Senior Nutrition

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At A Glance

Body changes are a normal process of aging. These changes do not affect everyone at the same rate because these changes are influenced by genetics, diseases or other illnesses, diet and physical activity. A healthy lifestyle can slow down or reduce some of the negative effects of aging.

As we age it becomes more important to eat nutritious foods that are low in fat, sugar, and total calories. Some nutrients are a problem for older people and special efforts should be made to ensure adequate intake.

Time Required

Approximately 40 minutes

Core Messages

If we are fortunate, we will get old. There is good news and bad news. The bad news: There are physiological changes that occur in aging. Some of the changes that may occur muscle loss, bone loss, and teeth loss; diminished hearing, vision, sense of smell and taste; decreased ability to absorb certain nutrients; and decrease in the thirst mechanism. The good news: You have power to slow these changes and diminish the degree to which they occur. Many of these changes can be prevented or slowed dramatically through lifestyle.

There are specific nutrients which should be of concern for the aging population. The aging need to eat a balanced diet that focuses on high nutrient dense foods and low in fat, sugar. They need to avoid excess calories.

People of all ages need physical activity. They need to engage in endurance and strength building activities.

Objectives

As the result of participating in this learning session, learners will

- Name physiological changes of aging and the health consequences
- Identify nutrients that are of special concern for the elderly
- Apply what was learned in today’s lesson to a vignette about an elderly person

Outcomes

No SUPER indicators for this lesson

Materials Needed

- Flip chart and markers
- Handout – “Nutrients of Concern”
- Posters with various “truisms” about aging

Getting Ready

- Study the lesson plan carefully.
- Gather all materials needed.

“One of the many things no one tells you about aging is that it is such a nice change from being young.”
Make “truism” posters

Important message to agents:
When this lesson was piloted tested, the feedback said the lesson was depressing. There are two groups of people who benefit from understanding the aging process and the impact on overall nutritional status. One group is the people who work with elderly. The other is the elderly. Getting older is a blessing but there are changes that generally occur. The speed at which these changes occur, the severity of the changes and the consequences to our health is somewhat a controllable factor. This lesson is intended to make the participant aware of changes that occur with aging and the steps that one can take to slow down or diminish the consequences.

The “truisms” that you will find throughout this lesson plan are there to help people see the positive side to aging and to add a lighter “touch” to the lesson. If it does not fit your personality to use them, you can skip them.

FOR YOUR INFORMATION
Eating a healthy diet can reduce the risk for many conditions associated with aging, including but not limited to, anemia, confusion, infections, bone (especially hip) fractures, hypotension, and wounds. When combined with regular physical activity, a healthy diet can reduce the risk of many chronic diseases, including osteoporosis, type 2 diabetes, heart disease, stroke and some cancers.

Body Changes

Loss of muscle mass. As we age, we lose lean muscle mass that can affect vital organ function, including heart muscle. Heart capacity can be reduced and function impaired by chronic diseases such as atherosclerosis, hypertension or diabetes. Changes also occur in the kidneys, lungs and liver, and in our ability to generate new muscle tissue. In addition, aging can slow the immune system's response in making antibodies.

The most significant result of the loss of lean muscle mass may be the decrease in metabolism. Metabolic rate declines proportionately with the reduced total protein tissue. A decline in metabolic rate can lead to excess weight gain in older people.
Total body fat typically increases with age. This often can be explained by the intake of too many calories. As we age, fat tends to concentrate in the torso and the fat deposits around the vital organs. However, in more advanced years, weight often declines.

**Bone loss.** We lose bone density as we age. After menopause, women tend to lose bone mass at an accelerated rate. Recent attention has focused on the high incidence of osteoporosis. Severe osteoporosis is debilitating and serious.

Activity aids in the prevention and reversal of osteoporosis. Walk, lift weights, swim or enroll in a group fitness or water aerobics class or engage in other forms of activity. To assist in maintaining overall good health exercise at least three times a week and have fun! Include two to four daily servings of dairy products such as milk, yogurt or cheese. If digesting milk is a problem, cultured dairy products, like buttermilk and yogurt, often are tolerated well. Use lactaid, available in most stores, to make reduced lactose milk.

Post-menopausal women may need a calcium supplement if they can't get enough through diet alone. Talk to a physician or registered dietitian. There are non-dairy sources of calcium. You will find a fact sheet on non-dairy sources of calcium on the eWellness website under eWellness Resources http://tnshapesup.tennessee.edu/ewellness

**Sensory changes.** A decline in *sight* and peripheral vision, *hearing*, *smell* and *taste* occur. The losses are neither total nor rapid, but they are affected by nutritional intake and health status.

Loss of visual acuteness may lead to diminished activity. A fear of cooking, especially using a stove can occur. Inability to read food prices, nutrition labels or recipes may affect grocery shopping, food preparation and eating. This could have an adverse effect on nutritional status.

Loss of hearing may lead to less eating out or not asking questions of the waiter or store clerk.

Changes in smell and taste are more obvious. If food doesn't taste appetizing or smell appealing, we don't want to eat it. The person preparing the food should strive to make the food as appealing as possible.

**Loss of teeth.** Improperly fitting dentures may unconsciously change eating patterns because of difficulty with chewing. A soft, low-fiber diet without important fresh fruits and vegetables may result.

*Suggestions:* Have poorly fitting dentures adjusted. Chop, steam, stew, grind or grate hard or tough foods to make them easier to chew without sacrificing their nutritional value. Try a grated carrot and raisin salad.
**Changes in digestive tract and constipation.** During aging there is a slowing of the normal action of the digestive tract. Digestive secretions diminish markedly that can reduce absorption of nutrients. There is an increased risk for inadequate levels of several nutrients. See the section below on “Nutrients of Concern for the Elderly.”

Constipation becomes a problem for many of the elderly. Several factors contribute to constipation. These factors include slowing peristalsis (movement in the intestines), reduced level of physical activity, inadequate fluid intake, not enough fiber and some medications.

*Specific Nutrient Needs*

Calorie needs change due to more body fat and less lean muscle. Less activity can further decrease calorie needs. The challenge for the elderly is to meet the nutrient needs similar to when they were younger, yet consume fewer calories.

The answer to this problem is to choose foods high in nutrients in relation to their calories. Such foods are considered "nutrient-dense." For example, low-fat milk is more nutrient dense than regular milk. Its nutrient content is the same, but it has fewer calories because it has less fat.

Protein needs usually do not change for the elderly, although research studies are not definitive. Protein requirements can vary because of chronic disease. Balancing needs and restrictions is a challenge, particularly in health care facilities. Protein absorption may decrease as we age, and our bodies may make less protein. However, this does not mean protein intake should be routinely increased because of the general decline in kidney function. Excess protein could unnecessarily stress kidneys.
Reducing the overall fat content in the diet is reasonable and may be necessary due to certain chronic diseases. Also, it is the easiest way to cut calories, which may be necessary if the older person is overweight.

Emphasis on carbohydrate intake for the elderly should be on complex carbohydrates. Glucose tolerance may decrease with advancing years. Complex carbohydrates put less stress on circulating blood glucose than do refined carbohydrates. Such a regime also enhances dietary fiber intake. Adequate fiber, together with adequate fluid, helps maintain normal bowel function. Fiber also is thought to decrease risk of intestinal inflammation. Vegetables, fruits, whole grain products, cereals, seeds, legumes and nuts are all sources of dietary fiber.

**Nutrients of Concern for the Elderly**

Vitamin deficiencies may not be obvious in many older people. However, any illness stresses the body and may be enough to use up whatever stores there are and make a person vitamin deficient. Medications also interfere with many vitamins. When drug histories are looked at, nutrient deficiencies emerge. Eating nutrient-dense foods becomes increasingly important when calorie needs decline but vitamin and mineral needs remain high.

**Vitamin D** is a fat soluble vitamin and is important for the body to function well. Recent scientific studies are showing that many people have insufficient levels of vitamin D. It may be important for the elderly to have the physician to check their vitamin D status and make recommendations, if it is too low.

- **Function:** to maintain blood calcium levels, preventing of osteoporosis and osteomalacia. Vitamin D may also play a role in preventing many other chronic diseases.

- **Food sources:** fortified cereal, fortified milk, eggs, liver, salmon, tuna, catfish, and herring

**Calcium.** Absorption of calcium declines with aging in both men and women. Calcium deficiency can result from poor or inadequate intake or decreased absorption and can lead to osteopenia, osteoporosis, and may lead to increased risk for bone fractures. Calcium is also important in preventing or controlling hypertension. The elderly have three servings of vitamin D fortified low-fat/fat-free milk, yogurt or cheese every day.

- **Function:** helps keep bones strong in aging. It is also important in controlling blood pressure.

- **Food sources:** Sources include dairy products and calcium supplements. For people who are lactose intolerant, reduced-lactose milk products, soy-based beverages or tofu and calcium-fortified orange juice, are good alternatives
**Iron.** Intake of iron may be low in many of the elderly. To improve absorption of iron, include vitamin C-rich fruits and vegetables with these foods. For example, have juice or sliced fruit with cereal, a baked potato with roast beef, vegetables with fish, or fruit with chicken.

- **Function:** Iron is an important component of many proteins including enzymes and hemoglobin. Hemoglobin is important in transporting oxygen to all cells in the body. Almost two-thirds of the body’s iron is found in hemoglobin.
- **Food sources:** Animal sources of iron are more readily bioavailable. These include meat, poultry and fish. Plant sources include fortified grains, such as bread and cereals.

**Zinc** can be related to specific diseases in the elderly. It can also be a factor on conjunction with vitamin K in wound healing. Zinc also improves taste acuity in people where levels are low. Habitual use of more than 15 mg per day of zinc supplements, in addition to dietary intake, is not recommended without medical supervision. If you eat meats, eggs and seafood, zinc intake should be adequate. This underscores the importance of eating a wide variety of foods.

- **Function:** A component of several enzymes and is needed for many metabolic processes.
- **Food sources:** Red meat, some seafood, ready-to-eat cereals, whole grains (the germ and bran portions of the grain) and poultry.

**Zinc** along with **vitamins C** and **E**, and the phytochemicals **lutein**, **zeaxanthin** and **beta-carotene** may help prevent or slow the onset of age-related macular degeneration. The best way to obtain these nutrients is to consume at least five servings of fruits and vegetables daily, especially dark green, orange and yellow ones. Good choices include kale, spinach, broccoli, peas, oranges and cantaloupes. Consult your doctor to see if a supplement may also be necessary.

**Magnesium** is involved in more than 300 enzymatic processes in the body, as well as in the maintenance of intracellular levels of potassium and calcium. Magnesium also plays a role in the development and maintenance of bone and other calcified tissue. Magnesium deficiency may result in muscle cramps, hypertension, and coronary and cerebral vasospasms. Deficiency may occur due to low intake and malabsorption as a result of GI disorders, chronic alcoholism, and diabetes.

- **Function:** Needed for bone formation, nerve activity, glucose utilization, and syntheses of fat and proteins.
- **Food sources:** The best sources are leafy green vegetables, whole grains, and nuts but is also found in milk, yeast breads, coffee, ready-to-eat cereals, beef, and potatoes.
Vitamin E is a fat soluble-vitamin that plays a role in certain metabolic pathways. It is also important as an antioxidant in preventing the spread of free-radicals in the body. It improves vasodilation (widening of blood vessels leading to increased blood flow) and inhibits platelet aggregation. Research has shown that eating foods rich in vitamin E may help reduce the risk of Alzheimer's disease. However, vitamin E supplements did not provide this protective benefit. There have been no known adverse effects from consumption of vitamin E from foods but there have been some adverse effects from excessive intakes supplemental vitamin E.

- **Function:** acts as an antioxidant- hindering the development of cataracts and heart disease. Associated with an enhanced immune system and cognitive status

- **Food sources:** Fortified ready-to-eat cereals, almonds, peanuts, nuts, vegetable oil (sunflower and safflower), seeds, whole grains, leafy green vegetables, and eggs

**Vitamin B12** is essential for normal blood formation and neurological functions. A chemical is found in the intestine tract that helps one absorb vitamin B12. The amount of this chemical decreases as one ages. This can lead to a deficiency of B12. To avoid deficiency, older adults are advised to eat foods rich in vitamin B12 regularly. A deficiency in B12 leads to neurological problems (decreased mental function, memory loss, changes in personality, hearing loss, and loss of physical coordination). Elderly people may need to discuss B12 supplementation with their doctor.

- **Function:** B12 is important in the metabolism of certain types of fat and carbohydrates, memory, hearing, and physical coordination

- **Food Sources:** B12 is found in fortified cereals and soy products and in beef, milk, fish, and shellfish

**Water.** The thirst sensation decreases as you get older and so the elderly may notice that they feel less thirsty. It’s important to encourage the intake of plenty of water and water-based fluids. Adequate fluid intake reduces stress on kidney function, which tends to decline with age. It also eases constipation. With the aging process, the ability to detect thirst declines, so do not wait to drink water until you are thirsty. Drink plenty of water, juice, milk, and coffee or tea to stay hydrated. Drink the equivalent of five to eight glasses every day. It may be helpful to use a cup or water bottle which has calibrated measurements on it, in order to keep track of how much you drink. Carry it with you throughout your home or wherever you go during the day.

- **Function:** Water helps eliminate metabolic waste from your body. It helps prevent urinary tract infections, kidney stones, and constipation

- **Food Sources:** Water and unsweetened beverages are important. Most food sources are high in water and contribute toward hydration. However, it is important to drink fluids throughout the day
Sodium/Potassium. Excess salt (sodium) in the diet contributes to high-blood pressure. However, potassium has been shown to reduce the effect of sodium. Everyone needs to strive for no more than 2300 mg/day - approximately one teaspoon of salt (the 2010 Dietary Guideline recommend that some groups consume no more than 1500 mg/day). This includes salt that is hidden in food. Read the food label to select foods lower in sodium. Generally the more the food is processed, the higher the sodium level.

People need about 4700 mg of potassium a day. The average person consumes much less. Low levels of potassium can lead to heart arrhythmias, muscle weakness, glucose intolerance, increased blood pressure, increased bone turnover and may increase the risk for cardiovascular disease and stroke. Some medications (especially some diuretics) can cause excess excretion of potassium leading to low levels.

- **Function:** Most potassium if found inside the cell and is critical for proper cellular function.

- **Food Sources of potassium:** potatoes (white and sweet), fruit, dry beans, dry peas, lentils and nuts. To reduce sodium, avoid highly processed foods including snack foods, processed meat, and cheese. Choose canned vegetables that say “no salt added.” Choose a well-balanced diet each day that includes at least 1 ½ cups fruit, 2 cups vegetables (choose a variety of colors), unprocessed meat, 3 cups of fat-free or low-fat dairy foods and 100% whole grains. Include nuts and seeds about three times a week. Read food labels to choose foods lower in sodium.

Physical activity. One of the most important things you can do for your health is to be physically active at moderate intensity for at least 30 minutes at least five days a week. If one cannot be active for 30 minutes at one time, begin with short sessions and try to increase the time. Three 10-minute sessions of physical activity provides the same benefit as one 30 minute session. (Some researchers think it provides more benefit than one 30-minute session.) Physical activity causes your body to produce healthful compounds that impact most major organs and systems to promote health and slow the aging process.

Find ways to add activity: walk around the yard; go to the mall and walk; walk in your neighborhood, if possible; park at the back of the parking lot to add steps. Look at your situation and find ways to add activity.

Summary

The bulk of the diet should include foods that are high in fiber like whole-grain breads and cereals, beans, fruits and vegetables. These foods can help prevent constipation as well as lower the risk for chronic diseases.

Drugs used to control diseases such as hypertension or heart disease can alter the need for electrolytes, sodium and potassium. Even though absorption and utilization of
some vitamins and minerals becomes less effective with age, higher intakes do not appear to be necessary. As for any age group, it's important to enjoy a wide variety of foods. Also, if you are taking an herbal or dietary supplement, make sure to tell your doctor, since these supplements may interact with other drugs or nutrients in your diet.

**TEACHING THE LESSON**

**Welcome**

Write these “truisms” on posters and post around the room. Make them using large letters and have them visible as the participants arrive. You can let the participants share some of their own. You may want to start the lesson with a little humor.

- Eventually you will reach a point when you stop lying about your age and start bragging about it.
- The older we get, the fewer things seem worth waiting in line for.
- Some people try to turn back their “odometers.” Not me, I want people to know "why" I look this way. I've traveled a long way and some of the roads weren't paved.
- When you are dissatisfied and would like to go back to youth, think of Algebra.
- Ah, being young is beautiful, but being old is comfortable.
- Old age is when former classmates are so gray and wrinkled and bald, they don't recognize you

- **Point out** that today’s lesson is about the elderly and we want to open with words that describe the elderly.
- **Three Words:** Ask participants to talk with the person beside them and come up with three words to describe the elderly. Give them a moment. Then ask them to share their words. You can use this as a time for introductions. The participant can share their words by saying: “Hi, my name is ________ and this is ________ our three words to describe the elderly are____, ____ and ____.” Write their words on the chalkboard or flipchart. (You may use your computer with a blank PowerPoint slide and type the words on the screen.) This description will aid you in the next parts of this lesson

**Anchor**

- **Explain** in many cultures the elderly are revered (honored, respected). Their wisdom and knowledge is valued and young people are taught to learn from their elders. This is especially true in Asian cultures. Some cultures do not hold the elderly in such high esteem
- **Look at the words on the flip chart and point out** words from the list that showed respect for the elderly
• **Explain.** No matter the culture there are physiological changes to our body as we age. These changes could *speed up or slow down* depending on genetics, diet, physical activity, illnesses, life events, and other factors. **We have some control** on a few of these factors but other factors are a fact of life.

• **Look at the words on the flip chart and point out** words from the list that showed physiological decline in the elderly

  • **Review this list of changes that occur as a natural process of aging**
    - Loss of muscle mass
    - Loss of bone mass
    - Decline in sensory status (vision, hearing, smell, taste)
    - Loss of teeth
    - Changes in digestive tract and constipation
    - Increased need for certain nutrients

**Add**

• **Point out** that the group will discuss these changes to consider the consequences and discuss what can be done to slow the aging process to ensure a healthy productive life for seniors.

• **Explain** that it is important for the group to share ideas in the discussion
  - ✓ Tell them that there is BAD NEWS and GOOD NEWS related to aging. The BAD NEWS is the consequences of the changes in aging. The GOOD NEWS is they can do a lot to delay or prevent these changes.

• **Explain** that lean muscle mass generally decreases in sedentary people but people who are active and engage in strength building can prevent or greatly diminish this loss. It is never too late to start. However, they may need instruction in how to safely do strength-building exercises.
  - ✓ **Ask** what the health consequences are for loss of lean muscle mass. Possible responses – add these consequences if not shared by participants:
    - Heart capacity reduced
    - Impaired kidneys, lungs, and liver
    - Impaired immune system
    - Increased risk for fall-poor balance
    - Decreased metabolism leading to obesity because calorie intake is greater than calories burned
    - Increased risk for diabetes because lean muscle mass has greater insulin sensitivity which promotes uptake of glucose by the cells from the blood
✓ **Ask** how can they slow down or prevent the loss of muscle mass.  
*Possible responses – add these consequences if not shared by participants*  
  o Physical activity – both endurance and strength building  
  o Healthy diet that includes adequate protein, colorful fruits and vegetables, whole grains, adequate calcium and adequate serum levels of vitamin D.

**Getting older is more expensive.** Consider this truism:

*A woman considering her expenses at her favorite beauty counter declared, "Every year it costs me more just to stay the same*

- **Explain** that there are sensory changes that impact diet and physical activity. These changes include a decline in vision, loss of hearing, decreased olfactory (smell) and diminished ability to taste. Point out that healthy diet and being physically active slows down physiological changes. As we age these sensory changes impact diet and activity level.
  - **Ask** how you can deal with these sensory impairments to ensure a healthy diet and safely engage in physical activity. Possible responses – add these consequences if not shared by participants  
    o Eyeglasses and hearing aids can help compensate for reduced vision and hearing. A magnifying glass can be used for fine print  
    o While it is not possible to replace sense of smell and taste, you can ensure that food preferences are respected while trying to make certain that nutritional needs are met  
    o Need a positive social support system – church, family, friends

- **Explain** that many elderly have lost teeth.
  - **Ask** how this problem may be overcome. Possible responses – add these if not shared by participants  
    o Have poorly fitting dentures adjusted  
    o Chop, steam, stew, grind or grate hard or tough foods to make them easier to chew without sacrificing their nutritional value

- **Explain** that changes with aging in the digestive tract occur that include a substantial decrease in some of the digestive secretions and a slowing down of the movement in the intestines.
  - **Ask** what the health consequences are of this. Possible responses – add these if not shared by participants  
    o Decreased absorption of nutrients  
      - Deficiencies of some nutrients can occur
Constipation can occur as a result of the slowing peristalsis (movement in the intestines). Other factors also contribute to constipation:

- reduced level of physical activity
- not enough fiber
- inadequate fluid intake
- some medications

**Explain** that vitamin deficiencies may not be obvious in many older people. However, any illness stresses the body and may be enough to use up whatever stores there are and make the person vitamin deficient. Medications also interfere with many vitamins. When drug histories are looked at, nutrient deficiencies emerge. Eating nutrient-dense foods becomes increasingly important when calorie needs decline but vitamin and mineral needs remain high.

**Review** the handout “Nutrients of Concern.”

**Apply**

- **Divide** the group into teams of three or four. Give each group the vignette. Allow about 10 minutes for them to plan solutions for the vignette. Have one person from each group report to the entire group.

**Vignette**

*Jane is a participant in the Senior Nutrition Class. She asked for help for her grandfather, John who is an 85 year old widower whose wife died a few months ago. He lives alone in a rural area. His income is his Social Security check. His wife took care of all the cooking and grocery shopping. He has dentures that fit fairly well but his hearing and vision has diminished. He has high-blood pressure and diabetes. Jane wants to know how to help her grandfather maintain his health and independence. What suggestions does this team have for Jane?* Possible responses – add these if not shared by participants.

- Engage Meals on Wheels, if available
- Organize a regular visitation program through local church groups, family members or other community groups. Loneliness is a serious problem among the elderly who live alone
- Help him organize his kitchen so that everything has a special place
- Develop a plan for getting the senior to the grocery store or find someone who can shop for her/him
- Check references for anyone helping the elderly person. The elderly are often the victims. Those who are suppose to help sometimes take money or other valuables
- Assist the senior in planning meals. Find out what her/his favorite foods are and try to include them in the meal plans but try to substitute low-fat, low-sodium versions to aid in controlling blood-pressure
  - Ensure plenty of high-fiber foods – whole grains, whole fruits, vegetables (try to include leafy greens as often as possible
  - Avoid refined carbohydrates in order to help control his blood sugar.
o Get a copy of MyPyramid from the Extension office and plan meals that include all food groups in recommended amount for his calorie needs
✓ Ensure regular visits to the doctor for blood-pressure and blood-sugar checks. He needs to monitor his blood pressure and blood sugar at home. He should write down the results to share with the physician
✓ If a visiting nurse is available, try to get regularly scheduled visits for assessment.
✓ Monitor his weight. Sometimes seniors start to lose weight rapidly. This could indicate muscle wasting
✓ Rapid weight gain could indicate water retention. If this happens, his physician should monitor for kidney or heart function
✓ Discourage low-nutrient dense snack foods and desserts, such as chips, cookies, candy, cakes, pies, ice cream

Review

A brief review of the core messages

▪ There are normal physiological changes that occur as one gets older. These changes include muscle, bone, and teeth loss; diminished hearing, vision, sense of smell and taste; decreased ability to absorb certain nutrients; and decrease in thirst mechanism
▪ A healthy lifestyle aids in slowing the signs of aging
▪ There are specific nutrients of concern for the aging population

Away
Ask several participants to tell you what was most important in today’s lesson.
Give each participant a note card. Ask them to write down one change they will make as a result of what they learned. This help learners think about what they have learned and then decide how they can use the information and skills in the future. Tell them to write down the date and time of the next meeting, and an activity they can do at home.

Note to agent: the purpose of having participants write down their change (goal) is that it increases the likelihood of them adopting a change. By writing down the time, date, location, you help them remember the next meeting. If you feel someone is your audience cannot write, you may make change this strategy.