Family and Consumer Sciences

Eggs Uncovered: Storage Tips, Smart Savings and the Best Alternatives

February 2025
***Kristin Riggsbee**, Assistant Professor and Nutrition and Food Safety Specialist*

Eggs are an important source of essential macronutrients and micronutrients, making them beneficial for human health. Recently, however, the prices of eggs in the United States have risen sharply, causing difficulties for some individuals and families trying to include them in their diets. According to the United States Department of Agriculture (USDA), egg prices have increased 153 percent compared to 2024, with the average cost being $4.85 per dozen. As prices continue to rise, many people are looking for alternative egg products and ways to create substitutes that can be used in baking. This publication aims to help consumers find suitable egg products even with high prices.

Understanding Eggs from a Health Perspective

Eggs have been seen as "healthy" and "unhealthy" in the United States, confusing consumers. Recent studies suggest that eating eggs is not always linked to negative health effects, but more research might be needed to understand how the number of eggs consumed affects health. A common concern is eggs' cholesterol and saturated fat, especially if they are eaten regularly. Eggs provide a good balance of macronutrients, including fats, carbohydrates, protein and important micronutrients. Both the egg whites and yolk contain a significant amount of protein. The yolk has fats and essential nutrients like calcium, phosphorus, potassium, magnesium and zinc. Eggs also are rich in all vitamins except vitamin C. Additionally, they are high in choline, which is important for cell growth and function. Another key nutrient in eggs is lutein, an antioxidant that may enhance vision, cognitive function and overall brain health.

Nutrition Facts

1 servings per container

Serving size **1 large egg (50g)**

Amount per serving

Calories **80**

	% Daily Value*
Total Fat 5g	6%
Saturated Fat 1.5g	8%
Trans Fat --g	
Cholesterol 185mg	62%
Sodium 60mg	3%
Total Carbohydrate 1g	0%
Dietary Fiber 0g	0%
Total Sugars 1g	
Includes 0g Added Sugars	0%
Protein 6g	
Vitamin D 1.1mcg	6%
Calcium 20mg	2%
Iron 0.6mg	4%
Potassium 60mg	2%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Figure 1. Nutrition facts for one whole large egg.

According to the Dietary Guidelines for Americans (2025-2030), including eggs in your diet can be part of a healthy eating plan and a nutrient-dense option for many adults and young people. Some recommendations suggest that consuming one egg daily does not increase the risk of heart disease or raise blood cholesterol levels. The daily recommended limit for cholesterol intake for adults is less than 200 milligrams, and one large egg contains about 185 milligrams.

An important point is that the different types of chicken eggs found in grocery stores are often

very similar in nutrition. For instance, there is no nutritional difference between a brown egg and a white egg. Both contain the same vitamins, minerals, protein and fat content. The breed of the hen determines the color of the eggshell. However, there are some cases where commercial eggs may have different nutritional values. For example, suppose the hen is fed a diet that includes omega-3 polyunsaturated fats. In that case, the eggs may be marketed as healthier, and they will have a higher content of omega-3 fats.

Understanding Eggs and Egg Products

Consumers have many options in grocery stores when it comes to egg products. There are terms like organic and cage-free that shoppers need to know while buying egg-based products. Table 1 shows some common terms for eggs and egg products in American grocery stores.

Marketing Term	Definition	Federal Regulation Standards
Organic	The farm meets the requirements of the USDA Organic program. This includes ensuring that hens have access to the outdoors and eat organic feed.	Claims are regulated by USDA, and farms are regularly inspected for compliance.
Cage-Free	Hens are raised without cages, with unlimited access to food and water.	The USDA regulates claims and requires at least two annual inspections. However, these regulations can still be misleading because hens might spend most of their time indoors and live in crowded conditions.
Free-Range	Hens could go outside to eat fresh food and drink clean water. They can also search for food such as worms, larvae and insects.	USDA regulates claims to specify that hens must have access to outdoors during the production cycle. However, the regulations do not specify the amount of space or the standards for the outdoor areas.
Pasture-Raised	Hens may have increased access to outdoor space.	USDA does not regulate claims. This claim can be misleading because it is not federally regulated and can be interpreted differently.
Hormone or Antibiotic Free	Hens are not treated with hormones and/or antibiotics.	USDA does not regulate claims.

		This information is misleading because hormones and antibiotics are not used to produce eggs.
Vegetarian-Fed	Hens have not received a diet with any form of animal protein.	USDA does not regulate claims. This claim may be misleading because it is not regulated. It could also imply that hens have not been outside to search for food.
Natural	Eggs must be minimally processed and contain no artificial ingredients.	The USDA regulates the claim somewhat, but it may be misleading because it does not provide specific information about the care of the hens.
Omega-3 Enriched	Hen's feed is supplemented with omega-3 fatty acids, such as flax seeds.	The USDA regulates claims.

Table 1. Marketing terms and federal regulation standards for eggs and egg products in the United States.

The USDA grading scale is another essential term to understand when choosing eggs at the grocery store. The grading scale starts at AA, followed by A, B and BB. Eggs labeled as "AA" are considered the best quality. The difference between "A" and "B" is mostly based on appearance and the size of the yolk and air sac. While Grade "B" eggs may have unappealing shells, smaller yolks and air sacs, they are still edible, but they may be better suited in recipes for baked goods.

Additionally, there are many choices for egg products. The term "egg product" means that the liquid part of the egg has been removed from its shell for processing. Many food service providers buy large amounts of eggs in liquid, frozen and dried forms. Food production facilities also buy similar egg products to make foods like ice cream. The USDA Commodity Dried Egg Powder was created for the military after World War I. This egg powder mixes dried whole eggs, nonfat dry milk, soybean oil and salt. People who use this product can quickly reconstitute the powder by mixing two tablespoons with ¼ cup of water to create one large egg. This product can help feed families facing food insecurity or provide meals for large groups of people during a natural disaster.

Food Preservation for Eggs

Some consumers are looking to food preservation methods to store eggs for cost savings measures. However, there are no tested recipes for safely preserving eggs via thermal processing, such as water bath canning or pressure canning. A recent practice of preserving eggs that consumers have advertised on social media is "water glassing eggs," particularly with farm-fresh eggs. This is the practice of adding pickling lime to eggs in a jar to make the food shelf stable; it

was a common practice for families to stretch farm eggs during times when hens were not laying as frequently. However, this preservation practice is potentially unsafe and harmful for human consumption due to the potential contamination in the jar with salmonella. One way to effectively preserve eggs is to freeze them. Table 2 outlines various methods of freezing eggs.

Type of Egg	Recipe
Whole eggs	Break each egg into a separate saucer. Mix the yolks and whites without whipping air into them. Measure 3 tablespoons (equivalent to one large whole egg) of the combined whole egg into an ice cube tray. Freeze until solid. After frozen, remove the eggs and place them into moisture-resistant freezer bags, which you can store for up to one year.
Egg yolks	Separate eggs. Stir egg yolks gently and strain through a sieve. Package the yolks into a jar, leaving ½ inches of headspace at the top. Seal and freeze. One tablespoon of the mixture is equivalent to one large egg yolk.
Egg whites	Separate eggs. Stir egg whites gently and strain through a sieve. Package yolks into a jar, leaving ½ inches of headspace at the top. Seal and freeze. Two tablespoons of the mixture is equivalent to one large egg white.

Table 2*. Tested food preservation methods recommended by the National Center for Home Food Preservation.*

Egg Alternatives and Cooking Tips

Consumers now have more options for egg alternatives when cooking and baking than ever before. When preparing eggs for a meal or side dish, there are simple ways to save money by using fewer eggs. For instance, you can replace most of the whole eggs with egg whites when making omelets or scrambled eggs. A good guideline is to use one whole egg and two portions of egg white. Whisking this mixture well before cooking will help spread the flavor and nutrition from the yolk throughout the dish. Additionally, adding a dash of turmeric to egg whites can provide the color some expect from cooked eggs. In baking, eggs contribute moisture, leavening, and structure to the final product. However, substituting eggs in baked goods can be tricky because you must consider the proportions of fats, proteins and moisture in the alternative ingredients.

Egg Alternative	Instructions for preparation
Applesauce	• 1/4 cup of unsweetened applesauce is equivalent to one large egg. • You may need to add an additional 1/2 teaspoon of baking powder to the dry ingredients to add leavening.
Yogurt	• 1/4 cup of plain yogurt is equal to one large egg.

	• You may need to add extra baking powder or soda to assist with leavening.
Banana	• 1/4 cup of mashed banana is equivalent to one large egg. • This adds moisture and sweetness to the baking product.
Carbonated Water	• 1/4 cup of plain, unsweetened carbonated water is equivalent to one large egg.
Flaxseed Egg	• Flaxseed eggs work well for baking when only one or two eggs are needed. • Combine 3 tablespoons of water with 1 tablespoon of ground flax seeds. Allow to sit for 10-15 minutes. • This will create a binding substance, similar to glue, that helps hold baking goods together. • Flaxseed has some fat content, similar to egg yolks. • Use this for quick breads, such as pancakes and muffins.
Water, Oil and Baking Powder	• Combine 2 tablespoons of water, 2 teaspoons of baking powder, and 1 teaspoon of vegetable oil together to equal one large egg. • This method is easy and yields a very similar baked good to eggs.

Table 3. Options for baking with egg alternatives.

Food Safety Considerations for Eggs and Egg Products

Most consumers believe that egg-based products are generally safe. However, with more attention to food recalls and viruses affecting poultry flocks, people are focused on feeding their families safely and economically. Here are some important points about food safety with eggs.

The USDA regulates commercial chicken egg production in the United States and sets requirements for food safety when purchasing eggs in grocery stores. Typically, eggs are washed before packing. Buying eggs that have been refrigerated since they were laid is essential for maintaining quality and safety.

Shell eggs can be stored in the refrigerator for three to five weeks after placing them inside. Most eggs have a "Sell By" date printed on the carton; consumers should purchase eggs before that date. To keep commercial shell eggs safe, they should be stored below 40 degrees Fahrenheit in the refrigerator. It is best to keep them in their carton and place them in the coldest part of the refrigerator. It's important to note that most shell eggs sold in the United States are not pasteurized, making food safety critical to prevent foodborne illnesses.

Egg products are processed at USDA-approved facilities and undergo several steps to ensure food safety. According to the Egg Products Inspection Act of 1970, all egg products are pasteurized. When storing egg products, consumers should follow the manufacturer's

instructions. Liquid egg products must be kept refrigerated at temperatures below 40 degrees Fahrenheit. Once opened, these products should be used within three days and not frozen. If liquid egg products are frozen, they can be stored below 0 degrees Fahrenheit indefinitely. Still, their quality may decline after being stored for more than a year. Do not leave frozen liquid eggs out at room temperature when thawing. The best way to thaw them is to let the frozen liquid egg product thaw slowly in the refrigerator.

The storage temperature is essential for dried egg products. Unopened products can be safe indefinitely if stored in a cool, dark place. The USDA Commodity Dried Egg Powder should be stored below 50 degrees Fahrenheit and used within seven to 10 days once opened.

Conclusion

Eggs have sparked debate over their health impacts, with recent studies indicating that consuming them may not pose significant health risks, although concerns about cholesterol and saturated fat persist. Eggs are nutrient-rich, balancing macronutrients and essential micronutrients, including protein, vitamins, minerals, choline and lutein, which support various bodily functions. The Dietary Guidelines for Americans endorse including eggs in a healthy diet, suggesting that one egg per day is unlikely to increase heart disease risk. Nutritionally, eggs vary little between types, such as brown and white, though some may have enhanced omega-3 content based on the hen diet. Consumers also encounter various egg products and must understand labeling terms like organic and USDA grading. While methods for preserving eggs exist, such as freezing, caution is advised with practices like "water glassing," which may pose safety risks. Food safety is paramount, with regulations ensuring the safety of commercial eggs and egg products, emphasizing proper storage and handling to prevent foodborne illnesses.

References

"Egg Markets Overview." AMS Livestock & Poultry Program, Livestock, Poultry, and Grain Market News Division, 21 Feb. 2025.

"Egg Products and Food Safety." United States Department of Agriculture, Food Safety and Inspection Service, 2012, fsis.usda.gov/food-safety/safe-food-handling-and-preparation/eggs/egg-products-and-food-safety.

EGG Safety Egg-Citing Facts about Buying Eggs. United States Department of Agriculture.

"Freezing Eggs." University of Georgia, National Center for Home Food Preservation, 2020, nchfp.uga.edu/how/freeze/dairy-products/freezing-eggs/. Accessed 27 Feb. 2025.

Réhault-Godbert, Sophie, et al. "The Golden Egg: Nutritional Value, Bioactivities, and Emerging Benefits for Human Health." Nutrients, vol. 11, no. 3, 22 Mar. 2019, p. 684, pmc.ncbi.nlm.nih.gov/articles/PMC6470839/, doi.org/10.3390/nu11030684.

"What You Need to Know about Egg Safety." U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition, 2019, fda.gov/food/buy-store-serve-safe-food/what-you-need-know-about-egg-safety.

UTIA.TENNESSEE.EDU

Real. Life. Solutions.™

D 251 03/25 Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating. UT Extension provides equal opportunities in programs and employment.A