



**Building Better Bones Program**  
**Class Number 3**  
**“Bone Up on Calcium at Fast Food Restaurants”**  
**50 Minutes**

**Lesson at a glance:**

In today’s society fast food is a way of life. Fast food can be calcium rich but it also is very high in fat. Very few students in the nine to eleven year age range consume enough calcium to build bone mass while keeping fat consumption low to prevent heart disease and overweight. The percent daily value for calcium in this age range is 130% (1300 mg). The number of fat grams for this age range varies, but it usually ranges from 60-75 grams a day. In this lesson, students are given the opportunity to evaluate their own fat and calcium intake utilizing fast food menu options.

**Objectives:**

Upon completion of the class, students will be able to:

1. Calculate the amount of calcium in a chosen meal.
2. Identify foods with calcium from all the food groups on the food guide pyramid.
3. Recognize 130% Daily Value as a goal for calcium intake (1300 mg).
4. Plan a fast food meal that provides at least 40% Daily Value for calcium and less than 25 grams of fat.
5. Identify the effects that excess fat has on blood vessels and the human heart.
6. Identify that a healthy diet should be high in calcium and low in fat.

**Materials:**

1. Death of an Artery – Health Edco
2. How a High Fat Diet Affects Your Arteries Poster – Health Edco
3. Fast Food Menu
4. Fast Food Velcro Photos
5. Plate and menu display board
6. Fat/Calcium *slide guide*
7. Snoopy Food Guide Pyramid Board
8. Optional if you do a food demonstration: Low-fat milk, flavored low-fat yogurt, fruit, blender, sampling cups, napkins, dish rag, large spoon, spatula
10. Dairy Council cow pens

## **Handouts:**

### In-class Handouts:

1. Fast Food Order Form

### Leave with Teacher Handouts:

1. Website and Recipe Handout
2. *What Does One Serving Size Look Like?* – Massachusetts Department of Public Health
3. *Low-Fat, Bone-Building Fast Foods* sheet – Massachusetts Department of Public Health,
4. Teacher evaluation

## **Introduction:**

Hi, I'm \_\_\_\_\_ and today we are going to learn more about the BBB's, Building Better Bones, and preventing osteoporosis by eating healthy foods that have plenty of calcium.

Before we start, let's review what we learned in our first two lessons. (*Use the myths/facts activity to review.*)

## **Activity - Facts and Myths about Osteoporosis**

Who can tell me what a myth is? Right, a myth is something that is not true. Who can tell me what a fact is? Right, a fact is something that is true. We are going to review today using different statements that are either a myth or a fact. (*Hold up the first card*) Who would like to read this card for me? (*Choose a student to read the card*) By a show of hands how many of you think this statement is a myth? How many of you think this statement is a fact? (Discuss each statement) (Repeat process for each card)

## **Myth and Facts about Osteoporosis**

### **Discussion Guide**

1. Men do not get osteoporosis.  
**Myth** - Men can and do get osteoporosis. Twenty percent of people with osteoporosis are men. However, fewer men than women get osteoporosis because they start out with bigger bones and usually eat more calcium.
2. The only way to get all the calcium the body needs is by taking calcium supplements.  
**Myth** - A well balanced diet can provide all of the calcium a body needs. Healthy people who eat calcium-rich foods can get enough calcium. Students your age need 130% of the daily value for calcium. You can help reach this goal by getting four servings of foods from the milk group. Fat free milk or 1% milk is recommended because they provide a lot of calcium without the extra fat.
3. If your grandmother had osteoporosis, you'll get it too  
**Myth** - Heredity is ONE of many risk factors. But we can do many things to promote bone strength. (physical activity, high calcium diet) The preteen and teenage years would be a

good time to build bone density so that later in life the bones will not become brittle.

4. Skipping meals prevents the body from getting all of the nutrients it needs and weakens the bones for life.

**Fact** - Young people who skip meals can not get enough calcium and this can lead to osteoporosis later in life. Without enough calcium, bones will not become as dense, strong or solid as they need to be.

5. Dairy foods are the only source of calcium.

**Myth** - Although milk, yogurt and cheese are the best sources of calcium, they are not the only sources. There are many other foods that also provide calcium such as fortified foods. Some cereals, orange juice, tofu and bread have calcium added to them. As we have seen, dark leafy vegetables and beans also have a small amount of calcium.

6. Physical Activity has no impact on building stronger bones.

**Myth** – Review that physical activities help build stronger, denser bones. Also, review the recommendations for physical activity. (Accumulate 30 minutes a day at least 5 days a week and review push, pull, pound and pick-up)

7. Preteens are too young to worry about bone development.

**Myth** - Bones are growing every day but by age 18, 90% of your total bone density is developed. After age 30, bones cannot become denser. Your bones will be as strong and dense, as they will ever get. Now is the time to build bone density by consuming a diet with plenty of calcium

8. Soda can prevent building of stronger bones.

**Fact** - Soda contains 0% daily value for calcium and lots of sugar. American kids today are drinking more soda than ever before. In fact, on average, those children who consume soda drink approximately 25 ounces a day or 2 cans daily. When you drink soda in place of milk you are getting extra calories and none of the calcium you need to help build bone. Filling up on soda will prevent you from achieving your peak bone density (bone mass). (*Show the ziplock baggie with 10 teaspoons of sugar inside*)

### **Fat Introduction**

Who remembers from our first nutrition lesson why too much fat in our diet can be bad for us? Right, if we eat a diet high in fat this could lead to many different diseases such as high blood pressure or high blood pressure, diabetes mellitus, heart disease and overweight later in life.

Today we are going to concentrate on how too much fat in the diet along with too little physical activity can affect our heart muscle. Who can tell me what an artery is? Right, an artery is a vessel that carries

blood, nutrients, and oxygen throughout our body. When we consistently eat too much fat overtime the excess fat builds up on our arteries making it hard for blood, nutrients and oxygen to be delivered throughout our bodies. (*Hold up Death of an Artery Model from Health Edco*) The first artery is clear, there is no fat build up. (*Ask for a volunteer and have the student come to the front of the classroom*) How many fingers can you put in the clear artery? Now, the next artery shows build up beginning. How many fingers can you place in this artery? The third artery has further blockage and fat build up. How many fingers can you place in this artery? The fourth artery is almost completely blocked. How many fingers can you get in that artery? None. So if you cannot get any fingers in the artery do you think that blood, nutrients and oxygen can get through easily? The last artery is completely blocked. What do you think might happen in this case? Right, a heart attack or a brain attack.

(*Hold up the How a High-Fat Diet Affects Your Arteries Poster, What the Fast Food Ads Don't Tell You.*) This poster shows us the difference between a healthy artery and a partially blocked artery. In the healthy artery the blood vessel is wide, smooth and free of any plaque or fat build-up. In the partially blocked artery the blood vessel has globs of fat attached to the inner wall. This blocking restricts blood flow to your vital organs by half. With restricted blood flow you increase your chances for a heart or brain attack.

Now that we know how too much fat can affect our arteries and our bodies we are going to do a fun activity to learn how to limit the amount of fat that we eat when we eat at fast food restaurants.

### **Fast Food Activity**

From time to time you might end up choosing a meal from a fast food restaurant. How many of you eat at fast food restaurants? I think we all eat at them from time to time. If you do, I want you to know how to choose high calcium choices without eating too much fat. If you remember from our first nutrition lesson we said that we want calcium numbers to be high and fat numbers to be low; so the numbers are opposites.

Today we are going to get a chance to order a meal from a fast food restaurant. What I want you to keep in mind while placing your order is to keep your fat grams low and your %DV for calcium high. The fast food menu that I am going to pass out has fat grams and %DV for calcium values instead of prices. Your challenge is to order a meal with no more than 3 foods with at least 40% DV for calcium and less than 25 grams of fat. I am going to pass out a worksheet with these instructions on them. (*Hold up the Fast Food Order Form Worksheet*)

First, write down 3 foods from the menu on your worksheet and write down the %DV for calcium and fat grams for each food. Next, I am going to give each of you a calcium/fat slide guide. (*Hold up the calcium/fat slide guide*) On the *slide guide* for each food you choose, slide the peg to that number. Remember that your goal is 40% DV for calcium and 25 grams of fat, when you have all your food items totaled both values should be in the green areas and are at opposite ends of the board. For example, I am going to choose a hamburger. From the menu a hamburger has 12% DV for calcium and 10 grams

of fat so I would move the top calcium peg to 12% and the bottom fat peg to 10 grams. (*Demonstrate this using the calcium/fat slide guide*) Then, I am going to choose 1% chocolate milk. From the menu 1% chocolate milk provides 30% DV for calcium and 3 grams of fat. So I am going to move my calcium peg another 30% points to give me a total of 42% and I am going to move my fat peg another 3 grams to give me a total of 13 grams of fat. (*Again, demonstrate using the slide guide*) Now both calcium and fat are in the green shaded areas right where I want them to be and on opposite ends of each other.

If you do not meet your goals with your first order flip your Fast Food Order Form Worksheet over and try again. You have four chances.

*(While the students are planning their meals place all the Velcro fast food photos on the Snoopy Food Guide Pyramid in the appropriate places and be available to answer any questions.)*

### **Meal Board Activity**

Now that everyone has completed their fast food order I need a volunteer to come up and find the foods that they ordered from the Food Guide Pyramid and place them on our meal board. Our meal board has a dinner plate, a side/dessert plate, and a place for a drink. Place your fast food order on the menu board in the appropriate places. (*Ask for 2 more volunteers to come up and tally % DV and fat grams on the board*) As you place your meal on the board look on the back of the food model and let us know how much calcium and fat is in each food and we will tally them on the board. (*Encourage the rest of the class to play along using their fat/calcium slide boards*) Did this volunteer meet the goal of at least 40% DV for calcium and 25 grams or less for fat? (- Repeat meal sharing as time permits -)

### **Optional**

Do a food demonstration. Make smoothies with fat free milk, low-fat flavored yogurt and fresh, frozen, or canned fruit. Pass out samples along with recipes.

### **Summary:**

Have the students answer the following questions:

1. What % Daily Value for calcium do you need each day? (130%)
2. Where can you find the calcium content of a food? (on the bottom of the food label)
3. Name at least one food from each food group that contains calcium. (calcium fortified cereal, calcium fortified orange juice, broccoli, 1% milk, beans)
4. What is the name of this program? (Building Better Bones)
5. If you have eaten 90% of your Daily Value for calcium for the day, how much more would you need? ( $120 - 90 = 30$ ) What one food could I use to get 30% in one serving? (Milk)
6. Name one risk of eating too much fat in your diet. (High blood pressure, Heart Disease, Diabetes Mellitus, Overweight)
7. When comparing fat and calcium values we want these numbers to be what? (calcium high and

fat low)

(*Pass out the post survey*) Now, we are going to do the follow-up survey to see what you have learned. Have the students take the post survey and collect.

**Ideas for Going Further:**

1. Develop a calcium foods display table. Have students bring in empty food containers and group them according to % daily value for calcium. 0-9% (some calcium), 10-19% (good source of calcium), 20% and higher (high, rich in, or excellent source of calcium).
2. Information on calcium and osteoporosis prevention can be obtained by teachers from Dairy Council of Arizona, (480) 966-7211, 2008 S. Hardy, Tempe, AZ 85282.
3. Provide teacher with *AWhat Does One Serving Size Look Like?* handout. Bring in measuring cups and have students guess what a serving of different foods is and then actually measure it out.
4. Provide teacher with *ALow-Fat, Bone-Building Fast Foods* handout. Suggest students be allowed to plan some fast food meals. They should look for foods that would make a meal with at least 30% of the daily value for calcium, while having less than 20% of the calories from fat.
5. Websites and Recipes Handout

**Arizona Standards – Comprehensive Health Education Standards**

CH1-E1 Explain the relationship between positive health behaviors and health care and the prevention of injury, illness, disease, and disability and premature death

PO1 Illustrate how positive health behaviors can prevent common injuries, diseases and conditions

CH1-E6 Describe ways to reduce risks related to adolescent health problems

PO1 Determine personal health behaviors that reduce health problems

CH1 E8 Explain how basic nutrients are utilized by the body and the relationship of a balanced diet and essential nutrients to appropriate weight, appearance and wellness

PO2 Describe how a balanced and nutritious diet is related to weight, appearance and wellness

CH1-P1 Analyze how behavior impacts health maintenance and disease prevention

PO1 Determine the positive and negative choices for a balanced, healthy lifestyle (e.g. poor eating habits versus good eating habits)

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