

Guidelines on Good Handling of Eggs

A public health document prepared by:
National Environment Agency

INTRODUCTION

Eggs are a common ingredient for cooking and baking. Shell eggs may contain *Salmonella* bacteria that can cause food-borne illnesses. *Salmonella* is a genus of bacteria that is a major cause of food-borne illnesses throughout the world. *Salmonella* resides in the intestinal tracts of chicken and can be transmitted to humans when humans consume eggs contaminated by *Salmonella* found in chicken droppings.

Salmonella can be present on egg shells and the interior of normal-looking eggs. If chicken droppings get on the outside of the shell of eggs, *Salmonella* in the droppings can contaminate the egg through cracks in the shell. The *Salmonella* bacteria can double every 20 minutes; hence a single bacterium can multiply into more than a million in 8 hours at ambient conditions. If eggs are not properly handled or are eaten raw or lightly cooked, *Salmonella* can still survive and may cause food-borne illnesses.

Salmonella cells as low as 15-20 cells have been responsible for causing food-borne disease. Vulnerable groups such as elderly, children, pregnant women and immunocompromised people, are more likely to become ill after consuming food contaminated with *Salmonella*.

A person infected with *Salmonella* usually has nausea, fever, abdominal cramps and diarrhoea up to 72 hours after consuming contaminated egg. The illness usually lasts four to seven days and most people will recover without treatment. However, some people may experience severe diarrhoea and may need to be hospitalised.

Risks of food-borne illnesses can be reduced when eggs are handled properly. Shell eggs are recommended to be stored in the refrigerator, thoroughly cooked and promptly consumed after cooking. Some of the good practices of handling eggs are

highlighted below and should be adopted to reduce the occurrence of food-borne illnesses when consuming eggs.

GUIDELINES

1) Receiving and Storing Raw Shell Eggs

- a) Buy from reputable and reliable suppliers approved by the Agri-Food and Veterinary Authority of Singapore (AVA).
- b) Ensure that egg shells are clean and not cracked upon receiving. Bacteria can enter eggs through the cracks in their shells.
- c) Discard cracked eggs.
- d) Store eggs in the refrigerator until they are needed. Refrigeration of eggs prevents *Salmonella* present in the eggs from growing to dangerous levels. However, if you need to store eggs at room temperature, use the current batch of eggs and replenish the stocks daily.
- e) Use eggs before the "use-by" date as indicated on the packaging or recommended by your suppliers, or as soon as possible.

2) Handling Raw Shell Eggs

a) Personal Hygiene and Cleanliness of Kitchen and Utensils

- i. Always wash your hands thoroughly with soap before and after handling eggs. Effective hand washing and cleaning are important to help prevent *Salmonella* bacteria from spreading from hands or arms to food, work surfaces, utensils, equipment, etc.
- ii. Always wash utensils and surfaces thoroughly with soap after handling eggs and before any contact with other food to prevent cross-contamination.

b) Food Preparation

- i. If you are breaking eggs for future usage (also known as 'pooling'), cover and keep the liquid egg in the refrigerator and take out small amounts when needed.
- ii. Use all 'pooled' liquid egg on the same day and do not top up with new eggs.
- iii. Prepare raw eggs away from other food, especially cooked and ready-to-eat food to avoid cross-contamination.

3) Cooking and Serving Eggs

- a) Cook raw eggs thoroughly until both the yolk and white are firmed. Scrambled eggs should not be runny. Cooking reduces the amount of bacteria present in an egg; however, a lightly-cooked egg with a runny egg white or yolk still poses a greater risk than a thoroughly-cooked egg.
- b) Avoid icing recipes or whipped cream using uncooked shell eggs or egg white. Use pasteurised egg products instead.
- c) Serve cooked eggs and egg-containing food immediately after cooking.

4) Using Pasteurised Liquid Egg or Egg Powder

Pasteurised egg products, such as liquid egg and egg powder, are eggs that are removed from their shells and are heated at elevated temperature to eliminate *Salmonella* and other micro-organisms. They are packed for minimal storage space. They provide the same texture and nutritional value as fresh shell eggs.

- a) Use pasteurised eggs instead of shell eggs, especially for food that would be lightly-cooked or uncooked. For example, mayonnaise, cream, icing, mousse, tiramisu and other desserts which contain eggs.
- b) Check the "use-by" date of pasteurised eggs.
- c) Buy pasteurised eggs in powder or liquid form.
 - i. For egg powder
 - Store in a cool and dry place.
 - Handle egg powder with clean and dry gloved hand or utensils.
 - After opening, store it in a cool and dry place at the temperature recommended by the manufacturer.
 - Use egg powder that is reconstituted or has already been mixed with water immediately.
 - ii. For liquid egg
 - Do not store longer than the recommended shelf life.
 - Keep refrigerated at the recommended temperature displayed on the packaging at all times.
 - As a general rule, use the product immediately after opening and do not store for more than three days after opening.
 - Do not freeze packs/cartons of liquid egg which are already opened.

MORE INFORMATION

For more information on hygiene guidelines, please visit the National Environment Agency's website at www.nea.gov.sg.