

Teen Years

A Once in a Lifetime Chance to Build Bone

Overview

Students will recognize the importance of building bone during their teen years for bone health and for the prevention of osteoporosis later in life.

They will also assess their calcium intake, and compare it to the recommended calcium intake for their age group. Finally, they will create a plan to improve their calcium intake to meet their recommendation.

Estimated time: 45-60 minutes.

Learning Outcomes

By the end of this lesson, students will believe it is important to build strong bones. They will be able to list 3 ways to build strong bones.

Please refer to the Prescribed Learning Outcomes handout for a list of outcomes addressed in each grade.

Key Concepts

- Bone health is a major issue facing adolescents. Recent evidence shows that the food and activity choices teens make can have immediate consequences—a higher bone fracture rate in youth is associated with low calcium intake.
- Though we are accustomed to thinking of bone health as a disease of old age, in reality, the pre-teen and teen years are the most critical years for building healthy bone.
- Calcium-rich diets and weight-bearing activities are necessary for building healthy bone.

Materials

- Class set of Calcium Calculator™ brochures
- Computer, Projector, Screen and Power Point presentation downloaded from www.bcdairyfoundation.ca with teacher notes
- Teacher Backgrounder: Common Calcium Concerns (available from BC Dairy Foundation)
- Props (measuring cups, measuring spoons, calcium-rich foods)

If preparing calcium rich snacks: (optional learning activity 4)

- Ingredients for smoothie (milk, yogurt, fruit) or muesli (grains, fruit/nuts/seeds, yogurt, milk) or yogurt sundae (granola or grains, fruit/nuts/seeds, yogurt)
- Small cups for tasting, spoons if preparing muesli or yogurt sundae
- Blender for smoothie

Teen Years

A Once in a Lifetime Chance to Build Bone

Procedure

Learning Activity 1: Are you getting enough calcium?

- a. Run the Power Point presentation “Teen Years: A Once in a Lifetime Chance to Build Bone”. Introduce the topic of the lesson. (Slide 1)
- b. Ask students to write down on a piece of paper what they ate and drank the day before. Have them assess their calcium intake using the Calcium Calculator™ brochure. Ask students to complete Step 2 of the Calcium Calculator™ brochure. (Slide 2)

Learning Activity 2: Let’s build bone!

- a. Explain to students why it is important to build bone in their teen years. (Slide 3–12)
- b. Explore some of the teen-related risk factors that can affect bone health. (Slide 13–19)
- c. Identify how teens can build healthy bone. (Slide 20–31)

Learning Activity 3: Let’s get dense!

- a. Ask students to complete Steps 3 and 4 of Calcium Calculator™. Students will develop a plan to get the calcium they need. (Slide 32)
- b. Brainstorm with your students a list of challenges they may face when trying to get enough calcium (e.g., time, friends, family, don’t like calcium-rich foods, don’t know how to prepare calcium-rich snacks, lack of appropriate choices available). Use the examples provided in the presentation to help them problem-solve. (Slides 33–36)
- c. Wrap up the presentation by reviewing the key messages. (Slide 37–39)

Learning Activity 4: Prepare calcium-rich snacks (optional)

- Choose a recipe from the recipe handout.
- Make a calcium-rich snack. (Slide 40)

Assessment Activities

Distribute the list of assessment activities to your students and have them select one or more.

Teen Years

A Once in a Lifetime Chance to Build Bone

Assessment Activities

- Visit a grocery store. Besides milk products, what other calcium-rich foods are sold in the store? Check nutrition labels and record the calcium (expressed as % daily value) content of different products. Are there some calcium-rich products you would like to try? Prepare a summary of your grocery store visit and share your findings with the class.
- Form a group and research in your school/public library or on the internet about specific bone health topics. You can also interview the community nutritionist at your local health unit. You may write a paper on the topic, or present your research findings to the class.

Suggested topics:

- How does osteoporosis develop?
 - How do you meet the 1300 mg calcium recommendation if you do not consume any milk products? Develop and share a sample meal plan and tips for boosting calcium intake.
 - What is lactose intolerance? How can a person with lactose intolerance meet his/her calcium needs?
-
- Form a student “Super Calcium” cookbook committee; assign responsibilities for promotion, cookbook design/layout, nutritional analysis, financial management, etc. Each student in the class will contribute a calcium-rich recipe. Compile the recipes into a cookbook for sale in the school community as a fundraising event.
 - Use the smoothie recipe provided by your teacher or invent your own to sell smoothies as part of your school fundraising efforts.
 - Use the Bone Zone video (available from BC Dairy Foundation) and the information provided by your teacher in the Power Point presentation on calcium and bone health to prepare a video on the importance of bone health in teen years.
 - Invent a bone-building exercise (jumping rope, jogging, dancing, weight-lifting, step aerobics) that you will feature in a station in the school gym. This activity can be done as a regular Physical Education class.
 - Bring various calcium-rich foods: milk, flavoured milk, yogurt, cheese, skim milk powder, calcium-fortified beverages, almonds, pudding, oranges, broccoli, etc. Set up calcium-rich food stations in the classroom. Students will then visit each food station to taste the different snacks and record their comments and ideas (taste, appearance, smell, texture, ways to incorporate the calcium-rich food in their diet). Stations can include details of food products, recipes, meal/snack ideas. One or two simple food demonstrations can be done. Examples: fruit milkshakes, cheese and crackers, muesli.