

Calcium: Build Strong Bones

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Healthy Bones

No matter what your age, bone health is important. Strong bones help prevent osteoporosis, a disease in which bones become fragile and break easily. Often considered an “elderly” concern, osteoporosis prevention begins at an early age and continues throughout your lifetime. Bone mass develops rapidly between the ages of 10 and 20 and peaks at age 30. Building and maintaining strong bones depends on calcium, vitamin D, and physical activity.

Calcium

Calcium is an important nutrient for your body and for your health. Calcium helps your heart, muscles, and nerves function. It is also important for bone health. Ninety-nine percent of your body’s calcium is stored in your bones. Children and teenagers need adequate calcium in their diets so they can maximize the calcium storage in their bones. In later years, adequate dietary calcium helps minimize calcium loss from the bones.

Studies show that over half of Americans do not get the recommended calcium from their diets. The best sources of calcium are dairy products. Calcium should be provided in meals and snacks throughout the day. Try the Calcium Checklist to estimate how much calcium you get in a day. Follow the Food Guide Pyramid to obtain all the key nutrients you need.

Calcium Recommendations

| | |
|-----------------------|---------|
| Children 1 to 3 years | 500 mg |
| Children 4 to 8 years | 800 mg |
| Youth 9 to 18 years | 1300 mg |
| Adult 19 to 50 years | 1000 mg |
| Adult 51 + years | 1200 mg |

Vitamin D

Your body uses vitamin D to help transport calcium to your bones. Foods such as milk and eggs contain vitamin D. Your body also makes its own vitamin D when you are exposed to sunlight. Three times a week for about 10 to 15 minutes is enough sunlight for younger people. However, because many older people do not get outdoors very often and their skin is much less efficient at making vitamin D, they may need to use supplements to obtain their needed 400 to 600 IU of vitamin D per day. Younger adults usually need around 200 IU per day. One cup of fortified cow’s or soy milk provides 100 IU.

Physical Activity

Weight-bearing exercise helps keep bones strong and prevents calcium loss. Calcium loss can take place at any age, even during childhood. For example, astronauts (weightlessness in space) and sedentary people are at risk for losing calcium from their bones. Weight-bearing exercise includes walking, jogging, weight lifting, dancing, and soccer. Try a daily activity with your family, neighbors, or friends—walking at the mall, joining a fitness club, or doing a hobby. Aim for at least 30 minutes of activity on most days of the week. You can add up the minutes throughout the day. It does not need to be all at one time.

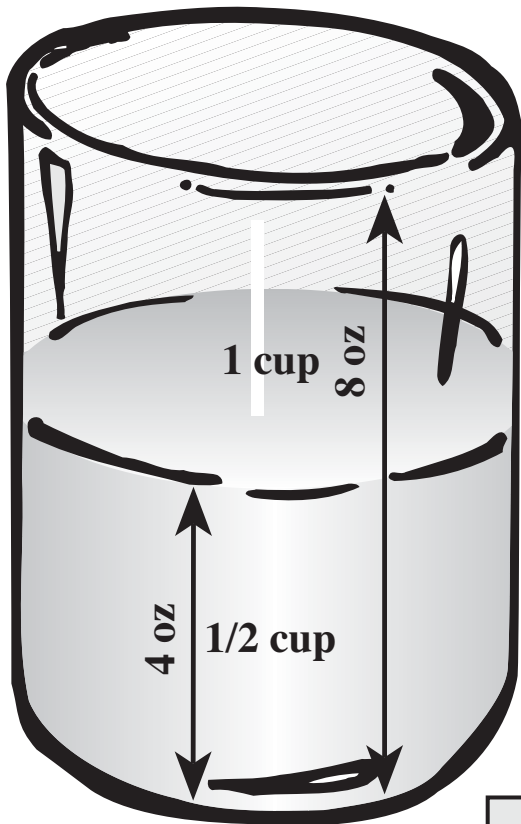
Lactose Intolerance

It has been estimated that between 30 and 50 million Americans are lactose intolerant. People who are lactose-intolerant cannot digest lactose, a natural sugar found in milk and dairy products. Symptoms begin anywhere from 30 minutes to two hours after eating or drinking foods containing lactose. Symptoms can vary depending on the person, but include gas, nausea, diarrhea, stomach cramps, and vomiting.

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1. Record the number of servings you ate on a typical day last week. Use the pictures to help determine serving size.

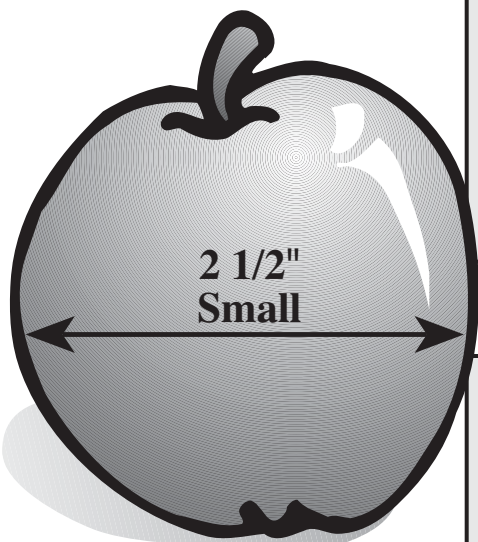
2. Multiply servings x calcium value (mg).



| Food, Serving Size | # servings/ day | x | calcium mg |
|---|--------------------|-----------------|-----------------|
| Milk, Yogurt, and Cheese Group | | | |
| cheese, 1 oz or 6 tbsp | _____ | x 200 = | _____ |
| cottage cheese, 1/2 cup | _____ | x 50 = | _____ |
| custard, pudding, or cream pie, 1/2 cup | _____ | x 150 = | _____ |
| ice cream, frozen yogurt, or milk shake, 1 cup | _____ | x 200 = | _____ |
| milk or cocoa, 1 cup | _____ | x 300 = | _____ |
| soy milk, 1 cup | _____ | x 10 = | _____ |
| yogurt, 1 cup | _____ | x 350 = | _____ |
| cream soups/sauce, 1 cup | _____ | x 200 = | _____ |
| macaroni and cheese, 1 cup; pizza, 1/8 of 15"; or quiche, 1/8 of 8" | _____ | x 250 = | _____ |
| Milk Group Total | _____ | servings | _____ mg |



2-3 Servings



| Fruit and Vegetable Groups | | | |
|--|-------|-----------------|-----------------|
| broccoli or cooked greens (beet/turnip greens, kale, collards, spinach), 1/2 cup | _____ | x 100 = | _____ |
| other vegetables, 1/2 cup | _____ | x 30 = | _____ |
| fruits, 1/2 cup or 1 small | _____ | x 30 = | _____ |
| Fruits & Vegetables Total | _____ | servings | _____ mg |



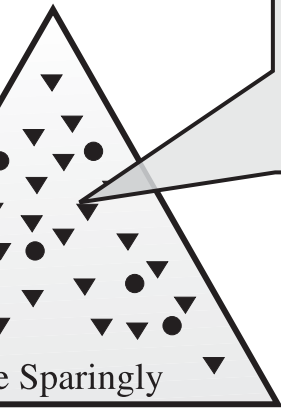
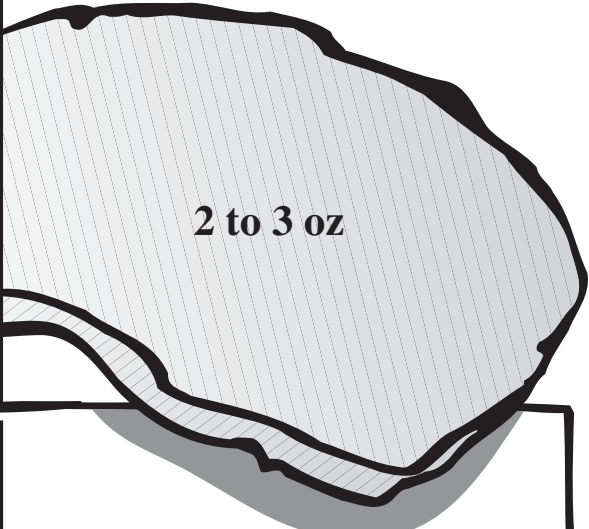
3-5 Servings

| Bread, Cereal, Rice, and Pasta Group | | | |
|--|-------|-----------------|-----------------|
| bread, 1 slice; or cereal, 1 oz | _____ | x 20 | _____ |
| 2" biscuit/roll, or 6" corn tortilla, or 3" muffin, cornbread, or doughnut | _____ | x 40 | _____ |
| rice, noodles, or pasta, 1 cup | _____ | x 20 | _____ |
| pancake, waffle, or french toast, 1 serving | _____ | x 100 = | _____ |
| Bread Group Total | _____ | servings | _____ mg |



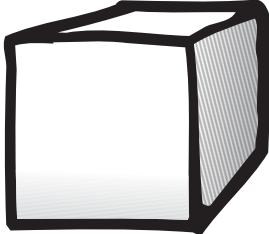
6-11 Servings

| Food, Serving Size | # servings/ day | x | calcium mg |
|---------------------------------|--------------------|----------|---------------|
| Fats, Oils, & Sweets | | | |
| cake, 1/16 of 9" cake | _____ | 40 | _____ |
| colas, 12 oz | _____ | 10 | _____ |
| chocolate, 1 oz | _____ | 50 | _____ |
| others | _____ | | _____ |
| Fats, Oils, & Sweets | | | |
| Total | _____ | servings | _____ mg |



| Meat, Fish, Poultry, Dry Beans, and Nuts Group | | | |
|---|-------|----------|----------|
| dried beans, cooked (navy, pinto, kidney), 1 cup | _____ | x 50 = | _____ |
| meat, fish, poultry, 3 oz | _____ | x 10 = | _____ |
| peanuts, 1/2 cup; 1 egg | _____ | x 30 = | _____ |
| salmon with bones, 3 oz | _____ | x 150 = | _____ |
| sardines with bones, 3 oz | _____ | x 400 = | _____ |
| 3 oz shrimp; or 7-9 oysters | _____ | x 100 = | _____ |
| tofu, 2 1/2" x 2 1/2" x 1" | _____ | x 100 = | _____ |
| Meat Group Total | _____ | servings | _____ mg |

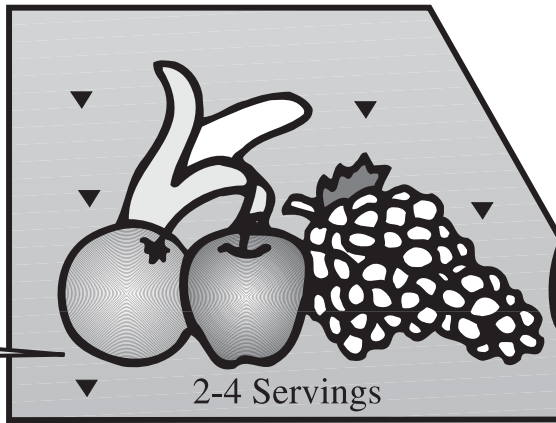
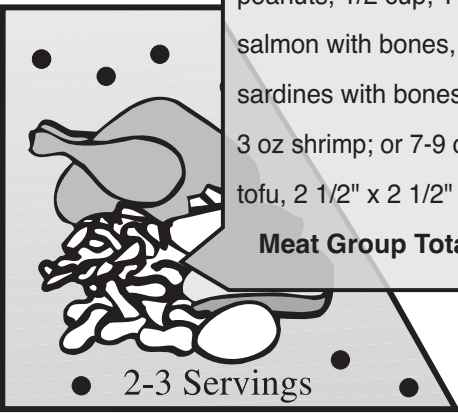
1/2 oz = 1 inch



Cheese or Luncheon Meat

1/2 oz

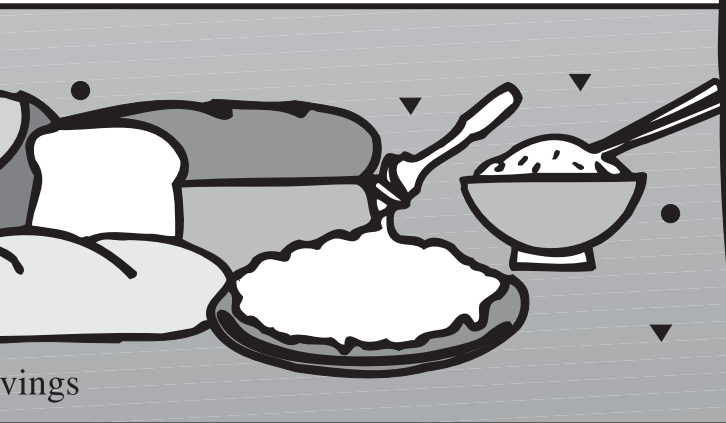
1 oz



3. Count the number of servings you recorded. Add the milligrams of calcium.

| Group | minimum servings recommended | servings # daily | calcium mg |
|--------------------------------------|------------------------------------|---------------------|---------------|
| Milk-Yogurt-Cheese | (2) | _____ | _____ |
| Fruits & Vegetables | (5) | _____ | _____ |
| Breads-Cereals-Rice-Pasta | (6) | _____ | _____ |
| Meat-Fish-Poultry- Dry Beans-Nuts | (2) | _____ | _____ |
| Fats, Oils, & Sweets | (sparingly) | _____ | _____ |
| Total | | _____ | _____ |

Compare your serving numbers with the Food Guide Pyramid. How do you rate on your Calcium Checklist? Consider one change to improve your diet or calcium checklist.



If you have trouble digesting dairy products, first try smaller amounts in meals and snacks spread throughout the day. Other solutions include: adding lactase enzyme drops to milk; choosing hard cheeses (like cheddar), and yogurt with active cultures, that are low in lactose; purchasing reduced-lactose dairy products; or taking lactase enzyme tablets before you eat or drink dairy products.

For individuals who either cannot tolerate any lactose or do not like dairy products, following are some calcium-rich alternatives. Calcium supplements may be another option.

Calcium and Fat

Although dairy products are high in calcium, they can also be high in fat. Read the Nutrition Facts label to find lower-fat options. The label lists the grams (g) of fat in the serving and the “%” contribution to the recommended fat level for the day. Some lower-fat options include: nonfat or 1% milk; reduced-fat cheese; and many of the calcium-rich alternatives to dairy, such as dry beans.

Calcium Supplements

Dietary sources of calcium are best because they contain other nutrients, too. If you are unable to get

enough calcium from your diet, then calcium supplements are an alternative. They are not designed to replace nutrition, only supplement. Calcium supplements are available in tablets, powders, liquids, and chewable chocolate. Read the label for the amount of calcium. Avoid taking a supplement that contains more than 500 mg. It may keep your body from using the other nutrients in the meal or snack. High doses of calcium at one time can cause gastric upset. Calcium citrate is a supplement that dissolves easily in the stomach and is absorbed efficiently. Bone-meal supplements are made from finely ground animal bones. Bone-meal supplements are not recommended because they may contain toxic metals such as lead.

Calcium Rich Alternatives

- Dry Beans, such as black-eyed peas, kidney beans, black beans
- Turnip greens, collard greens, broccoli, kale
- Sardines
- Tofu
- Fortified orange juice
- Broth made with meat bones and a few tablespoons of vinegar

A word of caution: supplements are not regulated. As a result, many of the products are not standardized—meaning that they do not have the same amount or same product. Check for the Consumer Lab stamp of approval, a CL and a beaker, on the label. CL conducts independent product tests to ensure purity and consistency.

Reference

Food and Nutrition Board (FNB), Institute of Medicine (IOM). Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride (1999).

Calcium and Fat

Low-fat choices

300 mg calcium

| | |
|--------------------------------------|----|
| 1 cup skim milk or non fat yogurt | 0g |
| 1 cup 2% milk, low-fat yogurt | 5g |
| 1 cup calcium fortified orange juice | 0g |

200 mg calcium

| | |
|----------------------|----|
| 1 oz fat-free cheese | 0g |
| 1 oz low fat cheese | 6g |

100 mg calcium

| | |
|-------------------------------|----|
| 1 cup 1% cottage cheese | 2g |
| 1 cup sherbet (2%) | 4g |
| 1/2 cup ice milk (4%) | 6g |
| 1/2 cup cooked greens | 0g |
| One 2 1/2" muffin | 6g |
| 1 cup cooked dried beans/peas | 1g |
| 1 taco shell | 3g |
| 1/2 cup tofu | 6g |
| One 4" pancake | 4g |

Medium-fat choices

| | |
|--|----|
| 1 cup whole milk, yogurt, fortified soy milk | 8g |
| 1 cup custard | 9g |
| 4 oz canned salmon, solids | 7g |

| | |
|-------------------------------|----|
| 1 oz. Cheddar/American cheese | 9g |
| 1 cup cream soup/chowder | 9g |

| | |
|-----------------------------------|-----|
| 1/2 cup macaroni and cheese | 10g |
| 1 cup creamed (4%) cottage cheese | 10g |
| 1/8 15" pizza | 9g |
| 1/4 cup Alfredo sauce | 10g |
| One 7" waffle | 11g |

Fats such as cream cheese, sour cream, whipping cream, coffee cream, artificial creamer, and whipped topping contain little or no calcium. Substitute fat free yogurt or low-fat cottage cheese blended with 1 tbsp lemon juice or vinegar for sour cream or cream cheese.

High-fat choices

| | |
|-----------------------|-----|
| 12 oz. Milk shake | 12g |
| 1 cup eggnog | 19g |
| 1 piece lasagna | 15g |
| 4 oz sardines, solids | 13g |

| | |
|---------------------------|-----|
| 1 cup ice cream (10% fat) | 14g |
| 1 cup ice cream (16% fat) | 24g |

| | |
|----------------------|-----|
| 1/8 quiche pie | 48g |
| 1 cheeseburger, 4 oz | 31g |
| 1 oz almonds | 15g |
| 1 cup tempeh | 13g |