

WEEK 35 FOUNDATION MINUTE – WASH AND COVID-19

Who would have thought that Rotary's WASH programs about hand-washing in far-off lands would have relevance today in our own communities? As Covid-19 cases in the US surge to more than 1,000, there's one consumer product critical to our great national battle to slow the epidemic: soap. Humble, ancient, cheap, and effective soap. (from vox.com).

Respiratory viruses — like the novel coronavirus, the flu, and the common cold — can be spread via our hands. If someone is sick, a hand can touch some mucus and viral particles will stick to the hand. If someone is well, hands act like sticky traps for viruses. We can pick up droplets that contain the virus, and they'll stay on our hands, and perhaps enter our bodies if we touch our hands to our faces. And then we can get sick!

The CDC (Centers for Disease Control) prioritizes soap. Hand sanitizer containing over 60 percent alcohol works against Covid-19 and is a good option when you're not near a sink. But soap is actually more effective than hand sanitizer. Because when you wash your hands with soap and water, you're not just wiping viruses off your hands and sending them down the drain. You're actually annihilating the viruses, rendering them harmless — so long as you wash for at least 20 seconds.

Soap is common phrase for what chemists call "amphiphiles." These are molecules that have a dual nature. One end of the molecule is attracted to water and repelled by fats and proteins. The other side of the molecule is attracted to fats and is repelled by water.

So how does soap destroy viruses? One side of the soap molecule (the one that's attracted to fat and repelled by water) buries its way into the virus's fat and protein shell. The chemical bonds holding the virus together aren't very strong, so this intrusion is enough to break the virus's coat. Then the harmless shards of virus get flushed down the drain. This all takes a little time to happen, and that's why you need to take at least 20 seconds to wash your hands.

So, imagine a battle being waged on the nano-scale in the teeny-tiny folds of your skin. The soap is charging in, sticking to viruses (as well as dirt and other grease), and tearing them apart in brutal, heroic fashion. Be sure to let the plain 'ole soap do its work — and do your part to keep Covid-19 away from your friends and family!