Salmonella

Salmonella bacteria are commonly found in animals, especially birds and reptiles. Eggs can have *Salmonella* both inside the egg (usually in the yolk) and on the outside of the shell. In humans, *Salmonella* can cause illness (salmonellosis) within 12-72 hours after eating the contaminated food (or the feces of the infected animals).

Symptoms of salmonellosis include:

- headache, chills, fever (up to 105°F)
- stomach cramps
- diarrhea (sometimes bloody), vomiting

Severity of illness depends on the person's health and the number of bacteria ingested. Salmonellosis usually goes away within 7 days, but a small number of severe cases may cause lasting injury (including joint pain and arthritis) or death. If you have symptoms, see a doctor.

No one should eat undercooked eggs, but there are people more likely to get sick. These people include children, pregnant women, senior citizens, and people on certain antibiotics or with chronic illnesses.

To prevent salmonellosis:

- Cook all egg products thoroughly (to 145°F).
- Wash hands and utensils after handling raw eggs (and other raw animal products);
- Wash hands after caring for, or petting, animals;
- Eat foods (including milk) that are prepared from thoroughly-cooked eggs or are pasteurized.

Recipes With Undercooked Eggs

These foods are commonly or traditionally prepared with raw or undercooked eggs.

- Caesar salad–with raw egg dressing
- Hollandaise sauce
- Homemade mayonnaise, ice cream, egg nog,
- Tira misu
- Eggs served sunnyside up or scrambled
- French toast
- Cake and cookie batter

To reduce the risk of illness, prepare these dishes with pasteurized eggs (eggs in the shell can be pasteurized–but they're not available in all parts of the country), pasteurized egg products, or heat the egg mixtures to 145°F before eating.

Easter Egg Tips

At all times: Work with the eggs carefully to prevent cracking the shells. (If the shells crack, bacteria can get inside the eggs—for safety, the eggs should not be decorated, hidden or eaten.)

Dyeing eggs: If the eggs will be eaten, be sure to use a food-safe dye and follow package directions. Boiling the eggs should kill the bacteria that can cause illness, but will not keep the eggs from spoiling. To prevent re-contamination and to slow spoilage, keep the eggs refrigerated, dry and in a clean container (don't put them back in the egg carton).

Hiding eggs: Eggs must be protected from sources of contamination (like dirt, pets, and water) and from heat (like sunny spots). A safer option would be to keep edible eggs refrigerated and hide inedible, plastic eggs for the hunt.

What's the difference between spoilage and foodborne illness (FBI)? Spoilage is when foods "go bad." You can see, smell or taste spoilage. Spoilage is usually caused by molds or bacteria. FBIs are caused by different molds and bacteria (as well as virsues, parasites and chemicals). You usually cannot tell by sight, smell, or taste if the food will cause a FBI, but you can prevent illness if you handle, store and prepare the foods safely.

For More Information:

Benton-Franklin Health District
Environmental Health Division
7102 W. Okanogan Pl.
Kennewick, WA 99336 (509) 460-4205
www.bfhd.wa.gov

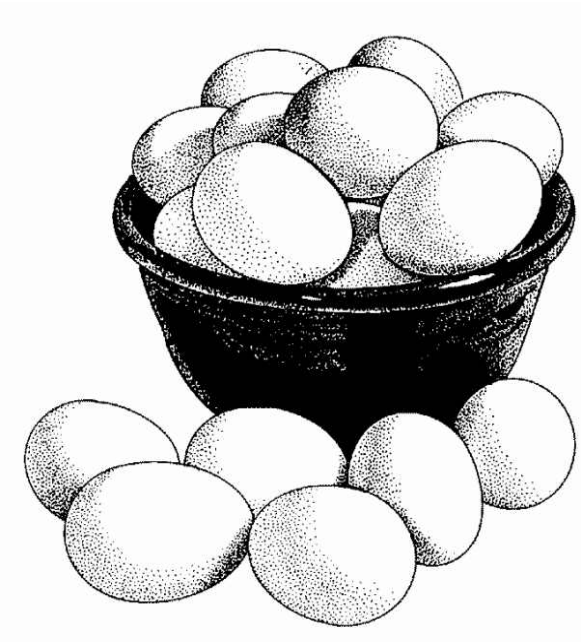
Other brochures available:
"Salmonella" "Easter Eggs"

Information can also be found on the world wide web:
United States Department of Agriculture
www.fsis.usda.gov/Fact_Sheets/Focus_On_Shell_Eggs/index.asp
Washington State Department of Agriculture
agr.wa.gov/FoodAnimal/Eggs/default.htm
American Egg Board
www.aeb.org
United States Food and Drug Administration
www.foodsafety.gov/~fsg/eggs.html

BFHD-E-0027 (Rev. 04/08)

Egg Safety

Food Safety Series



www.bfhd.wa.gov

PUBLIC HEALTH
Prevent • Promote • Protect
BENTON-FRANKLIN HEALTH DISTRICT

Eggs are a source of high quality protein. They supply all 8 essential amino acids and are also important for cooking--they thicken, stabilize, glaze, bind, clarify and serve as leavening agents. Despite their many qualities, eggs have gained notoriety because of cholesterol and disease-causing Salmonella bacteria. If used properly (in moderation and with proper handling), eggs can be part of a healthy diet. This brochure will give you information to safely prepare eggs. For guidance on nutrition issues and cholesterol, please talk to your doctor or nutritionist.

F.A.E.Q. (Frequently Asked Egg Questions)

What does Grade A mean?

Eggs are graded based on their quality and appearance (there is no difference in nutrition or safety).

Grade AA eggs have thick, firm whites and high, round yolks. Their shells are clean and unbroken.

Grade A eggs are like Grade AA, but their whites are "reasonably" firm. Grade A eggs are usually sold in stores.

Grade B eggs have thin whites and wider yolks. The shells are unbroken, but might show slight stains.

Why do some eggs float in water?

Old eggs float in water because of a large air cell. (The air cell forms as the egg cools after being laid. As the egg ages, air enters the egg and the air cell becomes larger.) To make sure the egg is not spoiled--break it into a clean bowl and check to make sure it doesn't have a bad odor or appearance.

Why are hard-boiled eggs hard to peel?

Hard to peel eggs are probably fresh (with a small air cell). Use eggs that are at least a week old to make peeling easier.

How long do eggs last?

Keep eggs refrigerated to promote quality and safety. Raw eggs can be kept in the refrigerator for 4-5 weeks after purchase. Refrigerated hard-boiled eggs should be eaten within 7 days.

Why do hard-cooked eggs spoil faster than raw?

A hen puts a protective coating (called the bloom) on the egg as she lays it. The bloom keeps contaminants from entering pores in the shell (eggshells have up to 17,000 pores). Processing plants wash the eggs and coat them with mineral oil to replace the bloom. This protective coating is removed when you wash or boil the egg.

What's in the yolk?

- all of the egg's fat, cholesterol and almost half of the protein
- all of the egg's Vitamins A, D, and E and zinc
- most of the egg's phosphorus, manganese, iron, copper, iodine and calcium
- about 60 calories (in a large egg)

What's in the white (albumen)?

- about 2/3 of the egg's liquid weight
- most of the egg's protein, niacin, riboflavin, magnesium, potassium, sodium and sulfur
- chalazae–the strands of egg white that anchor the yolk in place. Prominent chalazae indicate a fresher egg.

Can I use cracked eggs?

The shell is the egg's first defense against contamination. Do not buy or eat eggs with cracked shells. If you crack the shell, either prepare the egg or break it into a clean container and refrigerate it. Use within 2 days.

What about all the different colors?

—**RED**–Blood spots in the yolk are caused when a blood vessel breaks on the surface of the yolk. Blood spots indicate a fresh egg (the spots fade with time) and are safe to eat.

—**GREEN**–The greenish ring around a hard-boiled egg yolk is due to an iron and sulfur compound that forms when eggs are overcooked, not cooled quickly, or are prepared with water that is high in iron. Concentric green rings inside a cooked yolk are probably formed because the hen's feed or water contained iron. In both cases, the green color is harmless and safe to eat.

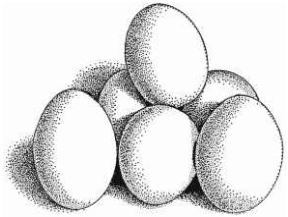
—**EGG SHELLS** (brown or white)–Shell color is determined by the hen's breed. Hens with red feathers and red ear lobes have brown eggs; hens with white feathers and white ear lobes have white eggs.

—**EGG WHITE**–A cloudy white in a raw egg is caused by carbon dioxide and indicates freshness. As the egg ages, the carbon dioxide escapes through the pores of the egg, and the white will become less cloudy. A pinkish or greenish-blue raw egg white possibly indicates spoilage with a certain bacteria (Pseudomonas spp); we recommend not eating these eggs.

—**YOLK**–Yolk color depends on the diet of the hen. The more yellow-orange plant pigments (xanthophylls) she's eaten, the darker yellow the yolk.

Handling Eggs Safely

- Purchase clean, uncracked eggs (open the carton and check) from a refrigerated case.
- If you buy farm-fresh eggs, refrigerate them as soon as possible. Egg quality *and safety* drop at warm temperatures.
- Refrigerate in the coldest part of the refrigerator (not in the door).
- Wash hands and utensils with hot soapy water before and after contact with raw eggs.
- Don't leave eggs out of the refrigerator for more than 2 hours.
- Cook eggs thoroughly and eat immediately.



Egg Storage Chart

Egg Product	Refrigerator (41ºF or colder)	Freezer (0ºF or colder)
Raw, in shell	4-5 weeks	Do not freeze
Raw whites	2-4 days	12 months
Raw yolks	2-4 days	Do not freeze well (blend with sugar)
Hard-cooked	1 week	Do not freeze
Casseroles	3-4 days	After baking, 2-3 months
Pies, Pumpkin or pecan	3-4 days	After baking, 1-2 months
Custard or chiffon	3-4 days	Do not freeze

Kitchen Tip:
How can I quickly clean up a cracked egg on the floor?
Cover it with lots of salt, then wipe it up.