

GRADE LEVEL: High School/Adult

ESTIMATED TIME: 20 minutes

ACTIVITY SYNOPSIS

Participants rank 12 **Food Models** in a continuum from highest to lowest calcium content using their general knowledge of the foods and input from the audience. When everyone is satisfied with the sequence, the instructor corrects the continuum by discussing each food, including the meaning of % Daily Value (DV).

ACTIVITY OUTCOME

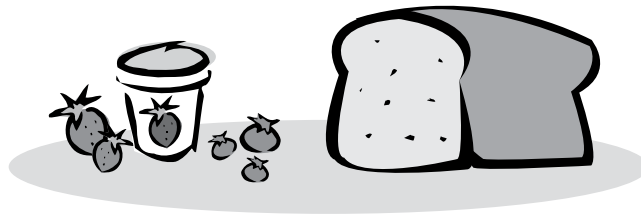
Participants will be able to:

- Describe Milk Group foods as the best sources for meeting their daily calcium needs
- Describe % DV as a tool they can use to determine how much calcium a serving of a food provides
- Use % DV on a food's Nutrition Facts label as a tool for choosing high-calcium foods

MATERIALS AND ADVANCE PREP

Food Models* for:

- Chocolate milkshake
- Low-fat strawberry yogurt
- 2% Reduced-fat milk
- Cheddar cheese
- Pizza
- Pudding
- Frozen yogurt
- Cottage cheese
- Spinach
- Egg
- Whole-wheat bread
- Cream cheese
- Winter squash



***Food Models** can be ordered from New England Dairy & Food Council at www.NewEnglandDairyCouncil.org or by calling 800-939-0002. Empty food packages with Nutrition Facts labels can also be used in place of **Food Models**.

TEACHING PLAN

1. Write *1,300 mg calcium* on the board. Ask participants if they know what this number has to do with healthy bones. (Accept all reasonable answers.)
 - Calcium is important for building and maintaining healthy bones.
 - This is the amount of calcium that 9-18 year-olds need to build strong bones.

Note: Adjust the amount you write on the board for your audience – 1,000 mg for adults ages 19-50; 1,200 mg for ages 51+.

2. **ASK:**

- *If you wanted to find out how much calcium is in the foods you eat, where would you get the information? (Accept all reasonable answers.)*

Point out that for most foods, the easiest place to find this information, is on Nutrition Facts label.

SAY:

Today we're going to compare the amount of calcium in a few foods I've selected. But first, you're going to put these foods in order from the most to the least amount of calcium based on what you know about these foods.

3. Randomly select 13 volunteers to come to the front of the room. Give each volunteer a **Food Model**. Tell volunteers NOT look at the back of the **Food Model**.

Note: Adjust the number of Food Models so at least half of the participants remain seated to act as the "audience."

4. Instruct volunteers to line themselves up from low- to high-calcium content based on what they know about these foods.

- They should hold their **Food Model** so the audience can see it.
- Encourage the audience to help the volunteers as they line up.

Note: For small groups, place the **Food Models** in the center of a table or on the floor. Instruct the group to gather around and work together to put the foods in a row from high-calcium to low-calcium content.

5. When everyone is satisfied with the ranking (audience included), read the answers starting at the low-calcium end. Correct the continuum as you go.

- Winter squash (not a significant source)
- Cream cheese (2% DV)
- Whole-wheat bread (2% DV)
- Egg (3% DV)
- Spinach (6% DV)
- Cottage cheese (8% DV)
- Frozen yogurt (10% DV)
- Pudding (15% DV)
- Pizza (23% DV)
- 2% Reduced-fat milk (30% DV)
- Cheddar cheese (31% DV)
- Low-fat strawberry yogurt (31% DV)
- Chocolate milkshake (32% DV)



6. Explain % Daily Values (% DV) as you correct the continuum.

- *The food label does not list calcium in milligrams. Instead, the label lists % DV for calcium in each serving. The goal is for all your servings to add up to 100% DV for the day (100% of the DV for calcium is equal to 1000 mg of calcium per day).*
- *By using the % DV, you can easily determine whether a food contributes a lot or a little of a particular nutrient.*
- *It's not realistic that we're going to count milligrams of calcium. But, if you are interested in knowing how many milligrams of calcium are in a serving, just add a zero to the % DV number. So, one cup of milk has 30% DV for calcium, or about 300 milligrams.*

Instructor note: 20% or more DV is considered an “excellent” source; 10% - 19% DV is considered a “good source” of a nutrient. For example, milk is an “excellent” source of calcium because it provides 30% DV. Five percent or less is considered “low.”

7. Ask if there were any surprises. Have the audience look at the corrected continuum and see if they can make any generalizations. Point out:
 - *All of the foods at the high end are from the Milk Group. This is because 75% of the calcium in our food supply comes from foods in the Milk Group. It's very difficult to meet our daily calcium needs without including foods from the Milk Group in our diets.*
8. Beginning at the low end, single out foods on the continuum, making the following points. As you do, ask the volunteer holding the **Food Model** to read the % DV for calcium for that food, and what nutrients are highlighted in yellow. If the **Food Model** also lists other choices, for example “cooked spinach” on the back of the spinach **Food Model**, have participants read that information, too.
 - **Winter squash** – *This food provides vitamins A and C, and fiber, but not calcium. This is why we need to eat a variety of foods from each food group. Because while Milk Group foods provide calcium, they don't have much vitamin C or fiber. We get vitamin C from fruits and vegetables, and we primarily get fiber from fruits, vegetables and whole grains.*
 - **Cream cheese** – *It's delicious, but it's not a good source of calcium. Neither is butter or sour cream. These foods are “Others” category foods and they add flavor to our diets – and calories. Choose low-fat or fat-free versions if you can. For example, low-fat sour cream or cream cheese.*

Because they provide calories and few nutrients, it's important to watch our portion size for these foods, even with the low-fat versions, such as low-fat cream cheese or sour cream.
 - **Whole-wheat bread** – *Ask what nutrients on the label are highlighted in yellow. We don't get a lot of calcium from Grain Group foods. But, they give us other important nutrients and fiber if they are whole grains.*
 - **Eggs** – *It seems logical that eggs are in the Milk Group since we buy eggs from the dairy case. Actually, they are in the Meat Group and they are an excellent source of protein. The calcium in an egg is in the shell!*
 - **Spinach** – *It is a common myth that spinach and broccoli are high-calcium foods. While they do contain calcium, you would have to eat approximately 5 cups of spinach or 7 cups of broccoli to get the same amount of calcium as in a cup of milk. The calcium in these foods is not as easily absorbed by the body, so we really can't rely on these foods for calcium.*
 - **Cottage cheese** – *Ask if the calcium content is a surprise. The calcium content of cottage cheese is not as high as other cheeses because it is lost when the curd and whey are separated. Cottage cheese is in the Milk Group and counts as a partial Milk Group serving. So does frozen yogurt and pudding. Hard cheeses (Swiss, Cheddar and mozzarella) are higher in calcium than softer cheeses like cottage cheese.*
 - **Cheese pizza** – *Combination foods that are made with cheese can be a great source of calcium. For example, lasagna is typically made with two or more kinds of cheese, which is an excellent source of calcium. There are now many low-fat cheeses available as an option when making lasagna at home. You will still get all of the calcium without extra calories.*

- **Cheddar cheese** – Hard cheeses, like Swiss, Cheddar, and mozzarella are high in calcium.
- **2% Reduced-fat milk and 1% Low-fat milk** – All types of milk provide us with 30% DV for calcium for a 1-cup serving. A lot of people are surprised when they hear this. The main difference between different milks is the calories. For example, the same amount of fat-free milk has about 80 calories instead of the 121 calories in the reduced-fat example.
- **1% Low-fat chocolate milk** – Just like white milk, the % DV is about 30%. Flavored milk has all the same nutrients as plain milk, and research shows that children who drink flavored milk do not consume more added sugars or total fat overall than children who do not drink flavored milk.
- **Low-fat strawberry yogurt** – Like milk, eating yogurt is a great way to get the calcium you need. If you are watching your calories, choose “light.” It’s still an “excellent” source of calcium.
- **Milkshake** – Another delicious way to get calcium. The key to foods like milkshakes is to make sure that you watch your portion size and plan for the calories.

9. Summarize with some general observations about the line-up:

- The foods that are at the high end of the line are all excellent sources of calcium – milk, cheese and yogurt from the Milk Group.
- Instead of listing the milligrams of calcium, the food label lists the % DV.
- % DV on the food label is a tool that you can use to tell how much calcium is in a serving of food. This makes it easy for us to choose calcium-rich foods and not have to keep track of milligrams.
- The best way to ensure that we get 100% DV is to eat 3-A-Day™ of Dairy – three daily servings of milk, cheese or yogurt.

Note: The daily calcium recommendation for children and teens ages 9-18 is 1,300 mg per day. Three daily servings of milk, cheese or yogurt provide about 900 mg. Other foods in a nutritious diet can make up the additional calcium. The 2005 *Dietary Guidelines for Americans* recommends 3-A-Day™ of Dairy for this age group, while the American Academy of Pediatrics recommends 4 servings.

