

How Do We Know The New Vaccines Are Safe?

Even the very first COVID-19 vaccine is safe! How do we know? We know because of how the vaccine is made and what it does in the body. We also know because it was tested with many people before everyone else was able to get it. The vaccine is made up of the virus's messenger RNA (mRNA) and some fat that protects it. There are no other ingredients that could make you sick. The mRNA makes only one kind of protein—the spike protein. That's all it does. Inside your body, it can't get into the nucleus of your cells. Inside your cells is where your DNA is. That means the vaccine can't change your DNA. It can't change your genes. It can't give you cancer. And it can't give you COVID-19 because there's no live or dead virus in the vaccine. There is also nothing in the vaccine that tracks you in any way. The body even destroys the mRNA in a few days.



Rapid Development

Using mRNA for vaccines isn't new. Scientists have been researching using mRNA for vaccines for several years. They are still studying how mRNA works to control other viruses. For example, they are studying using mRNA to control influenza (the flu), zika, and rabies. The very first COVID-19 vaccines were new because COVID-19 disease was new. They were also the first vaccines to be approved using mRNA. COVID-19 is a serious new disease, so scientists around the world worked very quickly to develop a vaccine to fight it.

What Did It Take To Get The First COVID-19 Vaccines Approved?

Before a vaccine is given to anyone, it has had a lot of testing. The testing for the first COVID-19 vaccine happened in three phases.

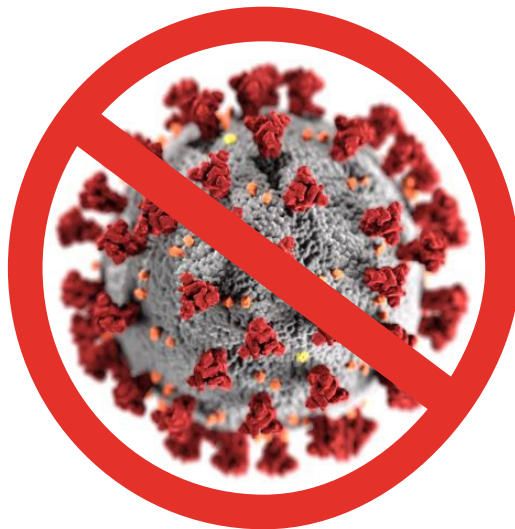
Phase 1: The vaccine was given to a small number of people. All of them were volunteers. Scientists gave the volunteers different amounts of the vaccine. Then they watched for side effects. For the first COVID-19 vaccines, no one reported serious side effects in Phase 1.

Phase 2: A larger number of people volunteered to participate in the next phase. It is important to try the vaccine on people of different ages, genders, races, and health conditions. So, scientists recruited a very mixed group of people. After the vaccine, most people reported no serious side effects. A very small number of them had an allergic reaction. The people who had allergic reactions were treated the same way people who are allergic to bees and get stung are treated.

Phase 3: Even more volunteers joined the phase 3 of the research. In one of the early COVID-19 vaccine trials, 44,000 people volunteered. Half of them got the vaccine, and half of them got a placebo. A placebo is like a fake treatment. Those people just got a shot, but there was no vaccine in it. Scientists do this so that they can learn which side effects happened because of the vaccine and which happened for other reasons. For example, many people might complain of a sore arm. But the sore arm is because of the shot, not because of the vaccine itself. Of the 44,000 people, 170 of them came down with COVID-19 disease. Of those 170 people, 162 of them were people who got the placebo. They did not get the real vaccine, but they got sick. Only one person who got the vaccine got seriously sick with the disease. That meant that the vaccine was over 90% effective in preventing COVID-19! The vaccine not only prevented people from getting COVID-19, but even for the few people who did get sick, the disease was not severe.

All vaccines are tested carefully. The COVID-19 vaccines that passed all of the safety tests are the ones that were approved to use on other people.

Getting a COVID-19 vaccine helps to protect you from getting the disease. It also helps a population get to herd immunity. Once more people are immune, everyone can participate in normal activities.



Stop and Think:

1. What evidence do we have that mRNA COVID-19 vaccines are safe?

No one reported serious side effects in Phase 1.

Only one person who got the vaccine got seriously sick with the disease in Phase 3.

2. What evidence do we have that mRNA COVID-19 vaccines work?

Of the 44,000 people, 170 of them came down with COVID-19 disease. Of those 170 people, 162 of them were people who got the placebo.

3. Why do scientists want people to get an mRNA COVID-19 vaccine?

To reach herd immunity and slow the spread of the virus.