

How to improve your communication skills behind a mask

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Credit: Ivan Samkov from Pexels

Face masks are essential for health professionals and others to reduce the risk of COVID-19 transmission, however, mask-wearing has a significant impact on communication.

In an effort to improve interactions, a team of researchers from the University of Sydney's Voice Research Laboratory has uncovered how the [voice](#) changes when wearing a mask, as well as the impact this has on how people are understood.

The study, which compared acoustic voice measures of 16 adults with and without two different mask types—surgical or KN95—also suggests surgical [masks](#) may be the better choice to minimize the impact on verbal communication.

"Many people think that wearing a mask makes the voice softer overall but this isn't the case," said Associate Professor Cate Madill, Director of the Voice Research Laboratory based at the University's new Susan Wakil Health Building.

"We found that masks affected mostly the sounds with higher frequency energy above 1000 kilohertz which is generally related to the transmission of consonants, not so much vowels.

"This is likely because we use our voice to produce vowels sounds such as 'a' or 'e' but it is air turbulence and not the vocal cords that produce 'voiceless consonants' such as 'p' , 't,' 'k,' 'f,' 's' and 'sh." It appears these sounds which are at higher frequencies may be more likely to be lost when mask-wearing.

"So speaking louder is unlikely to improve how a person is understood when wearing a mask and could in fact lead to vocal fatigue."

The researchers also found that [surgical masks](#) (three-layer masks that fit loosely over the nose, mouth and chin) had less impact than the KN95 (filtering respirator masks that fit more tightly to the face) and suggest that while not included in the current research, cloth masks are likely to impede communication even further.

The study was recently published in *Scientific Reports*.

In the study, subjects were required to read a standard passage containing all the English speech sounds in non-mask and mask-wearing conditions. The team recorded the subjects and used acoustic analysis related to the perception of the voice and groups of speech sounds to analyze the differences.

The researchers say the findings suggest 'over articulating' or exaggerating articulation is probably the best way to improve how a person is understood when wearing a mask, however, further research would be needed to confirm this hypothesis.

"One way to compensate for the impact of the mask may be to hyperarticulate," said first author Research Associate Duy Duong Nguyen from the Voice Research Laboratory at the Sydney School of Health Sciences.

"That means using proven features of 'clear speech' like speaking more slowly, a higher number of pauses during speaking and as a last resort, using higher vocal intensity. Understanding whether these strategies prove effective in practice will require further research."

Dr. Madill added that these are skills traditionally taught to actors and performers to enable them to project their voice in large spaces given 'voiceless consonants' do not travel well.

With mask-wearing likely to be around for some time to come, the researchers write that understanding voice changes is important "so clinical decision making and choice of mask is appropriate to meet infection control and optimal verbal communication."

More information: Duy Duong Nguyen et al. Acoustic voice

characteristics with and without wearing a facemask, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-85130-8](https://doi.org/10.1038/s41598-021-85130-8)

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