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## Flu Vaccine: Key to Preventing Heart Disease?



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A new study published in *Vaccine* reveals for the first time the molecular mechanism which helps to explain how flu vaccines may be able to prevent heart attacks. Flu vaccines have long been known to have a protective effect against heart disease, thus reducing the risk of a heart attack. However, there is not much scientific information to explain this phenomenon.

Based on previous clinical findings, people that receive the seasonal flu vaccine also benefit from its protective effect against heart disease. Notably, the risk of having a heart attack in the year following vaccination is 50 percent lower for people who receive the vaccination. The exact mechanism underlying this protective effect remained unknown.

For the first time, the new study by scientists from Institute Vinca (Belgrade, Serbia) 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 Vinca 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 a flu vaccination switch this protein on, therefore protecting against heart disease, the researchers explained.

Available data show that heart disease is the leading cause of death worldwide. People can reduce their risk of heart disease by eating healthy foods, exercising and stopping smoking. However, to date there is no vaccine against heart disease.

### Mechanism Could be Harnessed to Develop Vaccine Against Heart Disease

The Vinca scientists said that based on their findings it could 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. Veljko Veljkovic, Institute Vinca, lead author of the study.

Dr. Veljkovic's team also 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," Dr. Veljkovic pointed out. "We hope that our results will encourage more people to get vaccinated before the flu season starts."

Institute Vinca, founded in 1948 as the Institute for Physics, is now the largest multidisciplinary institute in Serbia. Since its founding, the institute has also conducted research in the areas of physics, chemistry, biology, energy, and radiation protection. The scholarly institute is part of the University of Belgrade.

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