

Nutrients in Eggs

Eggs are an excellent source of protein, riboflavin (a B vitamin), and iodine. In addition, they are good sources of vitamin A, some other B vitamins, vitamin D, iron, and trace minerals. However, egg yolks also contain saturated fats and cholesterol.

On the Food Guide Pyramid, eggs are part of the Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts Group. When counting servings, remember that a single egg counts as 1 ounce (30 g) of meat. However, because whole eggs are so high in cholesterol, health experts recommend eating no more than four egg yolks a week. There is no limit on the number of egg whites because they are cholesterol-free.

Buying Eggs

Eggs are sold according to grade and size standards set by the USDA. Both grade and size are clearly marked on the package.

Grade

The USDA grade shield on the package means that the eggs have been federally inspected for wholesomeness. The grade is determined by the inner and outer quality of the egg at the time it was packaged. It has nothing to do with the freshness of the egg or its size.

The three egg grades are AA, A, and B. There is no difference in nutritive value among them. However, there is a difference in appearance when cooked. Grade AA and A eggs have a thicker white and are used when appearance is important, such as with fried or poached eggs. Grade B eggs are used when appearance is not important, as in baked products or scrambled eggs. As a rule, grades AA and A are the grades most commonly found in supermarkets.

Size

The size of an egg is determined by the minimum weight for a dozen. The sizes most commonly sold are large and extra large. As a general rule, recipes assume that large eggs will be used.

Eggs are usually priced according to size and supply. Check the unit price to determine which size is the best buy. Be sure to open the carton and inspect the eggs. They should be clean and whole, without any cracks.

Storing Eggs

Eggs are highly perishable. Store them immediately when you get home from shopping. Refrigerate eggs in the original carton. Do not put them in the egg tray commonly found in the refrigerator door—the drop in temperature each time the door is opened may cause the eggs to lose quality. In addition, egg shells are porous and pick up aromas from other foods if stored uncovered. Do not wash eggs before storing—washing destroys the egg's natural protective covering.

Safety Check

Harmful bacteria in raw or undercooked eggs have caused foodborne illness. To be sure that eggs are safe to eat:

- Do not use eggs that are cracked or broken. They may contain harmful bacteria.
- Always cook eggs thoroughly—until the whites and yolks are firm.
- Serve cooked eggs and egg-rich foods right after cooking.
- Never eat raw eggs or any foods containing raw eggs, such as homemade eggnog, homemade ice cream, or raw cookie dough. Raw eggs in commercial products are usually pasteurized, which destroys harmful bacteria.



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SECTION 18-3

Objectives

After studying this section, you should be able to:

- Describe the structure of an egg.
- Identify the nutrients provided by eggs.
- Give guidelines for buying and storing eggs.
- Explain how to cook eggs by conventional and microwave methods.

Look for These Terms

albumen

chalazae

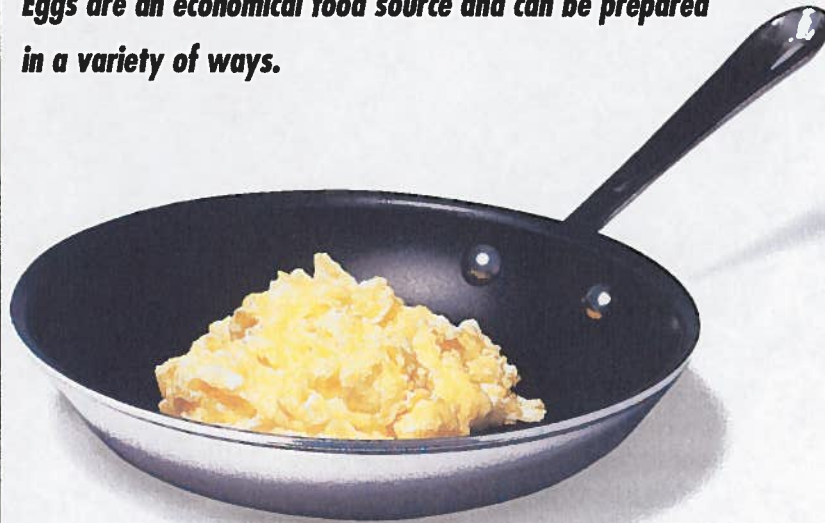
coagulate

shirred eggs

Egg Basics

Trudy watched in puzzlement as her father cracked eggs into a bowl and began to beat them. "Hey, Dad," she said. "Did you forget that it's dinnertime, not breakfast?" Trudy's dad knows that while many people enjoy eggs for breakfast, they can be featured in other meals as well.

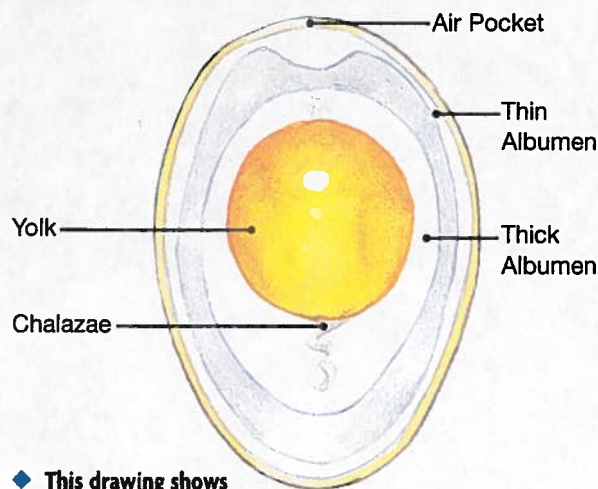
Eggs are an economical food source and can be prepared in a variety of ways.



Structure of an Egg

An egg's shell is lined with several membranes. A pocket of air lies between these membranes and the shell at the wide end. As the egg ages, the air pocket grows.

Inside the egg is the **albumen** (al-BYOO-muhn), a thick, clear fluid commonly known as the egg white. The yolk—the round, yellow portion—floats within the albumen. Anchoring the yolk in the center of the egg are **chalazae** (kuh-LAH-zuh), twisted, cordlike strands of albumen.



- ◆ This drawing shows the parts of an egg. By what name is the albumen more commonly known?



◆ Knowing how to store eggs properly can make a difference when it comes to their quality and nutrient values. Name two things you should do and two things you shouldn't.

Refrigerate leftover raw yolks or whites in a covered container if you plan to use them within two to four days. For longer storage, freeze them. Refrigerate cooked egg dishes immediately and use them within three days.

Preparing Eggs

Like dairy foods, eggs are delicate proteins. They must be cooked at moderate temperatures for a limited amount of time. When overcooked, egg whites shrink and become tough and rubbery. When egg yolks are overcooked, they toughen and turn gray-green on the surface.

Eggs can be cooked on top of the range, in the oven, or in the microwave oven. Depending

Q&A

Q What's the best way to freeze eggs?

A To freeze whole raw eggs, beat the eggs until well-blended and pour them into freezer containers. Three tablespoons (45 mL) of beaten whole egg equals one large egg. To freeze raw whites, place the white of one egg in each compartment of an ice cube tray. After freezing, put frozen cubes in a tightly sealed freezer container and use as needed. Two egg whites equal one large egg. Use frozen eggs only in dishes that will be thoroughly cooked.

on which method you use, there are a few differences in basic cooking principles. In conventional cooking, use medium to low heat. Time the eggs carefully to be sure they are thoroughly cooked. The whites will **coagulate**, or become firm, before the yolks do.

When eggs are cooked in a microwave oven, the yolks cook faster than the whites. That is because the fat in the yolks attracts more microwaves than the whites do. Remove eggs from the microwave oven while they're still moist and soft. Standing time will complete the cooking.

Eggs can be prepared in several basic ways: cooked in the shell, fried, baked, poached, or scrambled.

+ Safety Check

Never microwave an egg in the shell. Steam builds up in the egg. When it can no longer be held in by the shell, the egg can burst and cause a serious injury.

Eggs Cooked in the Shell

When cooking eggs in the shell, place a single layer of them in a saucepan. Add water to a level at least 1 inch (2.5 cm) above the eggs. Cover the saucepan, and bring the water just to boiling. Turn off the heat. If using an electric range, remove the pan from the heating element. Let the eggs stand in the hot water, covered. If you want soft-cooked eggs, let them stand about 4 to 5 minutes for a safe doneness. For hard-cooked eggs, let stand about 15 minutes if you're using large eggs (about 18 minutes for extra-large eggs).

After cooking, immediately run cold water over the eggs to stop the cooking process. To serve soft-cooked eggs, break the shell with a knife and scoop the egg out of the shell into a serving dish. To remove the shell from a hard-cooked egg, gently tap the egg all over to crack the shell. Roll the egg between your hands to loosen the shell. Peel the shell away starting at the large end.

Fried Eggs

Eggs can be fried in a very small amount of unsaturated fat or in a nonstick skillet that has been coated with a vegetable-oil cooking spray. With this method, the excess fat is held to a minimum. To fry eggs healthfully:

1. Heat a skillet over medium-high heat until it is hot enough to sizzle a drop of water.
2. Gently break one egg at a time into a small bowl or custard cup. If the yolk breaks, save the egg for another use. Otherwise, gently slip the egg from the bowl into the heated pan.
3. Immediately reduce the heat to low. Cover the pan, and cook the eggs slowly until done.
4. Turn the eggs over to cook the other side.

Baked Eggs

Baked eggs, also known as **shirred eggs**, are easy to prepare and low in added fat. Begin by breaking the eggs into a small bowl, then slipping them into a greased, shallow baking dish or custard cup. You can use individual dishes or place several eggs in one dish. Top the eggs with a small amount of milk, if you like.

To bake conventionally, place in an oven preheated to 325°F (160°C). Bake until done—about 12 minutes for two eggs. To microwave, first pierce the yolks with the tip of a knife or a wooden pick so that steam can escape. Cover the baking dish with either waxed paper or cooking parchment, and vent it to allow steam to escape. Follow the power level and timing instructions in the owner's manual or in a recipe book.

INFOLINK

For more on [covering food](#) when cooking in the microwave oven, see Section 9-4.

Poached Eggs

Poaching is a method of cooking eggs, out of the shell, in simmering water. To poach eggs conventionally, bring the water to a boil in a saucepan or deep skillet; then reduce the heat to a gentle simmer. Break one egg at a time into a small dish. Hold the dish close to the surface of the water and slip in the egg. Simmer about 5 minutes or until done.

You can also poach eggs in a microwave oven. Follow the directions in the owner's manual or in a recipe book. Be sure to pierce the yolks first to let steam escape.

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Scrambled Eggs

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◆ Poached eggs are a healthful alternative to other forms of cooked eggs since they require no added fat. Here they are served over salmon patties. **What are three points to remember when poaching eggs?**

After cooking, use a slotted spoon to lift the eggs out of the water and drain them. Serve the eggs in a dish or over toast.

Scrambled Eggs

When making scrambled eggs, beat the eggs together with water or milk. Use 1 tablespoon (15 mL) liquid for each egg.

To cook conventionally, melt a small amount of butter or margarine in a skillet, or use a vegetable-oil cooking spray. Pour the egg mixture into the hot skillet. As the mixture starts to thicken, gently draw a spatula across the

bottom and sides of the pan. This forms large curds and allows the uncooked egg to flow to the bottom of the skillet. Continue this procedure until the eggs are thickened and no visible liquid remains. Don't stir the eggs constantly. They will get mushy.

To make scrambled eggs in the microwave oven, cook the egg mixture in a custard cup or other microwave-safe container. Follow the power level and timing instructions in the owner's manual or in a recipe book. Stir once or twice during cooking and again at the end of the cooking time. Let stand to complete the cooking.

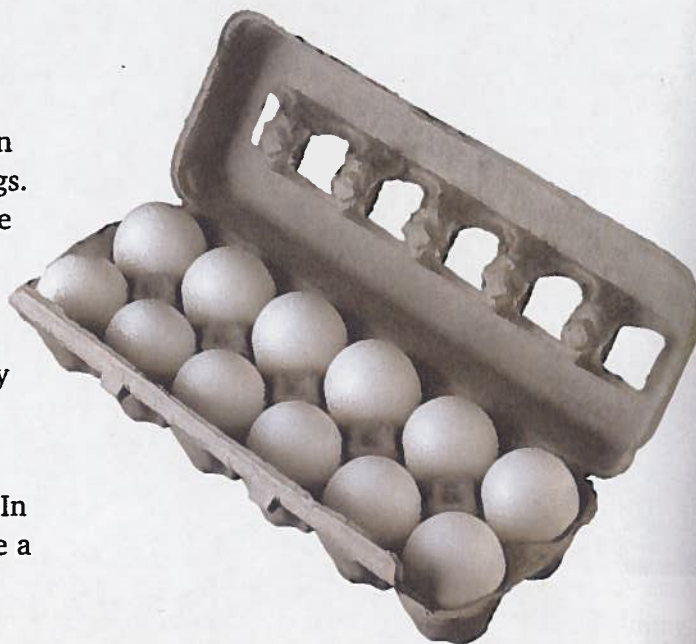


◆ Eggs are not just for breakfast. The centerpiece of this dinner is fluffy scrambled eggs accompanied by a broiled tomato, rice, grapes, and a green salad. **How many food groups in the Food Guide Pyramid are represented in this meal?**

Basic Omelet

A basic omelet, also called a French omelet, is made with beaten eggs, just as scrambled eggs are. However, you cook an omelet in a skillet without stirring the eggs. The result is shaped somewhat like a large pancake. During cooking, occasionally lift the edge of the omelet to allow uncooked egg to flow to the bottom. When the omelet is almost done, you may add a filling, such as sautéed vegetables. Fold the omelet in half to serve.

There are many variations on omelets. In the next section, you'll learn how to make a puffy omelet using beaten egg whites.



Section 18-3 Review & Activities

1. Describe the structure of an egg.
2. Name four nutrients found in eggs.
3. In what ways are eggs similar to and different from dairy foods?
4. Describe how eggs should be stored.
5. **Extending.** Imagine that it is 2090. Identify two synthetic, or human-made, products that have replaced dairy products mentioned in this chapter. Describe nutritive and other properties that led to the creation of these products.
6. **Analyzing.** Eggs have been called the most versatile food in the kitchen. Give reasons why this statement may have been made.
7. **Applying.** Design an advertisement to promote the use of eggs. You may want to focus on their versatility or nutritional value.

