

Heart Problems After Having COVID and After Getting an mRNA COVID Vaccine

Research summary published
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This research at a glance

Main Question

Did people who had COVID have a higher chance of having heart problems than people who got an mRNA COVID vaccine?

Answer

Yes, researchers found that the chance of having heart problems was higher after having COVID than after getting an mRNA COVID vaccine for males and females in all age groups.

The overall chance of having heart problems after having COVID or getting an mRNA COVID vaccine was very low across people of all ages and genders.

The researchers concluded that the results support the continued use of mRNA COVID vaccines for all people ages 5 and older, who meet the vaccine criteria.



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Why was this research needed?

Researchers want to learn more about certain heart problems people have after COVID or after getting an mRNA COVID vaccine. Past research had found that some people may have a higher chance of certain heart problems after having COVID or after getting an mRNA COVID vaccine (Moderna or Pfizer). These heart problems can be serious and include:

- **Myocarditis:** inflammation of the heart muscle that can lower the heart's ability to pump blood
- **Pericarditis:** inflammation of the heart's outer lining that causes chest pain
- **Multisystem inflammatory syndrome (MIS):** inflammation of different body parts, including the heart, lungs, kidneys, brain, skin, eyes, or other organs

Inflammation is the immune system's response to infection that brings many cells and proteins to the infected part of the body, but can sometimes cause damage

The goal of this research was to answer this question:

Did people who had COVID have a higher chance of having heart problems than people who got an mRNA COVID vaccine?



What happened during this research?

Researchers used data from electronic health records (EHRs) from 40 health systems in PCORnet, Patient-Centered Clinical Research Network. Electronic health records are digital versions of patients' medical records.

Researchers counted how many people had certain heart problems within 6 weeks after they had COVID or got an mRNA COVID vaccine. Then, they compared the number of people who had heart problems based on:

- Age group
- Gender
- If they had COVID
- Which mRNA COVID vaccine dose they got, if any

Whose data was included in this research?

Researchers used data from EHRs from over 7 million people in the United States from January 1, 2021 to January 31, 2022. Researchers looked at data from people ages 5 and older who had either:

- COVID, based on a positive test result
- A first or second dose of an mRNA COVID vaccine, including doses not labeled as either first or second – researchers did not include people who received a booster or extra vaccine dose



What were the main results?

Did people who had COVID have a higher chance of having heart problems than people who got an mRNA COVID vaccine?

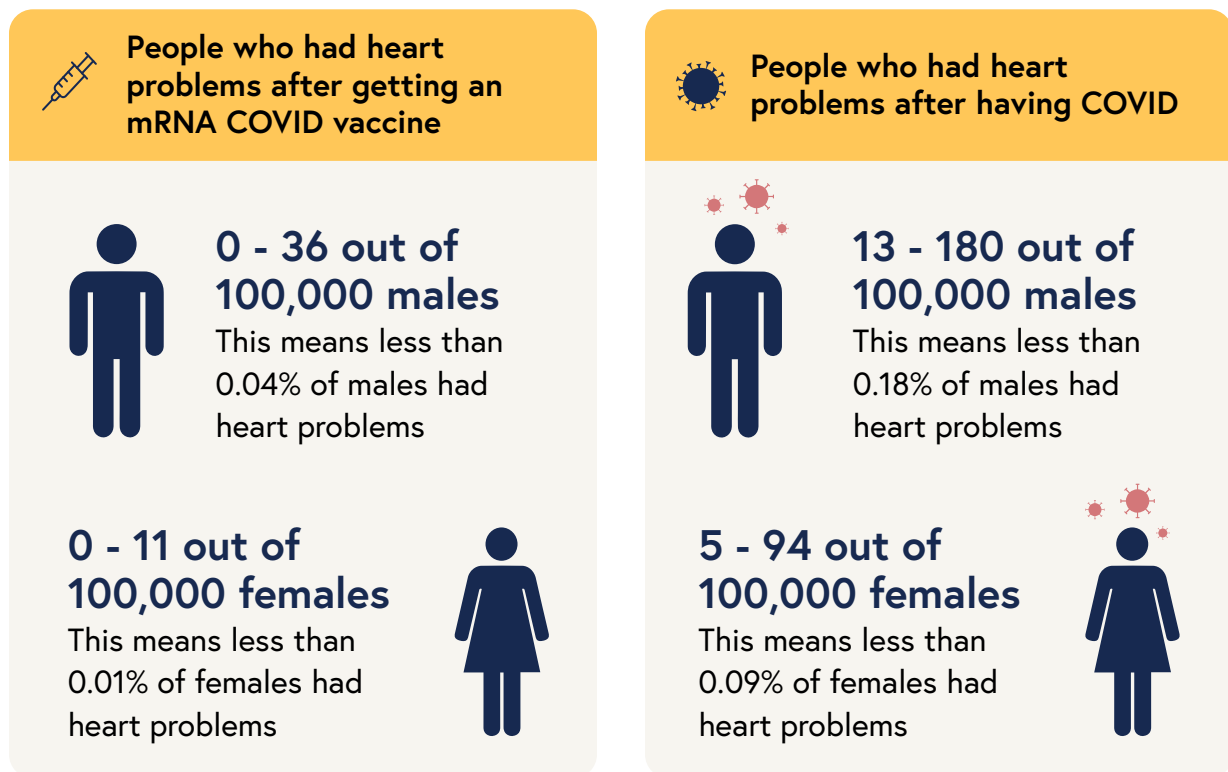
Yes, researchers found that the chance of having heart problems was higher after having COVID than after getting an mRNA COVID vaccine for males and females in all age groups.

The overall chance of having heart problems after having COVID or getting an mRNA COVID vaccine was very low across people of all ages and genders.

Researchers found that the groups that had the highest chances of heart problems after they got an mRNA COVID vaccine were:

- **Males 12 to 17 years old.** However, males this age who had COVID were about 2 times more likely to have heart problems compared to males who got an mRNA COVID vaccine.
- **Females 18 to 29 years old.** However, females this age who had COVID were about 3 times more likely to have heart problems compared to females who got an mRNA COVID vaccine.

Chance of heart problems across all age groups



How has this research helped?

This research gives information to help think about the possible risks and benefits of mRNA COVID vaccines. The researchers concluded the results support the continued use of mRNA COVID vaccines for all people ages 5 and older, who meet the vaccine criteria.



Where can I learn more about this research?

Read the full paper published in *Morbidity and Mortality Weekly Report (MMWR)* on April 8, 2022 at <https://www.cdc.gov/mmwr/volumes/71/wr/mm7114e1.htm>

Full paper title:

Cardiac Complications After SARS-CoV-2 Infection and mRNA COVID-19 Vaccination — PCORnet, United States, January 2021–January 2022

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About RECOVER

RECOVER is a research project that aims to learn about the long-term health effects of COVID. We're hopeful that this project will help us better prevent and treat Long COVID in the future. RECOVER is paid for by the National Institutes of Health (NIH).

Learn more at: RECOVERcovid.org