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FEATURED TOPIC | TUESDAY, DECEMBER 8, 2020

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: The COVID-19 vaccine is not safe because it was rapidly developed and tested.

Fact: Many pharmaceutical companies invested significant resources into quickly developing a vaccine for COVID-19 because of the world-wide impact of the pandemic. The emergency situation warranted an emergency response but that does not mean that companies bypassed safety protocols or didn't perform adequate testing.

Mayo Clinic will recommend the use of those vaccines that we are confident are safe. While there are many COVID-19 vaccine candidates in development, early

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interim data are encouraging for the Pfizer vaccine which likely is to be the first authorized for emergency use by the FDA in the late December/early January timeframe. This vaccine was created using a novel technology based on the molecular structure of the virus. The novel methodology to develop a COVID-19 vaccine 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, the biopharmaceutical manufacturer must have followed at least half of the study participants 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 a COVID-19 vaccine when it's available.

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 very 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 that 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: There are severe side effects of the COVID-19 vaccines.

Fact: There are short-term mild or moderate vaccine reactions that resolve without complication or injury. The early phase studies of the Pfizer vaccine show that it is safe. About 15% of people developed short lived symptoms at the site of the injection. 50% developed systemic reactions primarily headache, chills, fatigue or muscle pain or fever lasting for a day or two. Keep in mind that these side effects are indicators that your immune system is responding to the vaccine and are common when receiving vaccines.

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 at this time if you can still carry and transmit the virus to others. Until more is understood about how well the vaccine works, continuing with precautions such as mask-wearing and physical distancing will be important.

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

important.

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

Fact: Circulating on social media is the claim that COVID-19's 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 and is influenced by age, sex and underlying health condition.

While some people that receive the vaccine may develop symptoms as their immune system responds, remember that this is common when receiving any vaccine and not considered serious or life-threatening. You cannot get COVID-19 infection from the COVID-19 vaccines; they are inactivated vaccines and not live viruses.

It's important to recognize that getting the vaccine 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, they are far better than not getting a vaccine. The benefits certainly outweigh the risks in healthy people.

Myth: The COVID-19 vaccine was developed to control the general population either through microchip tracking or "nanotransducers" in our brains.

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 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 (mRNA) vaccines. According to the CDC, mRNA vaccines work by instructing cells in the body how to make a protein that triggers an immune response. Injecting mRNA into your body will not interact or do anything to the DNA of your cells. Human cells break down and get rid of the mRNA soon after they have finished using the instructions.

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

Fact: Neither the Pfizer/BioNTech COVID-19 vaccine nor the Moderna COVID-19 vaccines contain fetal cells nor were fetal cells used the development or production of either vaccine.

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 COVID-19 vaccine nor the Moderna COVID-19 vaccines contain egg nor were eggs used the development or production of either vaccine. However, those with severe allergic reactions to eggs or any other substance (i.e., anaphylaxis) are encouraged to remain after vaccination for 30 minutes for observation.

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.

Information in this post was accurate at the time of its posting. Due to the fluid nature of the COVID-19 pandemic, scientific understanding, along with guidelines and recommendations, may have changed since the original publication date.

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.



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