



ORTHOPÆDICS

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Many people are aware that calcium is an important nutrient for bone health. Calcium is also essential for the heart, nervous system and muscles to work properly. Unfortunately, the human body does not produce calcium, which makes it important for us to have adequate intake.

If we do not take in enough calcium through diet or supplements, calcium is removed from our bones to maintain a steady level in our blood. Eating foods rich in calcium allows the calcium to be restored to our bones. If our diet does not contain enough calcium we should add calcium supplements to avoid a continuous drain on the calcium from our bones.

The National Academy of Sciences and the National Osteoporosis Foundation recommend daily calcium intakes of 1000 – 1200 mg/day for most adult men and women. The average American diet contains 500 – 600 mg of calcium, about half the daily recommended amount. It is not only important for adults to get adequate calcium, it is also very important for adolescents and children who need calcium to not only supply their daily needs, but also to build up “stores” in their bones.

Building up bone density during the early years of life (up to about age

Got Calcium? Benefits of this essential nutrient go beyond healthy bones

35) can aid in preventing osteoporosis in later years. Once there is significant loss of bone density from calcium depletion, it cannot be returned to normal simply by taking more calcium. There are medications that can be used to improve poor bone density but attention to proper calcium intake during childhood and young adulthood can prevent thin bones later in life.

The following table lists recommended calcium intakes which can be achieved by combining dietary calcium and supplements.

Normal daily recommended intakes** in milligrams (mg) for calcium are generally defined as follows:

Persons	U.S. (mg)
Infants and children Birth to 3 years of age	400–800
4 to 6 years of age	800
7 to 10 years of age	800
Adolescent and adult males	800–1200
Adolescent and adult females	800–1200
Pregnant females	1200
Breast-feeding females	1200

**Source: National Institutes of Health

Most experts believe that food is the best source of calcium. Dairy foods are often a good source of calcium; for example, an 8-ounce glass of milk (skim, low-fat or whole) contains about 300 mg of calcium. A single

tablespoon of powdered dry milk contains 52 mg of calcium and can be added to many recipes including mashed potatoes, cocoa, soups, or hot cereal. For people who are lactose intolerant, there are alternatives such as milk fermented with acidophilus, aged cheese, yogurt or special low lactose products. Lactase enzymes can be taken before a meal containing dairy products or added to milk products. Although butter and cream cheese are considered dairy products, they contain little, if any, calcium and are mostly fat.

Nondairy sources of calcium include broccoli, dry beans, and fish with edible bones. Some tables list spinach as a good source of calcium, however, only a small amount of the calcium in spinach is absorbed. Spinach is high in components called oxalates, which impair calcium absorption. High fiber foods also decrease the absorption of calcium and should be considered when timing calcium intake.

We also need to avoid factors that can promote the loss of calcium from our bodies. These include excessive intake of phosphorus, Vitamin A, alcohol and caffeine (usually more than 8 cups of coffee a day). High protein diets can also increase loss of calcium. While not a dietary factor, smoking increases the loss of calcium as well.

As our awareness of the benefits of calcium has improved, more options are now available to us. Many foods are now fortified with calcium such as some (but not all) orange juice, cereal and breads. Calcium supplements are also a readily available option to reach our daily calcium goal.

There is no “best” calcium supple-



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ment. The best supplement is the one that fits your needs. Calcium supplements vary widely in the amount of calcium per dose as well as the formulation of the calcium. It is important to read the label on the bottle to see how much calcium each tablet actually contains. An important detail to remember is that the body does not absorb much more than 500 mg at a time, so it is optimal to space apart your calcium dosing.

Calcium carbonate is one of the formulations of calcium. It is best absorbed when taken with food. A familiar option for calcium carbonate is TUMS™. It is inexpensive and chewable for people who have difficulty swallowing pills.

Another chewable form of calcium is Viactiv™. Viactiv™ is available in different flavors, including chocolate. It is more expensive than some of the other calcium options, but if treating yourself to a candy-like source of calcium encourages you to take it regularly, then this form is an excellent option.

While calcium carbonate and most other calcium sources are best absorbed when taken with food, calcium citrate can be taken at any time. Calcium citrate is also less likely to cause kidney stones. If other calcium sources are not tolerated due to gas or constipation, calcium citrate may be an alternative to try. Calcium citrate is also the form of calcium that does not interfere with iron absorption. If you take iron supplements, either use calcium citrate as your supplement or space the calcium and iron 1-2 hours apart. A widely available form of calcium citrate is Citracal™.

Calcium-Rich Foods	Calcium, mg
1 c. Buttermilk	285
1 c. Milk, whole, low fat or fat free	300
1/2 c. Cottage cheese, 2% low fat	77
1 oz. American, process cheese	174
1 oz. Mozzarella, part skim	207
1 oz. Cheddar cheese	204
1 oz. Monterrey Jack cheese	209
1 oz. Swiss cheese	272
1/2 c. Ricotta, part skim	334
1/2 c. Ice cream	88
1/2 c. Ice milk, soft serve	137
1 c. Fruit yogurt	343
1 c. Plain yogurt, low fat	415
1/2 c. Chocolate pudding	133
1 c. Dry beans, cooked	90
6-9 Oysters	113
3 oz. Salmon, with bones	180
3 oz. Sardines, with bones	325
3 oz. Shrimp, canned	98
4 oz. Tofu, calcium added	145
1/2 c. Bok choy (white mustard cabbage)	126
1/2 c. Collards, cooked	179
1/2 c. Kale, cooked	90
1/2 c. Mustard greens, cooked	52
1/2 c. Turnip greens, cooked	126
1 c. Broccoli	72

Iron is not the only medication that can have its absorption affected by calcium. Tetracycline, digitalis and Dilantin™ are other medications with potential absorption implications. Therefore, it is recommended that you discuss calcium dosing with your physician or pharmacist if you are taking other medications. Patients with poor kidney function must consult with their physician, as too much calcium can be harmful and result in dangerously high calcium levels, even at recommended doses.

As a final caution, do not use bone-meal or dolomites as a source of calcium. The FDA has issued warnings that these can be dangerous calcium

sources as they may contain lead.

Taking adequate calcium is a good start toward healthy bones but it is only part of the necessary steps. Other key factors to help us toward the goal of strong bones include weight-bearing exercise, not smoking or abusing alcohol, and seeing a primary care physician regularly to monitor overall health needs.

This article was submitted by Mary T. Norek, M.D., a Physiatrist at OAD Orthopaedics. Dr. Norek is board certified in Physical Medicine and Rehabilitation and has extensive training in the nonsurgical evaluation and management of back, neck and musculoskeletal pain and conditions, including electrodiagnostics such as electromyography (EMG) and nerve conduction velocity (NCV) testing. Conservative treatments consist of trigger point injections, customized physical therapy, exercise programs and medication.

OAD is a multi-subspecialty orthopaedic group with convenient office locations in Warrenville, Wheaton, Carol Stream, Naperville, Bartlett, and Winfield. Since 1981, OAD has provided its premier conservative and surgical care, treatment and services for shoulder, hip, knee, spine/neck, hand and upper extremity, foot/ankle, musculoskeletal, sports and work-related injuries/conditions. OAD MRI is available in Warrenville, with physical, occupational, industrial and specialized hand therapy services offered at multiple OAD locations. For appointments and information, call (630) 225-BONE (2663) and visit online at www.OADortho.com.

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