Making good food choices can greatly increase your chances of living a long and healthy life.

Live Like Your Life Depends On It

A food safety and nutrition coloring book from Human Environmental Sciences, University of Missouri Extension
Adults of all ages have different nutrition and physical activity needs as their lives and bodies change. As you age, maintaining healthy habits is an important way to lower your risk for cancer, diabetes, heart disease and hypertension. Make your food and beverage choices a priority and be physically active to feel and look better.

There are many factors that contribute to wellness and longevity. Some factors, like family history, genetics or disease, may be out of our control but each of us has the power to choose foods best suited to meet our personal dietary needs.

These coloring pages are a fun, relaxing way to learn about current, unbiased, research-based work being done on food and its relationship to health.

To learn more visit: choosemyplate.gov/men-and-women

Table of Contents

Food Safety .............................................................. 2-13
Clean .............................................................. 2-7
Separate ........................................................... 8-9
Cook ............................................................... 10-11
Chill .............................................................. 12-13

Eat a Healthy Diet .................................................. 14-15
Eat Your Veggies .................................................. 16-19
Grow Hot Chilies .................................................. 20-21
Focus on Fruits .................................................... 22-23
Holy Guacamole .................................................. 24-25
Make Half Your Grains Whole .............................. 26-29
Go Lean With Protein ........................................... 30-35
Vegetarian Options ................................................ 36-37
Dairy ............................................................... 38-39

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An important part of healthy eating is keeping foods safe.

According to the CDC, about 1 in 6 Americans (or 48 million people) are affected by foodborne illness every year, leading to 128,000 hospitalizations and 3,000 deaths. ([http://www.cdc.gov/foodborneburden/](http://www.cdc.gov/foodborneburden/))

To prevent contaminating food with microbes:

• Frequently clean surfaces to prevent cross-contamination. Microbes, such as bacteria and viruses, can be spread throughout the kitchen and get onto hands, cutting boards, utensils, countertops, reusable grocery bags and foods.

• Wash hands to prevent contamination of food from microbes from raw animal products (e.g., raw seafood, meat, poultry and eggs) and from people (e.g., cold, flu and staph infections).

Keep surfaces clean

Surfaces should be washed with hot, soapy water. A solution of 1 tablespoon of unscented liquid chlorine bleach per gallon of water can be used to sanitize surfaces. All kitchen surfaces should be kept clean, including tables, countertops, sinks, utensils, cutting boards and appliances.

1. Clean...

• hands
• surfaces
• foods

Reduce the risk of foodborne illness by following these four basic food safety principles—Clean, Separate, Cook, Chill.

Adapted from illustrations by Elise Gravel and In-Finity/Shutterstock.com
Keep appliances clean

- At least once a week, throw out refrigerated foods that should no longer be eaten.
- Cooked leftovers should be discarded after 4 days; raw poultry and ground meats, 1 to 2 days.
- Wipe up spills immediately and clean food-contact surfaces often.
- Clean the inside and the outside of appliances. Pay particular attention to buttons and handles where cross-contamination to hands can occur.
- The insides of microwaves easily become soiled with food, allowing microbes to grow. They should be cleaned often.

Wash your hands...

...Before and after preparing food, especially after handling raw seafood, meat, poultry or eggs, and before eating.

...After going to the bathroom, changing diapers, coughing or sneezing, tending to someone who is sick or injured, touching animals and handling garbage.

...With soap and water.

- Soaps with antimicrobial agents are not needed for consumer hand washing, and their use over time can lead to growth of microbes resistant to these agents.
- Alcohol-based (≥ 60 percent), rinse-free hand sanitizers should be used when hand washing with soap is not possible.
- Hand sanitizers are not as effective when hands are visibly dirty or greasy.

To learn more, visit:
health.gov/dietaryguidelines/2015/guidelines/appendix-14/

Illustration by Lidia Puica/Shutterstock.com
All produce, regardless of where it was grown or purchased, should be thoroughly rinsed. However, any precut packaged items, like lettuce or baby carrots, that are labeled as prewashed and ready-to-eat can be eaten without further rinsing.

- Rinse fresh vegetables and fruits under running water just before eating, cutting or cooking.
- Do not use soap or detergent to clean produce; commercial produce washes are not needed.
- Even if you plan to peel or cut the produce before eating, it is still important to thoroughly rinse it first to prevent microbes from transferring from the outside to the inside of the produce.
- Scrub the skin or rind of firm produce, such as melons and cucumbers, with a clean produce brush while you rinse it.
- Dry produce with a clean cloth towel or paper towel to further reduce bacteria that may be present. Wet produce can allow remaining microbes to multiply faster.

Illustration by Irina Kirovachko/Shutterstock.com
2. Separate...

**To prevent foodborne illness**, separate ready-to-eat foods from raw foods or foods that might otherwise contain harmful microbes. Separate foods at every step of food handling, from purchase to preparation to serving.

**Separate Foods When Shopping**
- Store raw seafood, meat and poultry below ready-to-eat foods in your refrigerator.
- Clean reusable grocery bags regularly. Wash canvas and cloth bags in the washing machine and wash plastic reusable bags with hot, soapy water.

**Separate Foods When Preparing and Serving**
- Always use a clean cutting board for fresh produce and a separate one for raw seafood, meat and poultry.
- Always use a clean plate to serve and eat food.
- Never place cooked food back on the same plate or cutting board that previously held raw food.

Place raw seafood, meat and poultry in plastic bags. Separate them from other foods in your grocery cart and bags.

Separate raw foods from ready-to-eat foods.
3. Cook...

Seafood, meat, poultry and egg dishes should be cooked to the recommended safe minimum internal temperature to destroy harmful microbes. It is not always possible to tell whether a food is safe by how it looks. Use a food thermometer to ensure that food is safely cooked and that cooked food is held at safe temperatures until eaten.

- In general, the food thermometer should be placed in the thickest part of the food, not touching bone, fat or gristle.
- Follow the manufacturer’s instructions for the amount of time needed to measure the temperature of foods.
- Food thermometers should be cleaned with hot, soapy water before and after each use.

<table>
<thead>
<tr>
<th>Food</th>
<th>Degrees F.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ground Meat and Meat Mixtures</strong></td>
<td></td>
</tr>
<tr>
<td>Beef, Pork, Veal, Lamb</td>
<td>160</td>
</tr>
<tr>
<td>Turkey, Chicken</td>
<td>165</td>
</tr>
<tr>
<td><strong>Fresh Beef, Pork, Veal, Lamb</strong></td>
<td></td>
</tr>
<tr>
<td>Steaks, roasts, chops</td>
<td>145</td>
</tr>
<tr>
<td><strong>Poultry</strong></td>
<td></td>
</tr>
<tr>
<td>Chicken and Turkey, whole</td>
<td>165</td>
</tr>
<tr>
<td>Poultry breasts, roasts, thighs, wings</td>
<td>165</td>
</tr>
<tr>
<td>Duck and Goose</td>
<td>165</td>
</tr>
<tr>
<td>Stuffing (cooked alone or in bird)</td>
<td>165</td>
</tr>
<tr>
<td><strong>Fresh Pork</strong></td>
<td></td>
</tr>
<tr>
<td>Fresh Ham (raw)</td>
<td>145</td>
</tr>
<tr>
<td>Precooked Ham (to reheat)</td>
<td>140</td>
</tr>
<tr>
<td><strong>Eggs and Egg Dishes</strong></td>
<td></td>
</tr>
<tr>
<td>Cook eggs until yolk and white are firm.</td>
<td>160</td>
</tr>
<tr>
<td>Egg dishes</td>
<td>160</td>
</tr>
<tr>
<td><strong>Fresh Seafood</strong></td>
<td></td>
</tr>
<tr>
<td>Cook fish until it is opaque (milky white) and flakes with a fork.</td>
<td>145</td>
</tr>
<tr>
<td>Cook shrimp and lobster until the flesh is an opaque (milky white) color.</td>
<td>160</td>
</tr>
<tr>
<td>Cook scallops until their flesh is firm and an opaque (milky white) color.</td>
<td>165</td>
</tr>
<tr>
<td>Cook clams, mussels and oysters until their shells open. Throw away the ones that didn’t open.</td>
<td>165</td>
</tr>
<tr>
<td>Cook shucked clams and shucked oysters until they are opaque (milky white) and firm.</td>
<td>165</td>
</tr>
<tr>
<td><strong>Leftovers and Casseroles</strong></td>
<td></td>
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<tr>
<td></td>
<td>165</td>
</tr>
</tbody>
</table>

Temperature rules also apply to microwave cooking. Microwave ovens can cook unevenly and leave “cold spots” where harmful bacteria can survive. Foods should be stirred, rotated and/or flipped periodically to help them cook evenly.

To learn more, visit: health.gov/dietaryguidelines/2015/guidelines/appendix-14/
Monitor refrigerator and freezer temperatures with appliance thermometers.

- Keep your refrigerator at 40°F or below.
- Keep your freezer at 0°F or below.

**Keep Foods at Safe Temperatures**

- Hold cold foods at 40°F or below.
- Keep hot foods at 140°F or above.
- Foods are no longer safe to eat when they have been in the danger zone of 40-140°F for more than 2 hours (1 hour if the temperature was above 90°F).
- When shopping, the 2-hour window includes the amount of time food is in the grocery basket, car and on the kitchen counter.
- As soon as frozen food begins to thaw and become warmer than 40°F, any bacteria that may have been present before freezing can begin to multiply.

**Thaw foods safely**

Use one of the three safe ways to thaw foods:

1. in the refrigerator,
2. in cold water (i.e., in a leak-proof bag, changing cold water every 30 minutes), or
3. in the microwave.

**Never thaw food on the counter.**
Everything you eat and drink matters. The right mix can help you be healthier now and in the future.

Eating healthy is a journey shaped by many factors including our stage of life, situations, preferences, access to food, culture, traditions and the personal decisions we make over time. All your food and beverage choices count. Here are some ideas and tips to help you create a healthier eating style that meets your individual needs and improves your health. More information may be found at choosemyplate.gov.

All food and beverage choices matter — focus on variety, amount and nutrition.

- Focus on making healthy food and beverage choices from all five food groups, including fruits, vegetables, grains, protein foods and dairy, to get the nutrients you need.
- Eat the right amount of calories for you based on your age, sex, height, weight and physical activity level.
- Building a healthier eating style can help you avoid being overweight or obese and reduce your risk of diseases such as heart disease, diabetes and cancer.

Choose an eating style low in saturated fat, sodium and added sugars.

- Use Nutrition Facts labels and ingredient lists to find amounts of saturated fat, sodium and added sugars in the foods and beverages you choose.
- Look for food and drink choices that are lower in saturated fat, sodium and added sugar.
- Eating fewer calories from foods high in saturated fat and added sugar can help you manage your calories and prevent extra weight and obesity. Most of us eat too many foods that are high in saturated fat and added sugar.
- Eating foods with less sodium can reduce your risk of high blood pressure.

Make small changes to create a healthier eating style.

- Start with a few of these small changes.
  - Make half your plate fruits and vegetables.
  - Focus on whole fruits.
  - Vary your veggies.
  - Make half your grains whole grains.
  - Move to low-fat and fat-free dairy.
  - Vary your protein routine.
  - Eat and drink the right amount for you.

Support healthy eating for everyone.

- Create settings where healthy choices are available and affordable to you and others in your community.
- Professionals, policymakers, partners, industries, families and individuals can help others in their journey to make healthy eating a part of their lives.
Vegetables are important sources of many nutrients, including dietary fiber, potassium, vitamin A, vitamin C, vitamin K, copper, magnesium, vitamin E, vitamin B6, folate, iron, manganese, thiamin, niacin and choline.

People who eat more vegetables as part of an overall healthy diet are likely to have a reduced risk of some chronic diseases.

- Eating a diet rich in vegetables may reduce the risk of heart disease, including heart attack and stroke.
- Eating a diet rich in some vegetables may protect against certain types of cancers.
- Eating vegetables rich in fiber may reduce the risk of heart disease, obesity and Type 2 diabetes.
- Eating vegetables rich in potassium as part of an overall healthy diet may lower blood pressure, and may also reduce the risk of developing kidney stones and help decrease bone loss.
- Eating foods such as vegetables that are lower in calories per cup instead of some other higher-calorie food may be useful in helping to lower calorie intake.

Try fresh, frozen, canned and dried vegetables, including vegetable juices, cooked or raw. When selecting vegetables, choose those lower in sodium, without additional fats like butter or creamy sauces.

To learn more, visit: choosemyplate.gov/vegetables-nutrients-health

Daily recommendations for a 2,000-calorie diet:

**2½ cup-equivalents**

of vegetables per day.

**Vary your vegetables**

No single fruit or vegetable provides all of the nutrients you need to be healthy, so **variety is as important as quantity**.

Eat a variety of types and colors of produce in order to give your body the mix of nutrients it needs.

Try dark green vegetables like broccoli; spinach; romaine; kale; and collard, turnip and mustard greens for a vitamin K boost.

Red and orange vegetables provide the most vitamin A. Try tomatoes, tomato juice, red peppers, carrots, sweet potatoes, winter squash and pumpkin.

Try starchy vegetables like white potatoes, corn, green peas, green lima beans, plantains and cassava for potassium.

Most vegetables are naturally low in fat and calories. None have cholesterol.
People who eat more vegetables and fruits as part of an overall healthy diet are likely to have a reduced risk of some chronic diseases.

Vegetable choices over time should vary and include many different vegetables.
Chili peppers are relatively easy to grow and usually flourish in warm climates with relatively long growing seasons. They prefer light, well-drained, fertile soil, but can be produced in a wide range of soils. The plants are grown from seed and require six to eight weeks from seeding to transplanting outdoors.

Chili peppers often are classified by the degree of hotness and shape. The hotness, or heat, comes from capsaicin, an alkaloid compound found in the fruit seeds and surrounding tissue. The discomfort inflicted by capsaicin when chilies are consumed is thought to trigger the release of opioid compounds called endorphins in the brain. This reaction has been credited by some for the popularity of chili consumption.

There are 11 common categories of chili peppers, classified by their fruit shape and their heat. The hottest chili commonly sold by most commercial bedding plant growers is the jalapeño, which in terms of hotness is just a drop in the bucket compared to some of the fiery ones.

Some of the super-hot varieties include habaneros, Scotch bonnet, Thai types and Bhut Jolokia. The latter registers more than 1,000,000 units on the Scoville scale, which measures heat of chilies, compared with the Jalapeño, which weighs in at a mere 5,000 to 10,000 units.

To produce the hottest peppers, start by selecting hot types of seeds and consider growing conditions. Peppers cultivated in a hot climate with days in the 95-degree range are spicier than those grown where temperatures are in the 70s. Drought-stricken chili peppers are hotter than those grown with lots of water. Keep the water and nitrogen fertilizer to a minimum for maximum heat.

Generally, the riper the chili, the hotter it is.

Adapted from “Grow your own hot chili peppers” by Robert Thomas, former Information Specialist, Cooperative Media Group, University of Missouri. The full article is available at: missourifamilies.org/features/nutrition/article/hu223.htm

Peppers by Scoville scale

<table>
<thead>
<tr>
<th>Peppers</th>
<th>Scoville Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Capsaicin</td>
<td>16,000,000</td>
</tr>
<tr>
<td>Police Grade</td>
<td>5,300,000</td>
</tr>
<tr>
<td>Carolina Reaper</td>
<td>2,200,000</td>
</tr>
<tr>
<td>Common Pepper</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Bhut Jolokia</td>
<td>1,041,427</td>
</tr>
<tr>
<td>Trinidad Scorpion</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Habanero</td>
<td>350,000</td>
</tr>
<tr>
<td>Rocoto Pepper</td>
<td>350,000</td>
</tr>
<tr>
<td>Scotch Bonnet</td>
<td>350,000</td>
</tr>
<tr>
<td>Bird’s Eye Chili</td>
<td>225,000</td>
</tr>
<tr>
<td>Indian Jwala</td>
<td>100,000</td>
</tr>
<tr>
<td>Cayenne Pepper</td>
<td>50,000</td>
</tr>
<tr>
<td>Tabasco Pepper</td>
<td>50,000</td>
</tr>
<tr>
<td>Chile Pepper</td>
<td>30,000</td>
</tr>
<tr>
<td>Serrano Pepper</td>
<td>23,000</td>
</tr>
<tr>
<td>Hot Banana Pepper</td>
<td>15,000</td>
</tr>
<tr>
<td>Fresno Pepper</td>
<td>10,000</td>
</tr>
<tr>
<td>Jalapeño Pepper</td>
<td>10,000</td>
</tr>
<tr>
<td>Chipotle Pepper</td>
<td>8,000</td>
</tr>
<tr>
<td>Anaheim Pepper</td>
<td>2,500</td>
</tr>
<tr>
<td>Ancho Pepper</td>
<td>2,000</td>
</tr>
<tr>
<td>Poblanos Pepper</td>
<td>2,000</td>
</tr>
<tr>
<td>Banana Pepper</td>
<td>900</td>
</tr>
<tr>
<td>Pepperoncini</td>
<td>900</td>
</tr>
<tr>
<td>Cherry Pepper</td>
<td>500</td>
</tr>
<tr>
<td>Pimento Pepper</td>
<td>500</td>
</tr>
<tr>
<td>Bell Pepper</td>
<td>0</td>
</tr>
</tbody>
</table>

Use caution when handling hot peppers.
Wear latex gloves when chopping and handling the really hot chilies.
Focus on Fruits

Fruits are important sources of many essential nutrients that are underconsumed, including potassium, dietary fiber, vitamin C and folate (folic acid).

- Most fruits are naturally low in fat, sodium and calories. None have cholesterol.
- Diets rich in potassium may help to maintain healthy blood pressure. Fruit sources of potassium include bananas, prunes and prune juice, dried peaches and apricots, cantaloupe, honeydew melon and orange juice.
- Dietary fiber from fruits, as part of an overall healthy diet, helps reduce blood cholesterol levels, and may lower risk of heart disease. Fiber is important for proper bowel function. It helps reduce constipation and diverticulosis. Fiber-containing foods, such as fruits, help provide a feeling of fullness with fewer calories. Whole or cut-up fruits are sources of dietary fiber; fruit juices contain little or no fiber.
- Vitamin C is important for growth and repair of all body tissues, helps heal cuts and wounds and keeps teeth and gums healthy.
- Folate (folic acid) helps the body form red blood cells. Women of childbearing age who may become pregnant should consume adequate folate from foods, as well as 400 mcg of synthetic folic acid from fortified foods or supplements. This reduces the risk of neural tube defects, spina bifida and anencephaly during fetal development.

Daily recommendations for a 2,000-calorie diet:

### 2 cup-equivalents of fruits per day.

**Health benefits**

Eating a diet rich in fruits as part of an overall healthy diet may...

- ... reduce the risk for heart disease, including heart attack and stroke.
- ... protect against certain types of cancers.

Diets rich in foods containing fiber may...

- ... reduce the risk for heart disease, obesity and Type 2 diabetes

Eating vegetables and fruits rich in potassium as part of an overall healthy diet may...

- ... lower blood pressure.
- ... reduce the risk of developing kidney stones.
- ... help decrease bone loss.

Eating foods, such as fruits, that are lower in calories per cup instead of some other higher-calorie food may...

- ... help lower calorie intake.
Enjoy the health benefits of avocados in this healthy guacamole recipe

Guacamole from a restaurant may or may not be healthy, depending on the ingredients used. When you make it at home, you control the ingredients and know exactly what was used to make it.

California avocados are in season from spring to fall. This is the time of year that you will find the best quality and best prices on avocados. Avocados are one of the produce items with the least amount of pesticides, so there is no reason or benefit to buying organic avocados.

Avocados are considered a fruit. They are one of the few fruits or vegetables that contain fat. The fat in avocados is unsaturated and is heart-healthy.

Mashed avocado can be used instead of mayonnaise on a sandwich or wrap. You can mix avocado with your choice of whole grains and other vegetables for a tasty whole-grain salad. Avocados can also be mixed with tomatoes, diced onions, lime or lemon juice and your choice of seasonings for a refreshing dip.

To choose an avocado, squeeze it gently. If it is ready to eat, it should be firm but give to slight pressure. Hard avocados are not ripe yet, but can ripen in a few days. Place the unripe avocado in a brown paper bag for two to five days. Apples or bananas can be added to the bag to shorten the process, because the gas they give off helps ripen the avocados. Ripe avocados can be stored in the refrigerator for two to three days.

Always wash avocados before eating. Cut lengthwise and rotate the halves to separate. Use a spoon to remove the seed and scoop out the meat or peel the skin away from the fruit. Lemon juice, lime juice or white vinegar can help prevent discoloring. You can also press plastic wrap directly on the surface and then wrap to store in the refrigerator for a few days. If the surface turns brown, just cut off the top layer and throw it away – the rest is OK to eat.

by Melissa Bess, former Nutrition and Health Education Specialist, Camden County, University of Missouri Extension

missourifamilies.org/features/nutritionarticles/nut470.htm

Healthy guacamole

Ingredients:
- 2-3 avocados
- 1 medium tomato
- 1 tablespoon lemon or lime juice
- Salt or garlic salt (optional)
- Cilantro (optional)

Directions:
1. Wash avocados and tomato. Dice tomato and mix with mashed avocado.
2. Add juice, salt and cilantro.
3. If storing, press plastic wrap directly on the surface of the guacamole to prevent air from turning it brown.
4. Store in the refrigerator until ready to serve.

Avocados contain 60 percent more potassium per ounce than bananas*. Avocados are loaded with dietary fiber, vitamin B6, vitamin C, vitamin E, potassium, magnesium and folate. They’re also cholesterol- and sodium-free. Two tablespoons of mashed avocado or 1/5 (about 1 ounce) of a medium avocado provides about 55 calories.

*According to the Centers for Disease Control and Prevention (CDC).
Grains are important sources of many nutrients, including dietary fiber, several B vitamins (thiamin, riboflavin, niacin and folate) and minerals (iron, magnesium and selenium).

- Dietary fiber from whole grains or other foods may help reduce blood cholesterol levels and lower risk of heart disease, obesity and Type 2 diabetes.
- Fiber is important for proper bowel function. It helps reduce constipation and diverticulosis.
- Fiber-containing foods, such as whole grains, help provide a feeling of fullness with fewer calories and may help with weight management.
- The B vitamins thiamin, riboflavin and niacin play a key role in metabolism – they help the body release energy from protein, fat and carbohydrates. B vitamins are also essential for a healthy nervous system. Many refined grains are enriched with these B vitamins.
- Folate (folic acid), another B vitamin found in enriched refined grains, helps the body form red blood cells.
- Women of childbearing age who may become pregnant should consume adequate folate from foods, as well as 400 mcg of synthetic folic acid from fortified foods or supplements. This reduces the risk of neural tube defects, spina bifida and anencephaly during fetal development.
- Iron is used to carry oxygen in the blood.
- Many teenage girls and women in their childbearing years have iron-deficiency anemia. They should eat foods high in heme iron (meats) or eat other iron-containing foods, along with foods rich in vitamin C, which can improve absorption of nonheme iron. Whole and enriched refined grain products are major sources of nonheme iron in American diets.
- Whole grains are sources of magnesium and selenium. Magnesium is a mineral used in building bones and releasing energy from muscles. Selenium protects cells from oxidation. It is also important for a healthy immune system.

To learn more, visit: choosemyplate.gov/grains

A diet rich in whole grains has been shown to reduce the risk of heart disease, Type 2 diabetes, obesity and some forms of cancer.
Grains are divided into 2 subgroups:

**Whole Grains and Refined Grains**

**Whole grains** contain the entire grain kernel—the bran, germ and endosperm. Examples of whole grains include whole-wheat flour, bulgur (cracked wheat), oatmeal, whole cornmeal and brown rice.

**Refined grains** have been milled, a process that removes the bran and germ. This is done to give grains a finer texture and improve their shelf life, but it also removes dietary fiber, iron and many B vitamins. Some examples of refined grain products are white flour, de-germed cornmeal, white bread and white rice.

- **Most refined grains are enriched.** This means certain B vitamins (thiamin, riboflavin, niacin, folic acid) and iron are added back after processing.
- **Fiber is not added back** to enriched grains.
- **Check the ingredient list** on refined grain products to make sure that the word “enriched” is included in the grain name.

Some food products are made from mixtures of whole grains and refined grains.

At least half of all the grains you eat should be whole grains.
Foods in the meat, poultry, fish, eggs, nuts and seed groups supply many nutrients, including protein, B vitamins (niacin, thiamin, riboflavin and B6), vitamin E, iron, zinc and magnesium.

- **Proteins** function as building blocks for bones, muscles, cartilage, skin, blood, enzymes, hormones and vitamins.
- **B vitamins** help the body release energy, play a vital role in the function of the nervous system, aid in the formation of red blood cells and help build tissues.
- **Iron** is used to carry oxygen in the blood.
  - Many teenage girls and women in their childbearing years have iron-deficiency anemia. They should eat foods high in heme iron (meats) or eat other nonheme iron containing foods along with a food rich in vitamin C, which can improve absorption of nonheme iron.
- **Magnesium** is needed for bone formation and to release energy from muscles.
- **Zinc** is necessary for biochemical reactions, and helps the immune system function properly.
- **EPA and DHA** are omega-3 fatty acids found in varying amounts in cold water fatty fish. Eating 8 ounces per week of cold-water fatty fish may help reduce the risk for heart disease.

### Daily recommendation protein foods*

The amount of food from the Protein Foods Group you need to eat depends on your age, sex and level of physical activity.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Daily Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td></td>
</tr>
<tr>
<td>2-3 years old</td>
<td>2-ounce equivalents</td>
</tr>
<tr>
<td>4-8 years old</td>
<td>4-ounce equivalents</td>
</tr>
<tr>
<td>Girls</td>
<td></td>
</tr>
<tr>
<td>9-13 years old</td>
<td>5-ounce equivalents</td>
</tr>
<tr>
<td>14-18 years old</td>
<td>5-ounce equivalents</td>
</tr>
<tr>
<td>Boys</td>
<td></td>
</tr>
<tr>
<td>9-13 years old</td>
<td>5-ounce equivalents</td>
</tr>
<tr>
<td>14-18 years old</td>
<td>6½-ounce equivalents</td>
</tr>
<tr>
<td>Women</td>
<td></td>
</tr>
<tr>
<td>19-30 years old</td>
<td>5½-ounce equivalents</td>
</tr>
<tr>
<td>31-50 years old</td>
<td>5-ounce equivalents</td>
</tr>
<tr>
<td>51+ years old</td>
<td></td>
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<tr>
<td>Men</td>
<td></td>
</tr>
<tr>
<td>19-30 years old</td>
<td>6½-ounce equivalents</td>
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<tr>
<td>31-50 years old</td>
<td>6-ounce equivalents</td>
</tr>
<tr>
<td>51+ years old</td>
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*These amounts are appropriate for individuals who get less than 30 minutes per day of moderate physical activity, beyond normal daily activities. Those who are more physically active may be able to consume more while staying within calorie needs.

All foods made from meat, poultry, seafood, beans and peas, eggs, processed soy products and nuts and seeds are considered part of the Protein Foods Group. Beans and peas are also part of the Vegetable Group.

- **Most Americans eat enough food from this group, but need to make leaner and more varied selections of these foods.**
- **To help keep blood cholesterol levels healthy, limit the amount of foods you choose from this group that are high in saturated fat and cholesterol.**

In general, a 1 ounce-equivalent from the Protein Foods Group equals:

- 1 ounce of meat, poultry or fish
- ¼ cup cooked beans or peas
- 1 egg
- 1 tablespoon of almond or peanut butter
- ½ ounce of nuts or seeds
- ¼ cup (about 2 ounces) of tofu
- 2 tablespoons hummus

Vegetarian options in the Protein Foods Group include beans and peas, processed soy products and nuts and seeds.
Select a variety of protein foods to improve nutrient intake and health benefits.

- Choose lean or low-fat meat and poultry.
  - Limit higher-fat choices such as regular ground beef (75-80% lean) or chicken with skin.
- Select some cold-water fatty fish that is rich in omega-3 fatty acids, such as salmon, trout, tuna, sardines, anchovies, herring, Pacific oysters and Atlantic and Pacific mackerel.
- Limit processed meats that have added sodium such as ham, sausage, frankfurters and luncheon or deli meats.
  - Check the Nutrition Facts label to help limit sodium intake.
- Limit fresh chicken, turkey and pork that have been enhanced with a salt-containing solution
  - Check the product label for statements such as “self-basting” or “contains up to ___% of ___”, which mean that a sodium-containing solution has been added.
- Choose unsalted nuts and seeds to keep sodium intake low.

Limit cholesterol and saturated fats

- Diets that are high in saturated fats raise bad cholesterol levels in the blood.
  - “Bad” cholesterol is called LDL (low-density lipoprotein) cholesterol.
- High LDL cholesterol increases the risk for coronary heart disease. To help keep blood cholesterol levels healthy, limit the amount of foods you eat that are high in saturated fat.
  - These include fatty cuts of beef, pork and lamb; regular (75 percent to 85 percent lean) ground beef; regular sausages, hot dogs and bacon; some luncheon meats, such as regular bologna and salami; and some poultry, such as duck.
- Diets that are high in cholesterol can raise LDL cholesterol levels in the blood.
  - Cholesterol is only found in foods from animal sources. Some foods from this group are high in cholesterol. These include egg yolks (egg whites are cholesterol-free) and organ meats, such as liver and giblets.
- A high intake of fats makes it difficult to avoid consuming more calories than are needed.
Include 8 ounces of seafood per week.

- Seafood contains many nutrients, including omega-3 fatty acids, EPA and DHA.
- Commonly eaten seafood varieties in the United States that are higher in EPA and DHA and lower in mercury include salmon, tuna, anchovies, herring, sardines, Pacific oysters, trout and Atlantic and Pacific mackerel (not king mackerel, which is high in mercury).
- Eating about 8 ounces per week of a variety of seafood contributes to the prevention of heart disease.
- Smaller amounts of seafood are recommended for young children.
- The health benefits from consuming seafood outweigh the health risks associated with mercury, a heavy metal found in seafood in varying levels.

Eating nuts and seeds (like peanuts, walnuts, almonds and pistachios) as part of an overall healthy diet may reduce the risk of heart disease.

- Because nuts and seeds are high in calories, eat them in small portions and use them to replace other protein foods, like some meat or poultry, rather than adding them to what you already eat.
- Choose unsalted nuts and seeds to help reduce sodium intake.

Walnuts...

- contain more alpha-linolenic acid (ALA), a plant-based omega-3 essential fatty acid necessary for a healthy human body, than any other nut.
- are one of the best plant food sources of omega-3s.
- are high in healthy polyunsaturated fat.
- have been shown to reduce total and LDL (bad) cholesterol, and protect the heart overall.
- provide several antioxidants, including vitamin E.
  - A study of 1,113 different foods found walnuts were ranked second only to blackberries for the highest antioxidant content. Antioxidants boost the immune system and help prevent the production of free radicals, which in turn helps protect against the development of chronic diseases associated with aging.
- are a good source of protein and fiber.
  - Dietary fiber contributes to a healthy gastrointestinal tract and makes you feel full, which helps with weight management.
- contain magnesium and phosphorus, which are important for reaching optimal health.
- improve cognitive and motor function.

Adapted from “Walnuts provide many health benefits” by Christeena Haynes, MS, RD, LD, former Nutrition and Health Education Specialist, Dallas County, University of Missouri Extension. The full article is available at: missourifamilies.org/features/nutritionarticles/nut414.htm
A well-planned vegetarian diet can be a nutritious and delicious alternative to more traditional Western fare. With a little planning, it can provide all the nutrients necessary for normal growth and development. Plus, plant-based diets offer protection against heart disease, high blood pressure, some forms of cancer and obesity.

Vegetarians, by definition, eat no meat, poultry or fish. Some will include eggs and milk; they are called “lacto-ovo vegetarians.” Those who don’t eat any dairy and egg products are called “vegans.”

The more food groups that are eliminated, the more difficult it is to get critical nutrients. Nutrients that vegetarians may need to focus on include protein, calcium, iron, zinc and vitamin B12.

Protein has many important functions in the body and is essential for growth and maintenance. Protein needs can easily be met by eating a variety of plant-based foods. Sources of protein for vegetarians and vegans include beans, nuts, nut butters, peas and soy products (tofu, tempeh, veggie burgers). Milk products and eggs are also good protein sources for lacto-ovo vegetarians.

Calcium helps build strong bones and teeth. Sources of calcium for vegetarians and vegans include calcium-fortified soymilk, almond milk, calcium-fortified breakfast cereals and orange juice, tofu made with calcium sulfate, and some dark green leafy vegetables (collard greens, turnip greens, bok choy, mustard greens). The amount of calcium that can be absorbed from these foods varies. Consuming enough plant foods to meet calcium needs may be unrealistic for many. Milk products are excellent calcium sources for lacto vegetarians. Calcium supplements are another potential source.

Iron functions primarily as a carrier of oxygen in the blood. Iron sources for vegetarians and vegans include iron-fortified breakfast cereals, spinach, kidney beans, black-eyed peas, lentils, turnip greens, molasses, whole wheat breads, peas and some dried fruits (dried apricots, prunes, raisins).

• Eating foods rich in vitamin C, such as orange juice and tomatoes, with your meal will help increase iron absorption. Blackstrap molasses, dried beans and raisins are good sources of iron.

Zinc is necessary for many biochemical reactions and also helps the immune system function properly. Sources of zinc for vegetarians and vegans include many types of beans (white beans, kidney beans and chickpeas), zinc-fortified breakfast cereals, wheat germ and pumpkin seeds. Milk products are a zinc source for lacto-ovo vegetarians.

Vitamin B12 is naturally found only in animal products. Sources of vitamin B12 for vegetarians include milk products, eggs and foods that have been fortified with vitamin B12. These include breakfast cereals, soymilk, veggie burgers and nutritional yeast. Check the Nutrition Facts label for vitamin B12 in fortified products. Vitamin B12 supplements are another potential source.

To learn more, visit:
missourifamilies.org/quick/nutritionqa/nutqa67.htm
choosemyplate.gov/tips-vegetarians
choosemyplate.gov/protein-foods-vegetarian

You don’t have to be a vegetarian or vegan to reap the health benefits of plant-based eating. Going meatless even one day per week may reduce your risk for developing conditions such as cancer, heart disease, diabetes and obesity.

A variety of vegetarian products look — and may taste — like their non-vegetarian counterparts, but are usually lower in saturated fat and contain no cholesterol.
Foods in the Dairy Group provide nutrients that are vital for health and maintenance of your body, especially improved bone health. These nutrients include calcium, potassium, vitamin D and protein.

- **Calcium** is used for building bones and teeth and maintaining bone mass. Dairy products are the primary source of calcium in American diets. Diets that provide 3 cups or the equivalent of dairy products per day can improve bone mass.
- Diets rich in **potassium** may help to maintain healthy blood pressure.
  - Dairy products, especially yogurt, fluid milk and soymilk (soy beverage), provide potassium.
- **Vitamin D** helps maintain proper levels of calcium and phosphorous, thereby helping to build and maintain bones.
  - Milk and soymilk (soy beverage) that are fortified with vitamin D are good sources of this nutrient.
  - Other sources include vitamin D-fortified yogurt and vitamin D-fortified ready-to-eat breakfast cereals.
- **Protein** is an essential nutrient for health. It helps to create a feeling of fullness and satisfaction after a meal or snack thus helping with weight maintenance. An 8-ounce glass of milk provides eight grams of protein.
- Milk products that are consumed in their low-fat or fat-free forms provide little or no solid fat.

**Health benefits**

*Intake of dairy products is...*

...linked to improved bone health, and may reduce the risk of osteoporosis.

...especially important to bone health during childhood and adolescence, when bone mass is being built.

...may reduce the risk of cardiovascular disease and Type 2 diabetes.

...may help lower blood pressure in adults.

To learn more, visit: choosemyplate.gov/dairy-nutrients-health

**Daily recommendations for a 2,000-calorie diet:**

**3 servings**

of foods in the dairy group each day.

**Foods in the Dairy Group include:**

- All fluid milk products, and many foods made from milk.
- Foods made from milk that retain their calcium content are part of the group.
- Foods made from milk that have little to no calcium, such as cream cheese, cream and butter, are not.
- Calcium-fortified soymilk (soy beverage).

One serving of milk is one 8-ounce cup. In general, 1 cup of milk, yogurt, or soymilk (soy beverage), 1 1/2 ounces of natural cheese or 2 ounces of processed cheese can be considered as 1 serving.

**To help keep blood cholesterol levels healthy, choose fat-free or low-fat milk, yogurt and cheese.**

**Lactose intolerance**

For those who are lactose-intolerant, smaller portions (such as 4 fluid ounces of milk) may be well tolerated. Lactose-free and lower-lactose products are available.

Also, enzyme preparations can be added to milk to lower the lactose content.

Calcium choices for those who do not consume dairy products include*:

- Kale leaves
- Calcium-fortified juices, cereals, breads, rice milk or almond milk (Calcium-fortified foods and beverages may not provide the other nutrients found in dairy products. Check the labels.)
- Canned fish (sardines, salmon with bones)
- Soybeans and other soy products (tofu made with calcium sulfate, soy yogurt, tempeh)
- Some beans and leafy greens (collard and turnip greens, kale, bok choy).

*The amount of calcium that can be absorbed from these foods varies.
You can improve your health and prevent or lessen the effects of chronic diseases through diet and exercise. By investing a little time in your health, you can live a longer, healthier life.

Reduce the risk of foodborne illness
Follow these four basic food safety principles—Clean, Separate, Cook, Chill.

Eat a healthy diet
Fruits, vegetables, whole grains and fat-free or low-fat dairy products are healthy choices. Include protein foods such as poultry, fish, beans, eggs, nuts and lean meats. Choose foods that are low in saturated fats, sodium and added sugars.

Be physically active
If you are not already physically active, start small and work up to 150 minutes of moderate-intensity physical activity per week.

Stay at a healthy weight
As you age, manage your calories to stay at a healthy weight. This will prevent gradual weight gain over time. Balance the calories you take in with the calories you burn through physical activities.

To learn more, visit:
Missourifamilies.org or
Extension.missouri.edu

Or check us out on social media!
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...DEPENDS ON IT.

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