



Chapter 33

Eggs

Good Eggs

Directions Read the following selection. Then answer the questions under *Thinking Critically*, and complete the activities as directed by your teacher.

If an egg were a baseball player, it could be a pitcher, catcher, or outfielder. This is because eggs are one of the most versatile foods that people eat.

An egg's usefulness comes from its chemical makeup. Some egg proteins are so designed that they attract both fats and liquids. While it's true that "oil and water don't mix," oil and water and eggs do hold together because eggs act as a binder, or stabilizer. This is one function eggs serve in baking.

On the other hand, egg proteins can be *denatured* (broken down) by beating, which allows them to accept air. This is how meringues and angel food cakes gain their height. The fats in egg yolks trap air in a similar way, adding puff and fluff to sponge cakes and omelets.

To impart these special properties, eggs may need special treatment that takes the form of different amounts of beating and denaturing. The visual clues described next can help clarify recipe directions for cooking with eggs.

When Directions Say...	Do This...
Beat eggs slightly.	Stir with a fork, or whisk until yolk and white are just blended.
Beat eggs well.	Beat with a mixer, or whisk until eggs are uniformly light in color and frothy.
Beat eggs (or yolks) until thick.	Beat with a mixer until eggs are pastel yellow and fall in a continuous ribbon when beaters are lifted.
Beat whites until stiff but not dry.	Beat with a mixer just until whites no longer slip along sides when bowl is tilted.
For...	Cook...
Scrambled eggs	At least 1 minute.
Sunny-side up eggs	7 minutes, or 4 minutes if covered.
Fried or over-easy eggs	At least 3 minutes on the first side, 2 minutes on the other. Cook an extra minute for over-medium, longer for firmer eggs.

While eggs have nutritional advantages, they also have a nutritional drawback: they are relatively high in cholesterol. A single egg yolk contains over 200 milligrams of cholesterol, two-thirds of the recommended daily limit. Too much cholesterol and saturated fat can increase the risk of heart disease and stroke.

Egg substitutes are an option for people who want to cut down on cholesterol and fat while enjoying dishes traditionally made with eggs. Egg substitute is made mostly of egg white because the whites have no cholesterol. The product may also contain minute amounts (less than one percent of their total weight) of vegetable oil, gums, coloring, and added vitamins and minerals. They contain little or no fat.

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To use egg substitute, here are some tips:

- ◆ **Measuring** A scant $\frac{1}{4}$ cup of substitute equals one egg. Three tablespoons equal one egg yolk. Egg substitute is not usually recommended for recipes that call for more than two yolks.
- ◆ **Baking** Using $\frac{1}{3}$ cup of egg substitute for every egg in a recipe will make cakes rise higher. If you make this substitution for three or more eggs, decrease the amount of liquid in the recipe by 2 tablespoons.

The chart on the right compares the nutritional value of a whole egg with that of an egg substitute.

Nutritional Elements	Egg (1 Whole)	Egg Substitute ($\frac{1}{4}$ cup)
Calories	75	53
Total fat (g)	5	2
Saturated fat (g)	1.5	0.4
Cholesterol (mg)	213	0.6
Sodium (mg)	63	111
Protein (g)	6	7.5
<i>Percent Daily Value:</i>		
Vitamin A	100%	14%
Riboflavin	15%	11%
Vitamin D	6%	8%
Iron	4%	7%

Thinking Critically

1. What are the benefits of using an egg substitute? What are the drawbacks?

2. What could be the problem with eating eggs everyday?

3. Marcus heard that you could replace one egg with $\frac{1}{4}$ cup of fruit purée in a recipe to reduce the cholesterol and fat content. He decided to replace two of the three eggs in a cake recipe with $\frac{1}{2}$ cup of applesauce. Predict how you think this affected the cake. Why?

For Further Study

- ◆ **Egg comparison:** Prepare recipes for scrambled eggs using fresh eggs in one recipe and a commercial egg substitute in another. Prepare both recipes using range-top cooking. Compare each recipe for taste, texture, and appearance. When would you use each recipe? Why?
- ◆ **Make your own egg substitute.** To make $\frac{1}{4}$ cup of egg substitute, measure 1 tablespoon nonfat dry milk powder, 2 egg whites from large eggs, and 4 drops of yellow food coloring. Beat the milk powder and egg whites with a fork until smooth. Next, beat in the food coloring until blended. Make a recipe of scrambled eggs with this egg substitute. Prepare a recipe of scrambled eggs using a commercial egg-substitute product. Compare each recipe for taste, texture, and appearance. When would you use your own recipe? When would you use a commercial product? Why? Write a brief summary about your experiment and submit it to your teacher.