

Strong Bones for Life: Prevent Osteoporosis

KEHA FACILITATOR'S GUIDE (for Leader Training and Club Meetings)

“Osteoporosis is not an inevitable part of aging; it is preventable. So, it is vital that all of us, of all ages, start taking care of our bones now, before it is too late.”

-Camilla Parker Bowles, Queen Consort

Background

Osteoporosis, or low bone mass, affects about 1 in 10 people aged 50 or older in the United States (Healthy People 2030). Weak bones put people at high risk for fractures and serious health problems. It is a “costly and socioeconomic burden in all regions of the world” according to the International Osteoporosis Foundation. There is no cure for osteoporosis, but early screening, prevention, and some treatments can prevent or reduce fracture rates.

The National Institutes of Health refer to Osteoporosis as “a childhood disease with old age consequences.” During childhood, adolescence, and early adulthood, for example, bones continue to grow in size and density. During this time, proper nutrition and regular exercise can significantly increase bone mass and enhance bone health. Poor health decisions like smoking, inactivity, excessive alcohol intake and poor diet, can decrease bone mass (NIH, 2021). Thus, the NIH encourages a “bone bank” philosophy in which you invest in bone health while young so that the benefits last into old age (NIH, 2022). The goal is to bank as much bone strength and health as possible for as long as you can (NIH, 2017).

Most people reach their peak bone mass in their mid to late 20s and slowly start losing bone mass around age 40 (NIH, 2021; NIH, 2022). It is normal to lose bone mass over time. But those who have higher peak bone mass when young are better protected against fractures and osteoporosis in old age (NIH, 2021).

Bone health is important across the life span. To educate and help reduce osteoporosis risk in Kentucky, FCS Extension is promoting bone health through nutrition, physical activity and fall prevention.

Lesson Objectives

After this lesson, participants will be able to:

- Define osteoporosis,
- Identify osteoporosis risk factors,
- Implement bone healthy lifestyle choices, and
- Compose questions for a health-care professional.

Target Audience

KEHA leaders and club members.

Optimal Group Size

This lesson can accommodate both small and large groups.

Estimated Program Time

Leader Training: The training is designed to take approximately 30 to 90 minutes to complete. Trainers may shorten or lengthen the training by adjusting time spent in discussion, showing demonstration videos, and/or cooking recipes.

Club Lesson: 30 to 60 minutes depending on group discussion and activities.

Media/Marketing

- Flyer template
- Social Media or Community Calendar posts
- 60-second radio script
- Newspaper article
- Caregiver Health Bulletin. Osteoporosis Awareness (Oct. 2022). <https://fcs-hes.ca.uky.edu/files/1022-healthbulletin-familycaregiver.pdf>
- Talking FACS Podcasts
 - Strong Bones for Life: Focus on Nutrition
 - Strong Bones for Life: Focus on Physical Activity
 - Strong Bones for Life: Focus on Fall Prevention
- Marketing Flyer

Plan for the Leader Training or Club Lesson

This lesson highlights osteoporosis and the importance of bone health. The lesson materials and presentation plan are straightforward. The PowerPoint presentation includes slides and a script with information adapted from various resources, including American Bone Health, Centers for Disease Control and Prevention, International Osteoporosis Foundation, and the National Institutes of Health. The slides serve as a visual aid, and the “notes” section of the presentation includes a script that will help presenters with content delivery and ideas for group discussion, activity, and audience participation. To enhance the presentation, a risk test from the International Osteoporosis Foundation and exercises from Sliver Sneakers have been included. Options for making or sharing bone healthy recipes are encouraged. A post-lesson evaluation aims to measure program knowledge, and behavior intentions. In addition, the lesson includes one Extension publication.

Required Program Materials, Handouts, and Supplies for Leader Training

- Sign-in sheet
- PowerPoint presentation
- Facilitator script (in PowerPoint notes sections)
- Post-lesson evaluation tool
- Success story template
- Handouts
 - FCS Publication: Strong Bones for Life: Prevent Osteoporosis
 - International Osteoporosis Foundation (IOF) One-Minute Osteoporosis Risk Test (Optional)
 - Bone Health Plate it Up Recipes (Optional)
 - Osteoporosis Word Scramble (Optional)
- Laptop, internet, external speakers, projector, screen
- Activity supplies (look at activity options below)

Required Program Materials, Handouts, and Supplies for Club Lesson

- Sign in sheet
- Handouts
 - FCS Publication: Strong Bones for Life: Prevent Osteoporosis
 - International Osteoporosis Foundation (IOF) One-Minute Osteoporosis Risk Test (Optional)
 - Bone Health Plate it Up Recipes (Optional)
 - Osteoporosis Word Scramble (Optional)

- Facilitator script (see below)
- Post-lesson evaluation tool
- Activity supplies (look at activity options below)

Activity Options

1. **Recipe demonstration and tasting.** Three recipes are provided as options for a recipe demonstration and tasting.
 - a. *Kickin' Greens* (<https://fcs-hes.ca.uky.edu/recipe/kickin-greens>): This recipe is a dairy-free option that provides 20% Daily Value of calcium per serving.
 - b. *Cheesy Squash Medley* (<https://fcs-hes.ca.uky.edu/recipe/cheesy-squash-medley>): This recipe is a dairy option that provides 20% Daily Value of calcium per serving.
 - c. *Ricotta Pancakes* (<https://www.bonehealthandosteoporosis.org/wp-content/uploads/Recipe-for-Ricotta-Pancakes.pdf>): This recipe provides a creative example for boosting calcium in common foods we prepare. The ingredients are simple and work well for a demonstration and tasting. Using a blender or food processor would be beneficial with this recipe for a smooth batter consistency. This recipe provides 15% Daily Value of calcium.

Nutritional Analysis: 250 calories, 15g fat, 9g saturated fat, 0g trans fat, 155mg cholesterol, 11g carbohydrates, 0g fiber, 3g added sugar, 13g protein, 225mg calcium

2. **Osteoporosis Risk Test.** You can distribute the following risk test as a take home handout or use it as an activity during the presentation. This could serve as the starting point for future conversations with health-care providers about osteoporosis. <https://www.bbcbonehealth.org/sites/bbc/files/documents/risktestenglish2.pdf>
3. **Physical Activity.** Although SilverSneakers focuses on older adults, the workout and activities found at this link are appropriate for all ages and ranges of mobility (<https://www.silversneakers.com/blog/total-body-chair-workout-for-older-adults/>). Several exercises and demonstration videos are provided. Options for use include listing out exercises, demonstrating exercises, or implementing the entire 15-minute workout. Consider whether the Assumption of Risk, Release, and Waiver form is required for your participants.

NOTE: These demonstration videos have been inserted into the PowerPoint presentation. You will need access to the internet and speakers to play the videos.

4. **Word Scramble Activity.** You could distribute this activity before the program as individuals arrive and register. It could also be a handout you send home with participants or to support mailbox participants for programs.

Lesson Preparation and Implementation (Lesson, Script, Evaluation)

Leader Training

- Choose your activities, gather materials.
- Review and make copies of the handouts (publication, optional word scramble, one-minute osteoporosis test, recipes).
- Make copy of attendance roster.
- Make a copy of the lesson evaluation.
- Review the PowerPoint slides and script.
 - Option to add community resources to PowerPoint slides regarding places or programs for physical activity and strength-training as well as fall prevention. See slides as place holders. If you do not add options, delete slides.
- Make sure the computer, internet, and sound are working.
- Make sure you can pull up the PowerPoint.
- Use PowerPoint presentation and script to guide your lesson.
- Welcome club leaders. Introduce yourself and thank everyone for attending the training.
- Remind club leaders to sign the attendance roster.
- Distribute handouts (publication, optional word scramble, one-minute osteoporosis test, recipes).
- Begin PowerPoint presentation and follow the lesson script, discussion, and include selected activities.
- Hand out post-lesson evaluation. After the leader training, provide leaders with a voluntary opportunity to complete the evaluation form (3 to 5 minutes). Remind leaders to pass out evaluations at club meetings and to return evaluations to their county agent within one week of the lesson.
- Complete the success story (template provided) and report indicators in KERS (see below). If you need help with evaluation, scan and email or mail lesson evaluations to:
Amy Kostelic (Extension Specialist for Adult Development and Aging)
102 Erikson Hall - University of Kentucky - Lexington, KY 40506
Email:amy.kostelic@uky.edu

Club Lesson (allow 30 to 60 minutes):

- Choose your activities and gather materials.
- Review and make copies of the handouts (publication, optional word scramble, one-minute osteoporosis test, recipes).
- Make copy of attendance roster.
- Make a copy of the lesson evaluation.
- Review the script below if you are not using a PowerPoint.
- Welcome club members.
- Remind club members to sign in on the attendance roster.
- Distribute handouts (publication, optional word scramble, one-minute osteoporosis test, recipes).
- Using the script below if a PowerPoint is not being used. Walk the club members through the content to provide them with lesson familiarity and background information.
- Remind members about the importance of completing evaluation data. All participants who complete this lesson should be presented with a voluntary opportunity to fill out an evaluation.
- Return all evaluations to your local FCS Extension Agent within one week of your club meeting.

Club Lesson Script

If you do not use the PowerPoint presentation when implementing the lesson, use the following script. This ensures you will meet the lesson objectives when presenting. Discussion questions are included within the script and suggestions are made when activities could be incorporated.

Today we are going to talk about osteoporosis because we want to help you advocate for your bone health. After today, you will be able to:

1. Define osteoporosis,
2. Identify osteoporosis risk factors,
3. Implement bone healthy lifestyle choices, and
4. Compose questions for a health-care professional.

Objective 1: Define Osteoporosis. Discussion Question. Does anyone know what osteoporosis is?

Answer: Osteoporosis is a medical condition that causes bones to become porous (less dense), weak, and more prone to fractures. When bones break down faster than the body can rebuild them, bone density decreases, and bones become brittle and fragile.

The decrease in bone density makes the bones weak both inside and outside. A bone with osteoporosis looks like a honeycomb. The spaces within the honeycomb become larger and the outer shell of the honeycomb becomes thinner.

Bones affected by osteoporosis can break from a fall and in some serious situations, just from sneezing, coughing, or hitting a minor bump.

There is no cure for osteoporosis BUT there are ways to prevent and treat it.

Prevention starts when you are young. Do you remember your mom or dad telling you to drink your milk (calcium?). That milk was important because those who have a higher peak bone mass when young are better protected against fractures and osteoporosis in old age (NIH, 2021).

The National Institutes of Health (NIH) encourages a “bone bank” philosophy in which you invest in bone health while young so that the benefits last into old age (NIH, 2022).

The goal is to bank as much bone strength and health as possible for as long as you can (NIH, 2017).

Objective 2: Identify Osteoporosis Risk Factors

Optional Activity: Take the International Osteoporosis Foundation “One-minute Osteoporosis Risk Test” and discuss results as a group. Note: Answering “yes” to questions does not mean you have osteoporosis, but it may indicate that you have risk factors that could lead to osteoporosis and compromised bone health.

Risk Factors: Osteoporosis affects people of any age, gender, and ethnicity.

Some risk factors are preventable, and others are not.

Diet, physical activity, weight, smoking, alcohol use, and some medications are examples of preventable risk factors (NIH, 2018).

Age, gender, ethnicity, and family history are factors that you cannot control (NIH, 2018).

Both men and women are at risk for osteoporosis. But in general, older white and Asian women are more susceptible to it.

Other risk factors include:

- Broken bones after age 50
- loss of height (more than one inch)
- stooped posture
- early menopause
- removal of an ovary before menopause
- low calcium intake throughout life
- lack of sun exposure
- extended bed rest
- medical conditions like breast and prostate cancers, HIV, diabetes, rheumatoid arthritis, and certain digestive diseases
- Underweight
- petite frame
- sedentary lifestyle (IOF, 2019; NIH, 2017).

The risk of osteoporosis does increase with age (age 60+). Women also experience bone loss more quickly during menopause. Following menopause, bone loss continues but at a slower rate. According to the NIH, by age 65 or 70, men and women experience bone loss at similar rates.

It is important to talk about bone health with a health-care professional across the life span.

As a parent or grandparent, be sure to have conversations about your child's bone health. Again, according to NIH, "the health habits your kids are forming now can make, or literally break, their bones as they age" ... "Building your children's 'bone bank' account is a lot like saving for their education: The more they can put away when they're young, the longer it should last as they get older."

- Encourage them to consume calcium.
- Go in the sun or get vitamin D (or supplements).
- Be physically active with weight-bearing activity.
- Don't smoke or vape.
- Cut back on sugary drinks.
- Talk to a health-care professional if a girl has not gotten her period by age 15.

If there are concerns about bone strength or osteoporosis at any age, bone health assessments, like a fracture risk assessment and bone mineral density (BMD) test can further identify risk (IOF, 2019).

Routine screenings should occur for women older than 65 and anyone with increased risk factors. Be sure to report previous fractures, lifestyle habits, family history, and menstrual history. Exams should look at loss of height and/or weight, changes in posture, balance and gait (the way you walk), and muscle strength. Again, doctors may also order Bone Mineral Density (BMD) or other tests to evaluate bone.

Objective 3: Implement bone healthy lifestyle choices

To help improve bone health, consider nutrition, physical activity and fall prevention.

1. First, we will talk about NUTRITION.

Calcium is found in a variety of foods but is predominantly found in dairy items.

For those who cannot tolerate cow's milk or animal-based dairy items, there are other foods and beverages that can help you meet your daily calcium needs.

Discussion Question: From where do you get your calcium?

Possible answers may include:

- Dairy-based milks (e.g., cow, goat, sheep)
- Plant-based milk-type beverages (e.g., almond, soy)
- Cottage cheese and yogurts

- Cheeses
- Almonds
- Sardines and salmon
- Leafy greens (collard, kale, turnip, spinach, mustard)
- Calcium-fortified products (e.g., orange juice, breakfast cereals)

From the age of 4 on throughout adulthood, every person should consume at least 1,000 mg of calcium each day (refer back to RDA chart if need be).

Vitamin D is another important nutrient for bone health. It is crucial for efficient calcium absorption. As a result, vitamin D is required to build and maintain strong bones and muscles.

There are few foods naturally high in vitamin D. Some include salmon, canned tuna, egg yolks, cow's milk, and other vitamin D-fortified foods like orange juice and breakfast cereals.

Direct sunshine and sun exposure is also an easy way to get vitamin D. But there are things to keep in mind such as using sunscreen, age, type of skin, history of skin cancer, season of the year, geographic location, etc.

Vitamin D supplements can also help ensure you are getting enough Vitamin D.

Be sure to talk to a health-care professional about getting the right amount of vitamin D, as there is such thing as too much and too little.

OPTION: Make a bone healthy recipe OR hand out recipe cards.

2. Next, we will talk about PHYSICAL ACTIVITY.

Moving more and sitting less can increase bone and muscle strength, decrease risk of bone fracture, improve balance and posture, and relieve or decrease pain.

Exercise in childhood can establish healthy habits as well as strong bones for later in life.

Young adults who regularly exercise achieve greater peak bone mass than those who are not active.

Exercise before the age of 40 can help reduce the risk of falling in later life (International Osteoporosis Foundation, n.d.).

A lifetime of physical activity is associated with maintaining bone mineral density.

Weight-bearing and resistance exercises are recommended for keeping bones healthy and strong. The International Osteoporosis Foundation recommends targeting bones more susceptible to osteoporotic fracture—hip, wrist, and mid-spine.

Weight-bearing exercises include walking, hiking, jogging, climbing stairs, skipping rope, dancing, and racquet sports like tennis and pickleball.

According to the International Osteoporosis Foundation, vigorous exercise that requires short bursts of high intensity and/or high impact are more stimulating to bone cells than low impact exercise. This means that even though aerobic activity such as swimming and cycling is good for cardiovascular health, because it is non-weight bearing, it does not help improve bone density.

Resistance exercise Weightlifting is the most popular form of resistance training. You can use free weights (kettle balls, free weights, dumbbells) or exercise machines. You can even lift weights in a pool!

Bodyweight training includes calisthenic exercise like crunches, pushups, and squats. These exercises help you gain strength and mass. The resistance comes from moving your body against gravity (Live Strong, 2019).

Elastic bands give you an easy way to exercise at home. Originally designed for rehabilitation, they can also be used for resistance workouts. You can do traditional exercises like lateral raises, chest presses, and bicep curls. Various color bands indicate the amount of resistance, ranging from easy to hard (Live Strong, 2019).

Optional Physical Activity Activities:

- (1) The International Osteoporosis Foundation recommends jumping 50 times approximately 3 inches high 3 to 6 days a week to increase bone density.
- (2) SilverSneakers offers several exercises and demonstration videos, including a 15-minute workout. Recommend this to club members OR play the video and follow along. <https://www.silversneakers.com/blog/total-body-chair-workout-for-older-adults/>

3 Finally, we will talk about FALL PREVENTION.

One fall can be life changing.

Falls are the leading cause of injury and injury related death among older adults (National Council on Aging, 2022).

Falls can impact independence. They also create a fear of falling, which then limits physical and social activity.

The impact of falls is compounded in people with osteoporosis (International Osteoporosis Foundation 2022).

Exercise helps prevent falls. As a reminder, exercise before the age of 40 can help reduce the risk of falling in later life (International Osteoporosis Foundation, n.d.).

Also, as we previously discussed, weight-bearing exercise contributes to improved gait speed, muscle strength, and balance (International Osteoporosis Foundation, n.d.).

Exercises that target balance and lower and upper limb strength are best for reducing fractures and fall risk. For healthy individuals, exercises like Tai Chi, yoga, and Pilates help improve balance.

Other ways to prevent falls include (NIH, 2022; International Osteoporosis Foundation, 2022):

- Managing medications
- Keeping glasses clean and getting vision checked yearly
- Taking safety precautions at home like installing proper lighting and grab bars in bathrooms

- Using mobility devices properly
- Wearing proper footwear
- Standing up slowly
- Being careful on stairs
- Taking extra precaution outdoors in bad weather

Club Lesson Script

Resources are provided with this lesson which could be used as a mail-out lesson for Homemakers. Consider sending the following to mailbox members:

- Write a cover letter (see template below)
- Print and mail:
 - Cover letter
 - Publication: Strong Bones for Life: Prevent Osteoporosis (in process).
 - International Osteoporosis Foundation (IOF) One-Minute Osteoporosis Risk Test
 - Osteoporosis Word Scramble
 - Bone Health Plate it Up Recipes
 - Lesson evaluation

Dear [KEHA Member],

KEHA recognizes the importance of having strong bones for life. Bones protect our brain and organs from being injured, and they store and release essential minerals, like calcium. As a result, bone health is important at every age and stage of life. Over time, however, it is normal to lose mass. Osteoporosis is a disease that causes bones to become porous, weak, and more prone to fractures. Brittle bones can break easily. A minor fall, a sudden movement, and even a bump or sneeze can break a bone in someone with osteoporosis.

Osteoporosis itself is not painful. Some people do not know if they have weak bones or osteoporosis until a bone breaks. Because it happens over a long period of time and does not hurt, osteoporosis is referred to as the “silent” or “invisible” disease. Bones most vulnerable to osteoporosis include the spine, hips, ribs, upper arms, and wrists. Fractures and breaks can be painful, disfiguring, and life changing. There is no cure for osteoporosis but there are ways to prevent and treat it.

In today’s mail, we are sending a lesson to you on bone health and osteoporosis. This lesson summarizes the disease, identifies risk factors, encourages bone healthy lifestyles, and urges you to talk to a health-care provider.

After you read through the materials, we encourage you to complete the lesson evaluation that is included in your packet. Please mail the evaluation to: [FILL IN CONTACT INFORMATION].

We hope this lesson finds you well and inspires you to take control of your bone health.

Cheers,

[ADD SIGNATURE and TITLE]

Agents, please scan and email or mail lesson evaluations to:
Amy Kostelic (KEHA Family and Individual Development Advisor)
102 Erikson Hall
University of Kentucky
Lexington, KY 40506
Email: amy.kostelic@uky.edu

Note: Upon receipt of lesson evaluation, Amy Kostelic and Heather Norman-Burgdolf will work with county agents to return a county- and/or area-wide success story.

Program Indicators and Evaluation

If agents need help with summarizing evaluations, please scan and email or mail lesson evaluations to:

Amy Kostelic (KEHA Family and Individual Development Advisor)
102 Erikson Hall
University of Kentucky
Lexington, KY 40506
Email: amy.kostelic@uky.edu

Note: Upon receipt of lesson evaluation, Amy Kostelic and Heather Norman-Burgdolf will work with county agents to return a county- and/or area-wide success story.

Use the following program indicators for reporting this lesson in KERS.

2027 - Active Living and Health Promotions General

| Indicator Number | Indicator | Evaluation Response |
|------------------|---|--|
| 2027.4 | Number of participants <i>who attended age related health and wellness programs</i> not identified as a “major program.” (Major age-related programs include Keys to Embracing Again, 10 Warning Signs, and AARP Prepare to Care) | Report the total number of program participants for this indicator |

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