



## NUTRITION & BONE HEALTH FACT SHEET

One of the most important aspects of building and maintaining strong bones is good nutrition. From early childhood through our senior years, the nutrients consumed from a healthy diet, especially micronutrients like calcium and vitamin D, are essential for bone health.

### NEWER RESEARCH SUGGESTS THAT VITAMINS AND MINERALS SEEM TO WORK TOGETHER TO PROTECT THE BONE, INCLUDING<sup>1</sup>



FIBER



VITAMIN K



MAGNESIUM



POTASSIUM



BORON



COPPER



POLYPHENOLS

### BONE BASICS

Bones are living, growing tissue. They stay healthy through a constant process of repair, renewal, and mineral release. As we age, the remodeling process can become unbalanced. More old bone gets removed than new bone gets created. Over time, this leaves bones weaker and more likely to break. It's never too early or too late to improve bone health. Osteoporosis prevention should begin in childhood and continue throughout life.

### WHAT IS OSTEOPOROSIS?

Osteoporosis is a bone disease that occurs when the body loses too much bone, makes too little bone, or both. As a result, bones become weak and may break from a fall or, in serious cases, from sneezing or minor bumps. Approximately 54 million Americans have osteoporosis or low bone mass.<sup>2</sup>

Breaking a bone is a serious complication of osteoporosis, especially with older adults. Osteoporotic bone breaks are most likely to occur in the hip, spine, or wrist, but other bones can break too. In addition to causing permanent pain, osteoporosis causes some people to lose height. When osteoporosis affects vertebrae, or the bones of the spine, it often leads to a stooped or hunched posture.

### EAT HEALTHY TO BUILD AND MAINTAIN STRONG BONES

Eating a well-balanced diet with plenty of dairy, fish, fruits, and vegetable should provide enough of the nutrients needed to build and maintain strong bones. It's important to eat a variety of calcium-rich foods every day because it is an essential building block for bones. Vitamin D helps the body absorb calcium, among other things, so it is also important for building and maintaining bone health. Other nutrients in a healthy diet also help to maintain bone health throughout the lifespan.

**THE BONE HEALTH AND OSTEOPOROSIS FOUNDATION (BHOF) RECOMMENDS THE FOLLOWING DAILY AMOUNTS OF CALCIUM FOR BONE HEALTH**

<b>FEMALES 50 AND YOUNGER</b>	<b>1,000 MG/DAY</b>
<b>FEMALES 51 AND OLDER</b>	<b>1,200 MG/DAY</b>
<b>MALES 70 AND YOUNGER</b>	<b>1,000 MG/DAY</b>
<b>MALES 71 AND OLDER</b>	<b>1,200 MG/DAY</b>

## CALCIUM RICH FOODS

In addition to building bones and keeping them healthy, calcium enables blood to clot, muscles to contract, and the heart to beat. About 99% of the calcium in the human body is in the bones and teeth. Fortunately, there are many foods that are good sources of calcium (and other healthy nutrients).

Dairy products, such as milk, yogurt, and cheese are high in calcium. Certain green vegetables and other foods contain calcium in smaller amounts. Some juices, breakfast foods, soymilk, cereals, snacks, breads, and bottled water have added calcium.

## A WELL-BALANCED DIET

According to the USDA's *Dietary Guidelines for Americans, 2020-2025*<sup>3</sup>, current low intakes of nutrient-dense foods and beverages across food groups has resulted in underconsumption of some nutrients and dietary components. Calcium, potassium, dietary fiber, and vitamin D are considered dietary components of public health concern for the general U.S. population. To have a well-balanced diet, the *Dietary Guidelines* offer a list of foods that provide at least 130 mg of calcium; 280 mg of potassium; 2.8 g of dietary fiber; 80 IU of vitamin D; and 1.8 mg of iron.



### PRUNES

1/4 cup of prunes contains 319 mg of potassium<sup>4</sup>. Studies show that prunes can help lower the risk of bone loss and osteoporosis in women<sup>5</sup> and men<sup>6</sup>.



### FISH

Sardines and salmon are two examples of fish that contain vitamin D. The Dietary Guidelines recommend that adults get 600 IU of vitamin D each day<sup>4</sup>.



### CEREAL

1/2 cup of ready-to-eat, high fiber, unsweetened cereal can contain 15 g of fiber<sup>4</sup>.



### SPINACH

1 cup of cooked spinach contains 6.4 mg of iron<sup>4</sup>.



## CLINICAL RESEARCH SPOTLIGHT: PRUNES AND BONE HEALTH<sup>5,7</sup>

Research supports that enjoying **5-6 prunes per day** is a valuable food-based strategy that can be used to preserve hip bone mineral density and reduce inflammatory mediators in postmenopausal women.

## A SWEET TIP

Swap prune puree for butter in your favorite recipes to:

- ✦ Reduce the nutrients we need to eat less of—like saturated fat
- ✦ Add the nutrients we need more of—potassium and fiber—to benefit bone health and overall health



<sup>1</sup> Arjmandi BH, et al. Bone-protective effects of dried plum in postmenopausal women: Efficacy and possible mechanisms. *Nutrients*. 2017;9(5):496.

<sup>2</sup> Wright, NC, et al. The recent prevalence of osteoporosis and low bone mass in the United States based on Bone Mineral Density at the Femoral Neck or Lumbar Spine <https://doi.org/10.1002/jbmr.2269>

<sup>3</sup> U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025*. 9th Edition. December 2020. Available at [DietaryGuidelines.gov](https://www.dietaryguidelines.gov).

<sup>4</sup> U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025*. 9th Edition. December 2020. Available at [DietaryGuidelines.gov](https://www.dietaryguidelines.gov).

<sup>5</sup> De Souza MJ, et al. Prunes preserve hip bone mineral density in a 12-month randomized controlled trial in postmenopausal women: The Prune Study [published online ahead of print, July 7, 2022]. *Am J Clin Nutr*. doi:10.1093/ajcn/nqac189.

<sup>6</sup> Hooshmand S, et al. Effects of 12 months consumption of 100g dried plum (prunes) on bone biomarkers, density, and strength in men. *Journal of Medicinal Food*. 2022;25(1):40-47.

<sup>7</sup> Hooshmand S, et al. The effect of two doses of dried plum on bone density and bone biomarkers in osteopenic postmenopausal women: A randomized, controlled trial. *Osteoporosis International*. 2016;27(7):2271-9.