

Show Me the Science - How to Wash Your Hands

Keeping hands clean is one of the most important steps we can take to avoid getting sick and spreading germs to others. Many diseases and conditions are spread by not washing hands with soap and clean, running water. CDC recommends cleaning hands in a specific way to avoid getting sick and spreading germs to others. The guidance for effective handwashing and use of hand sanitizer was developed based on data from a number of studies.

Microbes are all tiny living organisms that may or may not cause disease.

Germs, or pathogens, are types of microbes that can cause disease.

Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.

Why? Because hands could become recontaminated if placed in a basin of standing water that has been contaminated through previous use, clean running water should be used ¹. However, washing with non-potable water when necessary may still improve health. The temperature of the water does not appear to affect microbe removal; however, warmer water may cause more skin irritation and is more environmentally costly.

Turning off the faucet after wetting hands saves water, and there are few data to prove whether significant numbers of germs are transferred between hands and the faucet.

Using soap to wash hands is more effective than using water alone because the surfactants in soap lift soil and microbes from skin, and people tend to scrub hands more thoroughly when using soap, which further removes germs ^{2,3,7,8}.

To date, studies have shown that there is no added health benefit for consumers (this does not include professionals in the healthcare setting) using soaps containing antibacterial ingredients compared with using plain soap. As a result,

FDA issued a final rule in September 2016 that 19 ingredients in common "antibacterial" soaps, including triclosan, were no more effective than non-antibacterial soap and water and thus these products are no longer able to be marketed to the general public. This rule does not affect hand sanitizers, wipes, or antibacterial products used in healthcare settings.

Lather your hands by rubbing them together with the soap.

Be sure to lather the backs of your hands, between your fingers, and under your nails.

Why? Lathering and scrubbing hands creates friction, which helps lift dirt, grease, and microbes from skin. Microbes are present on all surfaces of the hand, often in particularly high concentration under the nails, so the entire hand should be scrubbed.

Scrub your hands for at least 20 seconds.

Need a timer? Hum the "Happy Birthday" song from beginning to end twice.

Why? Determining the optimal length of time for handwashing is difficult because few studies about the health impacts of altering handwashing times have been done. Of those that exist, nearly all have measured reductions in overall numbers of microbes, only a small proportion of which can cause illness, and have not measured impacts on health. Solely reducing numbers of microbes on hands is not necessarily linked to better health. The optimal length of time for handwashing is also likely to depend on many factors, including the type and amount of soil on the hands and the setting of the person washing hands. For example, surgeons are likely to come into contact with disease-causing germs and risk spreading serious infections to vulnerable patients, so they may need to wash hands longer than a woman before she prepares her own lunch at home. Nonetheless, evidence suggests that washing hands for about 15-30 seconds removes more germs from hands than washing for shorter periods.

Rinse your hands well under clean, running water.

Why? Soap and friction help lift dirt, grease, and microbes—including disease-causing germs—from skin so they can then be rinsed off of hands. Rinsing the soap away also minimizes skin irritation ¹⁵. Because hands could become recontaminated if rinsed in a basin of standing water that has been contaminated through previous use, clean running water should be used ^{1,12}. While some recommendations include using a paper towel to turn off the faucet after hands have been rinsed, this practice leads to increased use of water and paper towels, and there are no studies to show that it improves health.

Dry your hands using a clean towel or air dry them.

Why? Germs can be transferred more easily to and from wet hands; therefore, hands should be dried after washing ^{15,19}. However, the best way to dry hands remains unclear because few studies about hand drying exist, and the results of these studies conflict. Additionally, most of these studies compare overall concentrations of microbes, not just disease-causing germs, on hands following different hand-drying methods. It has not been shown that removing microbes from hands is linked to better health. Nonetheless, studies suggest that using a clean towel or air-drying hands are best.