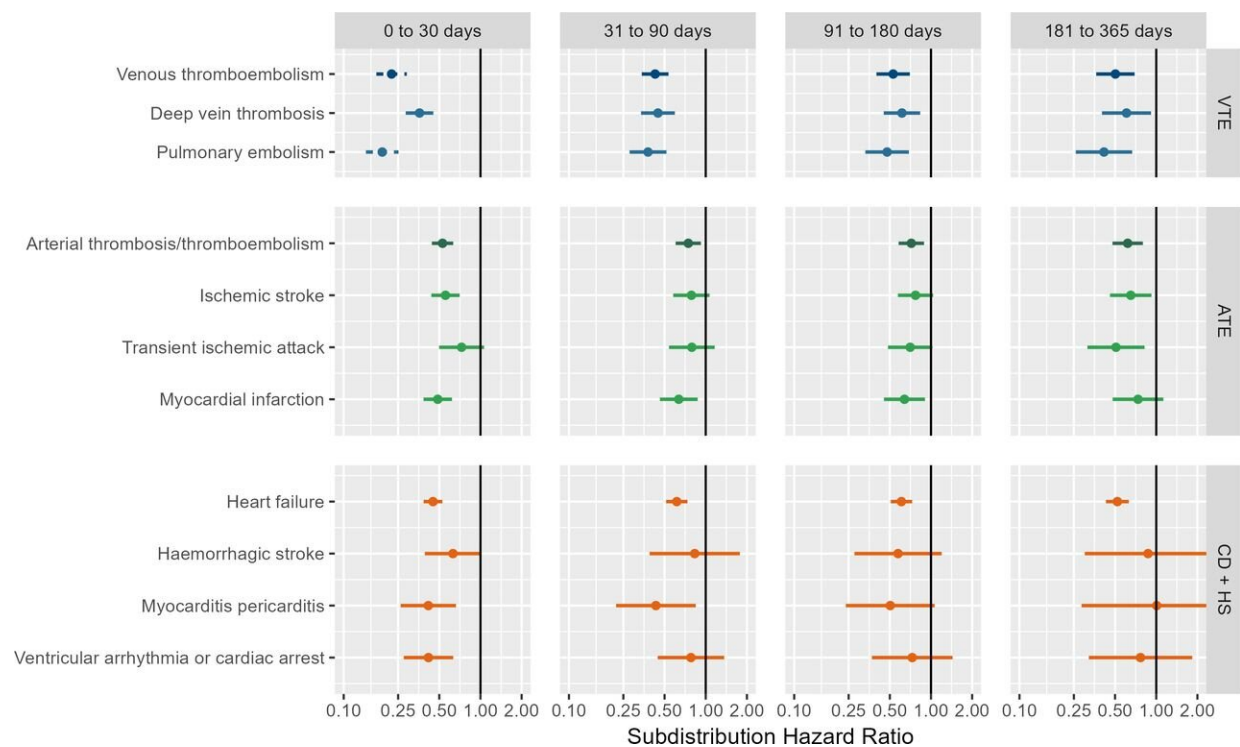


# COVID jab linked to lower risk of COVID-19–related clot and heart complications

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Forest plots for the effect of COVID-19 vaccines on post-COVID-19 cardiac and thromboembolic complications; meta-analysis across cohorts and databases. Credit: *Heart* (2024). DOI: 10.1136/heartjnl-2023-323483

The risk of cardiac and clot-related complications following COVID-19 is substantially reduced in people who receive the COVID-19 vaccination compared with unvaccinated individuals, reports an observational study [published](#) online in the journal *Heart*.

Led by Professor Daniel Prieto Alhambra the study found that COVID-19 vaccines proved to be highly effective in reducing the severity of acute SARS-CoV-2 infection, COVID-19-related hospital admission and death.

And while some COVID-19 vaccines were associated with an increased risk of rare but serious complications, such as blood clots and heart inflammation (myocarditis), the risk of these complications was substantially higher after SARS-CoV-2 infection.

Nuria Mercade Besora, Research Assistant in Health Data Sciences at NDORMS and first author of the paper said, "Our findings probably reflect the fact that the vaccines are effective in reducing infection, and minimize the risk of severe COVID-19. These results could encourage COVID-19 vaccination among hesitant people who are worried about the potential risk of [vaccine](#) side effects."

The study set out to explore the association between COVID-19 vaccination and the risk of post-COVID-19 cardiac and thromboembolic complications using [population data](#) for the U.K., Spain and Estonia which included 10.17 million vaccinated people and 10.39 million unvaccinated people.

Individuals who were vaccinated received either an adenovirus-based vaccine (Oxford/AstraZeneca or Janssen) or one of the mRNA vaccines (BioNTech/Pfizer or Moderna) and recorded them according to four

post-infection time windows: 0–30, 31–90, 91–180 and 181–365 days after infection.

A range of potentially influential factors, such as age, sex and pre-existing conditions including [chronic lung disease](#), diabetes, [heart disease](#) and a history of blood clots were accounted for in the analysis to minimize bias.

The results show that COVID-19 vaccination was associated with reduced risks of heart failure, venous thromboembolism (clot within the veins of a limb) and arterial thrombosis/thromboembolism (blood clot in the artery) for up to a year after SARS-CoV-2 infection.

Reduced risk of other complications, such as [ventricular arrhythmia](#) or cardiac arrest (heart attack), myocarditis and pericarditis were also seen, but only in the first 30 days after infection.

Compared with unvaccinated individuals, having a COVID-19 vaccination was associated with reduced risks of [venous thromboembolism](#) by 78%, arterial thrombosis/thromboembolism by 47% and heart failure by 55% in the first 30 days after SARS-CoV-2 infection. However, as time progressed the protective effects of vaccination waned.

As time progressed, the protective effects of vaccination waned, but remained at 47%, 28%, and 39% respectively at 91–180 days after infection and 50%, 38%, and 48% respectively at 181–365 days.

This is an [observational study](#), so can't establish cause and effect, and the authors highlight some limitations including the inherent data quality concerns and risk of bias with use of real-world data, and potential under-reporting of post-COVID-19 complications.

However, state-of-the-art [statistical methods](#) were used to deal with these limitations and results were consistent across all databases, which they say highlights the robustness and replicability of the findings.

Nuria concluded that "The protective effects of vaccination are consistent with known reductions in disease severity, but we need to do more research to understand the effect/s of a booster vaccination in different populations."

**More information:** Núria Mercadé-Besora et al, The role of COVID-19 vaccines in preventing post-COVID-19 thromboembolic and cardiovascular complications, *Heart* (2024). [DOI: 10.1136/heartjnl-2023-323483](#)

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