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Health

Fighting the Flu: Do Hand Sanitizers Work?

By **Christopher Wanjek**, LiveScience's Bad Medicine Columnist
posted: 27 October 2009 09:49 am ET

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With the amount of bottles of alcohol-based hand sanitizer available for public use at hospitals, schools, day-care facilities and malls now outnumbering the billions of viruses and bacteria on even the dirtiest of human hands, you may be wondering if this stuff actually works.

Is it better than hand washing? Does it create mutant strains of alcoholic germs? Might my retirement savings have actually increased had I invested in the makers of Purell last year?

In fact, alcohol-based hand sanitizers are tremendously effective in preventing the spread of the [seasonal flu](#), [H1N1](#), [colds](#) and other viral- and bacterial-based diseases; and sales are through the roof.

There are in fact few negative consequences about this hand-sanitizer mania sweeping the country, although the gels do have their limitations.

Wash or squirt?

Most respectable public health experts will tell you that hand washing with ordinary soap and water is the most effective way to remove germs from your hands. But "effective" is a questionable term. The recommendation calls for hand washing with soap and warm water for at least 20 seconds to create a full lather and to reach all crevices of your hands and wrists, as advocated on Sesame Street yet [rarely put into practice](#).

Alcohol-based hand sanitizers kill most types of bacteria, viruses and fungi in a few seconds. While rubbing your hands with sanitizer for 15 seconds is ideal, poor hand-sanitizer use still beats poor hand washing.

And people seem to use hand sanitizers often — so much so that, from a public health standpoint, although proper hand washing is technically superior than alcohol gels most of the time, hand-sanitizer mania will likely be a more effective means to reduce disease transmission. Studies have shown how hand sanitizers reduce gastrointestinal illnesses in households and curb absentee rates in schools and workplaces.

Trash the sink?

Alas, you can't rely solely on alcohol-based hand sanitizers. Alcohol can kill bacteria but not necessarily clean your hands. That is, it does not remove dirt, which includes organic material such as blood or feces. Soap and water must be the first choice in restrooms.

Also, there are a few key germs that alcohol doesn't kill well, such as the norovirus or [E. coli](#), which is why soap and water is best during cooking, too.

Alcohol-based hand sanitizers are best precisely where you see them the most, in hallways, offices and other public areas. They can rid your hands of germs you just picked up before you inadvertently shove them into your body via your nose, mouth or eyes.

Alcohol kills bacteria usually by dissolving its cellular membrane. It's a serious killer, like fire or bleach, and germs don't develop resistance to it. Also, the alcohol evaporates quickly after killing the first layer or so of germs on your skin. This means that, although benevolent bacteria are killed, enough remain on lower levels or elsewhere up the arm to re-colonize. Fast evaporation, coupled with moisturizers, also means this won't dry out your skin.

Anti-bacterial soap, ironically, is largely considered the worse thing you can use to kill germs. This is because antibacterial agents kill many but not all bacteria and then linger on the skin to enable the remaining bad bacteria to develop a resistance.

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To be effective, alcohol-based hand sanitizers must contain at least 60 percent alcohol. Some cheaper brands contain less and are no better than water. Worse, they offer false protection.

Sixty percent pure alcohol can pack a punch if ingested. Fortunately, as reported in the American Journal of Emergency Medicine in 2006, even hospital workers using hand sanitizers all day long do not absorb discernable levels of alcohol into their blood.

There is a small risk that a child could drink or lick an alcohol-based hand sanitizer. That's something parents and teachers need to monitor. Only a few reports of poisonings have been reported. Even alcoholics will have a rough time abusing this because the gels taste rather bad. I prefer not to reveal how I know.

- [Fear the Flu? Don a Mask](#)
- [The Common Cold: Myths and Facts](#)
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Christopher Wanjek is the author of the books "Bad Medicine" and "Food At Work." His column, [Bad Medicine](#), appears each Tuesday on LiveScience.



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mindandmatter3 wrote:

posted 27 October 2009, 11:10 am ET

I enjoyed this article since I'm a die-hard fan of hand sanitizer. I especially enjoyed the information on the percentage of alcohol required to be effective. I personally enjoy germ-x" as a favorite.

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jody_public wrote:

posted 27 October 2009, 11:30 am ET

While I'm not a fanatic about it, I do go out of my way to wipe down the hand rail of shopping carts and utilize sanitizer or handi-wipes when my shopping trip is completed. There are so many who are walking around with colds, flu, diseases and generally dirty hands, it's impossible to avoid touching something that isn't infected in some way. I commend the grocery stores that have installed "sanitization stations" at their doors.

I have to wonder though, how did we manage to fight disease and viruses in the past? Not counting severe epidemics, the majority of citizens wandering department stores and grocery stores who were ill did not seem to affect the general population walking around next to them. Have we made ourselves susceptible to these viruses and infections by being too "germ conscious"?

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uno_king wrote:

posted 27 October 2009, 11:49 am ET

I buy my hand sanitizer at the dollar tree. As long as that label on the back is correct, that 62% ethyl alcohol should be just as good as any name-brand out there. My only question is, is ethyl alcohol just cheaper than isopropyl alcohol? Why use the ingestible form in a hand sanitizer?

I can't stand anti-bacterial soap of any kind, but I'm amazed how prevalent it is, even for dish soaps. The stuff does not smell that pleasant, and if I recall a study I read some where, after 5-years of use, homes using anti-bacterial soap showed far more strains of resistant bacteria, and no less bacteria over all, than houses that just used regular soap and good hand-washing practices.

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tweed wrote:

posted 27 October 2009, 2:35 pm ET

I'm a skeptic. While I can see many benefits from sanitizers' use, I cannot help but feel as though I'm denying the fact that I'm not allowing my body to defend itself naturally. As someone stated above, what did we do before sanitizers? Well, we washed our hands and our bodies took care of the rest. But in this unfortunate time of junk food, power drinks and hand sanitizers, maybe that the way we're headed. If we don't give our bodies the nutrients to build defenses then maybe we're all relegated to using hand sanitizers. Its a sad day. I think its all part of a huge problem--problem being, society as a whole.

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wanjek wrote:

posted 27 October 2009, 10:17 pm ET

from the author: What did we do before sanitizers? We got sick. Similarly, before hand-washing, we transferred germs all over the place. Surgeons used to operate without gloves, not understanding the concept of bacteria. Although there's something to be said about the theory that ultra-clean environments have brought about higher rates of allergies (a reason for not dusting my house, I tell my lazy self), there's only so much natural immunity you can build up. Hygiene was the largest contributor to life span last century. Our stomach doesn't get touch my being exposed to cholera all the time. Rather, we die. -chris

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**Mistyeyed** wrote:

posted 27 October 2009, 11:00 pm ET

I would like to say that I have always used hand sanitizers alot. It started at the financial institution I used to work at because money is so dirty. I use it every time I get in the car mostly from shopping and I have also discovered when I do get sick, then I really get a bad case of it. Could it be from overuse of long term sani gels? That my body does not fight things as well so when I get sick, I get really sick? Scary topic.

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[Expand to View Replies \(1\)](#)**maryoran** wrote:

posted 28 October 2009, 2:03 am ET

My child came home from school saying that they learned to cough and sneeze into their elbow with Germie Wormie, and I was totally taken aback. I always covered with my hands. But I went to the website and now I get it, hands touch, elbows don't!! Kids can touch 300 surfaces in 1/2 hour and they hate to wash their hands. This is a simple thing that can make a huge difference. There is also an entertaining DVD that teaches them in a fun way the elbow cough, as well as other important hygiene habits (proper handwashing).

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**CyberKelly** wrote:

posted 28 October 2009, 11:40 am ET

I was very intrigued while reading this article today on foxnews.com, I'm so excited to tell everyone about another way to keep not only germs but dirt away as well. I am very big on keeping my work keyboard clean and sanitized as well as my work phone since it is inevitable that everyone is going to use eachother's phone, and/or computer spreading germs throughout the office. I have purchased a totally new product called Cyber Clean! It is a cleaning compound that sorta looks like a slime but all you do is press this slime in between your keyboard keys and pull up. It literally grabs all the dust and dirt that lays in between your keys! The best part is it sanitizes as you are pressing the compound in the keys. I love this product since it is reusable, non-toxic and biodegradable as well. I majorly suggest investing in this product especially around the office where germs are easily spread from one person to the next. They have a website www.cyberclean.tv This product is truly a diamond in the rough.

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**pdxmusl** wrote:

posted 28 October 2009, 12:12 pm ET

I liked this article, but one thing bugs me. The mention of antibiotic soap. Certainly there are some antibiotic soaps where antibiotics similar to that which may be prescribed by a doctor in them. But, from what I've seen, most antibiotic soaps available to the public don't use antibiotic "drugs" which can help generate "super bugs". They are made from an alcohol base or something that produces a similar effect to hand sanitizers. Bacteria on hands don't become more resistant like suggested. That all being said, I usually try to avoid antibiotic soap when possible.

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**wanjek** wrote:

posted 30 October 2009, 8:14 am ET

from the author: TIME magazine has an interesting article about how Bolivia saw a 15 percent reduction in diarrhea as a result of increased hand-washing from the H1N1 scare. This posting is a followup to my comments that "going natural" --- foregoing hand-washing or sanitizer with the hopes that your body will build immunity --- is not a smart idea.

<http://www.time.com/time/health/article/0,8599,1931223,00.html?xid=rss-topstories>

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