

Eggs Study Guide

Guide to Good Foods, Chapter 18, pages 308-317

Selecting Eggs:

1. Nutritional Value- **An excellent source of protein**
 - **Thiamine, riboflavin, iron, phosphorus, Vitamins A & D**
 - **Egg yolks are high in cholesterol**
2. Egg Grades are determined by:
 - a. condition of the shell
 - b. size of the air cell,
 - c. clearness and thickness of egg white
 - d. condition of the yolk
 - US Grade AA and Grade A available in most retail stores
 - To determine freshness- break open, egg white should cover a small area, yolk is thick, and stands high above the white.
3. Egg Size and Color-
 - **Most recipes are formulated for medium or large eggs.**
 - **Neither size nor color has an effect on the nutritional value.**
4. Storing Eggs-
 - Eggs will keep 4 to 5 weeks in the refrigerator.
 - Use cracked eggs promptly and only in thoroughly cooked foods.

Eggs as Ingredients:

1. Emulsifiers- egg yolk are added to an oil and water based liquid to keep them permanently mixed. Examples: mayonnaise and hollandaise sauce
2. Foams- are made by beating the egg whites to add air to foods
 - are affected by:
 - Temperature- separate cold and beat at room temperature
 - Time- too little or too much beating will cause foams to lose volume
 - Fat- inhibits the formation of an egg white foam Example: egg yolks
 - Acid- makes the foam more stable and adds whiteness Example: cream of tartar
 - Sugar- increases the stability of the foam. Also, increases the beating time. Add sugar after you have reached the desired volume.

- Stages of Egg Foams:

1. Foamy- **bubbles and foam on surface, will pour out of the bowl**
2. Soft Peaks- **white and shiny, peaks bend at the top when beater is lifted**
3. Stiff Peaks- **white and shiny, peaks stand up straight when the beater is lifted**

3. Thickeners- heat causes egg protein to coagulate. Used to thicken sauces, puddings and custards.
4. Binding Agents- hold ingredients together Examples: meatloaf and meatballs
5. Interfering Agents- inhibit the formation of large ice crystals in frozen desserts.
6. Structure- helps form the structure unbaked goods
7. Nutrition, Flavor, and Color
8. Using raw eggs is not recommended, may contain salmonella bacteria
9. Egg Substitutes- can use as you would eggs, lower in cholesterol

Food Science Principles of Cooking Eggs:

- **Heat coagulates the proteins in eggs.**
- **Too high a temperature or cooking too long- lose moisture, shrink and toughen**

Methods of Cooking Eggs:

1. Scrambling- can add liquid but not to exceed 1 tbsp/egg
2. Poaching- slip egg into pan with 2-3 inches of simmering water. Reduce temp. and cook till whites are firm and yolk is semi-liquid. (2-3 min.)
3. Frying- add egg to moderately hot greased skillet. Cover and cook 3-5 min. or cook upper surface by turning gently.

4. Baking- breaking into greased baking dish. Place dish in a shallow casserole filled with 1 inch of water. Bake 12-18 min.
5. Cooking in the Shell- time determines the degree of doneness
 - Soft-cooked- cover eggs with cold and water bring to boil and let eggs remain in the water for 4-5 min.
 - Hard-cooked- same as above but keep in water for 15-17 minutes. Cool immediately
 - Under running water to (prevents formation of green around yolk) Store in refrigerator up to a week
6. Microwaving- start with the minimum time stated and remove before finished cooking. Prick egg yolk to prevent them from bursting.
7. Omelet- egg mixtures cooked without stirring and served folded in half
8. Soufflé- fluffy baked preparation made with a starch thickened sauce into which stiffly beaten egg whites are added.
9. Meringue- fluffy white mixture of beaten egg white and sugar. Either hard or soft meringue
10. Custard- mixture of milk, eggs, sugar, and flavoring that cook until it thickens.

******EGGS REQUIRE MODERATE TEMPERATURES AND CAREFUL MONITERING OF TIME TO PREVENT EGG PROTEINS FROM SHRINKING AND BECOMING TOUGH******