

Chapter 8

Nutrition and

Dietary Guidelines

Vegetables

Why is it important to eat vegetables? Eating vegetables provides health benefits – 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. Vegetables provide nutrients vital for health and maintenance of your body.

Nutrients

- Most vegetables are naturally low in fat and calories. None have cholesterol. (Sauces or seasonings may add fat, calories, or cholesterol.)
- Vegetables are important sources of many nutrients, including potassium, dietary fiber, folate (folic acid), vitamin A, and vitamin C.
- Diets rich in potassium may help to maintain healthy blood pressure. Vegetable sources of potassium include sweet potatoes, white potatoes, white beans, tomato products (paste, sauce, and juice), beet greens, soybeans, lima beans, spinach, lentils, and kidney beans.
- Dietary fiber from vegetables, 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 vegetables help provide a feeling of fullness with fewer calories.
- Folate (folic acid) helps the body form red blood cells. Women of childbearing age who may become pregnant should consume adequate folate from foods, and in addition 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.
- Vitamin A keeps eyes and skin healthy and helps to protect against infections.
- Vitamin C helps heal cuts and wounds and keeps teeth and gums healthy. Vitamin C aids in iron absorption.

Health benefits

- Eating a diet rich in vegetables and fruits as part of an overall healthy diet may reduce risk for heart disease, including heart attack and stroke.
- Eating a diet rich in some vegetables and fruits as part of an overall healthy diet may protect against certain types of cancers.
- Diets rich in foods containing fiber, such as some vegetables and fruits, may reduce the risk of 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, and may also reduce the risk of developing kidney stones and help to decrease bone loss.

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- 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.

Fruits

Why is it important to eat fruit? Eating fruit provides health benefits — people who eat more fruits and vegetables as part of an overall healthy diet are likely to have a reduced risk of some chronic diseases. Fruits provide nutrients vital for health and maintenance of your body.

Nutrients

- Most fruits are naturally low in fat, sodium, and calories. None have cholesterol.
- Fruits are sources of many essential nutrients that are under-consumed, including potassium, dietary fiber, vitamin C, and folate (folic acid).
- 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, and in addition 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.

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Grains

Why is it important to eat grains, especially whole grains? Eating grains, especially whole grains, provides health benefits. People who eat whole grains as part of a healthy diet have a reduced risk of some chronic diseases. Grains provide many nutrients that are vital for the health and maintenance of our bodies.

Nutrients

- 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 may lower risk of heart disease, obesity, and type 2 diabetes. Fiber is important for proper bowel function. It helps reduce

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constipation and diverticulosis. Fiber-containing foods such as whole grains help provide a feeling of fullness with fewer calories.

- 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, helps the body form red blood cells. Women of childbearing age who may become pregnant should consume adequate folate from foods, and in addition 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 non-heme iron. Whole and enriched refined grain products are major sources of non-heme 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.

Health benefits

- Consuming whole grains as part of a healthy diet may reduce the risk of heart disease.
- Consuming foods containing fiber, such as whole grains, as part of a healthy diet, may reduce constipation.
- Eating whole grains may help with weight management.
- Eating grain products fortified with folate before and during pregnancy helps prevent neural tube defects during fetal development.

Proteins

Why is it important to make lean or low-fat choices from the Protein Foods Group? Foods in the meat, poultry, fish, eggs, nuts, and seed group provide nutrients that are vital for health and maintenance of your body. However, choosing foods from this group that are high in saturated fat and cholesterol may have health implications.

Nutrients

- Diets that are high in saturated fats raise “bad” cholesterol levels in the blood. The “bad” cholesterol is called LDL (low-density lipoprotein) cholesterol. High LDL cholesterol, in turn, increases the risk for coronary heart disease. Some food choices in this group are high in saturated fat. These include fatty cuts of beef, pork, and lamb; regular (75% to 85% lean) ground beef; regular sausages, hot dogs, and bacon; some luncheon meats such as regular bologna and salami; and some poultry such as duck. To help keep blood cholesterol levels healthy, limit the amount of these foods you eat.
- 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. To help keep blood cholesterol levels healthy, limit the amount of these foods you eat.

Why is it important to eat 8 ounces of seafood per week?

- Seafood contains a range of nutrients, notably the omega-3 fatty acids, EPA and DHA. 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.
- Seafood varieties that are commonly consumed in the United States that are higher in EPA and DHA and lower in mercury include salmon, anchovies, herring, sardines, Pacific oysters, trout, and Atlantic and Pacific. The health

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benefits from consuming seafood outweigh the health risk associated with mercury, a heavy metal found in seafood in varying levels.

Health benefits

- Meat, poultry, fish, dry beans and peas, eggs, nuts, and seeds supply many nutrients. These include protein, B vitamins (niacin, thiamin, riboflavin, and B6), vitamin E, iron, zinc, and magnesium.
- Proteins function as building blocks for bones, muscles, cartilage, skin, and blood. They are also building blocks for enzymes, hormones, and vitamins. Proteins are one of three nutrients that provide calories (the others are fat and carbohydrates).
- B vitamins serve a variety of functions in the body. They 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 child-bearing years have iron-deficiency anemia. They should eat foods high in heme-iron (meats) or eat other non-heme iron containing foods along with a food rich in vitamin C, which can improve absorption of non-heme iron.
- Magnesium is used in building bones and in releasing 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 seafood. Eating 8 ounces per week of seafood may help reduce the risk for heart disease.

What are the benefits of eating nuts and seeds?

Eating peanuts and certain tree nuts (i.e., walnuts, almonds, and pistachios) may reduce the risk of heart disease when consumed as part of a diet that is nutritionally adequate and within calorie needs. 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. In addition, choose unsalted nuts and seeds to help reduce sodium intakes.

Dairy

Why is Dairy important? Consuming dairy products provides health benefits — especially improved bone health. Foods in the Dairy Group provide nutrients that are vital for health and maintenance of your body. These nutrients include calcium, potassium, vitamin D, and protein.

Why is it important to make fat-free or low-fat choices from the Dairy Group?

Choosing foods from the Dairy Group that are high in saturated fats and cholesterol can have health implications. Diets high in saturated fats raise "bad" cholesterol levels in the blood. The "bad" cholesterol is called LDL (low-density lipoprotein) cholesterol. High LDL cholesterol, in turn, increases the risk for coronary heart disease. Many cheeses, whole milk, and products made from them are high in saturated fat. To help keep blood cholesterol levels healthy, limit the amount of these foods you eat. In addition, a high intake of fats makes it difficult to avoid consuming more calories than are needed.

Nutrients

- Calcium is used for building bones and teeth and in 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 functions in the body to 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.
- Milk products that are consumed in their low-fat or fat-free forms provide little or no solid fat.

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Health Benefits

- Intake of dairy products is linked to improved bone health, and may reduce the risk of osteoporosis.
- The intake of dairy products is especially important to bone health during childhood and adolescence, when bone mass is being built.
- Intake of dairy products is also associated with a reduced risk of cardiovascular disease and type 2 diabetes, and with lower blood pressure in adults.

Why is it important to consume fats and oils?

- Oils are not a food group, but they do provide essential nutrients and are therefore included in USDA recommendations for what to eat. Note that only small amounts of oils are recommended.
- Most of the fats you eat should be polyunsaturated (PUFA) or monounsaturated (MUFA) fats. Oils are the major source of MUFAs and PUFAs in the diet. PUFAs contain some fatty acids that are necessary for health – called "essential fatty acids." Because oils contain these essential fatty acids, there is an allowance for oils in the food guide.
- The MUFAs and PUFAs found in fish, nuts, and vegetable oils do not raise LDL ("bad") cholesterol levels in the blood. In addition to the essential fatty acids they contain, oils are the major source of vitamin E in typical American diets.
- While consuming some oil is needed for health, oils still contain calories. In fact, oils and solid fats both contain about 120 calories per tablespoon. Therefore, the amount of oil consumed needs to be limited to balance total calorie intake. The [Nutrition Facts label](#) provides information to help you make smart choices.

Cooking Safety

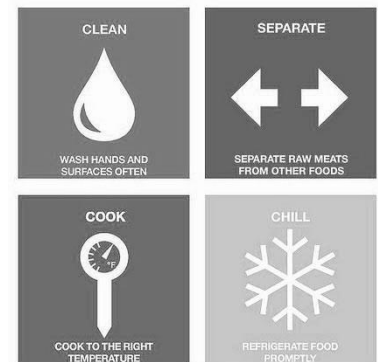
Why it matters

Did you know that the bacteria that cause food poisoning multiply quickest in the "Danger Zone" between 40° and 140° Fahrenheit? And while many people think they can tell when food is "done" simply by checking its color and texture, there's no way to be sure it's safe without following a few important but simple steps

Use a food thermometer.

Cooked food is safe only after it's been heated to a high enough temperature to kill harmful bacteria. Color and texture alone won't tell you whether your food is done. Instead, use a food thermometer to be sure.

- If you don't already have one, consider buying a food thermometer. Learn more about the different types of food thermometers available.
- When you think your food is done, place the food thermometer in the thickest part of the food, making sure not to touch bone, fat, or gristle. (Get tips on correct thermometer placement.)
- Wait the amount of time recommended for your type of thermometer.
- Compare your thermometer reading to our Minimum Cooking Temperatures Chart to be sure it's reached a safe temperature.
- Some foods need 3 minutes of rest time after cooking to make sure that harmful germs are killed. Check our Minimum Cooking Temperatures Chart for details.
- Clean your food thermometer with hot, soapy water after each use.



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Keep food hot after cooking (at 140 °F or above). The possibility of bacterial growth actually increases as food cools after cooking because the drop in temperature allows bacteria to thrive. But you can keep your food above the safe temperature of 140°F by using a heat source like a chafing dish, warming tray, or slow cooker.

Microwave food thoroughly (to 165 °F).

To ensure harmful bacteria have been killed in your foods, it's important to microwave them to 165° or higher. Here's how:

- When you microwave, stir your food in the middle of heating.
- If the food label says, "Let stand for x minutes after cooking," don't skimp on the standing time. Letting your microwaved food sit for a few minutes actually helps your food cook more completely by allowing colder areas of food time to absorb heat from hotter areas of food. That extra minute or two could mean the difference between a delicious meal and food poisoning.
- After waiting a few minutes, check the food with a food thermometer to make sure it is 165°F or above.

Safe Minimum Cooking Temperatures

Use this chart and a food thermometer to ensure that meat, poultry, seafood, and other cooked foods reach a safe minimum internal temperature. Remember, you can't tell whether meat is safely cooked by looking at it. Any cooked, uncured red meats – including pork – can be pink, even when the meat has reached a safe internal temperature.

Why the Rest Time is Important

After you remove meat from a grill, oven, or other heat source, allow it to rest for the specified amount of time. During the rest time, its temperature remains constant or continues to rise, which destroys harmful germs.

Safe Cooking Temperatures

Category	Food	Temperature (°F)	Rest Time
Ground Meat & Meat Mixtures	Beef, Pork, Veal, Lamb	160	None
	Turkey, Chicken	165	None
Fresh Beef, Veal, Lamb	Steaks, roasts, chops	145	3 minutes
Poultry	Chicken & Turkey, whole	165	None
	Poultry breasts, roasts	165	None
	Poultry thighs, legs, wings	165	None
	Duck & Goose	165	None
	Stuffing (cooked alone or in bird)	165	None
Pork and Ham	Fresh pork	145	3 minutes
	Fresh ham (raw)	145	3 minutes
	Precooked ham (to reheat)	140	None
Eggs & Egg Dishes	Eggs	Cook until yolk and white are firm	None
	Egg dishes	160	None
Leftovers & Casseroles	Leftovers	165	None
	Casseroles	165	None
Seafood	Fin Fish	145 or cook until flesh is opaque and separates easily with a fork.	None
	Shrimp, lobster, and crabs	Cook until flesh is pearly and opaque.	None
	Clams, oysters, and mussels	Cook until shells open during cooking.	None
	Scallops	Cook until flesh is milky white or opaque and firm.	None

Refrigeration Safety

Refrigerate promptly

Did you know that illness-causing bacteria can grow in perishable foods within two hours unless you refrigerate them? (And if the temperature is 90 °F or higher during the summer, cut that time down to one hour!) But by refrigerating foods promptly and properly, you can help keep your family safe from food poisoning at home.

Refrigerate perishable foods within two hours.

Cold temperatures slow the growth of illness causing bacteria. So it's important to chill food promptly and properly. Here's how:

- Make sure your fridge and freezer are cooled to the right temperature. Your fridge should be between 40 °F and 32 °F, and your freezer should be 0 °F or below.
- Pack your refrigerator with care. To properly chill food (and slow bacteria growth), cold air must be allowed to circulate in your fridge. For this reason, it's important not to over-stuff your fridge.
- Get perishable foods into the fridge or freezer within two hours. In the summer months, cut this time down to one hour.
- Remember to store leftovers within two hours as well. By dividing leftovers into several clean, shallow containers, you'll allow them to chill faster.

Never thaw or marinate foods on the counter.

Many people are surprised at this tip. But since bacteria can multiply rapidly at room temperature, thawing or marinating foods on the counter is one of the riskiest things you can do when preparing food for your family.

To thaw food safely, choose one of these options:

- **Thaw in the refrigerator.** This is the safest way to thaw meat, poultry, and seafood. Simply take the food out of the freezer and place it on a plate or pan that can catch any juices that may leak. Normally, it should be ready to use the next day.
- **Thaw in cold water.** For faster thawing, you can put the frozen package in a watertight plastic bag and submerge it in cold water. Be sure to change the water every 30 minutes. Note: If you thaw this way, be sure to cook the food immediately.
- **Thaw in the microwave.** Faster thawing can also be accomplished in the microwave. Simply follow instructions in your owner's manual for thawing. As with thawing in cold water, food thawed in the microwave should be cooked immediately.
- **Cook without thawing.** If you don't have enough time to thaw food, just remember, it is safe to cook foods from a frozen state—but your cooking time will be approximately 50% longer than fully thawed meat or poultry.
- To marinate food safely, always **marinate it in the refrigerator.**

Know when to throw food out.

You can't tell just by looking or smelling whether harmful bacteria has started growing in your leftovers or refrigerated foods. Be sure you throw food out before harmful bacteria grow.

Storage Times for the Refrigerator and Freezer

These short but safe time limits for home-refrigerated foods will keep them from spoiling or becoming dangerous to eat. The guidelines for freezer storage are for quality only. Frozen foods remain safe indefinitely.

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Storage Times

Category	Food	Refrigerator (40 °F or below)	Freezer (0 °F or below)
Salads	Egg, chicken, ham, tuna & macaroni salads	3 to 5 days	Does not freeze well
Hot dogs	opened package	1 week	1 to 2 months
	unopened package	2 weeks	1 to 2 months
Luncheon meat	opened package or deli sliced	3 to 5 days	1 to 2 months
	unopened package	2 weeks	1 to 2 months
Bacon & Sausage	Bacon	7 days	1 month
	Sausage, raw — from chicken, turkey, pork, beef	1 to 2 days	1 to 2 months
Hamburger & Other Ground Meats	Hamburger, ground beef, turkey, veal, pork, lamb, & mixtures of them	1 to 2 days	3 to 4 months
Fresh Beef, Veal, Lamb & Pork	Steaks	3 to 5 days	6 to 12 months
	Chops	3 to 5 days	4 to 6 months
	Roasts	3 to 5 days	4 to 12 months
Fresh Poultry	Chicken or turkey, whole	1 to 2 days	1 year
	Chicken or turkey, pieces	1 to 2 days	9 months
Soups & Stews	Vegetable or meat added	3 to 4 days	2 to 3 months
Leftovers	Cooked meat or poultry	3 to 4 days	2 to 6 months
	Chicken nuggets or patties	3 to 4 days	1 to 3 months
	Pizza	3 to 4 days	1 to 2 months

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Separation Safety

Don't cross-contaminate.

Why it matters

Even after you've cleaned your hands and surfaces thoroughly, raw meat, poultry, seafood, and eggs can still spread illness-causing bacteria to ready-to-eat foods—unless you keep them separate. But which foods need to be kept separate, and how?

Follow these top tips to keep your family safe

Use separate cutting boards and plates for produce and for meat, poultry, seafood, and eggs.

Placing ready-to-eat food on a surface that held raw meat, poultry, seafood, or eggs can spread bacteria and make you sick. But stopping cross-contamination is simple.

- Use one cutting board for fresh produce, and one for raw meat, poultry, or seafood.
- Use separate plates and utensils for cooked and raw foods.
- Before using them again, thoroughly wash plates, utensils, and cutting boards that held raw meat, poultry, seafood, or eggs.
- Once a cutting board gets excessively worn or develops hard-to-clean grooves, consider replacing it.

Keep meat, poultry, seafood, and eggs separate from all other foods at the grocery.

Make sure you aren't contaminating foods in your grocery bag by:

- Separating raw meat, poultry, seafood, and eggs from other foods in your shopping cart.
- At the checkout, place raw meat, poultry, and seafood in plastic bags to keep their juices from dripping on other foods.

Keep meat, poultry, seafood, and eggs separate from all other foods in the fridge.

Bacteria can spread inside your fridge if the juices of raw meat, poultry, seafood, and eggs drip onto ready-to-eat foods. But stopping this contamination is simple...

- Place raw meat, poultry, and seafood in containers or sealed plastic bags to prevent their juices from dripping or leaking onto other foods. If you're not planning to use these foods within a few days, freeze them instead.
- Keep eggs in their original carton and store them in the main compartment of the refrigerator—not in the door.

Cleaning Safety

Wash hands and surfaces often. Why it matters

Illness-causing bacteria can survive in many places around your kitchen, including your hands, utensils, and cutting boards. Unless you wash your hands, utensils, and surfaces the *right way*, you could spread bacteria to your food, and your family.

Wash hands the right way—for 20 seconds with soap and running water.

Washing your hands the right way can stop the spread of illness-causing bacteria. Here's how to do it:

- Wet your hands with warm or cold running water and apply soap.
- Rub your hands together to make a lather and scrub them well. Be sure to scrub the backs of your hands, between your fingers, and under your nails. Bacteria can hide out here too!
- Continue rubbing hands for at least 20 seconds. Need a timer? Hum "Happy Birthday" from beginning to end twice.

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- Rinse your hands well under running water.
- Dry your hands using a clean towel or air dry.

And when to do it:

- Before eating food.
- Before, during, and after preparing food.
- Before and after treating a cut or wound.
- Before and after caring for someone who is sick.
- After handling uncooked eggs, or raw meat, poultry, seafood, or their juices.
- After blowing your nose, coughing, or sneezing.
- After touching an animal or animal waste.
- After touching garbage.
- After using the toilet.

Wash surfaces and utensils after each use.

Bacteria can be spread throughout the kitchen and get onto cutting boards, utensils, and counter tops. To prevent:

- Use paper towels or clean cloths to wipe up kitchen surfaces or spills. Wash cloths often in the hot cycle of your washing machine.
- Wash cutting boards, dishes, utensils, and counter tops with hot, soapy water after preparing each food item and before you go on to the next item.
- As an extra precaution, you can use a solution of 1 tablespoon of unscented, liquid chlorine bleach in 1 gallon of water to sanitize washed surfaces and utensils.

Wash fruits and veggies—but not meat, poultry, or eggs!

Did you know that even if you plan to peel fruits and veggies, it's important to wash them first because bacteria can spread from the outside to the inside as you cut or peel them? Here's how to wash your produce:

1. Cut away any damaged or bruised areas.
2. Rinse produce under running water. Don't use soap, detergent, bleach, or commercial produce washes.
3. Scrub firm produce—like melons or cucumbers—with a clean produce brush.
4. Dry produce with a paper towel or clean cloth towel... and you're done.
5. The good news? Bagged produce marked "pre-washed" is safe to use without further washing.

Why not wash meat, poultry, and eggs?

Washing raw meat and poultry can actually help bacteria spread, because their juices may splash onto (and contaminate!) your sink and countertops.

All commercial eggs are washed before sale. Any extra handling of the eggs, such as washing, may actually increase the risk of cross-contamination, especially if the shell becomes cracked.