

Could your mask be a kind of vaccine against COVID-19?

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(HealthDay)—The world is still waiting for a safe, effective coronavirus

vaccine. But new research now suggests that billions of people may already be using a crude vaccine of sorts: face masks.

The theory—and it remains largely a theory—is that by filtering out airborne [coronavirus](#) droplets and thereby lowering the dose of SARS-CoV-2 a person inhales, infections have much less chance of producing symptoms.

Much in the way vaccination works, an immune response would be triggered in the mask-wearer upon contact with a small amount of virus, but at a level that's not likely to cause serious illness.

"If this theory bears out, population-wide masking, with any type of mask that increases acceptability and adherence, might contribute to increasing the proportion of SARS-CoV-2 infections that are asymptomatic," said Dr. Monica Gandhi and Dr. George Rutherford in a commentary published Sept. 8 in the *New England Journal of Medicine*. Both authors are from the University of California, San Francisco.

There's some good evidence that masks could be working in this way, according to the two experts. They pointed out that animal studies conducted since the 1930s have borne out the notion of a "lethal dose," or how many viral particles are needed to cause severe disease.

More recently, studies conducted in hamsters seem to show that "higher doses of administered virus led to more severe manifestations of COVID-19," Gandhi and Rutherford wrote. And when the hamsters were protected with simulated masking, they "were less likely to get infected, and if they did get infected, they either were asymptomatic or had milder symptoms than unmasked hamsters," the experts noted.

For ethical reasons, similar trials in humans haven't been conducted. But population studies seem to support the "mask as vaccine" theory. For

example, the U.S. Centers for Disease Control and Prevention reported that by mid-July about 40% of coronavirus infections were asymptomatic, but in areas of the United States where mask wearing was very prevalent, that number rose to 80%.

In early outbreaks of SARS-CoV-2 infections on [cruise ships](#), before the widespread use of [face masks](#), the rate of cases with no symptoms was about 20%, Gandhi and Rutherford noted. But in an outbreak on one Argentinian cruise ship where face masks were mandated for passengers and crew, the rate of asymptomatic cases rose sharply, to 81%.

Finally, in two recent outbreaks in U.S. food-processing plants where workers were told to wear masks, 95% of cases of coronavirus infections were asymptomatic, and the remaining 5% experienced only mild-to-moderate symptoms, the two experts said.

Dr. Amesh Adalja is an infectious disease expert and senior scholar at the Johns Hopkins Center for Health Security in Baltimore. Reading over the *NEJM* essay, he agreed that "if facial coverings decrease the amount of virus a person is infected with, they can provide a way of tilting towards infections that result in minimal or no symptoms, yet induce some degree of immunity."

But experts caution that in no way should masks be viewed as a substitute for a safe, effective vaccine.

Speaking to the *New York Times*, Emory University vaccines expert Jyothi Rengarajan noted that inhaled exposure to even small amount of live virus is a much riskier proposition than the more controlled effects of a vaccine. That's because there are variations between individuals in immune responses, genetics, and even the structure of the nasal passages, she said. So even when wearing a mask, it's still possible that inhalation of SARS-CoV-2 could still make some people very ill.

However, [masks](#) certainly may cut down on that risk. And as the world waits for a [vaccine](#), "any public health measure that could increase the proportion of asymptomatic SARS-CoV-2 infections may both make the [infection](#) less deadly and increase population-wide immunity without severe illnesses and deaths," Gandhi and Rutherford concluded.

More information: The U.S. Centers for Disease Control and Prevention has more on the [new coronavirus](#).

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