Bone health is an important issue that should not be ignored. As we age, our bones remodel. Over time bone loss can occur, which may result in an increased risk for fractures. Weak bones, or osteopenia, is a pre-condition to brittle bones or osteoporosis. Learning about bone health and what you can do to prevent bone loss is an important first step in prevention.

Certain risk factors cause accelerated bone loss. Some of these factors are controlled and some are not within our control. These factors include:

- Calcium intake
- Vitamin D intake
- Diet
- Smoking
- Medications
- Gender
- Age
- Race
- Family history/genetics
- Estrogen
- High-protein diets
- Alcoholism
- Medical conditions: hyperthyroidism, gastrectomy, Crohn’s Disease, anorexia
- Dieting and yo-yo weight loss
- Exercise and weight-bearing activity

Race, genetics, age, estrogen levels and medical conditions are things that we cannot control. Other factors—such as diet, exercise, calcium and vitamin D intake, smoking, alcohol intake and weight loss history—are all factors that we can control.

Bone density is dependent upon both controllable and un-controllable factors. Our bones continue to grow stronger and stronger until our late 20’s. After that time, our bones continue to remodel. Without enough calcium and vitamin D, or if other factors which cause accelerated bone loss are present, our bones will deteriorate at a quicker rate. You can think of a bank analogy: your bones grow stronger until your mid 20’s (this is the time that you have created a savings account for your bones). In your early 30’s, your bones “retire” and start using the savings account. If you did not “save” enough, then accelerated bone loss will happen, increasing your risk for developing osteopenia and osteoporosis.

The future doesn’t have to look bleak. There are things that you can do to help create a “bank account” for your bones. Here are just a few:

**Calcium:** Eating foods rich in calcium is essential to bone health. Adults need at least 1,000 milligrams of calcium on a daily basis. Older adults (over 50 years old) need a minimum of 1,200 milligrams each day. Foods rich in calcium include low-fat dairy products (milk, yogurt, and cheese), fortified foods (such as orange juice, cereal bars, cereal, and bread), sardines, and leafy green vegetables. Limit dark-colored soda. Soda contains phosphates, which can leach calcium from the bones. If your diet does not meet the minimum calcium requirements, or if you have other risk factors of bone loss, it is important to supplement your diet with calcium. Speak to your healthcare provider for more information.

**Vitamin D:** Vitamin D is a key player in the metabolism of calcium in the body. Adults need a minimum of 400 IU a day. Researchers are studying the effects of vitamin D on not only bone health, but as to how it relates to other diseases as well. Talk to your healthcare provider if you are unsure of your vitamin D status.

**Exercise:** It is recommended that you exercise 30 minutes a day on most days with weight-bearing activities. Walking, jogging, and weight lifting are all excellent weight-bearing activities.

**Weight Loss:** People who lose weight rapidly following fad diets and regain weight back once off the fad diets put their bones at a higher risk of
bone loss. This is due to the restrictive nature of many of these diets. Following a high-protein or a diet lacking in dairy-rich foods may cause a lack of calcium in the bones and an accelerated rate of bone loss over time. It is best to lose weight gradually with a healthy well-balanced meal plan and daily exercise.

Smoking: Smoking tobacco reduces calcium absorption in the bones and accelerates bone loss over time. If you are a smoker, it is time to think about quitting.

Alcohol: Drinking excessive amounts of alcohol also reduces the body’s ability to absorb calcium. It is recommended to limit consumption to no more than one drink a day for women and two drinks a day for men. If you do not consume alcohol, it is recommended that you do not start.

Bringing Home the Bank Activity
To illustrate how important it is to create a savings account, you can visually represent bone health throughout the life cycle.

Materials:
4 see-through containers (large, 20-ounce, clear, plastic cups work well)
6 cups all-purpose flour
Measuring cups (1 cup, 1/2 cup, 1/4 cup)
Large spoon

Directions:
Label each container with the following:
cup A birth/early childhood
cup B teenager/early 20’s
cup C middle age
cup D elderly

Measure out one cup of flour into each of the four containers. This is your savings account for your bones.

Create some scenarios:
1. Pretend that as a child you love to drink milk and you exercise regularly. There is no family history of osteoporosis.
   • Add one cup of flour to cup B.
   • Add one half-cup of flour to cup C.
   • Leave cups A and D at 1 cup.

2. Pretend now that you have a family history of osteoporosis and that you smoke. Remove the following from the cups:
   • 1/2 cup of flour from cup B
   • 1/2 cup of flour from cup C
   • 1/2 cup of flour from cup D

3. Lastly, pretend that you stopped drinking milk as a teenager and you do not take a calcium or vitamin D supplement on a regular basis. Remove the following from the cups:
   • 1/4 cup of flour from cup B
   • 1/4 cup of flour from cup C
   • 1/4 cup of flour from cup D

Discussion
As this demonstration shows, it is important to create a savings account for your bones. The more you do early on in life (such as eating foods rich in dairy, getting enough vitamin D and calcium, exercising daily, abstaining from smoking and drinking), the stronger your bones will be. Discuss what would happen to the flour cups if you started eating calcium-rich foods. What if you started taking a calcium and vitamin D supplement? What if you started exercising regularly? The answer to each of these questions is that, although you cannot add more to your savings (cup B), you can prevent having to take more out of cups C and D.

Take Action! Think of and discuss two ways that you will try to improve your bone health.