



Nutri-Facts

Issue #22, May 2003

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Greetings all!

This issue of Nutri-Facts features eggs (or as my husband calls them - "hen fruit"). Once viewed as a "forbidden fruit," many health and nutrition experts now agree that eggs can be included as part of a healthy, as well as thrifty, diet.

For agents, this issue features information about eggs including their nutritional value, a review of recent studies, and tips for purchasing and storage. Web sites for recipes that use eggs are also included. For the egg-heads, there is also a fun section on egg trivia. In addition, a consumer fact sheet and a brief news release are included for your use. Thanks to Jim Smith, MS, dietetic intern with Texas A&M University for contributing to this issue of Nutri-Facts.

As always, I appreciate any comments/suggestions for future issues of Nutri-Facts.

Eat Well,
Jenna

Agent information sheet - Nutri-Facts #22, May 2003

Eggs-Essential Information about Eggs

According to the American Egg Board, egg consumption has increased by 11% over the last decade. Currently, the per capita consumption of eggs is estimated at 260 eggs per year!

We all have heard the slogan - "the incredible, edible egg," but are eggs all that they are cracked up to be? From both a nutrition and food economics perspective, the answer is yes. One large egg (chicken variety) is equal to approximately one ounce of meat and contains approximately 78 calories, 6 grams of protein, 5 grams of fat (58% of calories), and 212 milligrams of cholesterol. One egg also contains 5% of the Daily Value (DV) for vitamin A and 20% DV for selenium, a mineral that functions as an antioxidant and plays an important role in maintaining our immune system.

The egg white (also called albumen) makes up two-thirds of an egg's weight. More than one-half of the egg's protein is found in the egg's white. The egg yolk makes up the other third of the egg and contains all of the fat and cholesterol and fat-soluble vitamins.

Some commercially produced eggs also have added nutrients. Brands such as Egghand's Best® and Pilgrim's Pride's EggsPlus® are enriched with omega-3 fatty acids. Omega-3 fatty acids are of interest because they may help prevent blood from clotting and sticking to the walls of our arteries. This can help keep the blood flowing in the vessels and reduce our chances of having a heart attack. There is also some evidence that omega-3 fatty acids may help lower blood triglycerides and blood pressure levels. Cold water fish are usually the most popular sources of these fatty acids; however, for people who don't eat things that swim, these enriched eggs may be of interest.

Note: The use of these commercial brands is for illustrative purposes only and is not meant to be an endorsement by Texas Cooperative Extension.

For additional information about omega-3 fatty acids, check out the American Dietetic Association's Complete Food and Nutrition Guide, 2nd edition, written by Roberta Larson Duyff, MS, RD, FADA, CFCS.

From a food economics perspective, eggs are a great buy. For less than a dime each (assuming \$0.99 per dozen for Grade A large eggs), eggs provide quite a bit of nutrition for one's food dollar. Since protein-rich foods (i.e. meats) usually eat up the largest portion of our food budget, I decided to compare the cost of eggs to other sources of protein.

| Food | Protein per Serving (grams) | Cost Per Serving ^a |
|-------------------------------|-----------------------------|-------------------------------|
| Egg (1 large chicken egg) | 6 | \$0.09 |
| Chicken (1 ounce) | 7 | \$0.17 ^b |
| Ground beef (1 ounce) | 8 | \$0.19 |
| Pork | 7 | \$0.44 ^c |
| Tuna | 7 | \$0.12 |
| Peanut butter (2 tablespoons) | 8 | \$0.11 |

^a Rounded up to nearest whole number. ^bBased on the cost/oz of a whole chicken, adjusted for bones. ^cBased on the cost/oz of pork chops, adjusted for bones (foods priced 6/3/03 in College Station).

From the chart above, you can see that the amount of protein one gets from a single egg is quite inexpensive compared to some other sources. Plus, unlike peanut butter, eggs are considered a complete protein. That means that they contain all of the essential amino acids that we need.

Eggs and heart disease

For more than 25 years, eggs have been viewed as a forbidden fruit; mainly because of the proposed link between dietary cholesterol and heart disease. In fact, between 1970 and 1995, per capita egg consumption decreased from 310 eggs to 235. But are eggs the real culprit when it comes to heart disease? Unfortunately, the answer is not a simple one. While it is true that dietary cholesterol can impact blood cholesterol, research also suggests that the effect of dietary cholesterol on blood cholesterol levels may also depend on the types of fat in the diet (saturated vs unsaturated). In addition, people may respond differently to dietary cholesterol.

Donald McNamara, Ph.D., Executive Director of the Egg Nutrition Board recently reviewed published research that examined the impact of egg consumption of blood cholesterol levels. His results, published in the *Journal of the American College of Nutrition*, found that increasing dietary cholesterol intake by 100 milligrams per day resulted in a 2.2 milligram increase in blood cholesterol. Although some individuals may respond more negatively to eggs (i.e. higher increase in cholesterol levels) compared to others, McNamara concluded that dietary cholesterol was not related to heart disease incidence or mortality and that restricting egg consumption has little impact on heart disease risk.

Kritchevsky and Kritchevsky reviewed existing epidemiologic data related to dietary cholesterol, egg consumption and heart disease risk. They concluded that although dietary cholesterol was associated with heart disease risk, the association was weak. Furthermore, after considering other factors that could impact heart disease risk (i.e. age, gender, smoking, BMI, physical activity, presence of hypertension, consumption of bacon), the authors concluded that healthy individuals without diabetes could consume as much as one egg per day without raising their risk for developing

heart disease. Their findings were also published in the *Journal of the American College of Nutrition*.

So, does that mean that we can eat fried eggs by the dozen and not worry about clogging our arteries and developing heart disease? Not exactly. In 2001, Weggemans et al. reviewed studies that investigated the effect of dietary cholesterol from egg consumption on blood cholesterol levels in humans. They concluded that adding one extra egg per day would increase heart disease risk by approximately 2%, based on changes in blood cholesterol levels. As a result, the authors agreed with existing recommendations that suggest limiting egg consumption. However, the study did not appear to consider other factors that may play a role in the development of heart disease (i.e. body mass index, physical activity, or saturated fat intake).

So, what is the answer? Here are some points to consider:

- (1) Although egg consumption can increase blood cholesterol levels, it may not be of biological significance and it may not be enough to significantly raise one's risk for developing heart disease. People respond differently to dietary cholesterol.
- (2) Between dietary cholesterol and saturated fat, research suggests that it is the saturated fat that really influences blood cholesterol levels. Reducing saturated fat intake should take priority over reducing dietary cholesterol intake. Of the 5 grams of fat that are found in a large egg, 1.6 grams are saturated (32%) and 2.0 grams are monounsaturated (40%).
- (3) According to the American Heart Association, as many as 4 egg yolks per week can be included in a healthy diet. Individuals who have heart disease, diabetes, or other chronic diseases should talk with their physician and/or registered dietitian if they have questions about dietary cholesterol and egg consumption.
- (4) There are many factors that play a role in the development of heart disease. We should not focus solely on egg consumption at the expense of the more obvious risk factors for heart disease (i.e. obesity, physical inactivity, hypertension, cigarette smoking, etc.).

Buying Eggs

The quality and safety of an egg will decrease rapidly at room temperature so be sure that eggs are purchased from refrigerated cases only. Be sure to inspect the eggs closely - don't buy eggs that are cracked or leaking. Also, be sure to look at the expiration date stamped on the end of the carton. For most foods, the expiration date refers to the last day that a food should be eaten. However, with eggs the expiration date is the last day that store can sell the eggs. Buy eggs before the expiration date and use them within 30 days. After 30 days, discard any unused eggs.

Maintaining Egg Quality and Safety

Store the eggs in their original carton in the coldest part of the refrigerator. There are a couple of reasons why eggs should be stored in this manner. First, the shell of an egg is porous and can absorb odors. Keeping it in the original carton can help reduce odor absorption. Secondly, keeping eggs in the coldest part of the refrigerator as opposed to the traditional egg shelf on the side of a refrigerator door helps keep eggs at a safe storage temperature.

Because bacteria that cause food-borne illnesses may be found on or in eggs, following sound food safety practices are a must when using eggs. Below are some tips to help reduce the risk of a food-borne illness when using eggs.

- ✓ Wash hands, utensils, and work areas with hot, soapy water before and after using eggs.
- ✓ When using eggs in recipes, first crack the egg into a small bowl then add it to the rest of the ingredients. This way, you can keep egg shells away from other ingredients.
- ✓ Eggs or foods made with eggs should not be left at room temperature for more than 2 hours. If the temperature is above 85 degrees, do not leave the egg or egg-containing food out for more than 1 hour.
- ✓ Serve cooked eggs or dishes containing eggs immediately after cooking. Store any leftovers immediately in the refrigerator and use within 2 to 4 days. Hard-cooked eggs should be stored in their shell, refrigerated after cooking, and used within one week.

Using Eggs in Recipes - Sometimes Size Does Matter!

Most recipes that include eggs use large eggs. However, there may be times when other sizes of eggs are what you have available. To substitute another size for a large egg, use the chart below.

| Large | Jumbo | X-Large | Medium | Small |
|-------|-------|---------|--------|-------|
| 1 | 1 | 1 | 1 | 1 |
| 3 | 2 | 3 | 3 | 4 |
| 4 | 3 | 4 | 5 | 5 |
| 5 | 4 | 4 | 6 | 7 |
| 6 | 5 | 5 | 7 | 8 |

Source: American Egg Board

Some Frequently Asked Questions (FAQs) About Eggs

1. What are the blood spots that we sometimes see in eggs?

Contrary to popular belief, blood spots in eggs do not mean that the egg is fertilized. Instead, a blood spot happens when a blood vessel on the yolk breaks during the formation of the egg. Blood spots are not common in commercially produced eggs because they are usually screened out before they are packed but every once in a while an egg with a blood spot slips through. According to the American Egg Board, these eggs are perfectly safe to eat and they are just as nutritious as eggs without blood spots. To remove a blood spot, just scoop it out with the tip of a knife.

2. Why are brown eggs more expensive than white eggs?

Brown eggs are similar in nutritional value compared with white eggs. The reason why brown eggs are more expensive is because the birds that produce them tend to be larger and require more food compared to those that lay white eggs.

3. My hard-boiled eggs turned green! What happened?

The greenish ring that may occur in hard cooked eggs is often the result of overcooking. A high iron content in the water can also cause the green color. Although green eggs are popular in a famous Dr. Seuss book, most people find them a little unsettling. Still, the taste of the eggs is usually not affected and they are still safe to eat. To prevent green rings in hard-cooked eggs, be sure to cook the egg at the proper temperature and rapidly cool the eggs once cooked.

4. Are fertile eggs more nutritious than non-fertile eggs?

No, they are not. In fact, fertile eggs do not keep as well as non-fertile eggs and are more expensive to produce. Save your money!

5. Why is it hard to peel hard-cooked eggs?

According to the American Egg Board, fresh eggs can be difficult to peel. If you are going to make hard-cooked eggs, use those that have been in your refrigerator for a week to 10 days. They will be easier to peel. On a positive note, if your eggs are hard to peel, that is a good sign they are fresh!

6. I have heard that eggs should not be given to infants. Why?

Eggs are one of the most allergenic foods for young children. Because of this, nutrition experts recommend that young children not be given eggs until they are at least one year of age, unless recommended otherwise by a child's physician.

Egg Trivia (for the "Egg-head" in all of us)

1. How many eggs does the average hen lay per year?

Answer: 300 to 325 eggs per year

2. How long does it take for a hen to lay an egg?

Answer: 24 to 26 hours.

3. What happens to the size of an egg as a hen ages?

Answer: the egg gets larger

4. How many pores are on an egg shell?

Answer: as many as 17,000 pores

5. How do you know if an egg is raw or hard cooked?

Answer: Spin the egg. If the egg spins easily, it is hard-cooked. If it wobbles, then the egg is raw.

The last three egg trivia questions aren't about chicken eggs but they are fun!

6. Which type of bird lays the largest egg? (Hint: It isn't a chicken)

Answer: The ostrich, whose eggs average more than 3 pounds.

7. Which type of bird lays the smallest egg? (Hint: It isn't a chicken)

Answer: The bee hummingbird, whose eggs average about .02 ounces.

8. What is the most expensive egg ever sold?

Answer: The Faberge "Winter Egg" which sold in 1994 for \$5.6 million dollars.

Ideas for Agents

This issue could easily be turned into a quick "one-shot" program on eggs. With an added twist on food safety, using this issue at Easter, or along with programs on sack lunches or thrifty meals would also be appropriate. For a warm-up activity or ice breaker, host a "Who is the biggest Egg-head?" contest. Use the information in the egg trivia section and see which audience member can answer the most questions correctly. The winner can be named "The biggest Egg-head" (or some other title that you think is appropriate).

References (and sources for more information and recipes):

McNamara DJ. The Impact of Egg Limitations on Coronary Heart Disease Risk: Do the Numbers Add Up? *Journal of the American College of Nutrition*, 2000; 19:540S-548S.

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McNamara DJ. Eggs and heart disease risk: perpetuating the misperception. *American Journal of Clinical Nutrition*, 2002; 75:333-334.

Web sites:

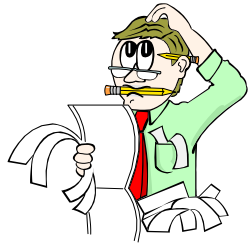
American Egg Board: <http://www.aeb.org/>

American Heart Association: <http://www.americanheart.org>

Egg Nutrition Center: <http://www.enc-online.org>

Georgia Egg Commission: <http://www.georgiaeggs.org>

THE “EGGS-ESSENTIAL” QUESTION: ARE EGGS GOOD FOR US?



Are eggs healthy for us? For many years, eggs were considered cholesterol in a shell. And we all know that cholesterol is bad for our hearts. But that needs some clarification. It is the cholesterol circulating in our blood that is bad for our arteries and heart.



For most people, *the cholesterol that we eat is not related to our blood cholesterol very much*. It turns out that the amount of saturated fat in our diet is what is most related to our blood cholesterol. And eggs are very low in saturated fat.



However, **some people do** have increased levels of cholesterol after eating cholesterol-rich foods. For those that already have high cholesterol or are at risk for heart disease, consult a physician before increasing the amount of eggs in your diet.

The American Heart Association recommends limiting egg consumption to four eggs per week. Additionally, the recommended daily amount of cholesterol is 300 mg. Eggs have 215 mg of cholesterol. So, if you eat an egg regularly, it may be wise to decrease the amount of cholesterol in the rest of your diet.



Eggs are a good source of protein. One large egg has 6 grams of protein, while one ounce of meat or poultry has 8 grams of protein. But eggs only cost about a dime each. So compared to other sources of protein, egg are a good use of your food dollar.



Eggs also keep well. Buy eggs before their “sell by” or expiration date; after that point, they are safe for another month if properly refrigerated.



There is no doubt about it. Eggs are an inexpensive, easy to prepare source of protein. Still, we need to think about food safety when buying, storing, and handling eggs to reduce our risk of food borne illness.

Don't buy cracked eggs.

Store eggs in the coldest part of the refrigerator.

Cook them until they are firm.

Serve eggs immediately after cooking.

ENJOY YOUR EGGS!

Developed by James Smith, M.S., Dietetic Intern 6/03. *Educational programs of Texas Cooperative Extension are open to all people without regard to race, color, sex, disability, religion, age, or national origin.*



EGG-CITING NEWS ABOUT THE EGG-STRORDINARY AND EGG-CELLENT EGG

For more than two decades, Americans have been told to avoid cholesterol-rich eggs because high cholesterol intake was linked to heart disease. Americans took this recommendation seriously- egg consumption per person fell from more than 311 to about 260. While eggs are high in cholesterol (about 215 milligrams in a large egg), new research now suggests that for healthy people, the need to avoid eggs may not be necessary. Does this mean that eggs are no longer the forbidden fruit? Yes," says Jenna Anding, Ph..D., R.D., L.D., assistant professor and nutrition specialist with Texas Cooperative Extension. "At least for healthy individuals who consume a heart-healthy diet," she adds.

So, what is behind this change in attitude towards eggs? According to Jim Smith, MS, dietetic intern with Texas A&M University "research now suggests that, for most people, the cholesterol that they eat does not cause much of an increase in the cholesterol in their blood." Instead, it is the saturated fat that has a more significant impact on blood cholesterol levels. While saturated fat is found in animal products including eggs, whole milk, and meats, the amount of saturated fat found in an egg is fairly low, only 1.6 grams per egg."

So, does that mean we can eat eggs by the dozen? Not exactly. According to the American Heart Association, a healthy individual can include up to 4 eggs per week in a heart-conscious diet. The daily recommendation for cholesterol is 300 mg, so if you consume an egg on a regular basis, the rest of your diet should be low in cholesterol. However, those with high cholesterol or those at risk for heart disease should consult a physician before increasing their egg consumption.

There are other reasons for including eggs in the diet. For one, eggs are an inexpensive source of protein. A large egg has roughly the same amount of protein as one ounce of meat. "Compared to other sources of protein, eggs are a great buy," notes Smith. This is good news for families who are watching their food budgets.

If you are thinking about adding eggs back into your refrigerator, be sure to do it safely. That is because if handled improperly, eggs can be a potentially hazardous food. Therefore, it is important to pay attention to safe food handling practices when buying, storing, and cooking eggs. Anding and Smith offer these tips to ensure egg safety and to help reduce the risk of foodborne illness:

- never buy cracked eggs;

- buy eggs before their "sell by" or expiration date and use them within 30 days;

- do not store eggs at room temperature. An egg should not be at room temperature for more than two hours. Any bacteria present will grow more rapidly;

store eggs in the coldest part of the refrigerator; the egg rack is not the coolest part of the refrigerator; and

when cooking eggs, cook them until they are firm. Also, do not let cooked eggs or foods prepared with eggs sit out after cooking. Serve them immediately. Leftovers should be refrigerated and eaten within 2 to 4 days.

To learn more about cooking with eggs, contact _____, county Extension agent at _____ (phone number).