



How do vaccines work in general?

Vaccines work by preparing your body's natural defenses to recognize and fight off germs that can make you sick. Vaccines may contain:

- Dead or weakened versions of the germ.
- Substances made to look like part of the germ.
- Substances that teach the body to make proteins that look like part of the germ

When you get any vaccine, your immune system responds by:

- Making antibodies. These are proteins produced naturally by the immune system to fight disease.
- Preparing your immune cells to respond to future infection.
- Remembering the disease and how to fight it. If you are exposed to the germ after getting the vaccine, your immune system can quickly destroy it and prevent you from getting infected or prevent you from getting seriously ill.

How do the COVID-19 vaccines work?

All 4 COVID-19 vaccines that are currently available in the US work by teaching our immune cells how to make copycat spike proteins (the crown-like spikes on the surface of the COVID-19 virus). Making the spike protein does not harm our cells.

- Our immune system sees the spike protein and knows that it doesn't belong there.
- Our bodies react by building an immune response. It makes antibodies that can act against the COVID-19 virus's spike protein and it prepares immune cells. This will protect us if we are exposed to the virus in the future.

The COVID-19 vaccines differ in how they teach our cells to make the spike protein.

- The vaccines made by Pfizer and Moderna are called mRNA vaccines. Messenger RNA (mRNA) is genetic material that tells our bodies how to make proteins. The mRNA in the vaccine is wrapped in oily bubbles (known as lipid nanoparticles). When the mRNA enters our cells, it teaches them how to make copies of the spike protein. The mRNA does not enter the cell nucleus and does not interact with DNA in any way.
- The vaccine made by J&J/Janssen is called a viral vector vaccine. The vector (or vehicle) carries the genetic material to our cells. Our cells read the genetic material and make mRNA, and this mRNA teaches our cells to make the spike protein. The viral vector is a harmless version of a common cold virus. It can't replicate inside our cells and it cannot change our DNA in any way.
- The vaccine made by Novavax is called a protein subunit vaccine. It contains pieces of the spike protein. The vaccine also contains an 'adjuvant' to strengthen the body's immune response. Adjuvants are used in many vaccines.

None of these COVID-19 vaccines contain the COVID-19 virus in any form - live, weakened, or dead. You cannot get COVID-19 from the vaccines.



COVID-19 Vaccines - Frequently Asked Questions

HOW VACCINES WORK



Where can I get more information?



- To print or view this FAQ or FAQs on other COVID-19 vaccine topics, scan the QR code or visit [COVID-19 vaccine FAQs](#).
- [VaccinateLACounty.com](#) – including [COVID-19 Vaccine Schedules](#) with graphics to show when each dose is due and information on [How to Get Vaccinated](#).
- [Understanding How COVID-19 Vaccines Work](#) CDC website.
- Ask your doctor if you have questions.

