



Extension FactSheet

Human Nutrition and Food Management, 1787 Neil Avenue, Columbus, OH 43210

Calcium for Better Health

Updated and revised by Jackie Mosure and Christine Wisler
Dietetic Interns, College of Human Ecology.

September 2005.

This fact sheet is one in a series containing information to help you select foods that provide adequate daily amounts of vitamins, minerals, and dietary fiber. The Dietary Guidelines Advisory Committee recently released recommendations for the development of Dietary Guidelines that convey these nine major messages:

- Consume a variety of foods within and among the basic food groups while staying within energy needs.
- Control calorie intake to manage body weight.
- Be physically active every day.
- Increase daily intake of fruits and vegetables, whole grains, and nonfat or low-fat milk and milk products.
- Choose fats wisely for good health.
- Choose carbohydrates wisely for good health.
- Choose and prepare foods with little salt.
- Drink alcoholic beverages in moderation if you do choose to drink.
- Keep food safe to eat.

What Is the Importance of Calcium?

One to two percent of your body weight is calcium. It is the most abundant mineral in the body. Ninety-nine percent of this calcium is in teeth and bones. The other 1 percent is found in blood, extra cellular fluids, and within cells of all tissues where it regulates key metabolic functions. Calcium is needed for growth and bone density, plus it keeps the heart pumping, muscles moving, and nerves communicating.

Why the Concern with Calcium in the Diet?

Low intake over a lifetime may lead to less dense bones or bone loss and increased risk of osteoporosis. The body stores calcium in bones till age 20, then through ages 20

to the early 30s, the body reaches its peak bone mass.

The USDA 1994 Continuing Survey of Food Intakes by Individuals (CSFII) showed a 25 percent higher intake of calcium in males than females ages nine and over. Males consumed 925 milligrams to the women's weak 657 milligram intake. The adequate intake (AI) for males and females is 1,000 milligrams of calcium per day. Both groups are below the adequate recommendation.

What Are Sources of Calcium?

According to data from 1994 (released by the Center for Nutrition Policy and Promotion [CNPP], 1996), 73 percent of calcium came from milk products, 9 percent from fruits and vegetables, 5 percent from grains, and 12 percent from other sources.

Figure 1 shows where you can find calcium in MyPyramid. Table 1 shows a list of foods that contain calcium and the percent of calcium in each item.

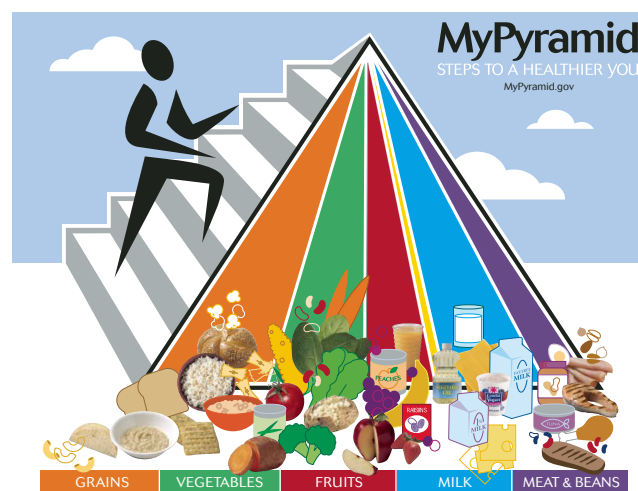


Figure 1. Where to find calcium in MyPyramid.

Table 1. Percentage of Calcium in Some Selected Foods				
Food Group	Food	Serving Size	Mg of Calcium	% of AI
Milk	Yogurt, plain, nonfat	1 cup	450	45
Milk	Tofu (w/calcium)	½ cup	435	43.5
Milk	Yogurt, plain, low fat	1 cup	415	41.5
Milk	Yogurt, fruit	1 cup	315	31.5
Milk	Milk, fat free	1 cup	300	30
Milk	Milk, 2%	1 cup	295	29.5
Milk	Milk, whole	1 cup	290	29
Milk	Chocolate milk, 1%	1 cup	285	28.5
Milk	Chocolate milk, 2%	1 cup	285	28.5
Milk	Swiss cheese	1 ounce	270	27
Milk	Calcium fortified soy milk	8 ounces	250-300	25-30
Fruit	Calcium fortified orange juice	¾ cup	225	22.5
	Cheese pizza	1/8 of pizza	220	22
Milk	Cheddar cheese	1 ounce	205	20.5
Meat (Protein)	Salmon, canned	3 ounces	205	20.5
Milk	Mozzarella cheese	½ cup	185	18.5
	Macaroni and cheese	½ cup	180	18
Sweet	Blackstrap molasses	1 tablespoon	170	17
Sweet	Pudding	½ cup	150	15
Milk	Tofu, raw, w/o calcium	½ cup	130	13
Milk	Frozen yogurt	½ cup	105	10.5
Vegetable	Turnip greens	½ cup	100	10
Meat (protein)	Sardines	1 ounce	90	9
Meat (protein)	Dried figs	3	90	9
Milk/Sweets	Ice cream	½ cup	85	8.5
Milk	Cottage cheese	½ cup	75	7.5
Vegetable	Tempeh	½ cup	75	7.5
Vegetable	Okra	½ cup	75	7.5
Milk	Parmesan cheese	1 tablespoon	70	7
Milk	Milk chocolate bar	1 ounce	70	7
Vegetable	Mustard greens	½ cup	50	5
Fruit	Orange	1	50	5
Vegetable	Kale	½ cup	45	4.5
Vegetable	Broccoli	½ cup	45	4.5
Meat (protein)	Anchovies	5	40	4
Meat/beans	Pinto beans	½ cup	40	4
Vegetable	Rutabaga	½ cup	40	4
Milk	Cream cheese	2 tablespoons	25	2.5
Vegetable	Chinese cabbage, raw	½ cup	30	3
Meat (protein)	Tuna, canned	3 ounces	10	1
Vegetable	Lettuce greens	½ cup	10	1

Why Is Milk Intake So Low?

There are a variety of reasons why adults shy away from milk.

- They do not like the taste.
- They feel it is “for kids only.”
- They feel it has too many calories.
- They are lactose intolerant — a condition in which milk gives them gas and makes them feel bloated.

What Are the Facts?

Current research reported in the *American Journal of Clinical Nutrition* shows that incorporating three servings of dairy per day (*i.e.*, three glasses of milk) in your diet will aid in weight loss. Calcium in milk promotes muscle growth and healthy bones. The study conducted had three groups — one on a low calcium diet, one on a high calcium diet (using a calcium supplement), and one on a high dairy diet. The group that drank more milk had a significantly larger weight loss than the other two groups. Another benefit of milk is it also contains protein for healthy bones; vitamins A, B12, and D; riboflavin, phosphorus, potassium, magnesium, and zinc.

What Are Alternatives to Drinking Milk?

If you are lactose intolerant, try using one of the lactose digesting products on the market (Lactaid, Dairy Ease). Fresh lactaid milk with extra calcium is also available at grocery stores.

Use Cheese

There are many low-fat (*e.g.*, Kraft Light Naturals and “Philly” Light — a Neufchatel cheese) and nonfat (cottage, cream, Alpine Lace brand) cheeses. Eat cheese plain or combine it with other foods where it calls for traditional cheese.

For those who are lactose intolerant, harder, longer-aged cheeses have more whey removed, so they are lower in residual lactose.

Use Yogurt

Choose low-fat and non-fat versions, plain and flavored. Use as a substitute for mayonnaise in salad dressing. Replace sour cream with yogurt in dips, salads, desserts, and main dishes (*e.g.*, stroganoff.) If a thicker product is desired, drain the yogurt by placing it in a coffee filter and strainer over a bowl in the refrigerator for 12 to 24 hours. Use frozen yogurt for dessert instead of ice cream.

Use Dry Milk

Use dry milk as an additive in cooking and baking.

Most recipes will tolerate the addition of 1/4 to 1/2 cup dry milk. Serving size portions may take 1/2 to 1 tablespoon.

- Add dry milk to main dishes like meatloaf, cream soups, stroganoff, spaghetti, lasagna, chili, enchiladas, tacos, chicken and broccoli casserole, macaroni and cheese (even from the box), and most casseroles with a cream soup base.
- Add dry milk to baked products such as cookies, brownies, cake mixes, coffee cake, muffins, biscuits, pancakes, French toast, quick breads (corn bread, pumpkin or zucchini bread), yeast breads and rolls and their fillings, and bread dressing.
- Add dry milk to other milk-based products such as puddings, Popsicles made with pudding, cheese sauces, milk shakes (made from dry milk, sugar, fruit or flavoring, ice cubes, or frozen yogurts), milk gravy, cheesecakes, custards, cream soups, and creamy salad dressings (make it with a yogurt base, not a sour cream or mayonnaise one).

Use Non-Dairy Sources

If you have a severe allergy to milk (usually to the milk proteins), get your calcium from non-dairy sources. Drink juices fortified with calcium and combine this with a daily dose of higher calcium vegetables (greens), legumes (dried beans, peas, and lentils), tofu, and fortified grain products (*e.g.*, some breakfast cereals.) Use canned fish with bones (salmon, sardines, and mackerel).

When simmering bones to make soup stock, add 1 to 2 tablespoons of vinegar to the pot. This will dissolve a small amount of the calcium from the bones and leave it in the meat broth.

Use a Dietary Supplement

Calcium supplements are available, if needed. Make sure to get a supplement with vitamin D added. Vitamin D plays a key role in the absorption of calcium.

Make sure the calcium supplement will disintegrate properly by placing it in 6 ounces of vinegar for 30 minutes. If it disintegrates, your body will be able to absorb the calcium in the pill.

Labels and Sources of Calcium

Grocery stores label their products according to regulations set by the Food and Drug Administration (FDA). A “high”, “rich in”, or “excellent” source of calcium is 20 percent or more of the RDA/AI (Recommended Daily Allowance/Adequate Intake). When a product is labeled “good”, “contains”, or “provides”, it has 10 percent of the RDA/AI for calcium. If a product is labeled “more”, “enriched”, “fortified”, or “added”, it has 10 percent or less of the RDA/AI. Table 1 shows the percentages of calcium in some food items.

References

Federation of American Societies for Experimental Biology, Life Sciences Research Office. Prepared for the Interagency Board for Nutrition Monitoring and Related Research, 1995. *Third Report on Nutrition Monitoring in the United States: Volumes 1 and 2*. U.S. Government Printing Office, Washington, D.C.

Standing committee on the Scientific Evaluation of Dietary Reference Intakes, Food and Nutrition Board, Institute of Medicine. National Academy Press, 1997. Washington, D.C.

U.S. Department of Agriculture, U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2005*. 6th Ed. U.S. Government Printing Office, Washington D.C., January 2005.

Browne, M. B. 1993. *Label Facts for Healthful Eating*. Mazer Corporation, Dayton, Ohio.

<http://www.mypyramid.gov/index.html>. September 2005.

Zemel, M. B. 2004. Role of Calcium and Dairy Products in Energy Partitioning and Weight Management. *American Journal of Clinical Nutrition*, 74(5): 907S-911S.

Where to Find Calcium in MyPyramid



- **Grains**
Fortified breakfast cereals, bread, pasta, and rice.
- **Fruit**
Orange juice and oranges.
- **Vegetables**
Chinese cabbage, turnip greens, lettuce greens, tempeh, okra, mustard greens, kale, broccoli, rutabaga.
- **Meat/Beans (Protein)**
Salmon, sardines, dried figs, tuna, anchovies, pinto beans.
- **Milk Group**
Yogurt, tofu, soy milk, Parmesan cheese, swiss cheese, cheddar cheese, mozzarella cheese, cottage cheese, cream cheese.
- **Sweets**
Blackstrap molasses, pudding, ice cream, milk chocolate bar.

Reference to commercial products is made with the understanding that no discrimination is intended or endorsement implied.

Visit Ohio State University Extension’s web site “Ohioline” at: <http://ohioline.osu.edu>

OSU Extension embraces human diversity and is committed to ensuring that all educational programs conducted by Ohio State University Extension are available to clientele on a nondiscriminatory basis without regard to race, color, age, gender identity or expression, disability, religion, sexual orientation, national origin, or veteran status.

Keith L. Smith, Associate Vice President for Agricultural Administration and Director, OSU Extension

TDD No. 800-589-8292 (Ohio only) or 614-292-1868

All or part of this fact sheet may be copied without permission for educational, non-profit purposes. Credit must be given to “Ohio State University Extension.”