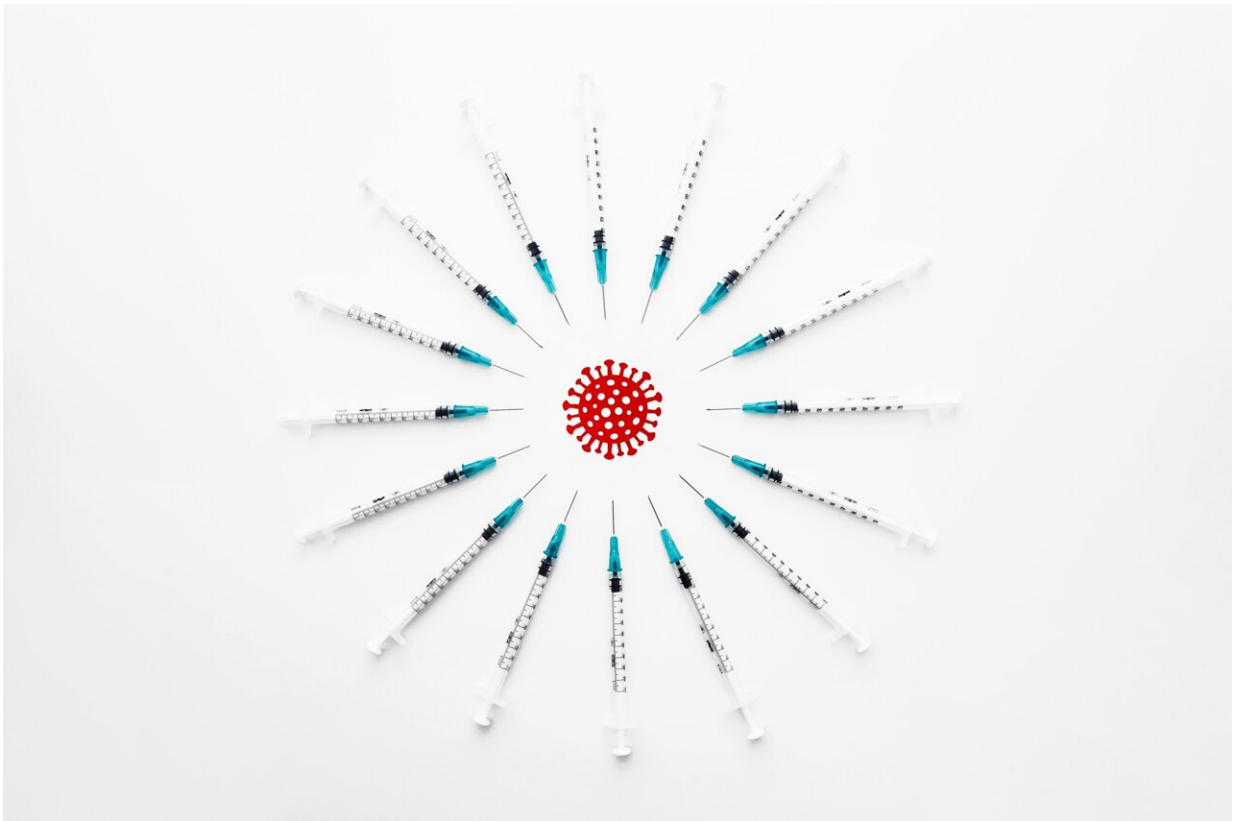


# The SARS-CoV-2 vaccine can support heart health

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One way of protecting your heart that you might not be aware of is by getting the COVID-19 vaccine. A Baylor College of Medicine cardiologist says that SARS-CoV-2 causes inflammation and injury that

can damage a number of organs, and that includes the heart. The risk and complications can be higher for those individuals who already have preexisting health concerns, including hypertension, heart disease or diabetes, but it also can affect individuals without risk or preexisting conditions which as children and young adults.

Dr. Biykem Bozkurt, professor of medicine—cardiology at Baylor, says cardiac complications of COVID-19 range from myocarditis, [heart](#) attack, arrhythmia and even heart failure and cardiac shock in severe cases. Other cardiovascular-related issues include the increased risk for blood clot formation in the vascular system throughout the body including lungs, heart and brain.

"Since the beginning of the pandemic we have noted that individuals with serious COVID-19 infection, those that require hospitalization or ICU stays, had a higher risk for cardiovascular complications with the worst outcome being death," says Bozkurt, who also is a cardiologist at the Michael E. DeBakey VA Medical Center. "As the pandemic has evolved, we have learned that there are a variety of conditions such as multisystem inflammatory syndrome that are seen even in pediatric patients."

## **COVID-19 and the heart**

So how does a virus cause heart problems? Bozkurt says it is likely multifactorial, hypothesized to be related to a variety of causes such as cytokine storm, [small vessel](#) vascular and thrombotic injury, increased demand to the heart due to infection and low oxygen level and even direct infection of the vessels and heart.

A cytokine storm is an [immune response](#) where the body's immune system floods the blood stream with inflammatory proteins called cytokines, attacking healthy cells as well as the infection. Those

suffering from COVID-19 have been known to experience this type of response, with inflammation being triggered in multiple organs, leading to tissue damage. Injury to microvascular vessels, clotting problems and low oxygen levels due to breathing difficulty resulting from the virus all can damage the heart.

"In autopsy studies the presence of SARS-CoV-2 have been demonstrated in a variety of cells, including certain cardiac cells. That is because receptors for the virus are expressed throughout the body. It is predominantly found in the lungs, but studies are showing us that it is found in a number of other areas, including the heart," Bozkurt says. "The direct effect of the virus on cardiac cells is still being investigated, as well as the long-term effects on the heart for those who have recovered from COVID-19."

## **Prevention?**

It is not entirely clear how long-term effects to the heart might vary from variant to variant, but the best way to protect your heart, Bozkurt says, is to get vaccinated.

"There have been multiple trials and surveyance studies that show the current vaccines are effective in providing immunity and protection against severe illness and therefore protection against illness complications, including those that are cardiovascular related," Bozkurt says. "It lessens the severity of the illness, which can in turn lessen damage to the heart."

## **What about side effects?**

"Some people are worried about side effects of the vaccine. There is a small number of cases of myocarditis seen after vaccination in young

adult males. However, the cases of myocarditis in those vaccinated are markedly lower than the number of cases seen in those infected with SARS-CoV-2."

Myocarditis cases related to the vaccine, Bozkurt says, are usually very mild and resolve within four to five days.

"You have to talk with your doctor for trusted medical advice to weigh the risks. The infection itself is more dangerous when compared to the vaccine side effects," Bozkurt says. "With the infection there is an increase in the risk of pulmonary embolism, inflammation in the heart, [heart attack](#), pericarditis, deep vein thrombosis, arrhythmia and even intercranial hemorrhage, to name a few. These risks are not increased among the vaccinated."

## **Follow-ups important, even during a pandemic**

Bozkurt says doctors saw a decline in the number of visits to cardiologists for preexisting heart conditions as well as people being seen in the ER for heart issues during the first two surges of the pandemic.

"We think people delayed their care and follow-up care out of fear of being exposed to the virus while in the hospital or doctor's office as well as a fear of hospitals being overloaded with patients. We recognize that delaying care is associated with complications and worse outcomes when it comes to heart health."

Bozkurt says not to delay your care. Healthcare facilities have protocols and strategies in place to provide timely care to patients. Managing your heart health, including getting vaccinated, is an important part of keeping adverse cardiovascular side effects due to COVID-19 at bay.

Provided by Baylor College of Medicine

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