COVID-19 *Vaccine* FACT SHEET

Are mRNA vaccines safe?

Most commonly reported side effects, which are a consequence of the body's immune response to the SARS-CoV-2 spike protein, include:

Injection Site Reaction	Fatigue	Muscle Pain	Joint Pain
Low-grade Fever	Headache	Chills	

Side effects are most common after the second dose and in people younger than 55. Typically, these side effects last only 1-2 days.

Fact or Fiction?

Fact: COVID-19 mRNA vaccines cannot give someone COVID-19. mRNA vaccines do not use the live virus that causes COVID-19.

Fact: COVID-19 mRNA vaccines do not affect or interact with our DNA in any way. mRNA never enters the nucleus of the cell, which is where our DNA (genetic material) is kept. The cell breaks down and gets rid of the mRNA soon after it finishes following the instructions.

Fact: There is no aluminum, mercury or food allergens in the ingredients list. This is great news for those who may have allergy concerns or be vaccine hesitant.

Fact: The short-term, easily managed side effects are significantly less risky than taking your chances with the COVID-19 infection.

Fact: COVID-19 infection has a 99% survival rate. **Surviving and Thriving are incredibly different.** COVID-19 symptoms can persist for months. The virus can damage the lungs, heart, and brain which increases the risk of long-term health problems. Even young, otherwise healthy people can feel unwell for weeks to months after the infection.

Fiction: mRNA Vaccine Technology is new and untested. *mRNA technology was discovered over 30 years ago and has been studied for vaccine purposes for nearly two decades. Scientists have been working on a coronavirus vaccine since the SARS and MERS outbreaks, but once the pandemic ended and the virus was no longer circulating, the funding dried up. No funding = no scientific advancements. Early-stage clinical trials using mRNA vaccines have been carried out for influenza, Zika, rabies, and cytomegalovirus (CMV). Recent technological advancements in RNA biology and chemistry, as well as delivery systems, have mitigated these challenges and improved their stability, safety and effectiveness.*

Fiction: mRNA Vaccines cause infertility in women of child-bearing age, since the spike protein the body creates after vaccination is like a protein in the placenta of pregnant mothers. *The FDA says there is no reason to believe the vaccine causes infertility. Doctors say the two are not similar enough for the spike protein to launch an immune response to the placenta that would endanger the mother's ability to carry a baby to term.*

Short-term side effects and up to 95% vaccine efficacy > long-term health consequences of COVID-19 infection. Get vaccinated at your first opportunity!

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Reference List: https://media.chop.edu/data/files/pdfs/vaccine-education-center-covid-qa.pdf
For a complete list of references, visit https://www.kfmc.org/covid-19-fact-sheet/

COVID-19 *Vaccine* FACT SHEET

Pfizer (mRNA Vaccine)

95% effective*

2 dose series (0.3mL each) given 21 days apart

Multidose vial containing up to 6 doses/vial

Dilute with 1.8 mL of 0.9% Sodium Chloride

43,448 trial participants

Authorized for use in individuals ≥ 16 years

Published safety and final efficacy results from Phase 3 trial on December 10, 2020

Moderna (mRNA Vaccine)

94.5% effective*

2 dose series (0.5 mL each) given 28 days apart

Multidose vial containing 10 doses

No dilution required

30,420 trial participants

Authorized for use in individuals ≥ 18 years

Announced primary efficacy results from Phase 3 trial on November 30, 2020

**vaccine efficacy is against COVID-19 in individuals without prior SARS-CoV-2 infection*

What is mRNA and how do mRNA vaccines work?

- Messenger RNA, or mRNA, is the blueprint for making proteins. Within the nucleus of cells, DNA makes mRNA and then ships it into the surrounding cell cytoplasm. In the cytoplasm, mRNA is translated into proteins and enzymes. Soon after this, the mRNA breaks down.
- COVID-19 mRNA vaccines take advantage of the cellular process of making proteins by introducing mRNA that contains the blueprint for one of the coronavirus proteins, specifically the spike protein. This protein is responsible for attaching the coronavirus to our cells.
- COVID-19 mRNA vaccines are given in the upper arm muscle. Once the mRNA is inside the immune cells of the muscle tissue, the cells follow the instructions and make the spike protein piece.
- Next, the cell displays the protein piece on its surface. Our immune system recognizes that the protein doesn't belong there and begins mounting an immune response and making antibodies.
- After developing antibodies, our immune system can protect against future infection.
- The benefit of the mRNA vaccine is those vaccinated gain the protection without risking the serious consequences of getting sick with COVID-19.

What other ingredients are included in the vaccines?

There has been complete transparency around ingredients. You can find the fact sheet for each vaccine posted on the FDA's website with the exact list of ingredients. In addition to the mRNA, both vaccines include:

Lipids: Molecules or "bubbles of fat" that surround the mRNA to protect it, so it does not break down before it gets into our cells.

Salt: Similar to table salt, it keeps the pH of the vaccine close to that of the body, so the vaccine doesn't damage the cells.

Sugar: Similar to sugar we eat, in the vaccine it helps keep the "bubbles of fat" from sticking to the vaccine vial.

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