

# VACCINE TYPES

Have you heard of measles, polio, whooping cough, chickenpox, tetanus, or hepatitis A? These are all diseases that use vaccines as a way to prevent getting infected and spreading the disease through a population.

Some vaccines expose your immune system to pieces of a germ, others to a whole germ that is inactivated or even dead. These pieces can't make you sick, but they can prepare your immune system to recognize and protect you against future exposure to specific pathogens that cause disease.

**No vaccines use a live, full-strength germ or toxin.**

TYPE	HOW IT WORKS	EXAMPLES
<b>Subunit Vaccines</b>	<b>Subunit Vaccines</b> contain and introduce pieces of a germ's makeup, like an outer protein, sugar, or just its outer shell.	Shingles, Human Papillomavirus, Meningococcal Disease, Hepatitis B
<b>Live Attenuated Vaccines</b>	<b>Live Attenuated Vaccines</b> use a weakened version of a pathogen. The modified infectious agent can't make you sick, but it can still trigger an immune response strong enough to protect against future exposure to the real thing.	Chickenpox, Measles, Mumps, Rubella, Smallpox
<b>Toxoid Vaccines</b>	<b>Toxoid Vaccines</b> use an inactivated form of a toxin (harmful substance) that is made by germs that cause disease.	Tetanus, Diphtheria
<b>Inactivated Virus Vaccines</b>	<b>Inactivated Virus Vaccines</b> use whole inactivated or killed (dead) pathogens.	Rabies, Hepatitis A, Polio, Influenza
<b>mRNA Vaccines</b>	<b>mRNA vaccines</b> provide the instructions for a protein from a pathogen that your cells can create and use to mobilize your immune system. The messenger RNA (mRNA) breaks down very quickly, so it is only intact long enough to be used by your body to make the needed identifying protein before falling apart.	COVID-19 (Pfizer and Moderna)
<b>DNA Vaccines</b>	<b>DNA vaccines</b> use DNA (blueprints or instructions) for protein pieces from a pathogen that your immune system can then learn to recognize and destroy if you are exposed to the actual germ.  The DNA vaccine cannot replicate, combine with, or change your own DNA. The DNA instructions fall apart very quickly, and are around only long enough to provide the information your immune system needs to protect you from future pathogen exposure.	COVID-19 (Johnson & Johnson), West Nile Virus in horses, Melanoma in dogs



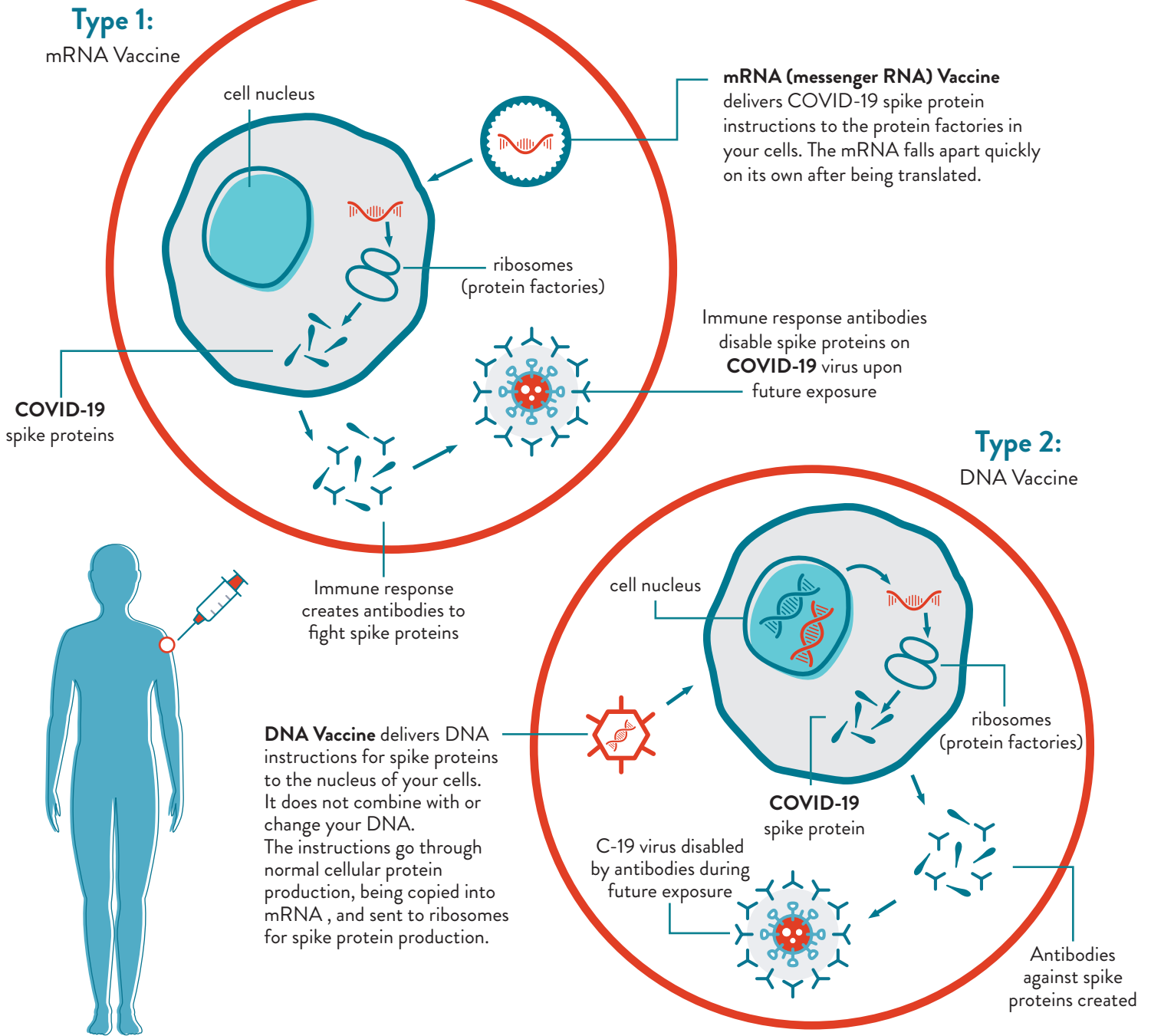
For more information please visit:  
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# mRNA & DNA VACCINES

Current COVID-19 vaccines use the instructions for the spike proteins found on the outside of the SARS-CoV-2 virus. These proteins can't infect you or make you sick, but they can activate your body's immune system.

Your cells use the vaccine information to naturally produce the spike proteins as part of its normal protein production process so your immune system can protect you from future COVID-19 virus exposure.



DNA and mRNA vaccines cannot combine with or change your DNA. They both fall apart quickly on their own, and are only around long enough to introduce your immune system to COVID-19 spike proteins to protect you from future exposure to the virus.



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