

How Much Calcium is in Your Bones?

Target Audience: *Upper Elementary to Adult*

Education Setting: *Display (Adaptable for classroom)*

Objectives:

- Demonstrate the amount of calcium in bones at various life stages, using visual representations.
- Demonstrate the change in the amount of calcium in the bones over the life stages, and the importance of a calcium-rich diet.

Materials Needed:

- At least 10 pounds white flour (you may need more)
- Measuring cups (¼ cup, ½ cup, 1 cup)
- Clear re-sealable plastic bags (of various sizes)
- Marker or labels for bags

Set-up:

1. Measure flour into bags according to chart on page 2. You may want to double bag.
2. Label bags according to the stage of life.
3. See photo on page 2 for set-up example.

Background Information:

Flour is being used to represent the average amount of calcium in the body at the listed age. It provides only a visual tool for the activity; flour is not a good source of calcium.

Lesson Activity:

1. Display flour bags, representing calcium, in age order from “newborn” through “adult with osteoporosis of 30-40% bone loss.”
2. Ask students what they see by looking at the amount of calcium represented in each bag.
3. Refer to bags to illustrate that the flour represents the amount of calcium by weight in the body at the different life stages.

Discuss:

- Good bone health is important at all ages. When your diet doesn’t provide enough calcium for everyday life functions (such as blood-clotting and regulation of your heart beat), your body takes what it needs from your bones. Over time, this can weaken bones to the point that they break easily.
- Calcium from food becomes part of your bones’ framework. The more calcium your bones contain, the stronger and denser they are. As you grow, your bones require more calcium to grow as well. That is why it is especially important for children and teens to eat calcium-rich foods.
- Vitamin D is a bone-builder, too. It helps your body absorb calcium from food and helps deposit the mineral into your bones. You can’t keep bones healthy without the vitamin D and calcium partnership. Phosphorous and magnesium are also major mineral components of bones.
- Childhood and teenage years are critical ages for building peak bone mass. Most bone growth occurs from age 11 to 16; and 85-90 percent of adult bone mass is acquired by age 18 in girls and age 20 in boys.

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<u>Amount of Flour*</u>	<u>Stage of Life</u>
1/4 cup	Newborn
4 cups	10 year-old
9 cups	15 year-old
11 cups	Adult
6 ½ cups	Adult with osteoporosis of 30-40% bone loss

* Figures taken from: *The Handbook of Dairy Foods and Nutrition, second edition, National Dairy Council, 2000.*

Reinforce:

- Ask students to share what they learned from the activity.
- Provide age-appropriate recipes from www.3aday.org to encourage dietary calcium consumption.

Recommended Supplemental Resources:

- The Bone Bulletin
- 33 Tasty Snack Ideas
- Calcium – Are you getting enough?
- Bone up on Dairy

Cups of Calcium Display:

