



Pfizer BioNTech COVID-19 Vaccine

Quick Facts:

1. Pfizer BioNTech COVID-19 vaccine is a 0.3ml dose given in the upper arm
2. This is a 2 dose series 3 weeks apart
3. If you start with Pfizer, dose 2 must be Pfizer, do not change manufacturers
4. Do not administer to individuals with history of severe allergic reaction to any component of the vaccine
5. Immunocompromised people may have a diminished immune response to the vaccine
6. Adverse reactions included: pain at the injection site (84%), fatigue (63%), muscle pain (38%), chills (32%), joint pain (23%), fever (14%), injection site swelling (10%), injection site redness (9%), nausea (1%).
7. There have been severe allergic reactions to a few that had a history of severe allergic reactions
8. Insufficient data for pregnant or breastfeeding people
9. You will be monitored for 15 minutes post vaccine for any reactions

The Pfizer BioNTech COVID-19 Vaccine includes the following ingredients:

- COVID 19 mRNA
- Lipids ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), [(polyethylene glycol [PEG])-2000]-N,N-ditetradecylacetamide, 1,2-distearoyl-sn-glycero-3-phosphocholine, and 0.2 mg cholesterol),
- Electrolytes potassium chloride, monobasic potassium phosphate, sodium chloride, dibasic sodium phosphate dihydrate, and
- Sugar (sucrose)
- The diluent, added to the vaccine for administration, is saline (Sodium Chloride)

How mRNA Vaccines Work

COVID-19 mRNA vaccines give instructions for our cells to make **a harmless piece** of what is called the “spike protein.” The spike protein is found on the surface of the virus that causes COVID-19.

COVID-19 mRNA vaccines are given in the upper arm muscle. Once the instructions (mRNA) are inside the immune cells, the cells use them to make the protein piece. After the protein piece is made, the cell breaks down the instructions and gets rid of them.

Next, the cell displays the protein piece on its surface. Our immune systems recognize that the protein doesn't belong there and begin building an immune response and making antibodies, like what happens in natural infection against COVID-19.

COVID-19 vaccines help our bodies develop immunity to the virus that causes COVID-19 without us having to get the illness. Different types of vaccines work in different ways to offer protection, but with all types of vaccines, the body is left with a supply of "memory" T-lymphocytes as well as B-lymphocytes that will remember how to fight that virus in the future.

It typically takes a few weeks for the body to produce T-lymphocytes and B-lymphocytes after vaccination. Therefore, it is possible that a person could be infected with the virus that causes COVID-19 just before or just after vaccination and then get sick because the vaccine did not have enough time to provide protection.

At the end of the process, our bodies have learned how to protect against future infection. The benefit of mRNA vaccines, like all vaccines, is those vaccinated gain this protection without ever having to risk the serious consequences of getting sick with COVID-19.

The body keeps a few T-lymphocytes, called memory cells, that go into action quickly if the body encounters the same virus again. When the familiar antigens are detected, B-lymphocytes produce antibodies to attack them. Experts are still learning how long these memory cells protect a person against the virus that causes COVID-19.

Sometimes after vaccination, the process of building immunity can cause symptoms, such as fever. These symptoms are normal and are a sign that the body is building immunity.

You cannot get COVID-19 from the vaccine

History of mRNA vaccines

Researchers have been studying and working with mRNA vaccines for decades. Interest has grown in these vaccines because they can be developed in a laboratory using readily available materials. This means the process can be standardized and scaled up, making vaccine development faster than traditional methods of making vaccines.

mRNA vaccines have been studied before for flu, Zika, rabies, and cytomegalovirus (CMV). As soon as the necessary information about the virus that causes COVID-19

was available, scientists began designing the mRNA instructions for cells to build the unique spike protein into an mRNA vaccine.

Future mRNA vaccine technology may allow for one vaccine to provide protection for multiple diseases, thus decreasing the number of shots needed for protection against common vaccine-preventable diseases.

All information in this document has been provided by the CDC or the EUA and fact sheet for Pfizer BioNTech vaccine.

<https://www.fda.gov/media/144414/download>

<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/mrna.html>