ACHIEVE3000®
THE LEADER IN DIFFERENTIATED INSTRUCTION®

Printed by: Jessica Christian
Printed on: March 16, 2020

Ewww! Don't Touch That!

Article

PART 1

WASHINGTON, D.C. Does someone in your home have the sniffles? If so, beware of doorknobs and the TV remote control. A recent study found that cold sufferers often leave their germs on common household surfaces. There, the study showed, viruses can live for two days—or longer.

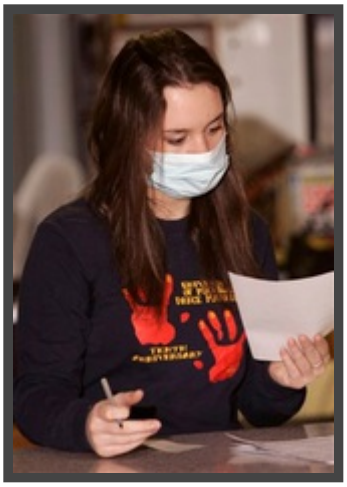


Photo credit and all related images: AP Photo/Carlos Osorio

According to a recent study, face masks can help prevent colds.

The two-part study was designed at the University of Virginia. The school has long been recognized for its research into a branch of science called virology. The study attempted to learn more about germs. It also aimed to lay the groundwork for future research into methods for stopping the infectious viruses. To conduct their research, scientists tested various surfaces in the homes of people suffering from colds.

In the first part of the study, scientists gathered 30 adults who displayed early signs of colds. Testing later discovered that 16 of the 30 had been infected with rhinovirus. This virus is responsible for about half of all colds. The 16 people were asked to list 10 places in their homes that they had touched in the previous 18 hours. Scientists then used DNA tests to hunt for rhinovirus in those locations.

Scientists didn't have to search too carefully to find what they were looking for. Germs were everywhere. All three of the salt and pepper shakers they tested were contaminated with the rhinovirus. So were 8 of 10 bathroom faucets, 3 of 4 dishwasher handles, and 6 of 10 remote controls. In addition, 8 of 14 refrigerator handles, 4 of 7 telephones, 6 of 18 doorknobs, and 3 of 13 light switches tested were also found to be harboring the virus.

"We found that commonly touched areas like refrigerator doors and handles [tested] positive [for cold germs] about 40 percent of the time," said Dr. Birgit Winther. Winther is an ear, nose, and throat specialist. She helped with the research.

For the second part of the study, scientists attempted to determine how long the viruses remained on the household surfaces. To do this, scientists smeared various household surfaces with the people's germs. They then tested to see whether rhinovirus stuck to their fingers. The 16 adults went about their day as usual. They turned on lights. They answered the telephone. More than half of the people got the virus on their fingertips. This was 48 hours after the surfaces had been contaminated with the germs.

To some experts, these results were not surprising. Last year, during the cold and flu season, Dr. Diane Pappas and Dr. Owen Hendley went germ-hunting. They examined toys in the offices of five pediatricians. Their tests uncovered traces of cold viruses. In fact, 20 percent of the toys they tested harbored germs.

These days-old viruses live on surfaces. They are proven to be transferable. Are they still powerful enough, however, to cause someone to become sick? Dr. Paul Auwaerter is an infectious-diseases specialist at Johns Hopkins University. According to Auwaerter, no proof exists that the traces of older viruses themselves can infect. He recognizes, however, that their presence does suggest that it's a risk worthy of concern.

Until further research is done, doctors say that people should try to protect themselves from becoming infected. Some experts recommend the use of hand sanitizers or face masks. They point to a University of Michigan study. The study followed 1,000 students for six weeks. The students were divided into three groups. One group wore masks, the second group wore masks and used hand sanitizer, and the third group did neither. The two groups who used masks reported 10 percent to 50 percent fewer signs of colds than the group that took neither preventative measure.

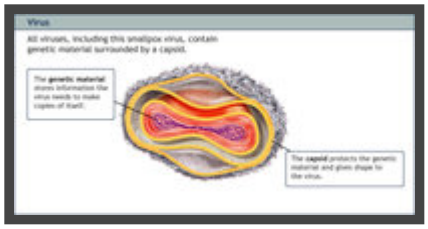
Hand sanitizers and masks appear to help prevent infection. However, doctors remind that frequent hand washing will go a long way toward preventing the spread of germs in the first place.

The Associated Press contributed to this story.

PART 2

Dig Deeper

Scientists have learned much about viruses. They can see viruses with special microscopes. All viruses are made of genetic material found inside a protein coat. The coat is called a capsid. This protein coat keeps the genetic material safe. There are different kinds of protein coats. The coat of an Ebola virus is a simple tube. The smallpox virus has a protein coat with many layers. Look at the picture to learn more.



Credit: Houghton Mifflin Company

Viruses come in many shapes and sizes. But all viruses are made of a capsid and genetic material. Viruses can use living cells to copy their DNA. They can produce new viruses that way, a characteristic that makes them similar to living things. Their protein coat is also like a cell's outer membrane. But viruses do not grow. They do not respond to changes in their environment. So, they are not living organisms.

Viruses cannot reproduce by themselves. This is one of the ways they are different from living things. However, viruses can use materials in living cells to reproduce. First, viruses infect host cells. Then, they make copies. Viruses are tiny. But they can do a lot of damage to cells of other organisms.

Some viruses stay inside their host cells. Others use the host cell as a factory. They make new viruses one at a time. These viruses may not be as harmful to the infected organism. They do not kill the host cell. A host cell is not often helped by giving living space to a virus. The virus uses the cell's material, energy, and processes. Then, the virus makes many copies of itself. The new viruses burst out of the host cell, killing it.

Harmful viruses cause huge problems. Viruses that cause diseases have changed the world. Polio, smallpox, diphtheria, and AIDS are diseases caused by viruses. They changed human history. There was an influenza outbreak just after World War I. About 25 million people died.

Plant viruses can keep plants from growing or even kill them. Sometimes crop plants get viruses. When that happens, less food is grown. A lot of people lose money. Viruses can infect plants, animals, bacteria, and all other living things.

Today, scientists are discovering ways to use viruses in a good way. Scientists use viruses to put certain pieces of genetic material into living cells. For example, some genetic materials allow marine organisms to make a chemical that glows. The genetic material can be put into tissue samples. This makes it easier for scientists to study the samples.

Dictionary

contaminate *(verb)* to soil with something harmful (such as germs)

DNA *(noun)* the material that carries information about the genes of a living thing

host cell *(noun)* a cell that a virus infects; the virus uses the cell to make copies of itself

infectious *(adjective)* easily communicated or spread

sanitizer *(noun)* cleaner used to get rid of dirt or germs

virology *(noun)* a science that deals with the study of viruses and diseases caused by viruses

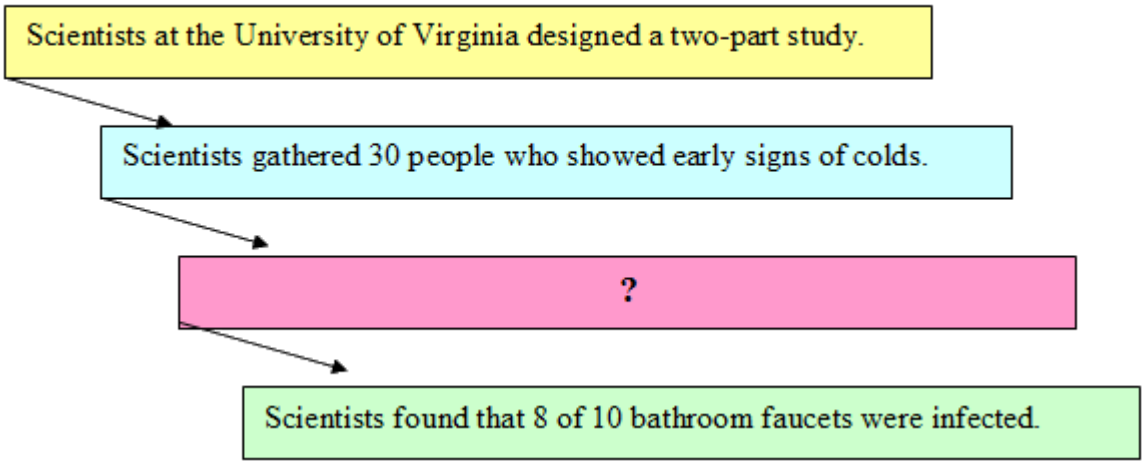
virus *(noun)* a nonliving particle that causes disease; it uses the materials inside cells to make copies of itself

Activity

PART 1

Question 1

What Happened Next?



Which best replaces the question mark in the box above?

This question asks about when events happened. It does not ask where in the article the events appear. Look back at the article for clues, such as dates.

(A) Scientists discovered 16 people who tested positive for the rhinovirus.

(B) People were found to have the rhinovirus on their fingertips.

(C) Scientists wiped various surfaces in people's homes with germs.

(D) People went about their day as usual, including answering phones.

Question 2

According to the article, why did scientists smear germs around people's homes for the second part of the study?

(A) The scientists wanted to find out if germs wiped on remote controls would be transferred to door handles.

(B) The scientists wanted to determine how long the viruses remained on various household surfaces.

(C) The scientists wanted to find out how long it took for people to catch colds after coming in contact with germs.

(D) The scientists wanted to determine if using hand sanitizer prevented people from getting sick.

Question 3

Which is the closest **antonym** for the word *contaminate*?

(A) Notify

(B) Magnify

(C) Simplify

(D) Purify

Question 4

What is the *fourth* paragraph mainly about?

(A) The results of the first part of the University of Virginia study

(B) The results of the second part of the University of Michigan face mask study

(C) The types of viruses found on various surfaces in people's homes

(D) The type of testing used to hunt for germs on common household surfaces

Question 5

The article states:

However, doctors remind that *frequent* hand washing will go a long way toward preventing the spread of germs in the first place.

Which would be the closest **antonym** for the word *frequent*?

(A) Occasional

(B) Offensive

(C) Omnivorous

(D) Ordinary

Question 6

Which of these is a statement of opinion?

(A) Scientists used DNA tests to hunt for rhinovirus in people's homes.

(B) The rhinovirus is the virus responsible for about half of all colds.

(C) All of the salt shakers scientists tested were harboring the rhinovirus.

(D) Everyone should wash their hands often to prevent the spread of germs.

Question 7

This article could be placed in the group of news called "Health." In which other group would this article fit best?

(A) New Research

(B) Deadly Diseases

(C) Dangerous Toys

(D) U.S. Universities

Question 8

The article states:

The study followed 1,000 students for six weeks. The students were divided into three groups. One group wore masks, the second group wore masks and used hand sanitizer, and the third group did neither. The two groups who used masks reported 10 percent to 50 percent fewer signs of colds than the group that took neither preventative measure.

The author's purpose in writing this passage was to _____.

(A) Summarize the results of the germ-hunt conducted by Dr. Diane Pappas and Dr. Owen Hendley

(B) Explain why experts recommend the use of hand sanitizers or face masks to keep from catching colds

(C) Describe the two-part infectious diseases study designed by researchers at the University of Virginia

(D) Show that hand sanitizers and face masks do more to prevent colds than frequent hand washing does