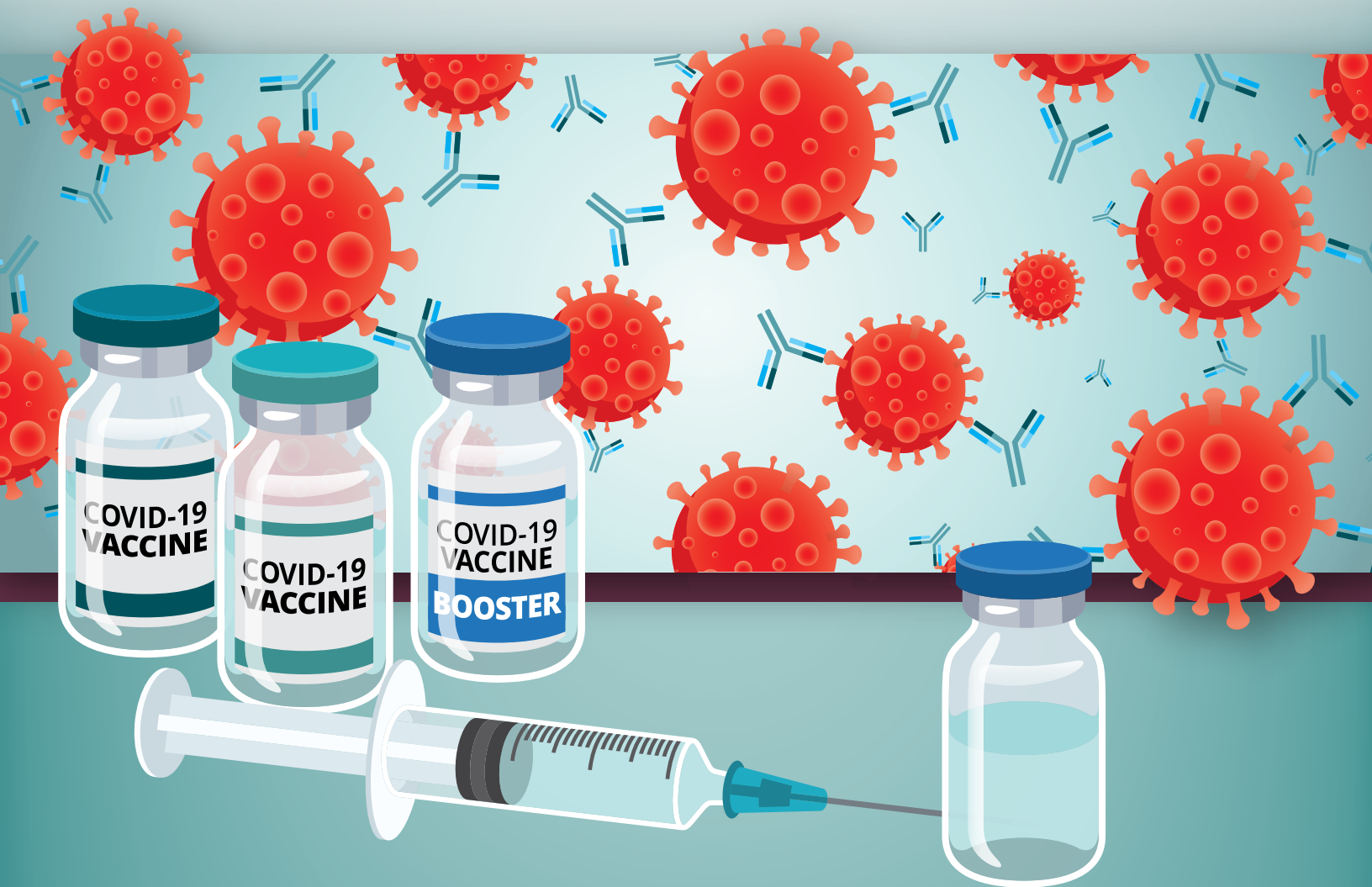
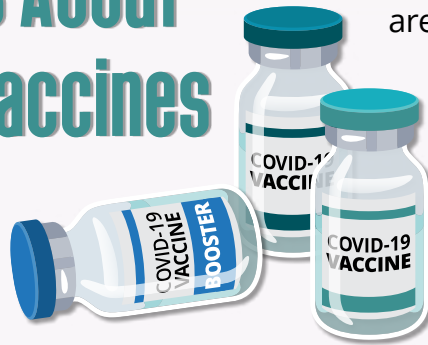


OUR BEST SHOT : The Facts About COVID-19 Vaccines



OUR BEST SHOT: The Facts About COVID-19 Vaccines

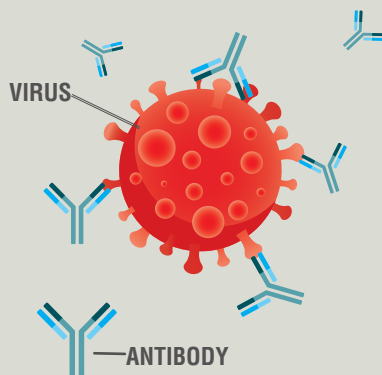


COVID-19 vaccines and boosters were produced with unprecedented coordination and financial resources and are effective at preventing symptomatic disease, and even more effective at preventing hospitalization and death. There are several vaccines and boosters currently available, and they all help our bodies develop immunity to the virus that causes COVID-19 — without us having to get the illness. This fact sheet explains how the different types of vaccines work to offer protection and provides reliable information and resources to address common concerns. To find a vaccination location near you, go to [Vaccines.gov](https://www.vaccines.gov).

How the COVID-19 Vaccines Work

Our Immune Systems

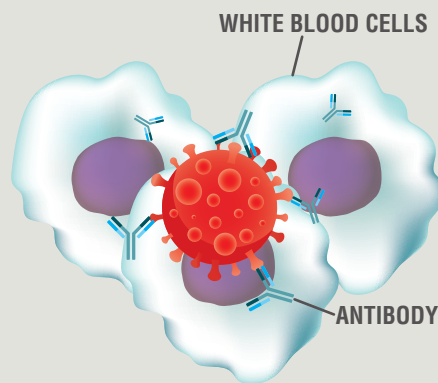
Our immune systems help protect us from viruses or bacteria by producing antibodies



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These antibodies attach to the intruding virus or bacteria, helping our bodies detect, destroy, and remove them

>>



This process can take several days the first time a virus or bacteria is detected but ...

∨

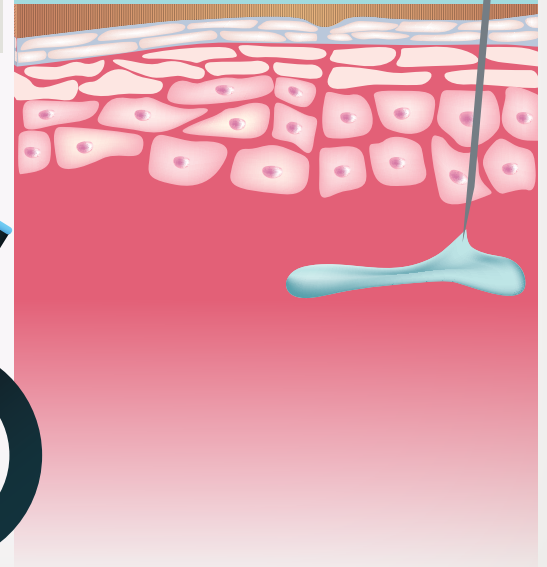
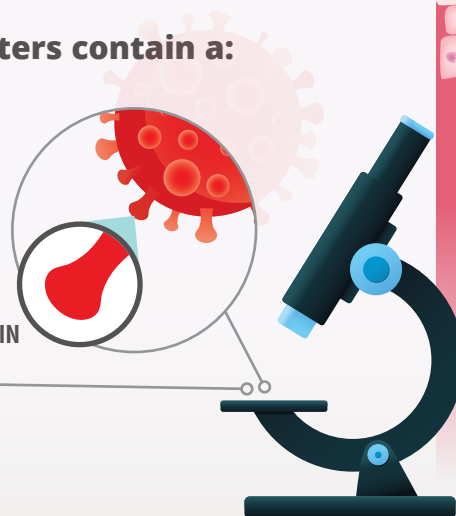
Vaccines help develop immunity in advance by imitating an infection and triggering the immune system to produce the specific antibodies needed to fight infections in the future

Most COVID-19 vaccines and boosters contain a:

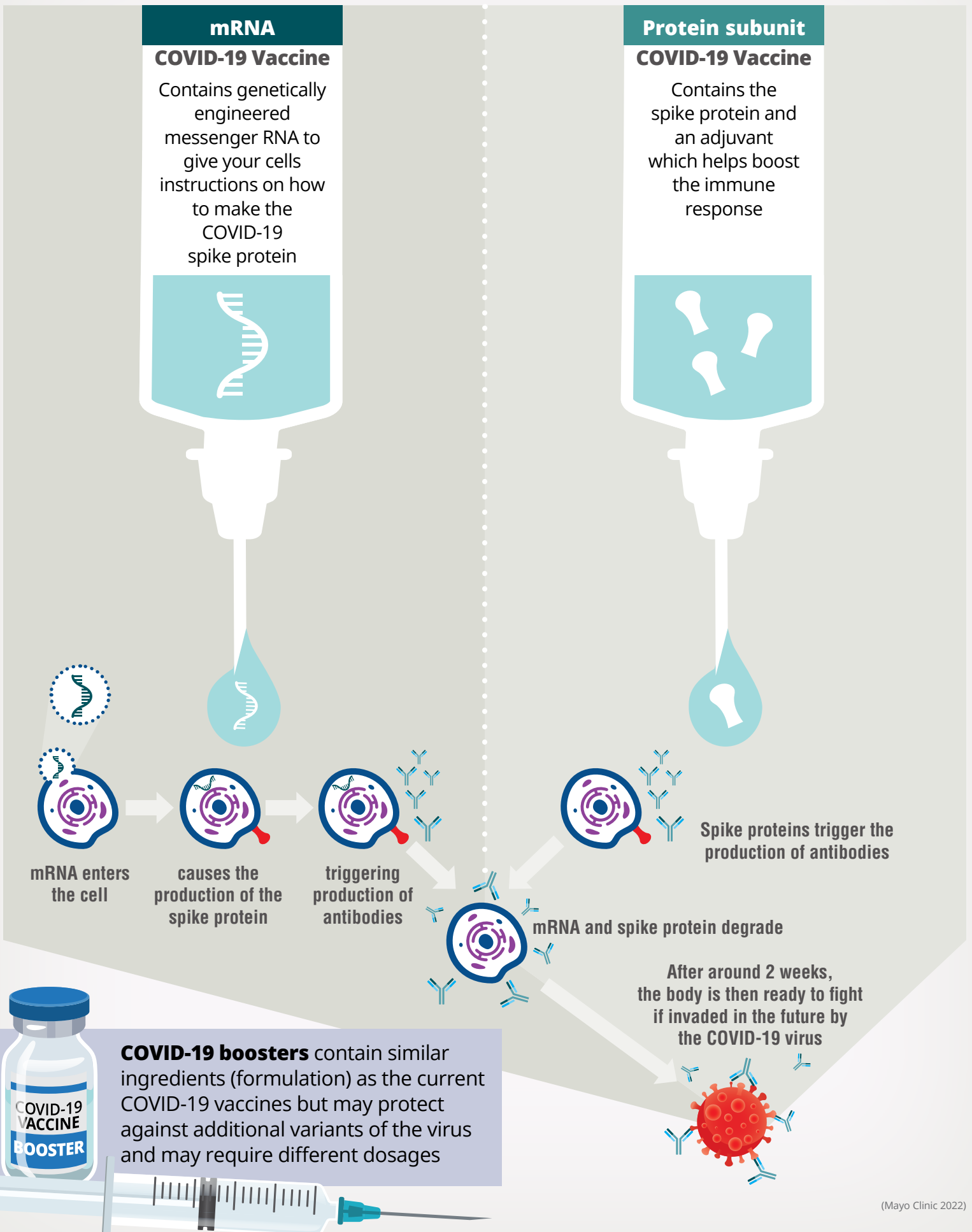
- Harmless part of the virus or bacteria OR
- Instructions to produce the needed part of the virus



COVID-19 SPIKE PROTEIN



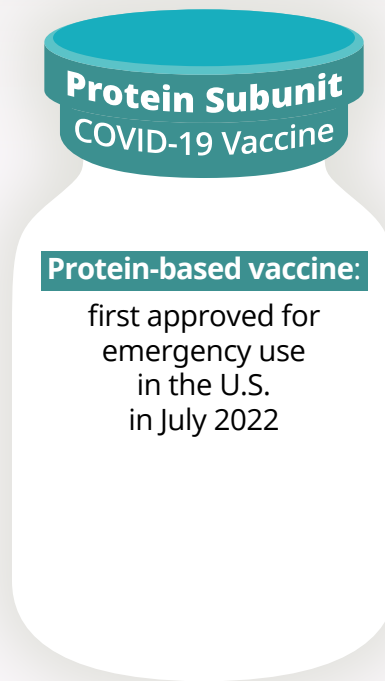
Different Types of COVID Vaccines



Available COVID-19 Vaccines (CDC 2022)



These are the first mRNA based vaccines but are based off of technology that has been studied for decades. The technology is now being studied for use in other vaccines, cancer treatment, and more.



There have been other protein subunit vaccines approved and used before for diseases like hepatitis B and whooping cough

 Contains an adjuvant which helps produce a strong immune response

COVID-19 Vaccines Prevent Severe Illness and Death

Over 2 years in the U.S.,
COVID VACCINES PREVENTED an estimated:

120 MILLION
 COVID INFECTIONS

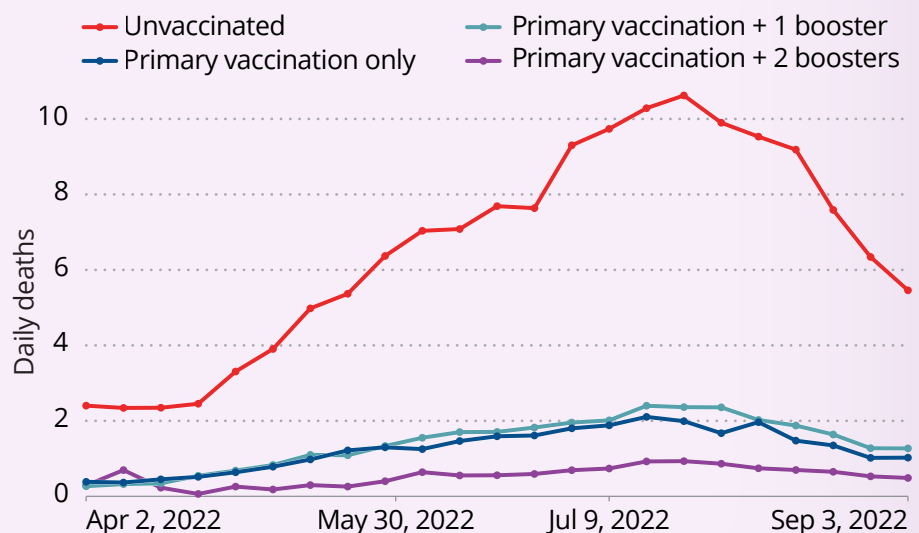
18.5 MILLION
 HOSPITALIZATIONS

3.2 MILLION
 DEATHS

(Fitzpatrick 2022)

United States: COVID-19 weekly death rate by vaccination status, 50+

Death rates are calculated as the number of deaths in each group, divided by the total number of people in this group. This is given per 100,000 people.



(Our World in Data 2022)



Between January 2021 and April 2022, **COVID-19 VACCINES could have prevented** an additional **318,000 DEATHS** if all eligible individuals had been vaccinated.

(Brown University 2022)

Dangers of Misinformation and Disinformation

Misinformation and disinformation have plagued the COVID-19 pandemic. False information continues to be widely shared on social media, the Internet, on TV, and passed from person to person — making it difficult to make an informed decision.

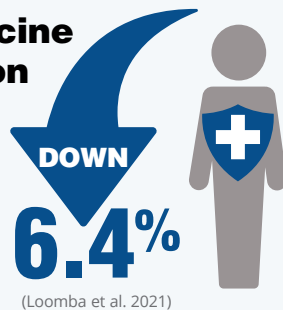


MISINFORMATION is false information that is created and spread regardless of any intent to harm or deceive

DISINFORMATION is a type of misinformation that is designed to be deliberately deceptive

Even Small Amounts of Misinformation/Disinformation Can Have an Impact

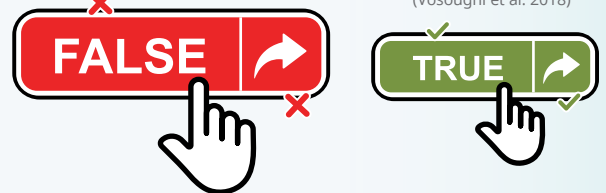
A brief exposure to **COVID-19 vaccine misinformation/disinformation** caused the number of people **WILLING to GET VACCINATED** to go



An analysis of millions of social media posts found that **FALSE news stories** were

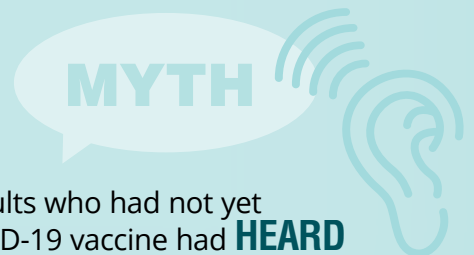
70% MORE LIKELY to be **SHARED** than **TRUE stories**.

(Vosoughi et al. 2018)



67% of adults who had not yet received a COVID-19 vaccine had **HEARD** at **LEAST ONE COVID-19 vaccine MYTH** and either believed it to be true or weren't sure if it was true, as of May 2021.

(Hamel et al. 2021)



People Still Aren't Getting Vaccinated or Boosted



As of January 6, 2023, 69.1% of Americans were fully vaccinated but only 15.4% had received an updated booster. (NBC News 2023)

A variety of misinformation is leading to these low rates and includes old and new unfounded claims and rumors. It's important to spread the truth about vaccines and help protect our loved ones. This section addresses some of the most common concerns people have today about COVID-19 vaccinations and provides a list of trusted partners for more information at the community level.

COVID-19 Vaccines Are Safe

There is no evidence that the COVID-19 vaccines affect fertility in men or women, and they are safe and recommended for use in pregnancy.



**COVID-19
TEST RESULTS:**

Positive
 Negative

The vaccines can't give you COVID-19. They contain only a piece of the virus or instructions for creating one of the virus' proteins. People can still get infected by the virus after vaccination if they are exposed to the virus soon after vaccination, or if their immunity has started to decrease over time. However, the vaccine is never the cause of COVID-19.

Can't change or influence our DNA. The messenger RNA (mRNA) used in some of the COVID-19 vaccines does not enter the nucleus (where our DNA is contained) and breaks down after a few hours.

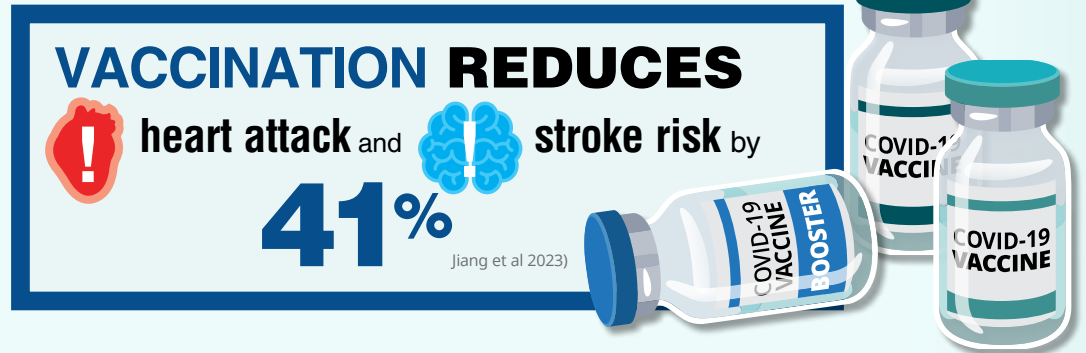
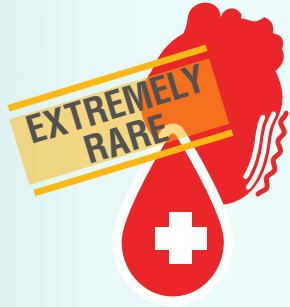


Serious Vaccine Side Effects Are Rare

It's not uncommon to have short-term pain, redness, or swelling at the site of the vaccine.

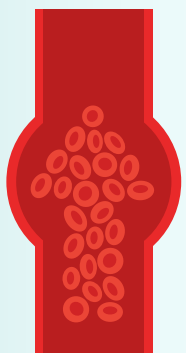
People may also experience tiredness, headache, muscle pain, chills, fever, or nausea. These reactions are symptoms of the body building up protection against the virus, but serious side effects from the COVID-19 vaccines are rare.

Serious side effects like blood clots and related conditions, and myocarditis or pericarditis (swelling and inflammation of the heart) are **EXTREMELY Rare**.



On the other hand...

The risk of developing a blood clot is **far higher during COVID-19 infection, than from the COVID-19 vaccine.**



RISK OF DEVELOPING A **BLOOD CLOT**— that could lead to a heart attack or stroke —
raises 22x
WITH COVID-19

(Knight et al 2022)

AFTER COVID-19 people are

65% MORE LIKELY to have **CARDIOVASCULAR COMPLICATIONS** like irregular heartbeats, heart failure, coronary disease, heart attacks, and more, even a year out from infection.

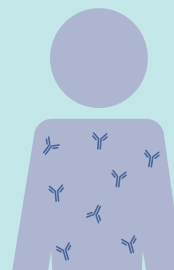
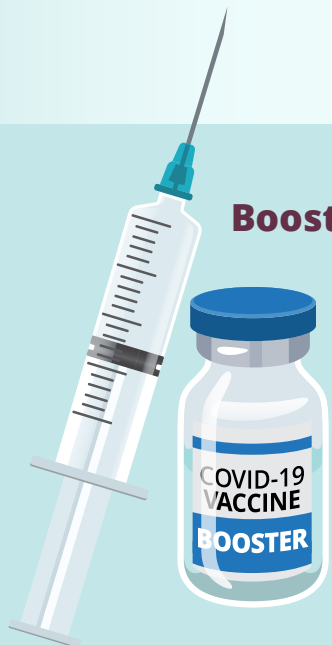
(Xie et al 2022)



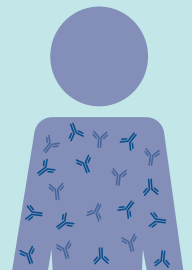
Boosters Help Maintain Immunity

It is not uncommon for protection from a vaccine to decrease over time, especially as new variants of a virus develop.

Boosters give vaccinated individuals added protection against infection and serious complications.

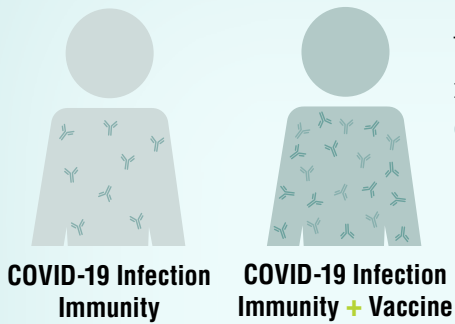


Primary Vaccination
Immunity



Primary Vaccination
+ Booster Immunity

You Still Need a Vaccine Even if You've Already had COVID-19

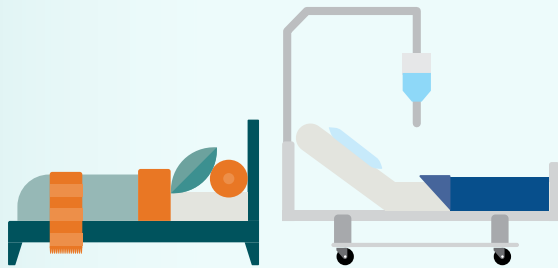


While previous COVID-19 does offer some protection against new infections, **experts believe this protection begins to decline in as little as three months after infection.** (Swartz 2023)

Reinfections from COVID-19 can be worse than previous infections.

2x DEATH, LONG COVID & FATIGUE RISK OF AND
3x HOSPITALIZATIONS, HEART PROBLEMS AND BLOOD CLOTTING RISK OF AND

from **COVID REINFECTIONS** (Bowe 2022)



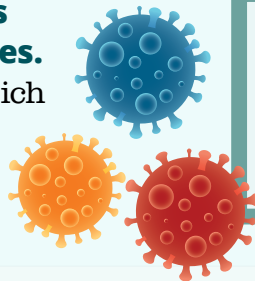
People vaccinated for COVID-19 have a far lower risk of hospitalization and death than those who are unvaccinated.

When news reports say that more vaccinated than unvaccinated people are dying, this is because:
1) there are 3.8 times more fully vaccinated than unvaccinated people in the U.S.; and
2) fully vaccinated people are more likely to be older, frailer, and at higher risk of complications.

Vaccines Help Prevent Variants and Protect Others in Your Community

Variants of viruses develop as the virus is passed from person to person and mutates.

If the virus can't spread, it can't mutate, which is why high vaccination rates are so important. The only way to stop new variants is to stop the spread of the virus.



MORE VACCINATED = LESS TRANSMISSION = FEWER NEW VARIANTS

Trusted Resources

To learn more about what COVID-19 vaccine is best for you, when you need your next shot or booster, how the vaccines work, and what other vaccines you need, visit these trusted resources:



Vaccines.gov:
find a vaccine appointment near you



CDC.gov — Vaccines and Immunizations:
Includes a recommended vaccine schedule for different age groups, information about infectious diseases, details on how vaccines work, and more



Centers for Disease Control & Prevention — About COVID-19 Vaccines:
Updated information on which COVID-19 vaccines are approved for use, a tool for finding out if you're due for any shots or boosters, and more



COVID-19 Vaccine Education & Equity Project:
Resources and events providing transparent communication on COVID-19 vaccines



Mayo Clinic — How Vaccines Work:
Key takeaways on the how COVID-19 vaccines boost the immune system

References

Bowe, B Y Xie, and Z Al-Aly. 2022. Acute and Postacute Sequelae Associated with SARS-CoV-2 Reinfection. *Nature Medicine* 28: 2398-405.

Brown School of Public Health. May 2022. *Vaccine Preventable Deaths Analysis*. Available at globalepidemics.org/vaccinations.

Centers for Disease Control and Prevention. September 16, 2022. *Understanding How COVID-19 Vaccines Work*. Available at www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/how-they-work.html.

Fitzpatrick, M, et al. 2022. Two Years of U.S. COVID-19 Vaccines Have Prevented Millions of Hospitalizations and Deaths. *To the Point*, Commonwealth Fund. doi.org/10.26099/whsf-fp90.

Hamel, L L Lopes, G Sparks, M Stokes, and M Brodie. 2021. KFF COVID-19 Vaccine Monitor: April 2021. Available at: www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-april-2021.

Jiang, J, L Chan, et al. 2023. Impact of Vaccination on Major Adverse Cardiovascular Events in Patients with COVID-19 Infection. *JACC* 81(9):928-30.

Knight, R, V Walker, S Ip, J Cooper, T Bolton, S Keene, et al. 2022. Association of COVID-19 with Major Arterial and Venous Thrombotic Diseases: A Population-Wide Cohort Study of 48 Million Adults in England and Wales. *Circulation* 146(12): 892-906.

Loomba, S, A de Figueredo, S Piatek, K de Graaf, and H Larson 2021. Measuring the Impact of the COVID-19 Vaccine Misinformation on Vaccination Intent in the UK and USA. *Nature Human Behaviour* 337-48.

Mayo Clinic. 2022. *Different Types of COVID-19 Vaccines: How they work*. Available at www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/different-types-of-covid-19-vaccines/art-20506465.

NBC News. January 6, 2023. Covid Vaccinations: See the latest trend and count. Available at www.nbcnews.com/data-graphics/covid-vaccination-tracker-see-latest-trend-count-rcna61054.

Our World in Data. 2022. United States: COVID-19 Weekly Death Rate by Vaccination Status, 50+. Available at ourworldindata.org/grapher/united-states-rates-of-covid-19-deaths-by-vaccination-status?country=-50%2B.

Swartz, M, S DeSantis, A Yaseen, et al. 2023. Antibody Duration After Infection from SARS-CoV-2 in the Texas Coronavirus Antibody Response Survey. *J Infect Dis* 227(2):193-201.

Vosoughi, S, D Roy, and S Aral. 2018. The Spread of True and False News Online *Science* 359(6380):1146-51.

Wellcome. 2022. What different types of COVID-19 vaccines are there? Available at wellcome.org/news/what-different-types-covid-19-vaccine-are-there.

Zie, Y, E Yu, B Bowe & Z Al-Aly. 2022. Long-Term Cardiovascular Outcomes of COVID-19. *Nature Medicine* 28:583-90.




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