Research Question: What is the difference between bacterial contamination on pasteurised and non-pasteurised eggs?

**Test 1**
With ref. to Nordenskjold et al’s paper (2010)

**Aim:** Identification of bacterial contamination on egg shell

1) Place an egg in a zip lock bag containing 50ml Luria Broth.
2) Rub the egg for 1 minute.
3) Remove the egg
4) Pipette 100μl of the solution onto an agar plate.
5) Incubate for 23-24hrs.
6) Remove the agar plate and observe the morphology of the colonies.

**Results**

<table>
<thead>
<tr>
<th>Pasteurised (Chilled)</th>
<th>Non-Pasteurised (Chilled)</th>
<th>Non-Pasteurised (Non-chilled)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple large irregular colonies, surrounded by a few punctiforms</td>
<td>Mix of multiple circular &amp; irregular colonies</td>
<td>Large number of punctiforms</td>
</tr>
</tbody>
</table>

**Colony count results**
After 43 hours...

- Pasteurised (Chilled) $(3+1)/2 = 2$
- Non-Pasteurised (Chilled) $(17+2)/2 = 9.5$
- Non-Pasteurised (Non-chilled) $(447+364)/2 = 405.5$

**What I learned (Conclusion)**

In a nutshell, all eggs have bacterial contamination on and in them. However, pasteurised eggs contain the least amount of bacterial contamination. This is especially evident upon examination of the egg contents. The presence of E.Coli, a type of coliform bacteria was also absent on egg shell of pasteurised eggs unlike those on non-pasteurised eggs. To kill bacteria, eggs have to be cooked thoroughly-firm white and yolk. For dishes with undercooked eggs like sunny side ups, pasteurised eggs are best used since they have the lowest chance of causing food contamination.

**Future Research**

In future, I would like to research more on the topic of salmonella contamination. Salmonella Enteritis (SE) is a foodborne pathogen commonly found in eggs. I would like to further study this bacteria in other poultry.

**Acknowledgments**

I would like to thank my physics teacher, Mr Tan for encouraging me throughout the duration of this project. Special thanks to my biotech lecturer, Dr New who aided me in this project by providing research papers and taught me lab techniques.

**Bibliography**