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IT'S **MORE**  
THAN A MEAL

# Special Nutrition Needs of Older Adults

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**N**ow that you have learned the basics of good nutrition, you can learn about some special nutrition needs that older adults may have.

***This section will cover the following topics:***

## Aging and Nutritional Well-Being

How does the aging process affect nutritional health?

## Good Nutrition for Seniors

What are some goals for good nutrition?

## Determining Nutritional Risk

How can you identify adults at risk of poor nutrition?

## Fluid, Nutrient, and Calorie Needs

Why do older adults need plenty of fluids?

How can older adults meet their nutrient needs?

## Obesity

What causes some older adults to gain excess weight?

## Chronic Diseases

Which chronic diseases have a link to nutrition?

## Food Allergies and Intolerances

What are some examples of food allergies or intolerances?

What are the symptoms of a serious allergic reaction?

## Dietary Supplements

Should older adults use vitamin, mineral, or herbal supplements?

## Medicines and Older Adults

What are some common side effects of medicines?

How do medicines affect the nutritional status of older adults?

## Barriers to Healthy Eating

What barriers might prevent older adults from eating well?

How can you address these barriers to promote healthy eating?

**Caution:** Adult day health staff should never diagnose health conditions; prescribe supplements; put participants on special diets; nor revise, change or interpret diet orders. These roles are the responsibility of your participants' health care providers.

## Aging and Nutritional Well-Being

Many older adults face changes that can affect their food intake and nutritional status. The changes may be physical, health-related, social, or psychological. The nature and extent of these changes will vary among adults. Good nutrition can help older adults to improve their health and maintain their quality of life, in spite of these changes.

### PHYSICAL CHANGES

- Older adults may need fewer calories to maintain their weight, but still need the same amounts (or even more) of vitamins and minerals as they did in their younger years.
- Changes in vision, taste, or smell can affect appetite or enjoyment of foods.
- Dental problems may limit intake of certain foods.
- Digestive changes can affect the way the body absorbs certain nutrients.
- A decreased sense of thirst can raise the risk of dehydration.

### CHANGES IN HEALTH STATUS

- Immune function may decline and prolong recovery from illness.
- Aging can affect how medicines work in the body, and how they interact with foods. Medicines can alter appetite or taste.
- Acute illness can lead to decreased appetite.
- Older adults are at increased risk for chronic diseases such as obesity, diabetes, heart disease, high blood pressure, cancer, or osteoporosis.

### PSYCHOLOGICAL OR SOCIAL CHANGES

- The loss of a spouse or partner can lead to changes in eating patterns.
- Less income after retirement may lead to cutting nutritious foods from the budget.
- A reduced ability to drive may make it hard to buy food from the grocery store.
- Cognitively impaired adults are less able to buy foods, prepare meals, or use utensils.

## Good Nutrition for Seniors

The following are goals to help maintain the health and nutritional status of older adults. By following the advice of the *Dietary Guidelines* and *USDA Pyramid*, along with additional advice in this manual, you can plan meals and strategies to help meet these goals:

- Meet nutrient needs on fewer calories.
- Eat a variety of nutritious foods.
- Eat more dietary fiber.
- Consume enough fluids.
- Maintain health and nutritional status.
- Increase the appeal of meals.
- Address any barriers to healthy eating.
- Stay physically active, if possible.
- Prevent or treat chronic diseases.
- Minimize food/drug interactions.

## Determining Nutritional Risk

Older adults who consume low levels of nutrients may be at risk for poor nutrition. The risk may be compounded by self-medication, alcohol, disease, dental problems, or physical limitations. Identifying problems early may help older adults to live longer, healthier lives.

The Nutrition Screening Initiative has developed a screening tool called *Determine Your Nutritional Health* (see an adapted version titled *Nutritional Risk Checklist* on the next two pages) to assess nutritional risk in older adults. The goal of the checklist is to identify potentially high-risk adults before the appearance of any signs or symptoms of poor nutrition. This tool helps to determine whether an older adult might need medical or nutritional assistance. You should refer any high-risk older adult to a dietitian, physician, or other health care professional.

## Nutritional Risk Check List

Know the warning signs of poor nutritional health. Use this checklist to learn whether you, or someone you know, is at risk for poor nutrition.

Read the statements below. For each YES answer, circle the number in the “yes” column.

Then total the score.

STATEMENT	YES
I have an illness or condition that has made me change the amount or kind of food that I eat.	2
I eat fewer than 2 meals each day.	3
I have 3 or more drinks of beer, liquor, or wine, almost every day.	2
I eat few fruits, vegetables, or milk products.	2
I have tooth or muscle problems that make it hard for me to eat.	2
I don't always have enough money to buy the food I need.	4
I eat alone most of the time.	1
I take 3 or more different prescription or over-the-counter medicines each day.	1
In the last 6 months, I've lost or gained 10 pounds without wanting to.	2
I am not always physically able to shop, cook, or feed myself.	2

**TOTAL:**

SCORE	WHAT DOES THIS SCORE MEAN?
0 to 2	GOOD! Re-check your score in 6 months.
3 to 5	You are at MODERATE nutritional risk. Try to improve your eating habits and lifestyle. Seek advice from your office on aging, senior nutrition program, senior center, or health department.
6 or more	You are at HIGH nutritional risk. Bring this checklist to your next appointment with your doctor, dietitian, or other qualified health professional. Tell them about any problems you may have. Ask for help to improve your nutritional health.

**Note:** These warning signs suggest risk, but they are not meant to diagnose any condition. Turn the page to learn more about the warning signs of poor nutritional health.

**Adapted from:** *Determine Your Nutritional Health*, developed by the Nutrition Screening Initiative. A project of the American Academy of Family Physicians, the American Dietetic Association, and the National Council on Aging.

**USE THE WORD DETERMINE TO REMIND YOU OF THE WARNING SIGNS.**

**DISEASE**

Disease, illness, or chronic conditions affect the way that people eat. Confusion or memory loss can make it hard to remember what, or whether, they have eaten a meal. Feeling depressed can affect appetite, digestion, energy level, weight, and well-being.

**EATING POORLY**

Poor nutritional health can be caused by eating too little, eating too much, skipping meals, or eating the same foods day after day. It can also be caused by eating too few fruits, vegetables, or milk products.

**TOOTH LOSS OR MOUTH PAIN**

Missing or loose teeth, or poor-fitting dentures, can make it hard to eat.

**ECONOMIC HARDSHIP**

People on a reduced income may find it hard to afford the foods they need.

**REDUCED SOCIAL CONTACT**

Having fewer contacts with other people can have a negative effect on morale, well-being, and appetite.

**MULTIPLE MEDICINES**

Growing old may change the way that older adults respond to these medicines. The more medicines that they take, the greater the risk for side effects such as constipation, diarrhea, drowsiness, nausea, or a change in appetite or taste.

**INVOLUNTARY WEIGHT LOSS OR GAIN**

This is an important warning sign that should not be ignored.

**NEEDS ASSISTANCE IN SELF-CARE**

Some older adults have trouble walking, shopping, or buying or cooking food.

**ELDER YEARS ABOVE AGE 80**

Most older people lead full and productive lives. But as age increases, the risk of frailty or health problems increases.

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**Adapted from:** *Determine Your Nutritional Health*, developed by the Nutrition Screening Initiative. A project of the American Academy of Family Physicians, the American Dietetic Association, and the National Council on Aging.

## Promoting Fluid Intake

### **FLUIDS ARE IMPORTANT AT ANY AGE**

Fluids play important roles in the body. They prevent constipation, regulate body temperature, carry nutrients to cells, and regulate the balance of fluids in body cells. They also make it easier for people to chew and swallow foods.

Every day, people lose fluids when they sweat, breathe, urinate, and have bowel movements. Thus, they need to replenish fluids to prevent dehydration and help their bodies function smoothly.

### **AGING AND FLUID NEEDS**

As adults get older, they continue to need about 1½ to 2 liters of fluids each day.

However, older adults may find it harder to maintain fluid balance, for several reasons:

- They may have a reduced sense of thirst, leading them to drink less fluids.
- They may drink less fluids due to poor bladder control, poor mobility, or illnesses.
- Their bodies may have lost water due to diarrhea or poor intestinal absorption.
- They may use diuretics and laxatives that raise the risk for dehydration.
- They may be using other medications that increase fluid needs.

### **PREVENTING DEHYDRATION**

Dehydration can be a serious health problem for older adults. To prevent dehydration, many experts recommend consuming at least 8 cups of fluids each day. Fluids are not limited to water! Fruit juice, milk, soup, fruit, and decaffeinated coffee and tea also count.

Your day health program can help promote fluid intake by offering fluids every 2 or 3 hours, including with meals and snacks. Encourage older adults to drink fluids regularly, since they may fail to recognize their thirst.



## Nutrient and Calorie Needs

### AGING AND CALORIE NEEDS

Compared to their younger years, older adults need fewer calories to maintain their weight. This is because their metabolism tends to slow down, and because they may be less physically active. The chart at right lists the estimated daily calorie needs for older adults based on their level of physical activity.

#### ESTIMATED CALORIE NEEDS FOR ADULTS 51 YEARS AND OLDER

	Sedentary	Moderately Active	Active
Women	1600	1800	2000-2200
Men	2000	2200-2400	2400-2800

Source: Dietary Guidelines for Americans, 2005.

### FINDING THE RIGHT BALANCE

Older adults need the right balance between eating too many calories or too few calories. *Too many calories* can lead to obesity, which raises the risk for high blood pressure, diabetes, heart attack, and stroke. *Too few calories* can lead to weight loss, frailty, or fatigue, and can prevent adequate intake of essential nutrients.

### MEETING NUTRIENT AND CALORIE NEEDS

While calorie needs decrease with aging, vitamin and mineral needs remain the same. In fact, the need for some nutrients (such as vitamin B6, vitamin D, and calcium) increases. Thus, older people face the challenge of meeting their nutrient needs on fewer calories. For this reason, they should choose a variety of nutrient-dense foods each day.

*Nutrient-dense foods* are rich in vitamins and minerals and relatively low in calories. Examples are whole grain breads, fortified cereals, fruits and vegetables, lean meats, and low-fat dairy products. Because each food group provides a variety of nutrients, it is important to include all food groups in the daily diet. It is also important to vary choices within each food group.

*Foods with a low nutrient density* provide calories but few vitamins and minerals. They have added sugars, saturated fats, *trans* fats, and alcohol. Regularly eating these foods makes it hard to get enough nutrients without gaining weight, especially for people with sedentary lifestyles.

Many Americans (including older adults) consume more calories than they need without getting enough nutrients. They should choose foods and beverages that are high in nutrients, but low to moderate in calories. Overall, they should eat *more* fruits, vegetables, whole grains, legumes, and low-fat milk and milk products. They should eat *less* refined grains, cholesterol, saturated fats, *trans* fats, salt, and added sugars.

## Obesity

### WHY OBESITY IS A PROBLEM

The prevalence of obesity in the U.S. has doubled in the past two decades. Obesity raises the risk for premature death, type 2 diabetes, high blood pressure, stroke, heart disease, gall bladder disease, gout, osteoarthritis, and some types of cancers.

### CAUSES OF WEIGHT GAIN

There are many possible causes of weight gain in older adults. The major cause is being less physically active. Other possible causes are burning fewer calories with age due to a slower metabolism; having an underactive thyroid or other medical disorder; or taking medications with a side effect of promoting weight gain.

### ACHIEVING AN OPTIMAL BODY WEIGHT

Ideally, adults should achieve and maintain a body weight that is good for their health. For obese adults, even losing as little as 10 pounds provides health benefits. Reducing caloric intake by as little as 50 to 100 calories per day may help prevent weight gain. Eating 500 fewer calories per day is a common goal in weight-loss programs. Strategies to reduce calories include serving smaller portion sizes, and serving foods with fewer calories, such as low-fat foods and foods without added sugars.

### TREATING OBESITY

Treating obesity requires the advice and supervision of a participant's health care providers (doctor, registered dietitian, and nurse). It may involve a supervised program of diet and exercise.

## Chronic Diseases

### HEART DISEASE

Coronary heart disease involves a progressive blockage of coronary arteries that reduces blood flow to the heart. This can raise the risk of chest pain, heart attack, and death. Coronary heart disease is the leading cause of death among older adults.

If too much cholesterol circulates in the blood, it can build up in the walls of the arteries. Over time, the arteries become narrow and slow down the blood flow to the heart. Since blood carries oxygen to the heart, chest pains can occur when less oxygen is available. If no oxygen gets to the heart, a heart attack can happen.

### Risk Factors for Heart Disease

- Some risk factors are beyond control. They include age (45 or older for men; 55 or older for women) and family history of early heart disease.
- Other risk factors can be controlled through diet and lifestyle changes. These include high blood pressure, high blood cholesterol, high LDL ("bad" cholesterol), low HDL ("good" cholesterol), cigarette smoking, diabetes, overweight, and lack of exercise.

**What do the Numbers Mean?**

Different types of cholesterol and fat travel through the body.

- **LDL cholesterol** (low-density lipoprotein) is called the “bad” cholesterol. It is the main cause of cholesterol build-up and blockage in arteries.

- **VLDL cholesterol** (very low-density lipoprotein) is also called “bad” cholesterol because it acts in much the same way as LDL cholesterol.

- **HDL cholesterol** (high-density lipoprotein) is the “good” cholesterol. It prevents cholesterol from building up in the arteries; therefore, it protects against heart disease.
- **Total cholesterol** is the sum of LDL, VLDL and HDL cholesterol levels.
- **Triglyceride** is a type of fat in the blood that can raise the risk of heart disease.

<b>IDEAL LEVELS OF CHOLESTEROL AND TRIGLYCERIDES TO REDUCE THE RISK OF HEART DISEASE</b>	
<b>Blood Level:</b>	<b>Aim for:</b>
Total Cholesterol	Less than 200 mg/dL
LDL Cholesterol	
• Low risk patients . . . . .	Less than 160 mg/dL
• Moderately high risk patients. . . . .	Less than 130 mg/dL
• High risk patients . . . . .	Less than 100 mg/dL
• Very high risk patients. . . . .	Less than 70 mg/dL
HDL Cholesterol	More than 60 mg/dL
Triglycerides	Less than 150 mg/dL

Source: National Cholesterol Education Program Adult Treatment Panel III, 2004.

**Preventing and Treating Heart Disease**

To help prevent heart disease, adults should work with their health care providers to change their diets and lifestyles. A heart-healthy eating plan can help control the risk factors of high blood pressure, high cholesterol levels, overweight, and diabetes.

Serving heart-healthy meals and incorporating physical activity into the daily routine can help older adults lower their risk of heart disease. A heart-healthy eating plan provides less than 30% of calories from fat. It includes foods low in saturated fat, cholesterol, and sodium. It also includes fiber from whole grains, fruits, and vegetables.

Treating heart disease may involve a prescribed diet, medications, and a supervised physical activity program. It also may require surgery.

## HIGH BLOOD PRESSURE

Blood pressure is the force that blood exerts against the artery walls. It is measured in two numbers. The top number is *systolic pressure* (as the heart beats). The bottom number is *diastolic pressure* (as the heart relaxes between beats). Blood pressure is affected by several factors and can vary over the course of a day. Therefore, blood pressure measures should be repeated over a few days to get an accurate reading.

**High blood pressure**, or **hypertension**, is blood pressure that remains elevated for a long time. It is prevalent in older adults, and often has no warning signs or symptoms. It can be dangerous because it makes the heart overwork and raises the risk of atherosclerosis (buildup of fat in arteries). It can also lead to kidney disease or congestive heart failure.

### Sodium and Blood Pressure

Sodium plays a major role in controlling blood pressure, since it helps maintain fluid pressure within the blood. For some people, consuming foods high in salt can lead to elevated sodium levels in the body, which can result in high blood pressure.

	Normal Blood Pressure	High Blood Pressure
Systolic	120 or less	140 or higher
Diastolic	80 or less	90 or higher

Source: *Your Guide to Lowering Blood Pressure*, National Institutes of Health, 2003.

### Guidelines to Help Prevent High Blood Pressure

- Maintain a healthy weight.
- Include fruits, vegetables, low-fat dairy foods.
- Choose foods with less salt and sodium.
- Limit alcohol intake.
- Be physically active.

### Treating High Blood Pressure

Treating high blood pressure may involve following the guidelines above, along with stricter sodium restrictions. People unable to control their high blood pressure with diet and lifestyle changes alone may also require medications such as diuretics and other drugs. This may especially be true if they have a strong family history of high blood pressure.

### Focus on Sodium

- According to the Dietary Guidelines, most people should aim for less than 2,300 mg of sodium per day. This is about 1 teaspoon of salt. Older adults and people with high blood pressure should aim for less than 1,500 mg of sodium per day.
- High amounts of sodium (as salt) are often added to processed and prepared foods.
- Most unprocessed foods are naturally low in sodium. These include fruits; fresh or frozen vegetables; and fresh or frozen fish, fish, poultry, and meat.
- Read food labels for sodium content. Avoid adding salt in recipes or at the table.
- Use spices and herbs for seasonings.

### DIABETES

Diabetes is a disease that affects how the body uses carbohydrates (sugars and starches) from foods. Usually, the sugars and starches that people eat are broken down into a sugar called glucose, and their blood carries the glucose to cells in the body. A hormone called insulin helps move glucose from the blood into the cells for fuel and storage.

People with diabetes either cannot make insulin or cannot use it properly, depending on what type of diabetes they have. Either way, the glucose stays in the blood longer and cannot be used properly by the cells. The result is a high blood glucose level.

Type 2 diabetes is most prevalent in adults. The body makes insulin, but cannot use it properly. Risk factors include age over 40 years, overweight (more than 20% of ideal body weight), and having a closely related family member with diabetes. It can often be treated with diet and exercise (exercise helps muscles use glucose for energy). Treatment may also require medications.

### Possible Complications

Diabetes can cause some serious problems over time. It can lead to blindness, kidney damage, heart disease, nerve damage, and other health problems.

### Signs and Symptoms

The signs and symptoms of diabetes may include:

- Feeling hungry or thirsty all the time.
- Urinating more than usual.
- Feeling tired more than usual.
- Blurred vision.
- Cuts or bruises that won't heal.
- Tingling or numbness in hands and feet.

### Diabetes and Older Adults

Many older adults may have type 2 diabetes without even knowing it. They may be surprised to be diagnosed with diabetes, because they haven't noticed any symptoms or felt sick. Therefore, it is extremely important that older adults have their blood glucose checked on a regular basis. If they have diabetes, they should see their doctor and a licensed registered dietitian to design a meal plan that best fits their needs.

#### Preventing Type 2 Diabetes

- Maintain a healthy weight.
- Consume plenty of fiber.
- Eat appropriate portion sizes.
- Be physically active, if possible.

#### Goals for People with Diabetes

- Follow special dietary advice from your doctor and a licensed registered dietitian.
- Take insulin or diabetes medications if prescribed.
- Be physically active, if possible.
- Maintain a healthy weight.
- Aim for blood glucose levels within the recommended range.

The chart below shows general goals for most people with diabetes who self-test their blood glucose levels. An individual's health care team should determine specific target goals and develop a program of regular glucose monitoring to manage his/her diabetes.

GOALS FOR BLOOD GLUCOSE CONTROL		
Time of Check	Whole Blood Values	Plasma Values
Before Meals	80-120 mg/dL	90-130 mg/dL
Bedtime	100-140 mg/dL	110-150 mg/dL

**Source:** *If You Have Diabetes, Know Your Blood Sugar Numbers*. National Diabetes Education Program, National Institutes of Health and the Centers for Disease Control and Prevention, 2002.

### Hypoglycemia in People with Diabetes

Hypoglycemia is low blood sugar. It can occur in someone with diabetes who is taking medications. Be alert to the *signs and symptoms*, which include feeling weak, feeling hungry, sweating more, or having sudden changes in heartbeat. Immediately test the blood glucose level of a person with these symptoms. If his/her glucose level is below 70 mg/dL, the person should immediately consume one of the following:

- ½ cup fruit juice
- ½ cup regular soft drink (not diet or sugar-free)
- 5 or 6 pieces of hard candy
- 1 or 2 teaspoons of sugar or honey
- 2 or 3 glucose tablets

After 15 minutes, retest the blood glucose level and see if it has returned to a more acceptable level. After the blood glucose level stabilizes, offer the person a snack if it will be at least 1 hour until the next scheduled meal.

### Diabetes Meal Plan

Following a proper meal plan is important in controlling blood glucose levels. Along with exercise and medications (insulin or oral diabetes pills), eating well-balanced meals in the correct amounts can help keep blood glucose levels as close to normal as possible.

A diabetes meal plan tells how much and what kinds of food a person can eat at meals and snack times. It should fit in with the person's schedule and eating habits. There are many ways to follow

a diabetes meal plan. Examples are following the USDA Pyramid, rating your plate, exchange lists, and carbohydrate counting. Check with your participant's health care provider for individual recommendations.

### Tips for Feeding Participants with Diabetes:

- Follow scheduled eating times. Serve meals and snacks at about the same time each day to maintain a consistent supply of sugar in the blood. Eating too much food at one time can raise blood glucose to dangerous levels. Skipping a meal can cause the blood glucose to drop too low, resulting in hypoglycemia.
- The Idaho Plate Method provides a quick and easy way to know how much space each food group should occupy on a dinner plate (fill ½ of the plate with bright, colorful vegetables, ¼ of the plate with a starchy food, and the other ¼ with a protein food). You can order this guide from the Idaho DCE Plate Method, PO Box 441, Rexburg, Idaho 83440-0441, website: [www.platemethod.com](http://www.platemethod.com), phone: 208-624-7279.
- See the next page for a sample diabetic menu with different amounts of food at different calorie levels. Observe how small changes or additions in foods bring the menu up to a higher calorie level. Note that serving sizes and food items are not necessarily those creditable by CACFP.
- Check with the participant's healthcare provider for individual recommendations.

## Sample Diabetic Menu

**Note:** This is only a sample of a menu for people with diabetes. It is NOT designed specifically for your program's participants with diabetes. Serving sizes and food items shown below are not necessarily creditable by CACFP. Any meal or menu substitutions that vary from CACFP regulations require documentation from a medical authority.

MEAL AND FOODS	DAILY CALORIES			
	1600	1800	2000	2200
<b>Breakfast</b>				
Orange juice	¾ cup	¾ cup	¾ cup	¾ cup
Oatmeal	½ cup	½ cup	½ cup	½ cup
Whole-wheat toast	1 slice	1 slice	2 slices	2 slices
Margarine/butter	1 tsp	1 tsp.	1 tsp	1 tsp.
Skim milk	½ cup	½ cup	½ cup	1 cup
<b>Morning Snack</b>				
Graham cracker squares	3 squares	3 squares	3 squares	3 squares
Orange	0	1 orange	1 orange	1 orange
<b>Lunch</b>				
Vegetable soup	1 cup	1 cup	1 cup	1 cup
Tuna sandwich/sandwiches				
Water-packed tuna	½ cup	½ cup	½ cup	¾ cup
Low-fat mayonnaise	1½ Tbsp	1½ Tbsp	1½ Tbsp	2 Tbsp
Tomato slices	2 slices	2 slices	2 slices	3 slices
Whole-wheat bread	2 slices	2 slices	2 slices	3 slices
Apple	1 apple	1 apple	1 apple	1 apple
Skim milk	½ cup	½ cup	½ cup	½ cup
<b>Afternoon Snack</b>				
Muffin	1 muffin	1 muffin	1 muffin	1 muffin
Skim milk	½ cup	1 cup	1 cup	1 cup
<b>Dinner</b>				
Chicken breast (skin removed)	½ breast	½ breast	½ breast	½ breast
Baked potato	1 potato	1 potato	1 potato	1 potato
Margarine/butter	1 tsp	1 tsp	1 tsp	1 tsp
Carrots and peas	½ cup	½ cup	½ cup	½ cup
Green salad	1 cup	1 cup	1 cup	1 cup
Low-fat dressing	2 Tbsp	2 Tbsp	2 Tbsp	2 Tbsp
Grapes	15 grapes	15 grapes	15 grapes	15 grapes
Oatmeal cookies	0	0	2 cookies	2 cookies
Water	1 glass	1 glass	1 glass	1 glass
<b>Evening Snack</b>				
Gingersnap cookies	3 cookies	6 cookies	6 cookies	6 cookies
Banana	1 banana	1 banana	1 banana	1 banana
Skim milk	1 cup	1 cup	1 cup	1 cup

Adapted from: *Diabetes and Your Diet: Using the Dietary Guidelines for Americans as a Guide to Healthy Eating*; University of Wisconsin Extension – Cooperative Extension, publication NCR 576, 2004.



**OSTEOPOROSIS**

Osteoporosis is a gradual process of bone loss that results in weak, brittle bones. It is a major cause of bone fractures of the hip, spine, and wrist. Every year, over 25 million people in the United States are afflicted with this disease. Osteoporosis is called a “silent disease” because often people are not diagnosed until they have broken a bone. As people get older, the risk of osteoporosis increases.

**Who Has the Greatest Risk for Osteoporosis?**

Women make up 80% of people with osteoporosis. Women are especially at risk if they:

- Are past menopause.
- Have a small body frame.
- Have a family history of osteoporosis.
- Are Caucasian or Asian.
- Don’t exercise (since exercise leads to stronger bone).
- Eat diets low in calcium and vitamin D.
- Smoke or drink more than 3 glasses of alcohol per day.

Older men are also at risk for osteoporosis.

**Maintaining Bone Health**

Osteoporosis can be prevented or delayed by consuming vitamin D and calcium and taking part in regular physical activity. Following the CACFP pattern and offering milk with each meal will help provide calcium and vitamin D.

- Older adults need 1,200 mg of calcium each day. Low-fat milk, cheese, and yogurt are great sources of calcium.
- Older adults also need extra vitamin D to help their bodies absorb calcium. Vitamin D is found in fatty fish and fortified milk.
- Calcium supplements with vitamin D may be a necessary addition to the meal plans of older adults who do not consume enough calcium-rich foods and vitamin D-fortified milk.
- Physical activity, especially weight-bearing exercise such as walking, lifting, or dancing, can strengthen bones and actually reverse the effects of osteoporosis.

<b>FOOD SOURCES OF CALCIUM</b>	
<i>The following are good sources of calcium:</i>	
<b>Amount of Calcium</b>	<b>Food Source</b>
<b>350-375 mg</b>	<ul style="list-style-type: none"> <li>• 1 cup milk</li> <li>• 1 cup soy milk, calcium-fortified</li> </ul>
<b>300-350 mg</b>	<ul style="list-style-type: none"> <li>• 3 oz sardines, with bones</li> </ul>
<b>200-225 mg</b>	<ul style="list-style-type: none"> <li>• 1 slice (1 oz) Swiss cheese</li> <li>• 1 slice (1 oz) Cheddar cheese</li> </ul>
<b>125-150 mg</b>	<ul style="list-style-type: none"> <li>• 1 cup cottage cheese</li> <li>• 1 cup baked beans</li> <li>• 1 piece pumpkin pie (1/8 of 9” pie)</li> </ul>
<b>100-125 mg</b>	<ul style="list-style-type: none"> <li>• 1 slice (3/4 oz) American cheese</li> <li>• 1/2 cup vanilla pudding</li> </ul>
<b>50-100 mg</b>	<ul style="list-style-type: none"> <li>• 1 cup cooked broccoli</li> <li>• 1 cup ice cream</li> <li>• 1 cup soy milk, unfortified</li> </ul>

**Source:** USDA National Nutrient Database for Standard Reference, Release 17 (2004).

## Food Allergies and Intolerances

A food allergy or intolerance is an improper reaction by the body to a food or additive. Although there is a difference between food allergies and intolerances, they both cause problems in susceptible people. Symptoms may include wheezing, bronchitis, runny nose, vomiting, diarrhea, rashes, itching or headaches. Some reactions can cause discomfort, while others can be life-threatening.

It is important to: (1) learn about any food allergies or intolerances that your participants may have, (2) recognize the symptoms, and (3) minimize the chance of exposure to foods or additives that cause them.

### ANAPHYLACTIC REACTIONS

*Anaphylaxis* is a sudden, severe, potentially fatal, systemic allergic reaction that can involve the skin, respiratory tract, gastrointestinal tract, and cardiovascular system. It can involve a reaction to a food, medication, insect sting, or latex.

Anaphylactic reactions can range from mild to life-threatening. Symptoms occur within minutes to 2 hours after contact with the allergy-causing substance. In rare instances, they may occur up to 4 hours later. Life-threatening reactions may progress over hours.

Symptoms may start with a tingling sensation, itching, or metallic taste in the mouth. Other symptoms can include hives, a warm feeling, swelling of the mouth and throat area, difficulty breathing, vomiting, diarrhea, cramping, a drop in blood pressure, and loss of consciousness. If you see someone experiencing an anaphylactic reaction, seek professional medical help quickly.

Peanuts, tree nuts, shellfish, fish, milk, and eggs commonly cause anaphylactic reactions. Some people with latex allergy may also develop

reactions when eating certain foods such as bananas, kiwi, avocados, or chestnuts (or less commonly, potatoes, tomatoes, or pitted fruits such as peaches, plums, or cherries). Some people are so sensitive that even a trace amount of a problem food can cause a reaction.

### LACTOSE

*Lactose*, or “milk sugar,” is found in food products containing milk or milk solids. It is also found as an ingredient in some non-dairy foods, baked foods, and processed foods. Lactose is digested in the body by the enzyme lactase. People with lactose intolerance have too little of this enzyme, and cannot properly digest lactose. They may experience gastrointestinal discomfort such as stomach cramps, gas and diarrhea. Native Americans and people from Africa and Asia are particularly susceptible to lactose intolerance. Some people with lactose intolerance may be able to tolerate certain dairy foods such as yogurt and some cheeses. Lactase pills and lactose-free milk products are available for people who cannot tolerate any lactose.

### **FISH OR SHELLFISH**

Allergic reactions to fish and shellfish can be severe. Shellfish allergies appear to be more common in adults than fish allergies. Shellfish known to cause allergic reactions include shrimp, crab, oysters, clams, scallops, mussels, squid, crayfish, and snails. These allergies usually last a lifetime, and the reactions become more severe as the frequency of exposures increases.

### **NUTS OR PEANUTS**

Nuts or peanuts can cause severe allergic reactions in susceptible people. These people should avoid nuts or peanuts, and any products that contain even small amounts of these foods (such as cookies, crackers, chocolate candy, or certain flavors of ice cream). Read the ingredient lists of products carefully to ensure that you are preventing exposure to these foods in susceptible people.

### **SOYBEANS**

Soybeans are becoming more common as an ingredient in processed food products. Soybeans and soy products are sometimes found in baked goods, canned tuna, cereals, crackers, infant formulas, sauces, and soups. Some people have allergic reactions to soybeans and soy products.

### **GLUTEN**

Gluten is a protein found in wheat, oats, rye and barley. These grains and their byproducts should be carefully watched in people with gluten intolerance, and strictly avoided by people with celiac disease.

### **CASEIN**

Casein is a milk protein that may be found in non-dairy creamers and baked goods such as crackers. Some people are sensitive to casein.

### **SULFITES**

Sulfites are often added to dried fruit and vegetables. People with asthma may be sensitive to sulfites.

## Dietary Supplements

### VITAMIN AND MINERAL SUPPLEMENTS

Ideally, people should be able to meet their nutrient needs from food sources alone. However, older adults may find it challenging to obtain enough vitamins and minerals from their diets, especially during illness and other times of low food intake.

A daily multivitamin-mineral supplement can be one way to help older adults meet their nutrient needs. However, they should first consult a physician to be sure that supplements are appropriate for them. The decision to use supplements should be based on their unique needs and dietary intake. It should not be a substitute for proper eating or seeking appropriate medical care.

Deceptive advertising and the large variety of supplements on the market may lead older adults to buy supplements that are unnecessary or in potentially harmful doses. Taking high amounts of some nutrients (such as vitamin A, iron, and zinc) can lead to toxic levels in their bodies. Low-dose supplements are less likely to have adverse side effects.

### HERBAL SUPPLEMENTS

Herbal supplement use has grown dramatically in recent years. Examples are ginkgo biloba, ginseng, St. John’s wort, and Echinacea. The health claims for these supplements may make them particularly appealing to older adults. However, the jury is

Supplement	Health Claim	Possible Harmful Effects
<b>Ginkgo Biloba</b>	<ul style="list-style-type: none"> <li>• Enhanced memory</li> <li>• Improved circulation</li> <li>• Antioxidant function</li> </ul>	<ul style="list-style-type: none"> <li>• Gastrointestinal disturbances</li> <li>• Headaches, allergic skin reactions</li> <li>• Interactions with anticonvulsants</li> <li>• Bleeding if combined with certain medications</li> </ul>
<b>Ginseng</b>	<ul style="list-style-type: none"> <li>• Enhanced memory</li> <li>• Increased energy</li> </ul>	<ul style="list-style-type: none"> <li>• Interactions with medications (Coumadin, Digoxin, MAO inhibitors)</li> </ul>
<b>St. John’s wort</b>	<ul style="list-style-type: none"> <li>• Enhanced mood</li> <li>• Reduced depression</li> <li>• Improved sleep</li> </ul>	<ul style="list-style-type: none"> <li>• Interactions with medications (Coumadin, Mevacor, cancer drugs, anticonvulsants, immunosuppressants)</li> <li>• Sensitivity to sunlight</li> </ul>
<b>Echinacea</b>	<ul style="list-style-type: none"> <li>• Enhanced immunity</li> <li>• Cold &amp; flu protection</li> </ul>	<ul style="list-style-type: none"> <li>• Not for use in autoimmune or systemic diseases (lupus, scleroderma, HIV, multiple sclerosis, tuberculosis)</li> </ul>

Source: *Nutrition and Aging – Herbal Supplements: Facts for Professionals*. Pennsylvania State University Nutrition and Extension Partnership Project, 2001.

still out on their effectiveness. Some studies have shown potential benefits, while others have shown no demonstrable results. Currently, large-scale studies are underway to further test their effectiveness. Until the results are in, it may be too soon to justify any recommendations.

As with medicines, herbal supplements can have potentially harmful side effects. Some can also interact with certain drugs or nutrients.

Therefore, older adults should always discuss any current or planned supplement use with their health care providers.

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## Medicines and Older Adults

Older adults consume a high proportion of prescription and nonprescription medicines compared to the rest of the population. Compared to younger adults, they are more likely to experience adverse effects of medicines. This may be due to interactions between medicines, interactions between foods and medicines, or age-related changes that affect the way their bodies use medicines.

### COMMON SIDE EFFECTS

At times, it may be hard to tell whether a symptom is due to disease or is a side effect of one or more medicines prescribed. Common side effects may include:

- Upset stomach, diarrhea, or constipation
- Blurred vision
- Dizziness
- Decreased appetite
- Mood changes
- Skin rashes

### THE RISK OF OVERMEDICATION

Older adults are sometimes at risk for being overmedicated. Risk factors include:

- Increased age.
- Female gender.
- A history of adverse drug reactions.
- The use of multiple medicines, especially if prescribed by more than one doctor or if prescriptions are filled at more than one pharmacy.
- Failure to follow prescriptions properly.
- Reduced blood flow and less efficient kidneys, which may allow medicines to remain in the body for a longer time.

To reduce the risk of overmedication, older adults should take medicines only as prescribed. They or their caregivers should keep all physicians and pharmacists informed of all medicines (over-the-counter and prescription) that the older adult is taking.

## FOOD/MEDICINE INTERACTIONS

Medicines can potentially affect a person's nutritional status.

- They can affect appetite or alter how foods taste or smell.
- Some medicines can cause nausea or vomiting.
- Side effects of some medicines can interfere with food intake.  
Examples are dizziness, sleepiness, confusion, shaking, or agitation.
- Medicines can change the way the body absorbs or uses nutrients.

Foods, in turn, can affect the way that medicines work.

- Some foods can reduce, delay, or increase the absorption of medicines.
- Some medicines are better absorbed on an empty stomach.  
Others are better absorbed with a meal.
- Some foods can interact with medicines.  
For example, grapefruit juice can increase the potency of certain medicines.
- Some foods can change the amount of acid in urine,  
which can affect the rate at which the body eliminates medicines.

## REDUCING THE RISK OF ADVERSE EFFECTS

To reduce the risk of adverse effects from medicines, older adults or their caregivers should communicate with doctors and pharmacists. They should inform them about all the prescription and over-the-counter medicines, vitamin-mineral supplements, or herbal supplements that the older adult is taking.

## Barriers to Healthy Eating

### POOR APPETITE

Poor appetite can be common in older adults.

***Possible causes include:***

- Grief or bereavement.
- Fewer social contacts for meals.
- Acute or chronic illness.
- Sensory changes (vision, taste, or smell).
- Medicines that affect appetite.

**Tips to help older adults with a poor appetite:**

- Offer beverages that increase calorie or nutrient intake, such as milk, soup, or hot chocolate, in place of coffee and tea.
- Enhance the flavor of meals with spices and herbs.
- Add variety and color to meals.
- Encourage them to eat smaller meals more frequently, instead of large meals.
- Make eating a special occasion. Create a positive atmosphere for dining that includes attractive lighting, tablecloths, a nice table setting, and appealing music.
- Make eating a social occasion. Create special “events” with themes that participants will enjoy together as a group.

### DENTAL PROBLEMS

Chewing problems may cause older adults to overly restrict foods important for proper health.

Poorly fitting dentures and missing teeth may cause older people to avoid fresh fruits and vegetables, which are important sources of vitamins, minerals and fiber.

**To promote dental health:**

- Serve foods rich in calcium and phosphorus.
- Serve a variety of firm, fibrous foods to stimulate the release of saliva.
- Encourage or provide opportunities for brushing and flossing teeth daily.
- Encourage older adults to brush their teeth or rinse their mouths with water after meals.
- Encourage regular visits to the dentist.

**To address chewing difficulties in older adults:**

- Offer plenty of water or fluids with meals.
- Offer foods that are soft and easy to chew.
  - ✓ Tender cuts of meat
  - ✓ Soft protein foods: eggs, milk, cheese, yogurt
  - ✓ Fruits and vegetables with peels removed
  - ✓ Fruit juices, canned fruits, and cooked vegetables
  - ✓ Cooked cereals, rice, or pasta
  - ✓ Mashed or pureed food, if needed

## SWALLOWING PROBLEMS

Swallowing is a complex act. It involves the mouth, throat area, and esophagus, which in turn are controlled by many nerves and muscles. Swallowing is partly under conscious control. However, most of the swallowing process is involuntary.

Someone with difficulty swallowing has the sensation that food is stuck in the throat or upper chest. This sensation may be felt high in the neck, or lower down, behind the breastbone (sternum). It may result from problems that arise in chewing food, moving it to the back of the mouth, or moving it through the esophagus toward the stomach.

### Common causes of swallowing problems in the mouth or pharynx:

- Something that blocks the passage of food or liquid. Examples are anxiety, a tumor, or cervical spine disease.
- Nerve and muscle problems resulting from stroke, Parkinson's disease, Huntington's disease, multiple sclerosis, myasthenia gravis, ALS (Lou Gehrig's disease), muscular dystrophy, polio, or syphilis.

### Common causes of swallowing problems in the esophagus:

- Something that blocks the passage of food. Examples are tumors, foreign bodies, or a narrowed esophagus caused by radiation, medication, or ulcers.
- Nerve and muscle problems resulting from certain diseases.

### To address swallowing problems in older adults:

- Chop foods in the blender.
- Avoid dry, chunky foods. Choose foods with a smooth texture.
- Add cream, gravy, or oil to foods.
- Avoid serving hot or cold foods.
- Avoid serving sticky foods.
- Encourage older adults to rinse their mouths before and after eating.
- Encourage them to eat in small bites, and to chew food well.
- Refer them to their health care provider if the problem continues, even if the symptoms are intermittent.
- If they suddenly show signs of choking and breathing problems, perform the Heimlich maneuver immediately.

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*Source: Medline Plus Medical Encyclopedia: Swallowing Difficulty, website [www.nlm.nih.gov/medlineplus/ency/article/003115.htm](http://www.nlm.nih.gov/medlineplus/ency/article/003115.htm)*



### SENSORY IMPAIRMENTS

As people get older, they become more likely to have **sensory impairments** (losses in vision, hearing, smell, or taste). These impairments can limit their quality of life, and affect their appetite and interest in foods.

**Impaired vision** can result from age-related eye changes or from diseases that affect the eyes (cataracts, glaucoma, diabetes, or macular degeneration). Vision may become less sharp. Older adults may find it harder to judge distances, focus on objects at different distances, or see items on the outside edges of the visual field. Their eyes may need stronger light to recognize objects, along with more contrast between light and dark objects. They may find it hard to read recipes, food labels, and labels on medicines.

**Hearing problems** can result from changes in the inner ear or from tinnitus (ringing or roaring sounds). Older adults may be less able to understand conversations or hear announcements, particularly in noisy or crowded environments. They may withdraw from social interactions with others at group meals.

**A reduced ability to smell or taste** can make it harder to discriminate between fine tastes, such as between turkey and chicken. Older adults may find it harder to distinguish between sweet, sour, and salty flavors. This can make them lose their appetite or their interest in food, and reduce their ability to detect bad odors in spoiled foods.

#### ***Tips for serving meals to adults with sensory impairments:***

- Create a positive atmosphere for dining that includes attractive lighting, tablecloths, a nice table setting, and appealing music.
- Minimize distractive noises such as televisions and radios.
- Provide a strong contrast in color (such as cream of wheat in a dark bowl).
- Provide easy-to-grasp glasses and utensils.
- Enhance the flavor of meals with spices and herbs.
- Marinate meats in fruit juices, salad dressing, or sweet-and-sour sauce for extra zest.
- Use colorful garnishes to make foods more appetizing.
- Add variety and color to meals.

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**Sources:** (1) Desai M et al. Trends in Vision and Hearing among Older Americans. *Aging Trends*, March 2001. Centers for Disease Control and Prevention. (2) Institute on Aging Learning Modules, University of North Carolina, [www.uncioa.org/iolearning](http://www.uncioa.org/iolearning).

## COGNITIVE IMPAIRMENTS

**Cognitive impairments** in older adults can range from minor memory loss to progressive dementia. Causes may include stroke, Alzheimer's disease, neurological disorders, nutritional deficiencies, or the side effects of taking medicines. As a result, these adults may have a diminished attention span, an increased risk of choking, an inability to recognize thirst, an inability to recognize food, confusion about meal times, and confusion about how to use utensils.

### ***Tips for serving meals to adults with cognitive impairments:***

- Serve meals in small dining rooms with a home-like atmosphere.
- Provide meals and snacks at consistent times.
- Provide a consistent seating arrangement to offer structure and cues to mealtimes.
- Seat people next to compatible tablemates to reduce agitation.
- Provide adequate lighting to help them recognize foods.
- Minimize distractive noises such as televisions and radios.
- Use square place mats to help define personal territory and reduce the chances for people taking each other's silverware by mistake.
- Use plain tablecloths and place mats to minimize distractions.
- Provide a strong contrast in color (such as cream of wheat in a dark bowl).
- Provide easy-to-grasp glasses and utensils.
- Model the use of utensils to encourage others to mimic your behavior. Use verbal cues ("place the fork in your hand") if necessary.
- Remove utensils if using them becomes dangerous.
- Put foods on small bowls or plates, and serve them one at a time.
- Serve small portions of tasty foods that are spiced to their liking.
- Offer some finger foods unless there is a risk of choking. Examples are mini-sandwiches and bite-size chunks of fruits, vegetables, or cheese.
- To minimize the risk of choking, avoid hard-cooked eggs, chunks of meat, nuts, whole grapes, orange halves, popcorn, and hard candy. Remove any pits, peels, or bones from foods. Serve raw carrots in long slices. Dilute peanut butter with applesauce.
- If they fail to recognize foods, encourage them to touch or smell the foods first. Feed them orally by hand if necessary.
- Provide fluids on a routine basis (at least every 2 hours).

If these tips prove unsuccessful in encouraging food intake, refer older adults' caregivers to their health care providers.

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**Source:** Bakker R. Sensory Loss, Dementia, and Environments. *Generations: Journal of the American Society on Aging*. Spring 2003.