

COVID-19 FACE MASK MYTHS AND FACTS

The use of face masks and N95 or similar respirators has been shown to stem the tide of COVID-19 infections. “Civilian” cloth face masks and simple medical face masks have been clearly shown to limit the spread of respiratory droplets during coughing, sneezing, and during common activities like talking. These help to keep an infected individual from spreading the disease. The evidence supporting this comes from many studies over decades. The effectiveness of this “source control” method of preventing the spread of respiratory diseases is well established. It has been used for more than 70 years in tuberculosis source control, and the droplet size for that and COVID are similar.

N95 facepiece respirators are very effective in preventing the wearer from becoming infected by respiratory pathogens like COVID-19. Their effectiveness in this regard is not subject to debate at this point. However, these respirators must be fit-tested and are not appropriate for the general public to use.

The matter of face mask use has become unfortunately politicized. A great deal of misinformation about face masks has spread on social media, and, to a lesser extent, in certain other media sources. Some of the claims would be laughable if people didn’t believe them. A number of these false claims have been used to support “anti-mask” activists. This document will discuss some of the common myths circulating on social media.

All references to N95 masks refer to NIOSH-approved N95 facepiece respirators, not elastomeric respirators or KN95 masks.

FALSE: N 95 MASKS DO NOT ACTUALLY FILTER THE AIR.

It is true that some do not filter the air exhaled by the wearer, but read on to understand this:

Medical N 95s are full fabric with no exhalation valve. They filter air both directions equally well, and their specifications as N95 are determined by NIOSH, and filter at least 95% of particles down to a size of 0.3 microns. Most medically relevant aerosols are in the 5-10-micron range or larger. These are very effective in filtering the smallest infectious particles produced by COVID-19 patients. On the wearer’s side, the mask is highly effective in preventing the wearer from spreading the disease as well. The particles exhaled into an N95 mask will be caught by the mask and not transmitted to the environment as long as the mask is properly fitted.

There are non-medical industrial N95 respirators that have exhalation valves. These give the wearer N95 protection but allow unfiltered wearer air to enter the environment. The valve makes it easier to breathe out and speak. They protect the wearer but nobody else. These should never be used for COVID protection by the general public.

FALSE: MASKS DO NOT FILTER THE AIR BREATHED THROUGH THEM

Surgical masks protect the wearer from splashes (they are water resistant) and droplets that may contain organisms during surgery or medical procedures. While N95s filter 95% or more, Level 3 surgical masks filter about 80-85% of respirable particles if they are tightly fitted. Level 2 and

Level 1 filter less than Level 3s. Most of the time, the fit of these masks is not tight enough to protect the wearer from small floating particles. They are, however, quite effective in preventing the wearer from spreading infectious particles.

Civilian cloth face masks do provide some filtration protection to the wearer. Some studies have shown that a double layer of quilting cotton is about as effective as a Level 2 or Level 3 surgical masks but do not provide splash protection. Sheer fabrics like buffs and thinner cotton like bandanas or T shirts are not as effective. In fact, there is no evidence that Buffs are effective; the manufacturer recommends against their use as COVID-19 face covers. A simple test to tell if a mask might be effective is to hold it up to the sun. If you can see through it, it is not going to be effective. There are well-done studies looking at various materials and combinations. You can find citations of most of them on the CDC website section on masks for COVID.

FALSE: MASKS CAUSE YOUR OXYGEN LEVEL TO DROP AND CAUSES BRAIN DAMAGE

Facemasks do not eliminate oxygen from inhaled air. Oxygen passes freely through all the masks above described as. Masks do not drop anyone's oxygen level unless the person intentionally holds their breath for a YouTube video. Since they do not drop the wearer's oxygen level, they do not and cannot cause brain damage. If they did, there would be no surgery and nearly every doctor and nurse in the world would be dead or disabled.

FALSE: MASKS CAUSE YOUR CARBON DIOXIDE LEVEL TO RISE TO LEVELS THAT WILL CAUSE BRAIN DAMAGE OR DEATH

The amount of carbon dioxide rebreathed in the small space of the mask is trivial. To show a rise in carbon dioxide for a YouTube video a person would have to hold their breath. There is simply no way that a face mask could cause a significant rise in blood carbon dioxide levels. As above, if masks caused these problems there would be no doctors or nurses left in the world.

FALSE: MOISTURE BUILDS UP IN FACE MASKS AND THAT CAUSES HARM

The moisture in the air humans exhale is sterile. Humans are fully capable of living in high-humidity environments. Therefore, it is impossible for the humidity in a mask to cause harm to the wearer. When humans talk, sing, cough, or sneeze, some of the bacteria and/or viruses in their noses, mouths, throats, and/or lungs may be expelled—see the next section about that.

Wearing a mask for a long time in a hot humid environment is uncomfortable. That is entirely different from causing actual harm.

FALSE: BACTERIA AND VIRUSES COLLECT IN MASKS AND MAKE THE WEARER SICK

The air exhaled by the mask wearer may contain bacteria and/or viruses that are in the wearer's nose, mouth, throat, and/or lungs. These will collect on and adhere to the inner mask surface. That is the way masks prevent the wearer from infecting others and is the whole point to wearing

the mask. These organisms are from the wearer and will not make the wearer any sicker than they would be if they didn't wear a mask. The adherence of these bacteria and viruses on the mask are one of the reasons masks must be washed.

If this were a problem, how are there any doctors or nurses alive today?

FALSE: WEARING FACE MASKS SHUTS DOWN THE IMMUNE SYSTEM

This is a completely false claim. Like the issues above, if face masks shut off the immune system how is it that no doctors, nurses, or others who wear masks are not all dead by now?

FALSE: MASKS ARE ONLY GOOD FOR 20-30 MINUTES

While this could be the case in certain high dust environments, it is untrue in normal indoor and outdoor environments. Medical personnel wear their masks for hours at a time without problem. In fact, healthcare workers often use the same mask for entire shifts and then reuse them for multiple subsequent shifts. This has been the only way to extend the use of N95 medical respirators in hospitals treating COVID-19 patients in places like Italy, New York City, and other areas that have been hard hit by COVID-19.

FALSE: I CAN PURCHASE A CARD THAT EXEMPTS ME FROM WEARING A MASK

True: you can buy a card, but they are fake. These are very official-looking mask exemption cards. They are not issued by an agency with any authority and are simply a scam.

FALSE: THE CDC PUBLISHED A DOCUMENT THAT MAKES THE ABOVE CLAIMS

A document recently circulated on social media that has the CDC name on it makes many of the above claims. This is a phony document. The CDC never published such a thing. Go to the CDC website to see what they do recommend.

A FINAL THOUGHT:

The Constitution of the United States of America never once mentions any right to not wear a face mask. Perhaps the easiest way to understand this is to compare it to smoking. When smoking was banned on airliners, in public buildings, stores, restaurants, and bars, there were those who claimed their "constitutional rights" were violated. Those bans remain in place and are obviously not unconstitutional.

The power to intervene in public health crises is a long-established fact. That includes the authority to quarantine individuals. The requirement of mask wearing is consistent with this. A person has no right to make another sick. They do not have a right to expose others to tobacco smoke, a known carcinogen. They have no right to spread tuberculosis (this is a long-established fact), and by extension have no right to spread COVID-19.

Governments have the power to make laws that set speed limits, traffic regulations, health regulations for businesses and hospitals, and can require you to use turn signals and seat belts when driving. Requiring the use of masks in the midst of a pandemic that has devastated the US economy is no different. Businesses have every right to require face masks on customers as much as they can require shoes, shirts, clothes, or post no smoking signs.