



ACT
Government

ACT Health

FOOD BUSINESS EGG GUIDE

ADVICE ON SAFE EGG
HANDLING AND THE RISKS
ASSOCIATED WITH RAW EGG
PRODUCTS

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CONTENTS

PURPOSE..... 3

INTRODUCTION..... 3

FOOD PROCESSING CONTROLS..... 4

 RECEIVING AND STORING WHOLE RAW EGGS 4

 Receiving eggs 4

 Storing whole raw eggs 4

 PROCESSING EGGS 4

 Equipment and Utensils 4

 Personal Hygiene..... 5

 Handling Eggs 5

 Cooking Eggs..... 5

RAW EGG PRODUCTS 5

 FOOD BUSINESS RESPONSIBILITY 6

 FOOD HANDLING CONTROLS..... 6

 STORAGE AND DISPLAY 7

 MORE INFORMATION 7

GLOSSARY 8

PURPOSE

The purpose of this guide is to:

1. Alert **food businesses** to the inherent food safety risks associated with handling and using eggs.
2. Provide food businesses with advice on how to minimise these food safety risks.

NB: Words and terms defined in the [Glossary](#) are shown in **orange** at their first mention in the text.

The information in this guide is a general summary. It does not cover all situations. It does not cover all of the requirements of the [Australia New Zealand Food Standards Code](#) (the Code) or the [Food Act 2001](#). ACT food businesses must comply with the Code and the Food Act.

INTRODUCTION

Like all potentially hazardous food, eggs need careful handling to keep them safe. Eggs may contain **pathogenic bacteria** such as *Salmonella*. Bacteria on the outside of the egg shell can enter the egg through cracks that can be too small to see. Once inside the egg, bacteria can grow.

Salmonella can cause the infection Salmonellosis. Symptoms usually include diarrhoea, abdominal pain, fever, nausea, vomiting and headaches. Symptoms usually start 12 to 36 hours after infection. Most people are sick for 4 to 7 days. *Salmonella* is often spread when people eat inadequately cooked foods, such as raw or undercooked eggs.

Raw or undercooked eggs, meat and poultry are particularly high risk foods. It is important that eggs are thoroughly cooked to ensure any bacteria present is killed.

Foods that contain raw (or lightly cooked) eggs are called **raw egg products** and have the potential to cause illness, particularly in young children, the elderly, pregnant women and those in poor health. For this reason, it is strongly recommended that businesses do not prepare or sell raw egg products. Food businesses are required to only sell safe food. ACT food businesses have been prosecuted for selling unsafe food that contained raw egg products which caused foodborne illness.

FOOD PROCESSING CONTROLS

RECEIVING AND STORING WHOLE RAW EGGS

Food safety begins with ensuring ingredients that arrive at the premises are safe and suitable.

Receiving eggs

- > Only accept eggs that are clean. **Dirty eggs** may have chicken faeces on them, which could contain *Salmonella* bacteria.
- > Only accept eggs that are free from visible cracks. Any cracks in the shell may allow *Salmonella* to enter the egg. It may not be possible to see **micro cracks** in egg shells.
- > Ensure that eggs are stamped and come in clean packaging with a batch supply number, the supplier's name and address, and are date marked.
- > Food businesses are encouraged to only use commercially supplied eggs as they may have had additional processing controls. Commercially produced eggs may have been cleaned using specialised equipment to remove faeces from the shell; they may also be 'candled' to check for cracks.

Storing whole raw eggs

- > Regularly check date markings and discard any eggs that are beyond their 'best before' dates.
- > Store whole eggs in the refrigerator or cool room under temperature control (5°C or less).
- > Store eggs separately from ready-to-eat food.

PROCESSING EGGS

Safe food preparation is important when preparing both raw and cooked foods. As raw egg may contain bacteria, it is important to ensure that raw egg does not contaminate any **ready-to-eat foods**.

Poor food handling can result in cross-contamination of food. Examples of this include when ready-to-eat food comes into contact with contaminated kitchen utensils (such as knives or cutting boards) or when bacteria is transferred on the hands of a food handler. Contaminated cleaning cloths and tea towels can also cause cross-contamination (e.g. a cloth is used to wipe up raw egg and is then used on surfaces where ready-to-eat food is prepared).

To meet the requirements of the Code for processing food and to avoid cross contamination, businesses should do the following:

Equipment and Utensils

- > All equipment and utensils should be well maintained and able to be easily **cleaned** and **sanitised**.
- > Mechanical equipment, such as blenders and food processors, must be able to be easily taken apart for cleaning and sanitising. Because they cannot be taken apart, equipment like stick blenders may not be appropriate for processing eggs.
- > Businesses may need to use separate equipment for processing eggs and raw egg products.
- > Ensure that utensils, equipment, benches and food contact surfaces are cleaned and sanitised before and after handling raw eggs.

Personal Hygiene

- > To avoid cross-contamination, always wash and dry hands before and after handling raw eggs and raw egg products.
- > Take all practical measures to avoid touching ready-to-eat food if you are handling raw eggs.

Handling Eggs

- > When breaking or separating eggs, minimise contact between the shell and contents of the egg. This helps to prevent the spread of any bacteria from the outside of the shell into the egg.
- > Do not wash eggs. Egg shells become porous when wet, making it easier for bacteria to enter the egg.
- > Use a clean and sanitised egg separator. Do not separate eggs with bare hands or by using the shell.

Cooking Eggs

- > Eggs should be cooked until the yolk and white is firm. A runny yolk (such as poached eggs or eggs “sunny-side up”) may indicate that the egg has not been cooked sufficiently to kill *Salmonella*.
- > Scrambled eggs should be cooked in small batches until they are firm throughout.
- > Boiled eggs, depending on their initial size and temperature, may require a minimum boiling period of 7-10 minutes to ensure that the yolk becomes firm.

RAW EGG PRODUCTS

Foods that contain raw or lightly cooked eggs pose the greatest risk of Salmonellosis.

The following foods often contain raw or lightly cooked eggs:

- > Sauces and dressings: mayonnaise, aioli, béarnaise and hollandaise sauces.
- > Desserts: mousse, non-commercially produced ice-creams and gelato, deep fried ice-cream, unbaked cheesecakes, custard.
- > Drinks: milkshakes with raw egg, some health food shakes, eggnog.

Several factors contribute to the strong association between foods that contain raw egg and *Salmonella* foodborne illness outbreaks. These include:

- > Contamination of egg-containing food with *Salmonella* from the eggshell,
- > Combining many raw eggs together, or combining raw egg products from different batches, increases the risk of contamination,
- > Failure to clean and sanitise equipment and food contact surfaces,
- > Lack of proper temperature control (storage above 5°C), and
- > Keeping raw egg products beyond their recommended storage life (maximum 24 hours) at refrigerated temperature.
- > Entire batches of food can be contaminated by one egg. If a product like mayonnaise is contaminated, it is likely to affect many customers as the contaminated sauce or condiment can be used on many products throughout the business.

FOOD BUSINESS RESPONSIBILITY

Food businesses must be aware that, although they may attempt to take every precaution to practice safe food handling and storage practices, any food that contains raw eggs may be contaminated with bacteria and can pose a significant food safety risk.

Food businesses are responsible for the food they supply and must know the risk associated with the handling and sale of raw egg products. If a food business decides to prepare and sell raw egg products, they are choosing to accept the inherent food safety risk and if the raw egg products cause foodborne illness, the food business may be prosecuted and/or pursued under civil proceedings.

Food businesses are strongly encouraged to use commercially available versions of these foods. The commercial versions are a safer alternative as they have been heat treated or produced using **pasteurised egg**. Food businesses can contact suppliers or manufacturers to ascertain whether a product contains raw eggs.

Food businesses that continue to prepare their own egg products should use commercially pasteurised eggs. Pasteurisation kills bacteria such as *Salmonella* without changing the properties of the egg.

FOOD HANDLING CONTROLS

If a food business decides to prepare raw egg containing foods that do not undergo a **pathogen control step**, the foods must be prepared in line with safe food handling practices to slow the growth of bacteria and minimise the risk of foodborne illness.

Food businesses should use ingredients such as lemon juice or vinegar to **acidify raw egg** dressings to a pH value below 4.2 to slow bacterial growth. Food businesses should check the pH with a pH meter or pH strips. Acidification does not make the food safe, but may slow the growth of bacteria.

STORAGE AND DISPLAY

Raw egg products must be safely stored and displayed to prevent cross-contamination and slow the growth of bacteria. Some practical steps to achieve this include:

- > Raw eggs products should be prepared, stored and displayed in the same container to prevent extra handling and reduce the potential for cross-contamination to other food products or equipment and utensils.
- > Use labels to ensure only fresh batches are used (labels should say 'raw egg product' and be dated).
- > Do not top up or mix large batches of raw products.
- > Store raw egg products in the refrigerator or cool room under temperature control (5°C or less).
- > Ensure raw egg products are consumed within 24 hours of preparation, or discarded.
- > If any raw egg product is out of **temperature control** (above 5°C), then storage times and temperatures must be documented to demonstrate compliance with the 2-Hour/4-Hour rule. This means that raw egg products that have been out of temperature control for less than 2 hours can be re-refrigerated for later use. For more details on the 2-Hour/4-Hour rule, see the ACT Health's [Food Safety Training and Resources](#) webpage or call the Health Protection Service. This process is not recommended as best practice. Businesses are strongly advised to keep raw egg products in a refrigerator or cool room under temperature control (5°C or less).

MORE INFORMATION

For more information on safe food handling, please visit www.health.act.gov.au, email hps@act.gov.au or call the Health Protection Service during business hours on (02) 5124 9700.

Acknowledgements

1. Queensland Government, Food safety factsheet 28: Egg safety for food businesses, 2013
2. NSW Government, NSW Food Authority, Food safety guidelines for the preparation of raw egg products, 2016, http://www.foodauthority.nsw.gov.au/Documents/retail/raw_egg_guidelines.pdf
3. ANZFA, 2001, Safe Food Australia – A Guide to the Food Safety Standards, <http://www.foodstandards.gov.au/publications/Pages/safefoodaustralia3rd16.aspx>

GLOSSARY

Term	Definition
Acidified raw egg	Raw egg product with vinegar or lemon juice added to achieve a pH of 4.2 or less.
Cleaned	The process of removing food waste and debris from surfaces, equipment and utensils. Detergents are used to assist removal.
Dirty egg	Egg with shell contaminated with visible faeces, soil or other matter (e.g. yolk, albumen, feathers).
Food Business	An activity where food is handled for sale or food is sold. The proprietor of the business is the person responsible for complying with this guide.
Micro cracks	Extremely small cracks in the eggshell that cannot be seen by the human eye and can worsen as eggs move through the supply chain.
Pasteurised egg	Egg pulp that has undergone heat treatment to kill pathogenic bacteria.
Pathogen control step	A process step such as cooking, pasteurisation or retorting to reduce any pathogens that may be present in the food to safe levels.
Pathogenic bacteria	Any type of bacteria that can cause illness and lead to food safety problems. They are able to invade the body or produce toxins that cause illness.
Potentially hazardous foods	Food that has to be kept at a certain temperature to minimise the growth of any pathogenic bacteria that may be present in the food or to prevent the formation of toxins in the food (see Food Standards Code 3.2.2, Division 1, Clause 1).
Raw egg products	Food that is prepared with raw egg and consumed without further processing (e.g. without cooking). Examples include: <ul style="list-style-type: none"> • Sauces and spreads made with raw egg – e.g. mayonnaise, aioli. • Desserts made without an effective cook step – e.g. tiramisu, mousse, fried ice cream. Drinks containing raw egg – e.g. egg flip, raw egg high-protein smoothies.
Ready-to-eat foods	Food that is ordinarily consumed in the same state as that in which it is sold and does not include nuts in the shell and whole, raw fruits and vegetables that are intended for hulling, peeling or washing by the consumer. (See Food Standards Code 3.2.2, Division 1, Clause 1) For retail businesses this would include cooked foods or other foods that have various dressings (e.g. raw egg mayonnaise acidified to a pH less than or equal to 4.2)

Sanitised	<p>To apply heat or chemicals, or heat and chemicals, or other processes, to a surface (e.g. food contact surfaces of equipment, eating and drinking utensils) so that the number of microorganisms on the surface is reduced to a level that:</p> <ul style="list-style-type: none">• does not compromise the safety of the food with which it may come into contact, and• does not permit the transmission of infectious disease. <p>(See Food Standards Code 3.2.2, Division 5, Clause 20(2)(b))</p>
Temperature control	<p>Means maintaining food at a temperature of:</p> <ul style="list-style-type: none">• 5°C or below if this is necessary to minimise the growth of infectious or toxigenic microorganisms in the food so that the microbiological safety of the food will not be adversely affected for the time the food is at that temperature,• 60°C or above, or• another temperature – if the food business demonstrates that maintenance of the food at this temperature for the period of time for which it will be so maintained, will not adversely affect the microbiological safety of the food. <ul style="list-style-type: none">• (See Food Standards Code 3.2.2, Division 1, Clause 1)