

Cloth face masks offer zero shield against virus, a study shows

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Kazunari Onishi, an associate professor at St. Luke's International University in Tokyo, tests a gauze mask distributed by the central government to ascertain the leakage rate. (Provided by Kazunari Onishi)



the leakage rate dropped to about 50 percent.

“How to choose face masks and how to wear them are important,” Onishi noted.

He used special equipment to gauge the protectiveness of masks by measuring the number of particles of more than 0.3 micrometer in the air and the number of particles in the space between masks and faces.

Onishi tested a range of masks: those made from cloth, non-woven masks, dust masks which

Cloth face masks, often cobbled together as a makeshift alternative when stocks of surgical masks run low, and sometimes worn as a fashion statement, offer no practical protection against the novel coronavirus, a study shows.

Kazunari Onishi, an associate professor at St. Luke's International University in Tokyo, found that cloth masks had a 100-percent leakage rate in terms of airborne particles penetrating the fabric and through the gap between masks and faces, substantially raising the risk of infection.

Onishi, a specialist in environmental epidemiology, tested numerous types of masks to ascertain which ones are effective in preventing infection from COVID-19.

Non-woven masks which passed filtering performance tests had a 100-percent leakage rate when not worn properly. Worn correctly,

met the N95 standard and other types, even the “Abenomasks” made of gauze distributed to every household in Japan by the central government.

Given that non-woven masks and dust masks have largely different leakage rates depending on whether they are worn correctly or not, they were compared on the basis of when they were worn casually and perfectly.

Onishi found that cloth and gauze masks had 100-percent leakage rates.

Dust masks had the lowest rate, 1 percent, when they were worn correctly. When they were worn casually, the rate was 6 percent.

With regard to non-woven masks, the type that passed the filtering performance tests had a 52-percent leakage rate when worn correctly. Masks that did not undergo the tests had an 81-percent rate.

When worn casually, they had 100-percent leakage rates, meaning they served no useful preventive measure against the virus.

“This experiment reconfirmed that wearing cloth and gauze masks can’t prevent virus infection,” Onishi said.

However, he conceded that such masks do prevent the wearer from spreading droplets by coughing, and also help to stop people touching their noses and mouths directly with their hands contaminated with viruses.

Although materials are similar, there are often crucial differences in shape, which can increase the risk of leakage when worn improperly. Not all masks fit all face types, either.

“My hope is that people know what works best for them,” Onishi said. “One way is to ask others to check the gaps between the mask and their face.”

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