



COVID-19

Understanding Viral Vector COVID-19 Vaccines

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What You Need to Know

- Viral vector vaccines use a modified version of a virus that is different from the virus being targeted to deliver important instructions to our cells. The modified version of the virus is called a vector virus.
- Like all vaccines, viral vector vaccines benefit people who get vaccinated by giving them protection against diseases like COVID-19 without them having to risk the serious consequences of getting sick.
- CDC recommends that people who are starting their vaccine series or getting a booster dose get either Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). The [mRNA vaccines](#) are preferred over Johnson & Johnson's Janssen COVID-19 vaccine (viral vector) in most circumstances, but the J&J/Janssen COVID-19 vaccine may be considered [in some situations](#).

The Johnson & Johnson Janssen vaccine, a viral vector vaccine, is among the COVID-19 vaccines authorized for emergency use in the United States.

How Viral Vector Vaccines Work



COVID-19 viral vector vaccines use a modified version of a different virus (a vector virus) to deliver important instructions to our cells.

1. First, COVID-19 viral vector vaccines are given in the upper arm muscle. The COVID-19 vector virus is **not** the virus that causes COVID-19, but a different, harmless virus. It enters the muscle cells and uses the cells' machinery to produce a **harmless piece** of what is called a spike protein. The spike protein is found on the surface of the virus that causes COVID-19.
2. Next, the cells display the spike protein on their surface, and our [immune system](#) recognizes that the protein doesn't belong there. This triggers our immune system to produce antibodies and activate other immune cells to fight off what it thinks is an infection. This response is what your body might do if you got sick with COVID-19.
3. At the end of the process, our bodies have learned how to protect us against future infection with the virus that causes COVID-19. The benefit is that we get this protection from a vaccine, without ever having to risk the serious consequences of getting sick with COVID-19. Any [temporary discomfort](#) experienced after getting the vaccine is a natural part of the process and an indication that the vaccine is working.

Facts About COVID-19 Viral Vector Vaccines

COVID-19 viral vector vaccines cannot give someone the virus that causes COVID-19 or other viruses.

- COVID-19 viral vectors cannot cause infection with COVID-19 or with the virus used as the vaccine vector.

They do not affect or interact with our DNA in any way.

- The genetic material delivered by the viral vector does not integrate into a person's DNA.

The spike protein doesn't last long in the body.

- Scientists estimate that the spike protein, like other proteins our bodies create, may stay in the body up to a few weeks.

Viral Vector Vaccines Have Been Rigorously Studied for Safety

Viral vector vaccines are [safe](#) and [effective](#).

Viral vector vaccines for COVID-19 have been held to the same [rigorous safety and effectiveness standards](#) as all other types of vaccines in the United States. The only COVID-19 vaccines the U.S. Food and Drug Administration (FDA) will make available for use in the United States (by approval or emergency use authorization) are those that meet these standards.

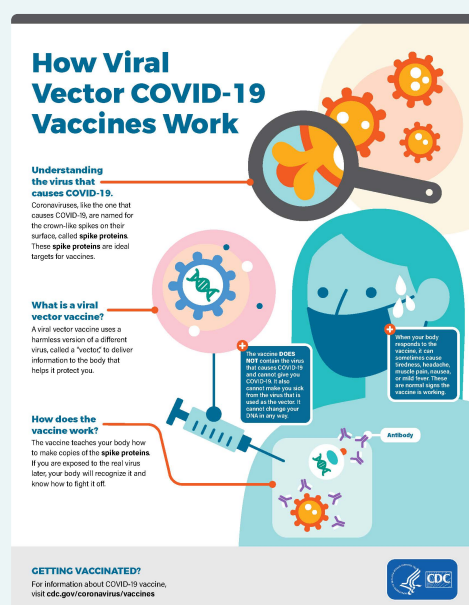
While COVID-19 vaccines were developed rapidly, [all steps have been taken to ensure their safety and effectiveness](#).

How Viral Vector Vaccines Have Been Used During Recent Disease Outbreaks

Scientists began creating viral vectors in the 1970s. Besides being used in vaccines, viral vectors have also been studied for gene therapy, to treat cancer, and for molecular biology research. For decades, hundreds of scientific studies of viral vector vaccines have been done and published around the world. Some vaccines recently used for Ebola outbreaks have used viral vector technology, and a number of studies have focused on viral vector vaccines against other infectious diseases such as Zika, flu, and HIV.

Learn more about [getting your vaccine](#).

Learn More About Viral Vector Vaccines



INFOGRAPHIC

How Viral Vector COVID-19 Vaccines Work

PDF infographic explaining how viral vector COVID-19 vaccines work.

- [Arabic](#) [166 KB, 1 page]
- [English](#) [127 KB, 1 page]
- [Korean](#) [112 KB, 1 page]
- [Russian](#) [94 KB, 1 page]
- [Simplified-Chinese](#) [122 KB, 1 page]
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More Information

[FDA's Vaccine Development 101 !\[\]\(c507f772dba2b921f86777f01218e570_img.jpg\)](#)

[FDA's Emergency Use Authorization for Vaccines Explained !\[\]\(4729e517bc6a7cd81c8025b9646574fb_img.jpg\)](#)

[FDA Video](#)

[FDA Infographic: The Path for a COVID-19 Vaccine from Research to Emergency Use Authorization \[1.13 MB, 1 page\] !\[\]\(a03a7eb2f4046e1d3c76772003e549ea_img.jpg\)](#)