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COVID-19 vaccine myths debunked



Vaccines are perhaps the best hope for ending the [COVID-19](#) pandemic. Two pharmaceutical companies have applied for Food and Drug Administration (FDA) emergency use authorization for new COVID-19 vaccines, and a limited number of vaccines will be available before the end of the year.

It's likely you've heard claims about these COVID-19 vaccines on social media or from the people in your life. Also, the rapid development and approval of these vaccines may make you hesitant about safety or effectiveness.

Let's set the record straight on some of the myths circulating about COVID-19 vaccines.

Myth: COVID-19 vaccines are not safe because they were developed and tested quickly.

Fact: Many pharmaceutical companies have invested significant resources into developing COVID-19 vaccines quickly because of the worldwide effects of the pandemic. This emergency situation warranted an emergency response. That does not mean the companies bypassed safety protocols or performed inadequate testing.

Mayo Clinic will recommend the use of those vaccines that it is confident are safe. While there are many COVID-19 vaccine candidates in development, early data are encouraging for the Pfizer vaccine, which likely is to be the first authorized for emergency use by the FDA. This vaccine was created using new technology based on the molecular structure of the virus that allows it to be free from materials of animal origin and synthesized by an efficient, cell-free

process without preservatives. This vaccine developed by Pfizer/BioNTech has been studied in approximately 43,000 people.

To receive emergency use authorization, biopharmaceutical manufacturers must have followed at least half of the participants in their vaccine trials for at least two months after completing the vaccination series, and the vaccine must be proven safe and effective in that population.

In addition to the safety review by the FDA, the Advisory Committee on Immunization has convened a panel of vaccine safety experts to independently evaluate the safety data from the clinical trial. Mayo Clinic vaccine experts also will review the available data. The safety of COVID-19 vaccine will continue to be closely monitored by the Centers for Disease Control and Prevention (CDC) and the FDA.

Myth: I already had COVID-19 and I have recovered, so I don't need to get vaccinated for COVID-19.

Fact: There is not enough information currently available to say if or for how long after infection someone is protected from getting COVID-19 again. This is called natural immunity. Early evidence suggests natural immunity from COVID-19 may not last long, but more studies are needed to better understand this.

Mayo Clinic recommends getting the COVID-19 vaccine even if you've had COVID-19 previously. However, those who have had COVID-19 should delay vaccination until about 90 days from diagnosis. People should not get vaccinated if in quarantine after exposure or if they have COVID-19 symptoms.

Myth: COVID-19 vaccines have severe side effects.

Fact: COVID-19 vaccines have been shown to have short-term mild or moderate vaccine reactions that resolve without complication or injury.

Early-phase studies of the Pfizer/BioNTech vaccine show that it is safe. About 15% of people developed short-lived symptoms at the site of the injection. Half developed systemic reactions, primarily headache, chills, fatigue, muscle pain or fever lasting for a day or two.

Keep in mind that these side effects indicate that your immune system is responding to the vaccine. These side effects are common with vaccinations.

Myth: I won't need to wear a mask after I get vaccinated for COVID-19.

Fact: It may take time for everyone who wants a COVID-19 vaccination to get one. Also, while the vaccine may prevent you from getting sick, it is unknown whether you can still carry and transmit the virus to others after vaccination.

Until more is understood about how well the vaccine works, continuing with precautions, such as wearing a mask, practicing physical distancing and washing hands frequently, will be important.

Myth: More people will die as a result of a negative side effect to the COVID-19 vaccine than would die from the virus.

Fact: A claim circulating on social media is that the COVID-19 mortality rate is 1%–2% and that people should not be vaccinated against a virus with a high survival rate. However, a 1% mortality rate is 10 times more lethal than the seasonal flu. In addition, the mortality rate can vary widely based on age, sex and underlying health conditions.

In contrast, clinical trials of COVID-19 vaccines have shown only short-term mild or moderate vaccine reactions that resolve without complication or injury.

While some people who receive the vaccine may develop symptoms as their immune system responds, this is common when receiving any vaccine, and these symptoms are not considered serious or life-threatening. And you cannot become

infected with COVID-19 from COVID-19 vaccines. These are inactivated vaccines, not live-virus vaccines.

It's important to recognize that getting vaccinated for COVID-19 is not just about survival from COVID-19. It's about preventing spread of the virus to others and preventing infection that can lead to long-term negative health effects.

While no vaccine is 100% effective, getting vaccinated is far better than not getting vaccinated. The benefits outweigh the risks in healthy people.

Myth: COVID-19 vaccines were developed to control the population through microchip tracking or "nanotransducers" in the human brain.

Fact: There is no vaccine microchip, and the vaccine will not track people or gather personal information into a database.

This myth started after comments made by Bill Gates from the Bill & Melinda Gates Foundation about a digital certificate of vaccine records. The technology he was referencing is not a microchip, has not been implemented in any manner and is not tied to the development, testing or distribution of COVID-19 vaccines.

Myth: COVID-19 vaccines will alter my DNA.

Fact: The first COVID-19 vaccines to reach the market are likely to be messenger RNA, or mRNA, vaccines. Messenger RNA vaccines work by instructing cells in the body how to make a protein that triggers an immune response, according to the CDC. Injecting messenger RNA into your body will not interact or do anything to the DNA of your cells. Human cells break down and get rid of the messenger RNA soon after they have finished using the instructions.

Myth: COVID-19 vaccines were developed using fetal tissue.

Fact: These messenger [RNA COVID-19 vaccines](#) were not created with and do not require the use of fetal cell cultures in the production process.

Myth: COVID-10 vaccines cause infertility or miscarriage.

Fact: No, COVID-19 vaccines have not been linked to infertility or miscarriage.

A sophisticated disinformation campaign has been circulating online, claiming that antibodies to the spike protein of COVID-19 produced from these vaccines will bind to placental proteins and prevent pregnancy. This disinformation is thought to originate from internet postings by a former scientist known to hold anti-vaccine views.

These postings are not scientifically plausible, as COVID-19 infection has not been linked to infertility. Also, no other viral infection or vaccination-inducing immunity by similar mechanisms has been shown to cause infertility. Antibodies to the spike protein have not been linked to infertility after COVID-19 infection. There is no scientific reason to believe this will change after vaccination for COVID-19. While there are no formal studies, the best evidence comes from women who got sick with COVID-19 while pregnant. While data clearly indicate pregnant women are at higher risk of hospitalization due to COVID-19 infection, there is no evidence of increased miscarriage rates.

During natural infection, the immune system generates the same antibodies to the spike protein that COVID-19 vaccines would. Thus, if COVID-19 affected fertility, there already would be an increase in miscarriage rates in women infected with COVID-19. This has not happened.

Myth: I am allergic to eggs so I shouldn't get the COVID-19 vaccine

Fact: Neither the Pfizer/BioNTech vaccine nor the Moderna vaccine contain egg.

Myth: COVID-19 vaccines must be stored at extremely low temperatures because of preservatives in the vaccines.

Fact: Pfizer/BioNTech and Moderna have reported that their vaccines contain no preservatives.

Different vaccines have different storage requirements. For instance, the Pfizer/BioNTech vaccine must be stored at minus 94 degrees Fahrenheit (minus 70 degrees Celsius), while Moderna has said that its vaccine needs to be stored at minus 4 degrees Fahrenheit (minus 20 degrees Celsius). Both of these vaccines use messenger RNA, or mRNA, to teach your cells how to make a protein that will trigger an immune response to COVID-19. However, messenger RNA is fragile and can break down easily. Storing messenger RNA vaccines, like these COVID-19 vaccines, in an ultracold environment keeps them stable and safe.

You should not worry about these temperatures. Vaccines are thawed before injection.

We encourage you to share this story with others.

For the safety of our patients, staff and visitors, Mayo Clinic has strict masking policies in place. Anyone shown without a mask was either recorded prior to COVID-19 or recorded in a non-patient care area where social distancing and other safety protocols were followed.

