



IT'S MORE THAN A MEAL


Table of Contents

Introduction	17
The 2005 Dietary Guidelines	18
18 Background	
18 Basic Messages	
The 2005 Pyramid	21
21 Background	
21 Basic Messages	
21 Food Groups at Different Calorie Levels	
22 Pyramid Food Groups	
28 The Pyramid and Physical Activity	
Nutrients in Foods	29
29 Protein	
29 Carbohydrates	
30 Fats and Cholesterol	
31 Vitamins	
33 Minerals	
33 Water	

Nutrition Basics

Developed for the Massachusetts Department of Education Child and Adult Care Food Program by the University of Massachusetts Extension Nutrition Education Program. © 2006 Massachusetts Department of Education. Permission is hereby granted to copy any or all parts of this document for non-commercial educational purposes. Please credit the "Massachusetts Department of Education."





This section is a starting point for learning about good nutrition.

This section will cover the following topics:

2005 Dietary Guidelines¹ and Pyramid²

What is the latest advice for nutrition and physical activity from the U.S. Government?

Although most of this advice is geared toward Americans in general, it does include some specific guidelines for older adults.

Nutrients in Foods

What are some key nutrients found in foods? What roles do these nutrients play in promoting health and preventing disease? Which foods and beverages are good sources of these nutrients?

After you learn these basics of good nutrition, you can move on to the next section to learn about the specific nutritional needs of older adults.

¹ Information on the Dietary Guidelines has been adapted from the *Dietary Guidelines for Americans*, 2005, U.S. Department of Health and Human Services, U.S. Department of Agriculture, www.healthierus.gov/dietaryguidelines

² Information on the Pyramid has been adapted from the *MyPyramid* food guidance system, 2005, U.S. Department of Agriculture Center for Nutrition Policy and Promotion, www.mypyramid.gov

The 2005 Dietary Guidelines

BACKGROUND

The Dietary Guidelines for Americans provide science-based advice to promote health. They were first published in 1980 by the U.S. government, and are revised every five years to reflect the latest scientific knowledge. The 2005 edition stresses the role of diet and physical activity in promoting health and reducing the risk for obesity and chronic diseases (such as heart disease, high blood pressure, diabetes, and osteoporosis).

The Dietary Guidelines translate nutrition knowledge into advice for a general eating pattern. The 2005 edition provides a set of messages that encourage most Americans to eat fewer calories, be more active, and make wiser food choices.

BASIC MESSAGES

Adequate Nutrients within Calorie Needs

- **Key recommendations**

Consume a variety of nutrient-dense foods and beverages within the basic food groups. Aim for foods low in saturated fat, *trans* fat, cholesterol, added sugars, salt, and alcohol.

Adopt a balanced eating pattern such as the USDA Pyramid.

- **Additional advice for older adults**

Consume extra vitamin B12 from fortified foods or supplements.

Consume extra vitamin D from fortified foods or supplements.

Weight Management

- **Key recommendations**

To maintain body weight in a healthy range, balance the calories from foods and beverages with the calories used in exercise and daily activities.

To prevent gradual weight gain as you get older, make small decreases in how much food you eat (“calories in”) and increase physical activity (“calories out”).

- **Additional advice for overweight adults**

Aim for a slow, steady weight loss by eating fewer calories while eating enough nutrients and increasing physical activity.

Before starting a weight-loss program, consult a healthcare provider to manage other health conditions.

Physical Activity

• **Key recommendations**

Engage in physical activity to promote health, psychological well-being, and a healthy body weight.

Include cardiovascular conditioning, stretching exercises for flexibility, and resistance exercises or calisthenics for muscle strength and endurance.

• **Additional advice for older adults**

If you are able to do so, participate in regular physical activity to reduce some of the effects of aging. For example, strengthening muscles and improving balance can reduce falls and injuries.

Food Groups to Encourage

• **Key recommendations**

Consume plenty of fruits and vegetables while staying within calorie needs.

Choose a variety of fruits and vegetables each day. Select from all 5 vegetable subgroups (dark green, orange, legumes, starchy vegetables, and other vegetables) several times each week.

Whole grains should make up at least half of the grains eaten.

Consume 3 cups each day of fat-free milk or equivalent milk products.

Fats

• **Key recommendations**

Consume less than 10% of daily calories from saturated fats.

Daily calories	Saturated fats (up to 10% of calories)
1,600	Up to 18 grams
2,000	Up to 20 grams
2,500	Up to 25 grams

Keep total fat intake in the range of 20% to 35% of calories.

Most fats should come from foods such as fish, nuts, and vegetable oils that are good sources of polyunsaturated and monounsaturated fats.

Choose meat, poultry, and milk products that are lean, low-fat, or fat-free.

Consume as few *trans* fats as possible.

Trans fats are hydrogenated or partially hydrogenated fats.

Consume less than 300 milligrams per day of cholesterol.

Carbohydrates

- **Key recommendations**

Choose fiber-rich fruits, vegetables, and whole grains often.

Choose foods and beverages with few added sugars or caloric sweeteners.

Reduce the risk for dental cavities by practicing good oral hygiene.

- **Additional advice for older adults**

Consume foods rich in dietary fiber to help prevent constipation.

Sodium and Potassium

- **Key recommendations**

Consume less than 2,300 milligrams of sodium (about 1 teaspoon of salt) per day. This includes the sodium already in foods, plus any salt added at the table.

Choose and prepare foods with little salt.

Consume potassium-rich foods, such as fruits and vegetables.

- **Additional advice for older adults and people with high blood pressure**

Consume less than 1,500 mg of sodium per day.

Consume at least 4,700 mg of potassium per day from food sources.

Alcoholic Beverages

- **Key recommendations**

Those who drink alcoholic beverages should limit intake to 1 drink per day for women and up to 2 drinks per day for men.

Alcoholic beverages should be avoided by people who abuse alcohol, take medicines that interact with alcohol, have certain medical conditions, or do activities that require attention, skill, or coordination (such as driving or operating machinery).

Food Safety

- **Key recommendations**

Clean hands and food contact surfaces.

Rinse fruits and vegetables before eating them.

Don't wash or rinse meat and poultry.

Separate raw, cooked, and ready-to-eat foods.

Cook foods to a safe temperature to kill microorganisms.

Chill (refrigerate) perishable food promptly and defrost foods properly.

- **Additional advice for older adults**

Older adults have a risk of developing potentially life-threatening illnesses caused by bacteria. To reduce this risk, avoid unpasteurized milk; raw or undercooked eggs, meat, poultry, or fish; unpasteurized juices; and raw sprouts. Only eat frankfurters that have been heated to steaming hot.

The 2005 Pyramid

BACKGROUND

The USDA Pyramid is an eating pattern based on the Dietary Guidelines. It was developed by the U.S. Department of Agriculture in 1992, and revised in 2005. The 2005 edition is flexible enough to adapt to a wide range of calorie levels, food preferences, and cuisines to meet the needs of different people. An interactive version, *MyPyramid*, is available on the website www.mypyramid.gov. It estimates how many calories a person needs based on age, gender, and physical activity.

BASIC MESSAGES

- Get the most nutrition out of the day's calories.
- Make smart choices from every food group.
- Mix up your choices within each food group.
- Find your balance between food and physical activity.

FOOD GROUPS AT DIFFERENT CALORIE LEVELS

Most older adults need to consume about 1600 to 2400 calories per day, unless they have a high level of physical activity. Within each calorie level, the Pyramid gives advice for how many foods to consume within each food group. The next few pages list tips on what counts as a Pyramid serving in each food group. The source of this information is the USDA Pyramid (available at the website address of www.mypyramid.gov).

Note: Pyramid servings may not always be equal to servings of food listed for crediting purposes. Adult day health programs operating under CACFP must follow CACFP Meal Pattern Requirements. See the *Crediting Foods* section for these requirements.

FOOD GROUP	CALORIE LEVELS				
	1600	1800	2000	2200	2400
Grains (ounces)	5 oz	6 oz	6 oz	7 oz	8 oz
Vegetables (cups)	2 c	2½ c	2½ c	3 c	3 c
Fruits (cups)	1½ c	1½ c	2 c	2 c	2 c
Milk (cups)	3 c	3 c	3 c	3 c	3 c
Meat and Beans (ounces)	5 oz	5 oz	5½ oz	6 oz	6½ oz
Oils (tsp)	5 tsp	5 tsp	6 tsp	6 tsp	7 tsp

PYRAMID FOOD GROUPS

GRAINS: What Counts as 1 Ounce in the Pyramid?

Note: Pyramid servings may not always be equal to servings of food listed for crediting purposes. See the *Crediting Foods* section for CACFP Meal Pattern Requirements.

In general, 1 slice of bread, 1 cup of ready-to-eat cereal, or ½ cup of cooked rice, cooked pasta, or cooked cereal counts as 1 ounce from the grains group.

Grain Food	Amount that Counts as 1 ounce of Grains	Larger Portion Sizes and Their Equivalent in Ounces of Grains
Bagels	½ "mini" bagel	1 large bagel (4 oz)
Biscuits	1 small biscuit, 2"	1 large biscuit (2 oz)
Breads	1 regular slice 4 snack-size slices	
Bulgur	½ cup cooked bulgur	
Cereal, Ready-to-eat	1 cup cereal flakes 1¼ cup puffed cereal	
Cereal, Oatmeal	½ cup cooked 1 packet instant	
Cornbread	1 small piece	
Crackers	5 whole-wheat crackers 2 rye crisp crackers 7 round crackers	
English muffins	½ English muffin	1 English muffin (2 oz)
Muffins	1 small muffin	1 large muffin (3 oz)
Pancakes	1 medium pancake, 4½" 2 small pancakes, 3"	3 medium pancakes (3 oz)
Popcorn*	3 cups popcorn, popped	1 bag microwave popcorn (4 oz)
Rice	½ cup cooked rice 1 ounce dry rice	1 cup cooked rice (2 oz)
Pasta – spaghetti, macaroni, noodles	½ cup cooked pasta 1 ounce dry pasta	1 cup cooked pasta (2 oz)
Tortillas	1 small tortilla, 6"	1 large tortilla, 12" (4 oz)

* Not a creditable CACFP food.

VEGETABLES: What Counts as 1 Cup in the Pyramid?

Note: Pyramid servings may not always be equal to servings of food listed for crediting purposes. See the *Crediting Foods* section for CACFP Meal Pattern Requirements.

In general, 1 cup of raw or cooked vegetables or vegetable juice, or 2 cups of raw leafy greens count as 1 cup. Below are specific amounts that count as 1 cup of vegetables. Each week, older adults should consume vegetables from each of the 5 subgroups listed below.

Dark-Green Vegetables	
Broccoli	1 cup chopped OR 3 spears
Greens (collards, mustard greens, kale)	1 cup cooked
Spinach	2 cups raw OR 1 cup cooked
Raw leafy greens	2 cups raw
Orange Vegetables	
Carrots	1 cup chopped OR 2 medium carrots OR 12 baby carrots
Pumpkin	1 cup mashed, cooked
Sweet potato	1 large baked OR 1 cup mashed, cooked
Winter squash (acorn, butternut, hubbard)	1 cup cubed, cooked
Dry beans and peas	
Beans (black, garbanzo, kidney, pinto), soybeans, black-eyed peas, split peas	1 cup, cooked
Tofu*	1 cup of ½-inch cubes (8 ounces)
Starchy Vegetables	
Corn, yellow or white	1 cup OR 1 large ear
Green peas	1 cup
White potatoes	1 cup diced, mashed OR 1 medium potato OR 20 French fries
Other Vegetables	
Bean sprouts	1 cup cooked
Cabbage	1 cup, chopped or shredded
Celery	1 cup, diced OR 2 large stalks
Cucumbers	1 cup raw
Green or wax beans	1 cup cooked
Green or red peppers	1 large pepper OR 1 cup chopped
Lettuce, iceberg or head	2 cups, chopped
Mushrooms	1 cup raw or cooked
Onions	1 cup chopped, raw or cooked
Tomatoes	1 large raw whole OR 1 cup chopped
Tomato or mixed vegetable juice	1 cup
Summer squash or zucchini	1 cup cooked, sliced or diced

* Not a creditable CACFP food

FRUITS: What Counts as 1 Cup in the Pyramid?

Note: Pyramid servings may not always be equal to servings of food listed for crediting purposes. See the *Crediting Foods* section for CACFP Meal Pattern Requirements.

In general, 1 cup of fruit or 100% fruit juice, or ½ cup of dried fruit counts as 1 cup from the fruit group. The following specific amounts count as 1 cup of fruit.

Fruit	Amount that Counts as 1 Cup of Fruit
Apple	½ large OR 1 small 1 cup sliced or chopped
Applesauce	1 cup
Banana	1 large OR 1 cup sliced
Cantaloupe	1 cup diced
Grapes	1 cup OR 32 grapes
Grapefruit	1 medium OR 1 cup of sections
Mixed fruit/Fruit cocktail	1 cup
Orange	1 large OR 1 cup of sections
Peach	1 large OR 1 cup sliced or diced 2 halves, canned
Pear	1 medium OR 1 cup sliced or diced
Pineapple	1 cup chunks, sliced or crushed
Plum	1 cup sliced OR 3 medium OR 2 large plums
Strawberries	About 8 large berries OR 1 cup
Watermelon	1 small wedge (1" thick) 1 cup diced
Dried fruit (raisins, prunes, etc.)	½ cup
100% Fruit juice (orange, apple, etc.)	1 cup

MILK, YOGURT, AND CHEESE: What Counts as 1 Cup in the Pyramid?

Note: Pyramid servings may not always be equal to servings of food listed for crediting purposes. See the *Crediting Foods* section for CACFP Meal Pattern Requirements

Food or Beverage	Amount that Counts as 1 Cup of Milk
<p>Milk Choose fat-free or low-fat milk most often.</p>	<p>1 cup of fluid milk 1 half-pint container of fluid milk ½ cup evaporated milk</p>
<p>Yogurt* Choose fat-free or low-fat yogurt most often.</p>	<p>1 regular container (8 fluid ounces) 1 cup</p>
<p>Cheese* Choose low-fat cheeses most often.</p>	<p>1½ oz hard cheese (cheddar, mozzarella, Swiss, parmesan) 2 oz processed cheese (American) ½ cup shredded cheese ½ cup ricotta cheese 2 cups cottage cheese</p>
<p>Milk-based desserts* Choose fat-free or low-fat types most often.</p>	<p>1 cup pudding made with milk 1 cup frozen yogurt 1½ cups ice cream (3 scoops)</p>

* Not CACFP-creditable as fluid milk.

MEAT, POULTRY, FISH, DRY BEANS, EGGS, AND NUTS: What Counts as 1 Ounce in the Pyramid?

Note: Pyramid servings may not always be equal to servings of food listed for crediting purposes. See the *Crediting Foods* section for CACFP Meal Pattern Requirements

In general, 1 ounce of meat, poultry or fish, ¼ cup cooked dry beans, 1 egg, 1 tablespoon of peanut butter, or ½ ounce of nuts or seeds count as a 1 ounce equivalent.

Foods	Amount that Counts as 1 Ounce of Meat	Common Portion Sizes and Their Equivalent
Meats	1 oz lean beef, cooked 1 oz lean pork or ham, cooked	1 small steak (4 oz) 1 small lean hamburger (3 oz)
Poultry	1 oz chicken or turkey, cooked, no skin 1 sandwich-sized slice of turkey	½ small chicken breast (3 oz) ½ Cornish game hen (4 oz)
Fish	1 oz fish or shellfish, cooked	1 can of tuna, drained (3 oz) 1 salmon steak (4 to 6 oz) 1 small trout (3 oz)
Eggs	1 egg	
Nuts & seeds	½ oz nuts ½ oz seeds, hulled (<i>pumpkin, sunflower or squash</i>) 1 Tbsp peanut butter	1 oz nuts or seeds (<i>counts as 2 oz meat</i>)
Dry beans & peas	¼ cup cooked dry beans ¼ cup cooked dry peas ¼ cup baked beans or refried beans ¼ cup roasted soybeans ¼ cup (about 2 oz) tofu* 2 Tbsp hummus	1 cup split pea soup (<i>counts as 2 oz meat</i>) 1 cup bean soup (<i>counts as 2 oz meat</i>) 1 soy patty (<i>counts as 2 oz meat</i>)

* Not a creditable CACFP food.

OILS: How Much Are in Foods?

Note: Pyramid servings may not always be equal to servings of food listed for crediting purposes. See the *Crediting Foods* section for CACFP Meal Pattern Requirements

	Amount of Food	Amount of Oil
Vegetable Oils	1 Tbsp	3 tsp
Foods Rich in Oils:		
Margarine, soft (<i>trans</i> fat free)	1 Tbsp	2½ tsp
Mayonnaise	1 Tbsp	2½ tsp
Salad dressing, mayonnaise-type	1 Tbsp	1 tsp
Salad dressing, Italian	2 Tbsp	2 tsp
Salad dressing, Thousand Island	2 Tbsp	2½ tsp
Olives, ripe, canned	4 large	½ tsp
Avocado ¹	½ medium	3 tsp
Peanut butter ²	2 Tbsp	4 tsp
Peanuts, dry roasted ²	1 oz	3 tsp
Nuts, dry roasted ²	1 oz	3 tsp
Sunflower seeds ²	1 oz	3 tsp
<p>1. Avocados are part of the fruit group. 2. Nuts and seeds are part of the meat and beans group.</p>		

THE PYRAMID AND PHYSICAL ACTIVITY

What is Physical Activity?

Physical activity is movement of the body that uses energy. Walking, gardening, and climbing the stairs are examples. Physical activity and nutrition work together for better health.

What are the Benefits?

- Improved self-esteem and feeling of well-being.
- Increased fitness level.
- Building and maintaining bones, muscles, and joints.
- Building endurance and muscle strength.
- Increased flexibility and better posture.
- Helping to manage weight.
- Lower risk of heart disease, colon cancer, and type 2 diabetes.
- Helping to control blood pressure.
- Reduced feelings of depression and anxiety.

Do Different Types of Physical Activity Provide Different Benefits?

- **Aerobic activities** speed the heart rate and breathing, and improve heart and lung fitness. Examples are brisk walking, jogging, and swimming.

- **Resistance, strength building, and weight-bearing activity** help maintain bones and muscles by working them against gravity. Examples are lifting weights and walking.
- **Balance and stretching activities** enhance physical stability and flexibility, which reduces risk of injuries. Examples are gentle stretch, dance, yoga, and tai chi.

How Much Physical Activity is Needed?

If possible, do *moderate* intensity activity for at least 30 minutes most days of the week, in addition to usual daily activities. Increasing the intensity or time can have extra health benefits and may help control body weight. Older adults should see a health care provider before starting any physical activity program.

Tips to Increase Physical Activity

- Make physical activity a regular part of the day. Choose activities that are enjoyable and can be done regularly. Fit activity into a daily routine. It helps to be active most days of the week and make it part of daily routine. Aim for at least 10 minutes of activity at a time. Shorter bursts will not have the same health benefits.
- Ideas for older adults: walk with others, do strength and flexibility exercises, care for a garden, take a yoga class, do upper body exercises, or take a nature walk.

Nutrients in Foods

Many nutrients are needed to maintain health. These include protein, carbohydrates, fat, vitamins, minerals and water. Most foods contain more than one nutrient. To provide the greatest amount of nutrients, serve a variety of foods in meals and snacks throughout the week. Some foods provide more nutrients than others. Also, a food may be a good source of some vitamins and minerals, but still lack other important ones. A “perfect” food with all essential nutrients does not exist.

The next few pages describe several key nutrients and list the foods that are good sources of these nutrients. *The food groups listed are based on CACFP meal patterns. The examples provided are creditable foods in the CACFP program and do not necessarily follow the Pyramid guidelines.*

For example, yogurt counts as a serving from the milk group in the Pyramid; however, in the CACFP pattern, only fluid milk can count as a serving in this category.

PROTEIN

Proteins play a role in growth, maintenance, and repair of body tissues. They form certain hormones and enzymes that regulate body processes. They also help fight infections and heal wounds. As a result, protein needs can increase during surgery, illness, or disease. Older adults lose protein easily due to the loss of skeletal muscle.

Some food sources of protein include:

- **Meat/Meat Alternates:** meat, fish, poultry, dry beans, dry peas, nuts and seeds, cheeses, yogurt
- **Milk:** fluid milk

CARBOHYDRATES

Carbohydrates provide energy to the body. They come in three forms: sugar, starch, and fiber.

Sugars either occur naturally in foods, or are added to foods during processing or at the table.

Naturally-occurring sugars are in milk, fruits, fruit juices, and vegetables. These foods contain some sugar, along with nutrients important to health. *Added sugars* are found in processed and sugary foods and beverages, such as doughnuts, cakes, cookies, hard candy, and soda. They include brown sugar, cane sugar, corn sweetener, corn syrup, dextrose, fructose, glucose, high fructose corn syrup, honey, invert sugar, lactose, malt syrup, maltose, maple syrup, molasses, sucrose, and sugar syrup. Limiting foods and beverages with added sugars can help maintain a healthy weight, and can make room in the diet for more nutritious foods.

Major Sources of Added Sugars in the United States

- Soft drinks
- Cakes, cookies, and pies
- Fruit drinks such as fruit punch and lemonade
- Ice cream and other dairy desserts
- Hard candy

Adapted from U.S. Department of Agriculture, United States Department of Health and Human Services. Home and Garden Bulletin Number 232; Dietary Guidelines for Americans, 2000.

Starch is a major source of energy for the body. Sources of starch include grains (wheat, oats, corn, rice) and products made from grains such as flour, pasta, breads and cereals. Other sources are starchy vegetables such as potatoes, sweet potatoes, and dry beans.

Dietary fiber is present in plant foods. It is not broken down during digestion. Eating fiber-containing foods such as fruits, vegetables, and whole grains promotes proper bowel function. Dietary fiber provides bulk for stool formation and prevents constipation.

Consuming dietary fiber may help satisfy the appetite by creating a satisfying full feeling. Eating plenty of fruits, vegetables, and whole grain foods as part of a healthy eating pattern may also help protect against some chronic diseases. Fiber may also help control blood sugar levels in people with diabetes.

Some food sources of fiber include:

- **Fruits:** apples, bananas, blueberries, cantaloupe, cherries, peaches, pears, prunes, raspberries, strawberries
- **Vegetables:** broccoli, carrots, cauliflower, celery, corn, green beans, peppers, potatoes, tomatoes

- **Grains/Breads:** whole grains such as brown rice, bulgur, whole grain corn, oatmeal, popcorn, pearl barley, whole oats, whole rye, whole wheat
- **Meat/Meat Alternates:** dry beans, dry peas, lentils

See the section on *Planning Meals and Snacks* for tips on increasing dietary fiber.

FATS AND CHOLESTEROL

Fats supply energy and essential fatty acids. Fats are the most concentrated calorie source in the diet (1 gram of fat provides 9 calories, while 1 gram of protein or carbohydrate provides 4 calories). Fats are required for brain development, vision, forming some hormones, and protecting the organs. They also transport vitamins A, D, E and K in the body.

We need some fat in our diets. However, we should try not to eat too much fat. The Dietary Guidelines advise that most people keep their total fat intake in the range of 20% to 35% of calories, and limit their saturated fat intake to no more than 10% of calories.

Foods contain different types of fats known as saturated, monounsaturated, polyunsaturated, and *trans* fats. Different foods contain different amounts of each type of fat.

Saturated fats are present in most fats, but many animal fats contain more saturated fat than fat from plant foods, except tropical oils (e.g., palm and coconut oils). Foods high in saturated fats tend to raise blood cholesterol. These foods include high fat dairy products (cheese, whole milk, cream, butter, and regular ice cream), fatty meats, poultry skin, poultry fat, lard, palm oil, and coconut oil.

Unsaturated fats are liquid at room temperature. Using monounsaturated and polyunsaturated fats in place of saturated fats can help keep blood cholesterol levels down.

- *Monounsaturated fats* are found in large amounts in olive, canola, and peanut oils.
- *Polyunsaturated fats* are found in corn, soybean, cottonseed, and safflower oils.

Trans fats can raise blood cholesterol levels because they act like saturated fats. They are found in hydrogenated vegetable oils. Foods high in these oils are commercially-made baked goods (such as muffins, pastries, doughnuts), snack crackers, and fried foods.

Cholesterol is a fat-like substance produced in humans and animals. It is used to make hormones, cell membranes, and other body substances. High blood cholesterol levels increase the risk of heart disease. Eating foods high in saturated fat and cholesterol may affect cholesterol levels. Dietary

cholesterol is only found in foods of animal origin such as meat, milk, cheese, and eggs. Some foods that contain fat, saturated fat and cholesterol also contain high-quality protein and are good sources of certain vitamins and minerals. Most varieties of lean meat, poultry and fish contain similar amounts of cholesterol per serving. However, organ meats such as liver, heart, and kidney contain more cholesterol than other meats.

VITAMINS

The body needs vitamins to function properly. Many chemical reactions in the body depend on vitamins. As adults age, they may need vitamin D and B12 supplements because their bodies cannot absorb these vitamins efficiently.

Vitamin A is an antioxidant that helps protect the body's cells from damage. It is important for healthy skin, hair, and mucous membranes. It helps people see in dim light. Beta-carotene, a precursor of vitamin A, may reduce the risk of chronic diseases and macular degeneration.

Some food sources of vitamin A include:

- **Fruits:** cantaloupe, mandarin oranges, mangos, nectarines, peaches, plums
- **Vegetables:** broccoli, carrots, greens, kale, pumpkin, spinach, winter squash, sweet potatoes, tomatoes
- **Meat/Meat Alternates:** liver, whole eggs, yogurt
- **Milk:** fluid milk

IT'S **MORE** THAN A MEAL

Vitamin C is an antioxidant that helps protect the body's cells from damage. It plays a role in forming collagen, a protein that gives structure to bones and muscles. Vitamin C also helps the body absorb iron.

Some food sources of vitamin C include:

- **Fruits:** cantaloupe, citrus fruits and juices (grapefruit, orange, etc.), kiwi, pineapple, raspberries, strawberries, watermelon
- **Vegetables:** asparagus, broccoli, cabbage, cauliflower, kale, peppers, romaine lettuce, spinach, sweet potatoes, tomatoes

Vitamin D is needed to build and maintain strong bones because it helps the body absorb calcium. Your skin can make vitamin D from sunlight, but loses some of this ability with aging.

Some food sources of vitamin D include:

- **Meat/Meat Alternates:** fatty fish (e.g., salmon, mackerel)
- **Milk:** vitamin D-fortified fluid milk

Vitamin E is another antioxidant. It helps keep cell membranes stable and regulates oxidation reactions in the body.

Some food sources of vitamin E include:

- **Meat/Meat Alternates:** nuts, seeds, salmon, shellfish, shrimp
- **Fruits:** apples, apricots, nectarines, peaches
- **Vegetables:** dark green leafy vegetables, pumpkin
- **Grains/Breads:** multi-grain and enriched breads and cereals

- **Oils:** vegetable oils such as corn, cottonseed, safflower, and soybean oils; mayonnaise, margarine, salad dressing

Folate (also called folic acid or folacin) is a B-vitamin that helps build cells. It plays a role in red blood cell production.

Some food sources of folate include:

- **Meat/Meat Alternates:** black-eyed peas, lentils, red kidney beans
- **Vegetables:** green peas, leafy green vegetables (such as spinach and mustard greens), romaine lettuce, spinach
- **Grains/Breads:** whole-grain bread products; fortified ready-to-eat breads, cereals, pasta
- **Fruits:** melons, oranges, orange juice, plums, raspberries, strawberries, tangerines

The other **B vitamins** (besides folate) are thiamin, riboflavin, niacin, and vitamins B6 and B12. They help the body release energy during metabolism. Vitamin B12 is found only in animal-based foods or vitamin B12-fortified foods.

Some food sources of B vitamins include:

- **Grains/Breads:** Enriched and fortified bread products are good sources of thiamin, riboflavin, niacin, and vitamin B6.
- **Meat/Meat Alternates:** Pork products are good sources of thiamin. Poultry and fish are good sources of niacin. All meats are a good source of vitamin B12.
- **Milk:** Fluid milk is a good source of riboflavin.

MINERALS

Minerals have important roles in the body systems. They help convert carbohydrate, protein, and fat into energy. They help maintain body fluids. They also play a role in muscle contractions. Examples are calcium, iodine, iron, magnesium, potassium, sodium, and zinc.

Iron is used to make hemoglobin in red blood cells. Its primary role is to carry oxygen in the body, both in the blood and muscles. If the body has low iron levels, energy levels may seem low, too.

Some food sources of iron include:

- **Meat/Meat Alternates:** dry beans, dry peas, eggs, meat, poultry
- **Grains/Breads:** whole grain, fortified, or enriched breads and cereals
- **Vegetables:** dark green leafy vegetables, dry beans, dry peas, lima beans, spinach

Calcium helps the body build and maintain bones and teeth. It also helps muscles to contract, blood to clot, and nerves to send messages. Older adults may need calcium supplements in their diets.

Some food sources of calcium include:

- **Milk:** fluid milk
- **Vegetables:** broccoli, spinach, turnip greens, collards
- **Fruits:** calcium-fortified orange juice
- **Meat/Meat Alternates:** cheeses, yogurt
- **Grains/Breads:** calcium-fortified products such as breakfast cereals

WATER

Water is often a “forgotten nutrient.” It plays vital roles in transporting nutrients throughout the body, removing wastes, and regulating body temperature. Water is an important part of an adequate diet. It is needed to replace body water lost in urine, sweat, and the breath.

Dehydration is a common problem for many seniors. A decreased thirst sensation and use of medications may affect the body’s ability to regulate fluid balance. Dehydration worsens symptoms of kidney dysfunction and constipation. To prevent dehydration, older adults need at least 8 cups of fluids each day. Many sources can contribute toward the recommendation for fluid: water, fruit juices, milk, soups, fruit, and decaffeinated coffee and tea.

For more information on fluids, see the section on *Special Nutrition Needs of Older Adults*.

