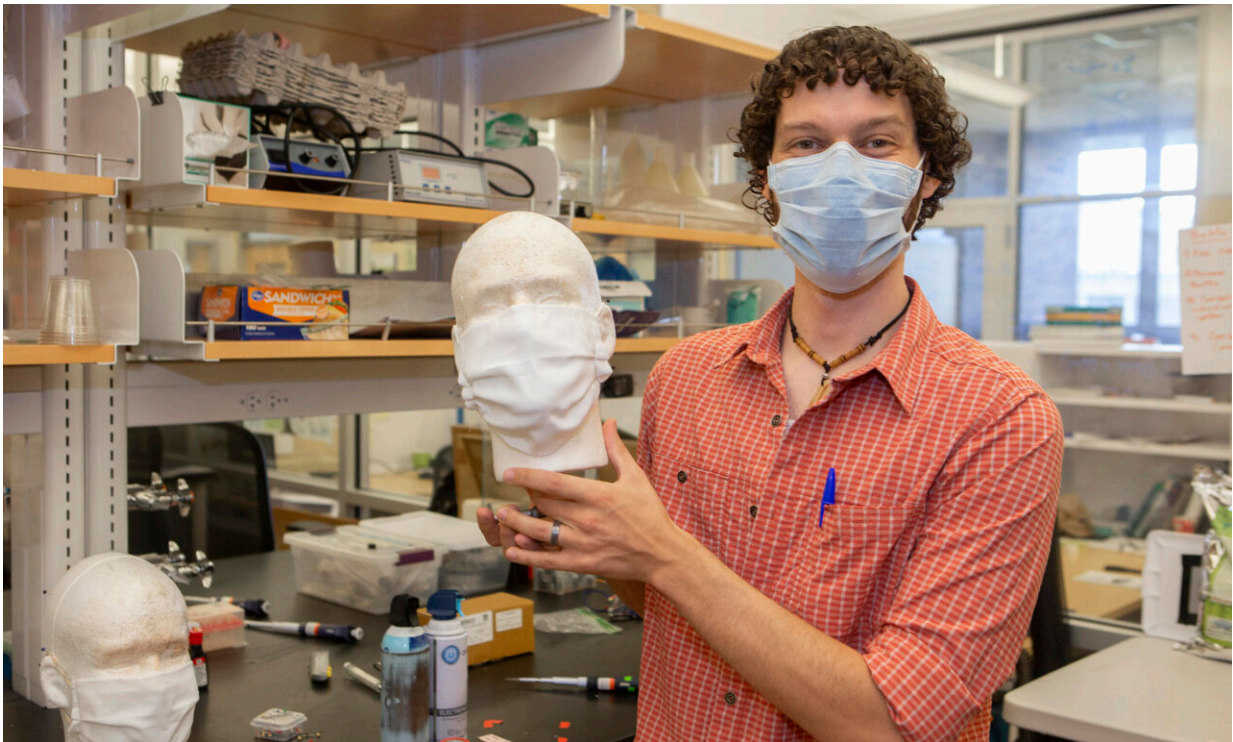


Researchers find that silk improves the function of surgical masks

May 24 2022, by Michael Miller



UC graduate Adam Parlin holds up a silk mask on a dummy head in a UC biology lab. Credit: Joseph Fuqua II/UC Creative + Brand

University of Cincinnati biologists have found that a double layer of silk in combination with a surgical mask can enhance its ability to prevent the spread of viruses like COVID-19.

UC biologist Patrick Guerra, UC biologist Theresa Culley, UC postdoctoral researcher Adam Parlin, now at SUNY-ESF, and UC graduate student Samuel Stratton, now at the University of Michigan, began investigating [silk](#) as an alternative face mask material at the start of the COVID-19 pandemic in 2020 when [personal protective equipment](#) such as the N95 face mask was in short supply.

UC researchers found that double masking with a silk face mask also helps prolong the life of surgical masks without impeding a person's ability to breathe comfortably.

The study was published in the journal *Aerosol and Air Quality Research*.

"People are still using surgical masks to protect others and themselves. But they can be loose at the sides and around the nose," said Guerra, an assistant professor of biology in UC's College of Arts and Sciences.



University of Cincinnati researchers found that silk masks improved the function and lifespan of surgical masks when worn in tandem. Credit: Joseph Fuqua II/UC Creative + Brand

Guerra and his colleagues collaborated with researchers with the UC College of Medicine's Center for Health-Related Aerosol Studies.

As cases of COVID-19 begin to increase across the United States, more people are reaching for masks again to protect themselves and those around them.

"At the time of our study, personal protective equipment was at a premium in terms of availability because of supply-chain issues," Guerra said. "People were having to reuse their masks."

Masks are becoming a [growing source of litter](#) around the world.

"They take a long, long time to degrade," Guerra said.

So taking full advantage of each mask's useful lifespan can help prevent waste, he said.

Guerra studies the amazing properties of silk in his biology lab. Silk fiber has antimicrobial properties. And silk is [hydrophobic](#), which means it sheds water unlike cotton masks that typically absorb it.

And silk is far more breathable than cotton.

"We showed that a silk mask doesn't increase the burden of breathing when used in a double layer with a [surgical mask](#). It wasn't uncomfortable," Guerra said. "And it enhances the ability of surgical masks to do their job."

More information: Adam F. Parlin et al, Effect of Double Masking with Silk or Cotton Over-masks on the Source Control Capabilities of a Surgical Mask, *Aerosol and Air Quality Research* (2022). [DOI: 10.4209/aaqr.220036](#)

Provided by University of Cincinnati

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