

Flu vaccine may hold key to preventing heart disease

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A new study in *Vaccine* explains how flu vaccines prevent heart attacks

Flu vaccines are known to have a [protective effect](#) against [heart disease](#), reducing the risk of a heart attack. For the first time, this research, published in *Vaccine*, reveals the [molecular mechanism](#) that underpins this phenomenon. The scientists behind the study say it could be harnessed to prevent heart disease directly.

Heart disease is the leading cause of death worldwide. People can reduce their risk of heart disease by eating healthily, exercising and stopping smoking. However, to date there is no [vaccine](#) against heart disease.

Previous clinical findings show that people that receive the seasonal [flu](#) vaccine also benefit from its protective effect against heart disease; the risk of having a [heart attack](#) in the year following vaccination is 50% lower than people who did not receive the vaccination. The exact mechanism underlying this protective effect remained unknown.

This new study for the first time reveals this mechanism, showing that the flu vaccine stimulates the immune system to produce antibodies that switch on certain processes in cells. These processes lead to the production of molecules that protect the heart. The researchers say that based on the results it may be possible to develop a new vaccine against heart disease.

"Even though the protective effect of the [flu vaccine](#) against heart

disease has been known for some time, there is very little research out there looking at what causes it. Our proposed mechanism could potentially be harnessed in a vaccine against heart disease, and we plan to investigate this further," said Dr. Veljkovic, Institute Vinca, Belgrade, the lead author of the new study.

The researchers identified a protein called the bradykinin 2 receptor (BKB2R), which is involved in cellular processes that protect the heart. Some of the antibodies the body produces after flu vaccination switch this protein on, therefore protecting against heart disease. The researchers analysed 14 flu viruses used in vaccines, and identified four that could be investigated for use in potential heart disease vaccines.

"The rate of administering flu vaccinations is disappointingly low, even in developed countries," added Dr. Veljkovic "We hope that our results will encourage more people to get vaccinated before the flu season starts."

More information: "Influenza vaccine as prevention of cardiovascular diseases: Possible molecular mechanism", by Veljko Veljkovic, Sanja Glisic, Nevena Veljkovic, Tijana Bojic, Ursula Dietrich, Vladimir R. Perovic, Alfonso Colombatti ([DOI: 10.1016/j.vaccine.2014.07.007](https://doi.org/10.1016/j.vaccine.2014.07.007)). The article appears in *Vaccine*, published by *Elsevier*.
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