

The real facts about common COVID-19 vaccine myths



The COVID-19 vaccines will change nothing in your body, but they will teach your immune system to protect you from the coronavirus.

Dean Blumberg, chief of pediatric infectious diseases at UC Davis Children's Hospital, lays out the facts about some vaccine myths and explains the value and safety of the Pfizer and Moderna vaccines.

Fact: The vaccines will not give you COVID-19.

“There is absolutely no way you can get COVID-19 from the vaccine. It is not possible,” said Blumberg. “None of the vaccines being developed use the live virus. There is nothing in the vaccine that could cause COVID-19.”

The Pfizer and Moderna vaccines use mRNA, which stands for messenger ribonucleic acid. In simple terms, mRNA carries instructions to your body about how to build a protein. In this case, it's telling your body to make the spike protein that's on the coronavirus.

“The vaccines have been scientifically proven to be very safe ... No safeguards were sacrificed.”

— Dean Blumberg

The proteins your body makes are solitary, and they do not connect or reproduce. Then your immune system recognizes the protein as foreign and develops antibodies to destroy it. Your immune system remembers the protein and is ready to attack and eliminate the real SARS-CoV-2 virus.

“Our own cells make the protein and it can't replicate,” Blumberg said. “The mRNA doesn't stay around long. Your body breaks it down and gets rid of it. The vaccines teach your body to fight the virus so your immune response will protect you.”

Fact: You cannot test positive because of the vaccines.

“That can't happen,” Blumberg said. “There is no part of the virus in either vaccine. You can't test positive on a PCR or an antigen test (the two methods that test for current COVID-19 infections).

“You will test positive for antibodies because your body will have built them up as part of your immune response,” he said. “That's a good thing.”

Fact: The vaccines are safe and went through full reviews by experts.

“The vaccines have been very well studied,” Blumberg said. “There were 43,661 people enrolled in the randomized Pfizer clinical trial, including 225 at UC Davis Health, which was one of 150 sites to take part the trial. The results were carefully reviewed. Both vaccines have been scientifically proven to be very safe.”

The U.S Food & Drug Administration (FDA) and other experts reviewed the data from Covid-19 vaccine trials more quickly than usual by looking at data as information came in. In most cases, they wait until the trials are complete. They used the same demanding safety and efficacy standards as always and no safety protocols were changed or skipped.

“No safeguards were sacrificed,” he said.



Fact: The vaccines were developed quickly because of the worldwide effort.

“The vaccines were made at record speed,” Blumberg said. “Vaccines often take 7-10 years.”

The COVID-19 vaccines went through careful clinical trials and a full safety review. The evidence clearly shows they are effective and safe.

Along with the constant review by regulatory experts that sped up the process, there were two other reasons for the speed. The first was our urgency. Vaccine manufacturers and the scientific community dropped everything to develop a vaccine.

“We’ve never seen anything like this before,” Blumberg said. “There was a huge effort from universities, public health experts, manufacturers, epidemiologists and many others. If you spend unlimited time and money, you can overcome a lot of problems really fast.”

The second was that the innovative mRNA approach was already in development. Researchers had already created the way of getting the mRNA into the body – what’s called an mRNA platform – for trials on cancer efforts and other vaccines. What they needed to learn was the genomic sequence of the coronavirus.

“The vaccine platforms were developed just in case there was a pandemic,” Blumberg said. “Much of the research was to figure out what to put into the COVID-19 vaccines.”

Fact: There is no government mandate to get a vaccine.

Health experts at UC Davis Health and health officials at every level are urging everyone to get the COVID-19 vaccine. The more people who get vaccinated, the faster the country, and the planet, can return to normal.

“But we don’t anticipate any mandate,” Blumberg said. “It’s possible that might change later. Of course, many businesses and schools may decide to require the COVID-19 vaccine, the way they do for influenza and other vaccines.”

Fact: The vaccines will not change your DNA.

There is nothing in either vaccine that could affect anyone’s genetic makeup.

“There is no DNA of any kind in either vaccine. The vaccines don’t change us in any way, except to help us build immunity to COVID-19.”

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“These are not DNA-based vaccines. They’re mRNA based. They do not enter the cell nucleus, where our DNA is. They cannot modify any cell DNA,” Blumberg said.

He said one of the wildest myths is that the vaccine will introduce non-human DNA into our bodies. That is not possible.

“There is no DNA of any kind in either vaccine,” Blumberg said. “They don’t change us in any way, except to help us build immunity to COVID-19.”

Fact: The vaccines do not cause infertility.

“There is no evidence at all that they have any effect on fertility,” Blumberg said.

The 50-plus page briefings from the Vaccines and Related Biological Products Advisory Committee (VRPAC) for both Pfizer and Moderna to the full FDA detail all the findings from the clinical trials about effectiveness, safety and side effects. There are no reports of any impact on fertility.

Fact: Inflammation at the injection site or a day or two of side effects mean the vaccine is working.

“That’s a sign your body is building its immune response,” Blumberg said. “Everyone will have a slightly different reaction, but chills, fatigue or body aches are normal and don’t last long.”

Fact: Immunity from the vaccines is far safer than natural immunity.

The myth that natural immunity is better than immunity derived from a vaccine, like many common myths, has what Blumberg called “a grain of truth.”

“For many diseases, immunity acquired naturally often lasts longer than immunity from a vaccine. But that means you have to suffer, and survive, the disease,” he said. “Who wants that?”

Plus, with COVID-19, the natural immune response after a mild case appears to be short lived, and much shorter than what is expected from the vaccine.

“We need people to get vaccinated to get to herd immunity,” Blumberg said. “If we waited until we reached that naturally, society would be shut down much longer, millions of people would die and many millions more would suffer, possibly with permanent damage to their health.”

Fact: There is no microchip and no tracking device of any kind in either vaccine.

This debunked myth morphed into a conspiracy theory after Bill Gates suggested creating a digital certificate of vaccine records. Gates, in fact, has been the top subject of COVID-19 misinformation since early in the pandemic, according to media analysis company Signal Labs.

“It’s almost hard to deny this stuff because it’s so stupid or strange that even to repeat it gives it credibility,” Gates said in June on a call with reporters to announce The Bill & Melinda Gates Foundation’s \$1.6 billion pledge to global vaccine alliance Gavi, according to Business Insider.

FACT: People who have gotten sick with COVID-19 may still benefit from getting vaccinated

Due to the severe health risks associated with COVID-19 and the fact that re-infection with COVID-19 is possible, people may be advised to get a COVID-19 vaccine even if they have been sick with COVID-19 before.

At this time, experts do not know how long someone is protected from getting sick again after recovering from COVID-19. The immunity someone gains from having an infection, called natural immunity, varies from person to person. Some early evidence suggests natural immunity may not last very long.

Both natural immunity and vaccine-induced immunity are important aspects of COVID-19 that experts are trying to learn more about, and CDC will keep the public informed as new evidence becomes available.

FACT: Getting vaccinated can help prevent getting sick with COVID-19

While many people with COVID-19 have only a mild illness, others may get a severe illness or they may even die. There is no way to know how COVID-19 will affect you, even if you are not at increased risk of severe complications. If you get sick, you also may spread the disease to friends, family, and others around you while you are sick. COVID-19 vaccination helps protect you by creating an antibody response without having to experience sickness.

FACT: COVID-19 vaccines are safe and effective.

Safety is a top priority of the U.S. vaccine safety development and approval process. The development process for COVID-19 vaccines involved several steps comparable with those used to develop other vaccines such as the flu or measles vaccine, which have successfully protected millions of Ohioans for decades. The U.S. Food and Drug Administration (FDA), as well as independent medical experts, have ensured that every detail of COVID-19 vaccines is thoroughly and rigorously evaluated. Evidence shows that COVID-19 vaccines are safe and work to prevent COVID-19. Of the first two vaccines to be granted FDA emergency use authorization, the Pfizer BioNTech vaccine was 95% effective, and the Moderna vaccine was 94% effective in phase 3 clinical trials with more than 70,000 participants between the two studies. Although the COVID-19 vaccines themselves have been developed recently, the technology used in mRNA vaccines, like those developed by Pfizer BioNTech and Moderna, has been studied for decades.

FACT: Pregnant and breastfeeding women may choose to be vaccinated.

The CDC Advisory Committee on Immunization Practices (ACIP) has stated that people who are pregnant may choose to be vaccinated. The American College of Obstetricians and Gynecologists’ (ACOG) Immunization, Infectious Disease, and Public Health Preparedness Expert Work Group prepared a thorough outline related to COVID-19 vaccines for pregnant and breastfeeding women. ACOG recommends that COVID-19 vaccines should not be withheld from pregnant individuals who meet criteria for vaccination based on ACIP priority groups. The two vaccines currently available under emergency use authorization (EUA), Moderna and Pfizer-

BioNTech, have not been tested in pregnant women. Therefore, there is no safety data specific to use in pregnancy. There is also no data on the safety of COVID-19 vaccines in lactating women or on the effects of mRNA vaccines on the breastfed infant or on milk production/excretion. The mRNA vaccines are not thought to be a risk to the breastfeeding infant. The CDC states that people who are breastfeeding and are part of a group recommended to receive a COVID-19 vaccine, such as healthcare personnel, may choose to be vaccinated.

Pregnant patients who decline vaccination should be supported in their decision. Regardless of their decision to receive or not receive the vaccine, these conversations provide an opportunity to remind patients about the importance of the other prevention measures such as hand washing, physical distancing, and wearing a mask.

FACT: You should continue to wear a mask and practice social distancing after being vaccinated.

The vaccine will protect you from getting ill from COVID-19, however, not enough is known about whether or not you can still carry the virus and spread it to others. At this time, those who get the vaccine should continue to wear masks and practice social distancing.

FACT: Fetal cells were not used in the development of Pfizer-BioNTech or Moderna COVID-19 vaccines.

Fetal cells were not used in the design, development, or production of Pfizer-BioNTech and Moderna COVID-19 vaccines.

