

Calcium

Most of us think calcium is important only because it builds strong bones and teeth, which contain 99 percent of the body's calcium. However, the remaining 1 percent circulates in the blood and serves other vital functions. For instance, calcium is necessary for conduction of nerve impulses, for heart function, for muscle contraction, and for blood clotting.

The level of calcium circulating in the blood is closely regulated to ensure a constant and adequate supply to our cells. One way our body maintains that level is by pulling calcium from our bones if we do not consume enough. Over time, this leads to osteoporosis (literally, "porous bones") and can result in broken bones.

Low calcium intake has also been linked to other medical problems such as hypertension, and toxemia in pregnancy, which is characterized by high blood pressure. Although there is not yet enough information to support specific recommendations for either of these medical problems, consumption of calcium at the current Recommended Dietary Allowance (RDA) levels is extremely important.

How much calcium do you need each day?

The amount of calcium require each day depends on your age and stage in life. Children and adults require 800 milligrams per day, while teenagers need 1200 milligrams. Women who are pregnant or nursing require an additional 400 milligrams a day.

Recent government surveys indicate that many Americans, especially adults, consume significantly less calcium than is recommended. For example, experts estimate that the average calcium intake for women is only 450 to 550 milligrams per day!

The amount of calcium absorbed by the body decreases as we grow older. In women, this starts at menopause since estrogen promotes calcium absorption. Many medical and nutrition experts suggest that post-menopausal women increase their intake of calcium to 1000 to 1500 milligrams per day to counteract this effect. Until more research is conducted on possible harmful effects at this level, consult your physician before regularly consuming such large amounts. Remember, most adults do not get the amount of calcium now recommended. For example, in this country on any given day, two-thirds of all females between the ages of 18 and 34 consume less than the adult RDA for calcium.

How can you get enough calcium?

All milk (whole, 1 percent lowfat, 2 percent lowfat, skim, nonfat dry, buttermilk, chocolate, or malted) and other dairy products such as cheese, yogurt, ice cream and ice milk are excellent sources of calcium. However, butter, cream, cream cheese, and whipped cream contain mostly fat and are not considered good sources of calcium.

If you dislike drinking milk, you can increase your consumption by eating foods containing milk, such as puddings, custards, and milk-based soups and sauces. Other ways to include milk in foods is to add unconstituted nonfat dry milk to meatloaf, casseroles, mashed potatoes, meatballs and croquettes. Or blend ice cold milk with sweetened fresh or frozen fruit.

Main dishes such as cheese pizza, macaroni and cheese, cheese souffle, quiche, chili con carne with beans, and even spaghetti and meatballs topped with cheese provide significant amounts of calcium. Bread products prepared with milk, such as pancakes or waffles, also add to your calcium intake.

If you need to increase the calcium in your diet, seek ways to add cheese, milk or yogurt to the foods you prepare. Instead of a hamburger, have a cheeseburger. Top your baked potato with yogurt or cottage cheese instead of butter or sour cream. Not only does this add calcium, it reduces calories.

Non-dairy foods with significant amounts of calcium include oysters and shrimp as well as sardines and canned salmon, if both are eaten with the bones. Plant sources of calcium include dried beans, broccoli, rhubarb, and greens (beet, collards, spinach, kale, mustard, turnip). Tofu (soybean curd) is a good calcium source if processed with calcium sulfate.

The absorption of calcium from plant foods is quite poor, however. This is one reason why it is extremely difficult to get enough calcium without consuming dairy products. Also, lactose (milk sugar) in dairy products appears to enhance the absorption of calcium.

Another regulator of calcium absorption is vitamin D. The major dietary sources of vitamin D are fortified milk, fatty fish, cheese, butter, fortified margarine, eggs and liver. However, exposure to sunlight is probably much more important since our bodies can manufacture vitamin D if we are exposed to ultraviolet light. This production of vitamin D by your bodies requires only normal exposure to sun, not extensive tanning.

Use the foods listed in FOOD SOURCES OF CALCIUM and the ideas presented above to plan your menus for a few days to assure an adequate calcium intake each day. Below are four examples of food combinations which would provide at least 800 milligrams of calcium.

- 1 cup lowfat milk; 2 ounces cheddar cheese; 1/2 cup broccoli
- 8 ounces yogurt with fruit; 1 cup cream of chicken soup prepared with milk; 1 cup ice milk; 1/2 cup cooked spinach.
- 3 ounces sardines with bones; 2 pancakes; 1 cup lowfat milk
- 1 cup chili con carne with beans topped with 1 ounce shredded cheddar cheese; 1/2 cup baked custard; baked potato with 1/3 cup plain yogurt; 1 cup hot chocolate

What about calcium supplements?

It is best to meet your calcium requirements from food which contains other nutrients your body needs. However, if this isn't possible, calcium supplements can help you meet the RDA. Since too much calcium, like too little calcium, may cause medical problems such as kidney stones, consult with your physician before taking any calcium supplements. This is especially important for those containing vitamin D, which is toxic in high concentrations.

The source of calcium in supplements varies, depending on the brand. Calcium carbonate, calcium lactate, calcium gluconate and oyster shells (basically calcium carbonate) are the most common sources. Most people prefer calcium carbonate -- since more calcium is present, fewer pills are needed.

Bone meal and dolomite should not be taken. Extensive analyses of both have revealed dangerously high levels of lead. Moreover, dolomite may not dissolve in the gastrointestinal tract, making it an unreliable source of calcium.

A few antacids contain calcium. TUMS, for example, provides 200 milligrams per tablet in the form of calcium carbonate, which is used to neutralize acid. However, it can, over time, cause the stomach to produce more acid. Therefore, TUMS and similar products should be taken with meals. Other antacids containing aluminum decrease the absorption of calcium and are a poor calcium choice. Some antacids also contain sodium, so beware if you are on a salt- or sodium-restricted diet.

If you decide to take calcium supplements, the label should tell you how many tablets you need to reach your RDA level, and the conditions under which you should take them. To know how much calcium you are getting in each tablet, note whether the label lists the calcium content in terms of pure calcium or as calcium carbonate, calcium lactate or calcium gluconate. It's tricky. For instance, if the label says that one tablet provides 600 milligrams of calcium, you are getting that much calcium in each pill. But, if it says 600 milligrams of calcium carbonate, you are only getting 240 milligrams per tablet (calcium carbonate is only 40 percent calcium).

Advice on the best way to take calcium supplements is contradictory. Some experts suggest that taking them between meals promotes greater absorption by the body. However, some manufacturers recommend taking the tablets with meals to avoid the possibility of an upset stomach. Furthermore, you are more likely to remember to take them with a meal.

Summary

It is clear that we need adequate calcium for strong bones and teeth throughout our life span. Recent evidence suggests that we also need it to prevent other medical problems. In general, Americans particularly adults do not consume enough calcium each day. Dairy products supply the most calcium and it is well absorbed. Certain plant foods can contribute to our calcium intake.

Mention of brand names does not imply endorsement nor criticism of that product.