

Got Germs?

Hand Sanitizer

vs.

**Antibacterial Liquid Soap,
Which Cleans Best?**

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Acknowledgements

“Germ-X, Fight Germs With Your Bare Hands.”

<http://www.germx.com/>

Colgate.com, Personal Care Products

<http://www.colgate.com/app/Softsoap/US/HandSoapAquariumSeries.cvsp>

Colgate.com, Personal Care Products,FAQ's

<http://www.colgate.com/app/Softsoap/US/FAQs/General.cvsp>

My mother helped me type some of the report and supervised me and my subjects during the experiment. The agar plates and sterile swabs were donated by Dr. Sally Reagan and the Carolina Pines Hospital System. My aunt Patsy Martin is a registered medical technologist and she explained the proper way to swab for bacteria and place on an agar plate.

Abstract

This project tested the effectiveness of two products. The two products tested were alcohol-based hand sanitizer and antibacterial liquid hand soap. Ten subjects were divided into two groups of five. One group used the hand sanitizer product and the other group used the hand soap product. All subject's hands were swabbed and the swab was rolled on an agar plate. The plates were observed at approximately 24, 48, and 72 hour intervals.

Hypothesis:

Hand sanitizer will kill more bacteria than antibacterial liquid soap.

Experiment

Problem:

Which will kill the most bacteria an alcohol-based hand sanitizer or an antibacterial liquid soap?

Materials and Equipment:

1 bottle of antibacterial liquid soap, 1 bottle of alcohol-based hand sanitizer; paper towels, water, sterile swabs, 10 agar culture plates.

Procedure:

Ten randomly chosen subjects were divided into two groups; five subjects used antibacterial liquid soap, water and paper towels and five subjects used an alcohol-based hand sanitizer. Using a sterile swab, each subject's right hand was swabbed from the tip of each finger to the base of the palm and in between each finger. The swab was then rolled on an agar plate in a zigzag pattern. Ten agar plates were labeled and placed on a tray in a dark place.

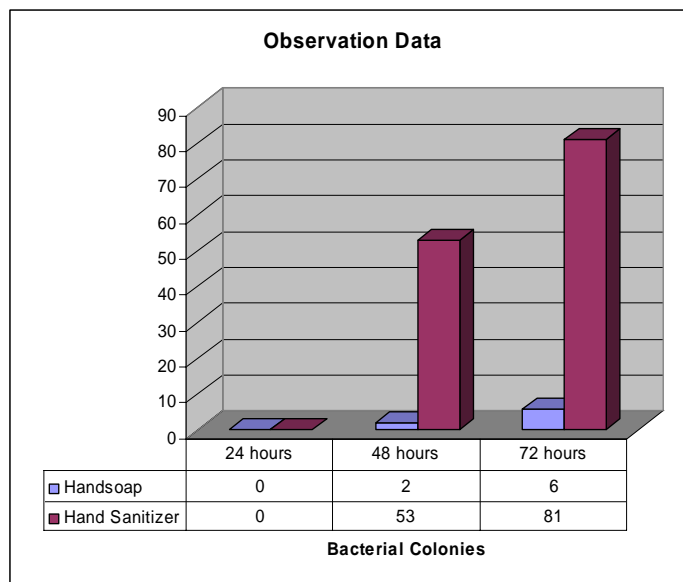
The plates were examined at approximately 24, 48, and 72 hour intervals. Bacterial colonies visible to the naked eye were counted and recorded.

Data

Results:

At 24 hours both the alcohol-based hand sanitizer and the antibacterial liquid hand soap test group's plates had zero colonies visible. After 48 hours, the alcohol-based hand sanitizer group had a total of 53 colonies and the antibacterial liquid hand soap group had a total of 2 colonies visible. At the 72 hours interval, a total of 81 colonies were observed in the alcohol-based test group versus 6 colonies in the antibacterial liquid hand soap test group.

	Soap 24 Hours	Sanitizer Soap 24 Hours	Soap 48 Hours	Sanitizer Soap 48 Hours	Soap 72 Hours	Sanitizer 72 Hours
Subject 1	0	0	0	0	0	7
Subject 2	0	0	1	2	2	5
Subject 3	0	0	0	1	2	16
Subject 4	0	0	0	3	0	5
Subject 5	0	0	1	47	2	49
Total	0	0	2	53	6	81



Conclusion

The antibacterial liquid soap killed more bacteria than the alcohol-based hand sanitizer. This means my data disproved my hypothesis. My experiment shows that antibacterial liquid soaps do a better job at killing germs than alcohol-based hand sanitizers. Factors affecting my experiment included people's hands might not have been equally dirty, and they may not have cleaned their hands in the same way.