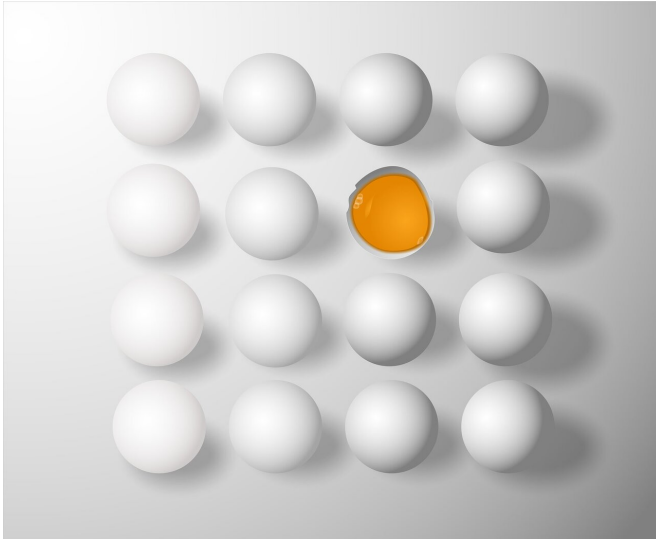


# Simple solution to ensure raw egg safety

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Salmonella is a key cause of foodborne gastroenteritis around the world, with most outbreaks linked to eggs, poultry meat, pork, beef, dairy, nuts and fresh produce.

Now Flinders University researchers have found a simple solution for preventing salmonellosis affecting [eggs](#) through surface contamination, giving crucial help for food services industries.

Raw eggs are used in many food products such as mayonnaise, mousse, eggnog, and artisanal ice cream. However, a problem is associated with eggshells being contaminated with the bacterium *Salmonella enterica* serovar Typhimurium (ST).

To address this issue, the Flinders research team aimed to develop a decontamination method that removed ST contamination from the eggshell without impacting the egg's usability.

Using a method that employed equipment commonly found in commercial kitchens, the researchers decontaminated eggs by placing them

in a sous-vide cooker with the water heated to 57C. Complete decontamination of ST was achieved by treating eggs for 9 minutes. The decontamination method uses kitchen equipment commonly used for sous-vide cooking,

The results, published recently in the journal *Foodborne Pathogens and Disease*, is the first study to look at decontamination of ST on the eggshell.

The decontaminated eggs were found by chefs, using measurements and acceptability scores, to have no [significant difference](#) in their quality or performance as an ingredient when compared with nontreated eggs.

A preview of the paper, 'A Successful Technique for the Surface Decontamination of *Salmonella enterica* Serovar Typhimurium Externally Contaminated Whole Shell Eggs Using Common Commercial Kitchen Equipment' (November 2019) by Thilini Keerthirathne, Kirstin Ross, Howard Fallowfield and Harriet Whiley is online.

A second study by the Flinders environmental health research team examined the effectiveness of current Australian guidelines that recommend raw egg mayonnaise should be prepared and stored under 5C and adjusted to a pH less than 4.6 or 4.2.

Despite these guidelines, a significant numbers of salmonellosis outbreaks continue to be recorded every year in Australia.

The researchers found that the survival of Salmonella Typhimurium in mayonnaise is significantly improved at 4C and that [lower temperatures](#) protected ST from the bactericidal effect of low pH.

"We found that the preparation of mayonnaise at pH 4.2 or less and incubating it at [room temperature](#) for at least 24 hours could reduce the incidence of salmonellosis," says Flinders environmental health researcher Thilini

Keerthirathne.

"But there is a risk of storing mayonnaise at 37C. If the pH is not correctly measured, the warmer temperatures will promote the growth of salmonella. As such it is crucial to ensure the pH of the [mayonnaise](#) if at pH 4.2 or less."

**More information:** Thilini Piushani Keerthirathne et al, A Successful Technique for the Surface Decontamination of Salmonella enterica Serovar Typhimurium Externally Contaminated Whole Shell Eggs Using Common Commercial Kitchen Equipment, *Foodborne Pathogens and Disease* (2019). DOI: [10.1089/fpd.2019.2734](https://doi.org/10.1089/fpd.2019.2734)

Provided by Flinders University

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