**Egg Presentation**

1. **History of the Egg**
2. Humans have been eating eggs throughout recorded history. They are fairly easy to obtain, utilize, and a great source of protein. Chicken and ostrich eggs are the most common eggs consumed worldwide.
3. Nobody really knows when the first fowl was domesticated, although Indian history places the date as early as 3200 B.C.  Egyptian and Chinese records show that fowl were laying eggs for man in 1400 B.C. It is believed that Columbus' ships carried the first of the chickens related to those now in egg production to this country.
4. **Health Benefits**
5. Eggs provide 6 grams of protein at only 71 calories per serving and are considered the “Gold Standard” for protein because they contain all the essential amino acids the body needs to repair, rebuild, and replace body tissues.
6. High-quality protein has been shown to reduce overall calorie intake, keep you full, stay energized, and help build/maintain muscle mass.
7. Egg whites contain the protein whereas the yolks contain essential vitamins and minerals including: riboflavin, vitamin B12, selenium, folic acid, choline, vitamin D, and phosphorous.
8. Eggs are one of the very few sources of naturally occurring Vitamin D in food. Sources include: the flesh of fatty fish (such as salmon, tuna, and mackerel) and fish liver oils are among the best sources. Small amounts of vitamin D are found in beef liver, cheese, and egg yolks.
9. Major Nutrients
10. Riboflavin has a role in keeping body tissues healthy
11. Vitamin B12 helps protect against heart disease and has an essential step in energy creation
12. Selenium plays a vital role in your immune system
13. Folic acid is critical for new cell development, especially red blood cells
14. Choline stimulates brain function and development
15. Vitamin D helps absorb calcium to build and maintain bone integrity
16. Phosphorus is essential in bone growth and development
17. Anti-oxidants found in egg yolks have been shown to reduce development of cataracts.
18. **Egg Mythology**
19. Eggs are high in dietary cholesterol; however, research has shown that dietary cholesterol (cholesterol in food) does not significantly increase the ‘bad cholesterol’ your doctor talks about.
20. Brown vs white eggs: Nutritionally speaking, they have no significant differences…other than that beautiful shell hue.
21. Contrary to popular belief, the inside the egg shells are not sterile. *Salmonella Enteritidis* has the ability to grow both in the egg yolk and white.
22. **Appearance, Purchasing, Storage, and Preparation**
23. The appearance of eggs may sometimes be related to food safety, but not usually. Variation in egg color is due to many factors. See the table below for some variations in egg appearance.

| **Appearance** | **Cause** |
| --- | --- |
| Blood spot/meat spot | Rupture of one or more small blood vessels in the yolk at the time of ovulation or deposition of tissue during egg formation |
| Cloudy egg white | Egg is extremely fresh |
| **Appearance** | **Cause** |
| Color of yolk | Depends upon the pigments found in the feed in the hens diet |
| Green ring on hard-cooked yolk | Caused by sulfur and iron compounds in the reacting on the surface of the yolk, result of overcooking |
| Off-color such as pink, green or iridescent egg white | Spoilage due to Pseudomonas bacteria, which produces a greenish, fluorescent, water-soluble pigment in the egg white |
| Black or green spots inside the egg | Results of bacterial or fungal contamination of the egg |

1. Purchasing
2. Always purchase eggs from a refrigerated case.
3. Choose eggs with clean, uncracked shells.
4. Don't buy out-of-date eggs.
5. Look for the USDA grade shield or mark. Graded eggs must meet standards for quality and size.
6. Choose the size most useful and economical for your lifestyle.
7. When purchasing egg products or substitutes, look for containers that are tightly sealed and unopened.
8. Per the USDA, refrigerate eggs at 45 degrees Fahrenheit or less when they are received.
9. Keep eggs under refrigeration until used. Keep a maximum of two weeks supply of eggs, and rotate your stock so that the oldest ones are used first.
10. The best way to store eggs is to keep them in their carton and not in the egg container that may come with the refrigerator in case you need to look at the Julian or expiration date.
11. The carton should be placed in the coldest part of the refrigerator, not in the door, where temperatures may fluctuate when it is opened and closed.
12. As long are they are kept refrigerated at 45 °F or lower, fresh shell eggs are safe to be consumed four to five weeks beyond the carton’s Julian (expiration) date.
13. Adequate cooking brings eggs to a temperature high enough to destroy bacteria that might be present in the egg yolk or egg white.
14. Egg white coagulates between 144 and 149° F, egg yolk coagulates between 149 and 158° F and whole eggs between 144 and 158° F.
15. If the eggs are to be used in a recipe with other food items, dilute the eggs with liquid or other ingredients, such as milk, or sugar (at least ¼ cup liquid or sugar per egg as in custard) and cook the egg mixture to 160° F to destroy harmful bacteria.
16. Hard-boiled eggs: When shell eggs are hard cooked, the protective coating is washed away leaving the pores in the shell open for bacteria to enter. Hard-cooked eggs should be refrigerated within two hours of cooking and used within one week.
17. While proper cooking destroys any bacteria that may have been present in an egg, an egg dish may be cross-contaminated after cooking by people, other foods, cooking utensils or equipment. If a dish is contaminated, bacteria will multiply rapidly at temperatures between 40 and 140°F. Promptly serve eggs and dishes containing eggs after cooking.
18. **Egg Fun Facts**
19. Most eggs are laid between 7-11 AM.
20. A hen requires 24 to 26 hours to produce an egg. Thirty minutes later, she starts all over again.
21. The difference between brown and white-shelled eggs is the breed of hen.  Breeds with white earlobes (and feathers) lay white eggs; breeds with red earlobes (and brown feathers) lay brown eggs.  Both white and brown eggs have the same nutritional qualities.
22. As a hen ages, her eggs increase in size.  Small eggs come from young hens, while jumbo eggs are laid by older hens.
23. Occasionally, a hen will produce double-yolked eggs. It is rare, but not unusual, for a young hen to produce an egg with no yolk at all.
24. The little white ropey strands in an egg white are called “chalaza”.  Their function is to anchor the yolk in the center of the egg.  They are neither imperfections nor beginning embryos, and are completely safe to eat.  In fact, the more prominent the chalazae, the fresher the egg!
25. Per the USDA, here is a comparison among egg sizes by weight
26. Jumbo eggs = 30 oz. per dozen = ~2.5 oz. per egg
27. Extra large eggs = 27 oz. per dozen = ~2.25 oz. per egg
28. Large eggs = 24 oz. per dozen = ~2 oz. per egg
29. Medium eggs = 21 oz. per dozen = ~1.75 oz. per egg
30. Yolk color depends on the diet of the hen. Natural yellow-orange substances such as marigold petals may be added to light-colored feeds to enhance colors. Artificial color additives are not permitted.
31. Egg shells are compostable, and sometime ground up and re-fed to free-range chickens to achieve thicker shells, as chickens often lack enough calcium in their diets for thick shells.
32. When buying eggs, if the price increases for the next larger size is 7 cents or less per dozen, then the larger size is the better deal because you get more egg for your money.
33. The [word] EGG can trace its name back to a prehistoric Indo-European source related to words for 'bird'...The Old English term was oeg, which survived in Middle English as ey (plural eyren)....But in the fourteenth century the related egg was borrowed from Old Norse.”
34. **Possible Activities**
35. Break open eggs at different ages to compare them.
36. Cooking demo

(never fail always perfect hard boiled egg…place eggs in pan, cover with water, hot or cold, turn burner on high, set timer for 20 minutes. Keep on high the whole time, remove from heat after 20 minutes, run under cold water and peel. Works every time.)

Presentation created by Brent Haugle, UW-Stout Dietetic Intern. February 2013

1. **Sources**

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