

# German and Japanese research on mRNA vaccines

By Marina Zhang  
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New research out of Germany observing rat and human heart cells shows that within 48 hours of vaccination, the COVID-19 mRNA vaccines form spike proteins.

Spike proteins, made from the mRNA instructions inside the vaccines, were detected in the heart cells. While both Pfizer and Moderna vaccines caused cell abnormalities, the two induced different anomalies.

The different responses the cells had to the two mRNA vaccines suggest an *mRNA toxicity reaction* in these cells within 48 hours (an abnormally short amount of time to observe this change), according to Dr. Peter McCullough, a leading internist, cardiologist, and epidemiologist who has published over 1,000 research reports and is the lead author of one of the first widely utilized treatment regimens for SARS-CoV-2 patients. He added that 48 hours was a short amount of time to observe this.

"[The findings](#) support both the diagnosis and treatment of cardiac events following mRNA-based COVID vaccination," the authors wrote, adding that the findings may explain [persistent cardiac symptoms among long-COVID patients](#).

The paper is a rapid communication paper, a form used when they have findings that need to be shared immediately with the academic community.

## Not Classic Presentations of Myocarditis

The paper's authors introduced mRNA vaccinations to cell cultures made from rat and human heart cells.

Moderna and Pfizer vaccines each have different doses of mRNA, with Moderna having a higher dose of 100 micrograms compared to Pfizer's 30 micrograms. Therefore, the researchers administered 100 micrograms of mRNA for both groups.

**Within 48 hours, researchers detected spike proteins in both cell cultures and noticed abnormalities in heart contractions.**

The researchers recorded heart contractions in a supplementary video, comparing normal contractions in an unvaccinated rat heart cell (1A) with vaccinated cells.

*Pfizer*-vaccinated cells displayed stronger, *sustained contractions* (1B) due to increased protein kinase A (PKA) activity. PKA levels are linked to heart performance; the higher the PKA level, the stronger the heart contractions. *Moderna*-vaccinated cells developed *irregular heart contractions and disrupted calcium regulation*. The authors attributed the change in cell activity to disturbances in RyR2 receptors. These receptors play a key role in coordinating heart contractions using calcium. Some of the heart muscles administered Moderna vaccines developed irregular and peristaltic contractions (1C and 1D), whereas others had irregular and arrhythmic contractions (1E and 1F). Spike proteins were also detected within 48 hours in the cell culture of human cells.

The authors concluded that *at the cellular level*, the effects of the COVID-19 vaccines seemed to align closer with *cardiomyopathy than with myocarditis*. Cardiomyopathy is a condition where heart muscles become both structurally and functionally abnormal in the absence of other heart diseases. This differs from myocarditis and pericarditis, which occur when heart muscles become inflamed and damaged. [Prior work by Dr. James Gill](#), who led autopsies on two boys who died in their sleep after administration of the COVID-19 Pfizer vaccines, concluded that the boys did not suffer from typical myocarditis but rather something that resembled cardiomyopathy caused by toxic stress.

A diagnosis of myocarditis and pericarditis indicates inflammation and damage to heart muscle cells, yet doctors may fail to find signs of damage and inflammation in blood and imaging tests. "Myocarditis will present with a dilated heart and patients having trouble breathing and heart failure," Dr. McCullough said. "What we're seeing with vaccines is *not* heart failure. *It's actually cardiac arrest*, which is primarily an electrical [signaling] problem. "While the paper indicated abnormality in mainly animal cells, the results strongly suggest *vaccine cardiotoxicity*.

"The present preclinical cardiac safety data point to the *need for a reassessment of the risk–benefit ratio of RNA-based SARS-Cov-2 vaccines*, given indication of their cardiotoxicity."

The heart abnormalities exhibited in the cells, likely caused by disruption to RyR2 and increased PKA protein levels, "are risk factors for sudden cardiac death, ventricular tachyarrhythmias, and contractile dysfunction," they added, "It's very worrisome," particularly since [disruptions to the RyR2 receptor](#) are directly linked to sudden cardiac

death, Dr. McCullough said. "The pattern we're seeing is people take the vaccine, and they die *during exercise*, or they die between 3 a.m. and 6 a.m.—again, where there's a *surge of catecholamines or stress in the body.*"

#### Why the mRNA Vaccines Each Induce Different Anomalies

Dr. McCullough added that the different pathways affected by the two vaccines suggest some underlying cell toxicity to the mRNA codes since Moderna and Pfizer vaccines have different mRNA codes, but both produce the same spike protein. If the two vaccines provoked a similar response, that might suggest that most of the adverse events were driven by the spike proteins produced by the mRNA instructions. However, Moderna and Pfizer vaccines distinctively inducing different cardiac abnormalities may suggest toxicity of the mRNA itself.

*"It may just be the mechanics of forcing heart muscle cells to produce an abnormal protein that is changing the function of the heart muscle cells, and my concern is that if it does it with these messenger RNA vaccines, it's very likely that the influenza mRNA vaccines and RSV and the other ones in development—they're [all] going to have cardiac toxicity," Dr. McCullough said.*

#### Other Studies Indicating COVID-19 mRNA Toxicity

The paper is one of the many that have illuminated the cardiotoxic effects of mRNA vaccines.

[A Japanese study](#) published in September (2023) examined PET scans of 1,000 people who needed medical imaging for a reason unrelated to myocarditis. The authors compared 303 unvaccinated to 700 asymptomatic vaccinated people.

Results: Overall, vaccinated people saw a shift in metabolism, suggesting abnormal heart function. Typically, heart muscle cells rely on fat for fuel, but the hearts of vaccinated people showed a more substantial reliance on 18 fluorodeoxyglucose, a type of glucose. The use of 18 fluorodeoxyglucose is [linked to low oxygen](#) in the blood.

Editor's Note: *Each new study necessarily adds to our comprehensive body of knowledge. No individual study answers all questions, and each well designed study functions simply as a new piece adding to a more complete picture of our working, composite understanding of cellular and/or systemic function.*

*As such, the "facts" of yesterday may well not dictate new information, interpretation, or the understanding of our body's complex biochemical and physiological processes. What we "know" today is an accumulation of centuries of experimentation, observation, and further testing that*

*broke down successive walls of medical conclusions, thus providing the step-by-step advancement of human understanding.*

*This research process historically was frequently riddled by intense struggles between various factions within the medical world. Even medical and other scientific professionals can easily stake their carefully cultivated professional reputations on incorrect assumptions, creating emotional \_translated, professional pride\_ barriers to advancement of scientific knowledge. The bottom line here is to study extensively and continuously, always qualifying your conclusions by specifying the source of your statements with something like "what I have read" or something similar, no matter how much you trust your information source.*

Respectfully,

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