

COVID-19 vaccine guidance

Saginaw County



HEALTH DEPARTMENT

How the COVID-19 VACCINATION Works in the Body



Many vaccines put a weakened or inactivated germ into our bodies to trigger our immune systems. That's NOT the case for most of the COVID-19 vaccines that are likely to be authorized for use in the United States.

Both the Pfizer and Moderna vaccines – the first to apply to the FDA for emergency use authorization – are called messenger RNA (or mRNA) vaccines. They teach our cells how to make a protein – or even just a piece of a protein – to trigger an immune response inside our bodies. That immune response is what protects us from getting infected if the real virus enters our bodies.

Both of these vaccine developers benefited from early research on vaccines for diseases caused by other coronaviruses, called severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). Researchers began working on vaccines for these two diseases several years ago, but none made it past the first stages of development because the viruses disappeared. However, that earlier work helped COVID-19 researchers get a head start.

COVID-19 mRNA vaccines send “instructions” into our bodies 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 mRNA are inside the muscle cells, the cells use them to make a piece of protein. 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 system recognizes that the protein doesn't belong there and begins building an immune response and making antibodies, like what happens in natural infection against COVID-19.

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.

You should know:

- mRNA vaccines do NOT use the live virus that causes COVID-19!
- They do not affect or interact with our DNA in any way.
- mRNA never enters the nucleus of the cell, which is where our genetic material is kept.
- The cell breaks down and gets rid of the mRNA soon after it is finished using the instructions.

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