

COVID-19 VACCINES: MYTHS & FACTS

Myth: COVID-19 vaccines are not safe.

Fact: To receive emergency use authorization, the biopharmaceutical manufacturer must study the vaccine in large numbers of people; for example, the vaccine developed by Pfizer/BioNTech has been studied in about 43,000 people. Additionally, the 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 Practices, which is part of the CDC, has also evaluated the safety data from the clinical trial.

The safety of COVID-19 vaccines will continue to be closely monitored as it is administered to people. The vaccine manufacturers, as well as the CDC, also have apps available that allow people to report their response to the vaccine over time, which allow us to continue to learn about the safety and efficacy of the vaccines. In addition, providers are required to report severe reactions to the Vaccine Adverse Event Reporting System (VAERS), which aids the CDC and FDA in monitoring vaccine safety.

Myth: The COVID-19 vaccine contains a small amount of live virus.

Fact: The COVID-19 vaccine was based on new technology that was developed prior to the pandemic. These vaccines, called messenger RNA, or mRNA vaccines, help our bodies to develop immune responses in a different way than previous vaccines. Previously, vaccines used the virus itself—either in a weakened or inactivated state.

The Pfizer vaccine, which was the first COVID-19 vaccine authorized for emergency use by the FDA, 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.

Myth: The COVID-19 vaccine will make you feel just as sick as if you had contracted the disease.

Fact: Although many people will experience mild side effects from the vaccine, these symptoms are typically much less severe than the symptoms a person could experience from COVID-19. And although they are unpleasant, side effects to vaccines are often the results of a strong immune response, which indicates that the vaccine is working as intended.

The most commonly reported side effects from the COVID-19 vaccine are fatigue, headache, and muscle ache. These side effects usually occur a day or two after receiving the vaccine, and typically only last for one or two days. People are more likely to experience side effects after the second dose of the vaccine, and younger people are more likely to experience side effects than older people.

If you are concerned about the impact of side effects, consider getting vaccinated towards the end of the work week, and make plans to take it easy over the weekend!

Myth: The COVID-19 vaccine contains ingredients that I am opposed to.

Fact: Because the COVID-19 is a novel mRNA vaccine, its ingredients are different than many other vaccines—in fact, the ingredient list is quite short! The COVID-19 vaccine consists of:

- mRNA: mRNA is the spike protein of SARS-CoV-2, the virus that causes COVID-19.
- Lipids: Lipids are molecules that are unable to dissolve in water. The role of lipids in the vaccine is to prevent the mRNA from breaking down before it gets into our cells. The Pfizer vaccine contains four different lipids and the Moderna vaccine contains three. One of the lipids in both vaccines is cholesterol, which occurs naturally in animal-based foods. The lipids are the most likely components of the vaccine to cause allergic reactions, so if a person has a known allergy to a lipid, they should consult with their doctor prior to receiving the vaccine.
- Salts and amines: Salts and amines are naturally occurring substances. The Pfizer vaccine contains four salts, one of which is table salt. Salts are used to maintain the pH of the vaccine in order to prevent it from damaging cells when it is administered. The Moderna vaccine contains four chemicals to balance the pH; two are in a class of organic compounds known as amines and two are acetic acid and its salt form, sodium acetate. Acetic acid is the main component of vinegar (other than water).
- Sugar: A small amount of sugar is used in both of the COVID-19 vaccines to prevent lipids from sticking to each other or to the inside of the vaccine vial.

mRNA vaccines such as the COVID-19 vaccine do not include any of the following:

- Fetal material
- DNA
- Antibiotics
- Blood products
- Preservatives, like thimerosal
- Gluten
- Egg proteins
- Pork products
- Microchips

Myth: If you've already had COVID-19, you don't need to get vaccinated.

Fact: Because COVID-19 is still such a new disease, we are still not sure how long the body's natural defenses will continue to work. In fact, there have been cases of people contracting COVID-19 a second time. Because we are uncertain about how long a person is protected, people who have already had COVID-19 are also advised to receive a vaccination. Fortunately, there is some evidence that the immune response from being vaccinated for COVID-19 may actually last longer than the natural immunity developed from contracting the disease.

Myth: Once you have received your COVID-19 vaccination, you're immune for life.

Fact: Because the COVID-19 vaccine is so new, we are uncertain about how long a person's immunity will last after they have been vaccinated. As more information emerges, we will learn if the vaccine

needs to be administered more regularly (like the flu shot), if it is long-term but requires boosters (like tetanus), or if it is considered to be a more permanent vaccine like polio.

Myth: You don't need to worry about precautions like handwashing, physical distancing, or wearing a mask after you get vaccinated.

Fact: There are a few reasons why it will be necessary for people who have been vaccinated to continue to follow these precautions. First, it takes up to a few weeks for a person's body to fully develop their immune response once they have received the second dose of the vaccine. During this time, a person can still be at risk for contracting COVID-19. It's important to continue to take these precautions during this time in order to avoid becoming ill.

In addition, although the vaccine protects us from becoming ill ourselves, it is still possible for people who have been vaccinated to transmit the disease to others. It will take months to vaccinate enough people in America to reach herd immunity. So, until we reach herd immunity, people who have been vaccinated may still pose a risk to others.

Myth: Vaccines are useless—if everyone just contracts the virus and gets it over with, we will reach herd immunity.

Fact: Herd immunity requires immunity from a disease—either naturally or as a result of vaccination—in at least 70 to 80% of a population. (Of course, herd immunity becomes stronger and more effective as the amount of the population that is immune increases.) Unless a disease has been eradicated, herd immunity does not mean that no one will not contract the disease; however, it does mean that community transmission generally occurs only between those who are not immune, resulting in very limited outbreaks and minimal impact on our healthcare systems.

Without a vaccine, experts estimate that it will take three to five years for Americans to reach herd immunity. With a vaccine, Americans are expected to reach herd immunity by the end of the year or sooner. Not only is vaccination a much more rapid way of achieving herd immunity, but it will also prevent millions of people from becoming ill and hundreds of thousands of people from dying.

For More Information

- [COVID-19 Vaccine & Vaccination FAQs—DHEC](#)
- [COVID-19 Vaccines—CDC](#)
- [COVID-19 Vaccines—FDA](#)
- [Vaccine Development 101—FDA](#)
- [Emergency Use Authorization for Vaccines Explained—FDA](#)
- [Understanding mRNA COVID-19 Vaccines—CDC](#)

People Who May Need to Take Extra Precautions

Although the vaccine has been found to be safe in a wide variety of people, there are several groups of people who should consult with their physician in order to make an informed decision about receiving the COVID-19 vaccine. These groups include:

- **People with severe allergies leading to anaphylaxis.** Although it is extremely rare, several people who have received the vaccination have experienced anaphylaxis. These people had reported severe allergies to other vaccines or other injectable drugs. According to the CDC, people with severe allergies such as this may be able to receive the vaccine, though they may require special accommodations (e.g., being observed for 30 minutes afterwards, receiving the vaccine in an allergist's office or another facility with a crash cart, etc.).
- **Women who are pregnant or breastfeeding.** There is very limited data on vaccinations with women who are pregnant or are breastfeeding. Until there is adequate research to support the safety of COVID vaccinations in these populations, these women may want to elect to postpone vaccination until they have given birth and/or have finished breastfeeding.
- **People with autoimmune diseases.** There is limited data on the safety of COVID-19 vaccinations in individuals who have autoimmune diseases, though there are several (e.g., mast cell activation syndrome) where receiving the vaccine could possibly be dangerous.
- **People with compromised immune systems.** People with compromised immune systems may want to avoid being vaccinated, either temporarily, until their immune systems return to a normal state of functioning, or permanently, if it is unlikely that their immune system will function properly.