Calcium	Milk, yogurt, cheese, sardines, spinach, collard greens, kale, soybeans, black-eyed peas, white beans Foods often fortified with calcium: breakfast cereals, orange juice, soy milk, rice milk
Vitamin D	Salmon, mackerel, sardines, tuna, flounder, sole, cod
Protein	Beef, pork, poultry, fish, shellfish, legumes, nuts, dairy foods, soy foods
Magnesium	Spinach, barley, soybeans, beans (black, kidney, white, lima, pinto, garbanzo), okra
Phosphorus	Ricotta cheese, barley, soybeans, sunflower seeds, cottage cheese, lentils
Potassium	Sweet potato, cantaloupe, bananas, avocados, tomatoes, oranges, almonds, peaches, apples
Vitamin K	Kale, spinach, collard and turnip greens, Brussels sprouts, broccoli, asparagus, cabbage, lettuce