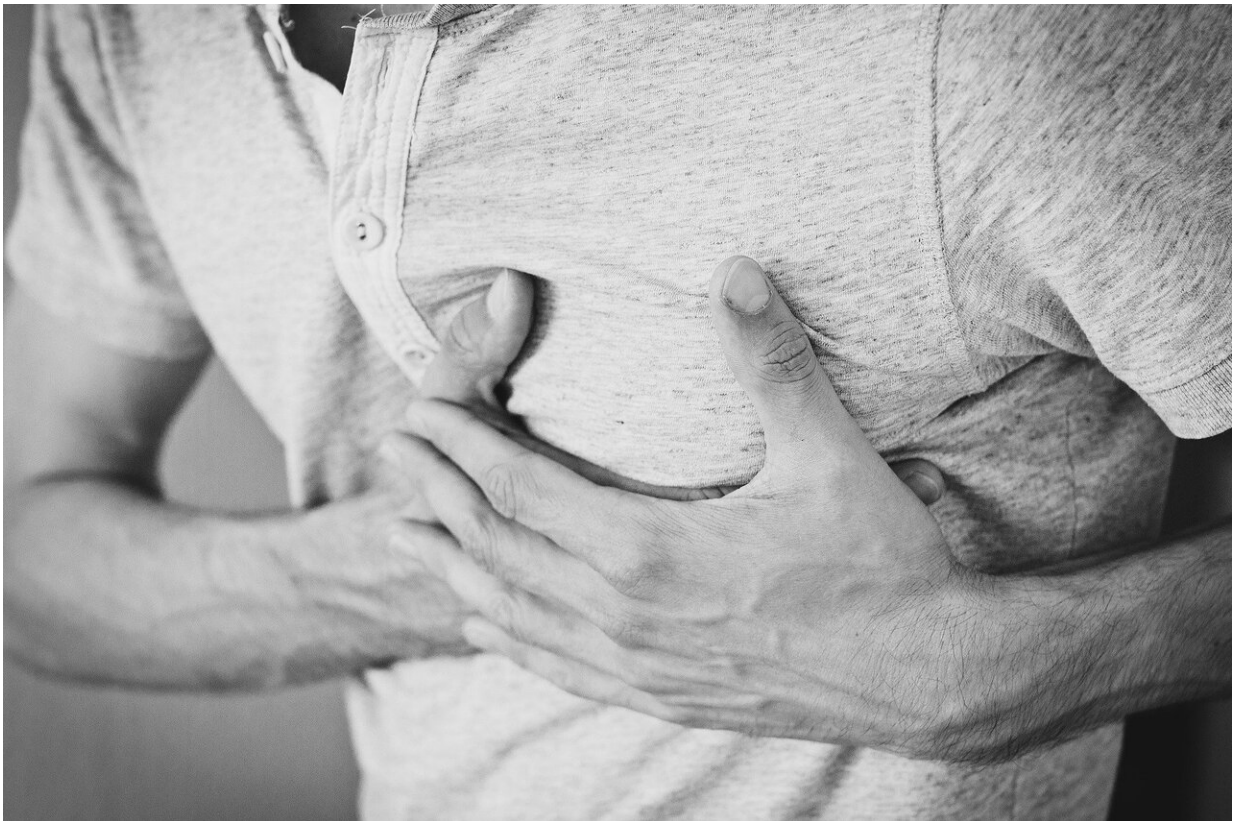


Combo therapy cuts risk of heart attacks and strokes in half

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A combination therapy of aspirin, statins and at least two blood pressure medications given in fixed doses can slash the risk of fatal cardiovascular disease (CVD) by more than half, says an international

study led by Hamilton researchers.

The fixed-dose combination (FDC) therapies were examined both with and without aspirin versus control groups in a combined analysis of more than 18,000 patients without prior CVD from three large clinical trials. FDCs including aspirin cut the risk of heart attacks by 53 percent, stroke by 51 percent, and deaths from cardiovascular causes by 49 percent.

The results were welcomed by international leaders in cardiovascular research.

Approximately 19 million people worldwide die of CVD and twice as many experience heart attacks or strokes every year.

About 80 percent of cardiovascular events occur in individuals without a prior history of such illness, meaning effective preventative strategies including medications in people without CVD is essential, if the majority of heart attacks, strokes and related deaths in the world are to be prevented, the authors of the study state.

"This combination, either given separately or combined as a polypill, substantially reduces fatal and non-fatal CVD events," said lead author Philip Joseph, associate professor of medicine at McMaster University, investigator at the Population Health Research Institute and cardiologist at Hamilton Health Sciences.

"The largest effects are seen with treatments that include blood pressure lowering agents, a statin and aspirin together, which can reduce fatal and non-fatal cardiovascular events by about half.

"The benefits are consistent at different blood pressure levels, cholesterol levels and with or without diabetes, but larger benefits may occur in older people."

Joseph is the first author of the meta-analysis study by the Population Health Research Institute (PHRI) of McMaster University and Hamilton Health Sciences. Salim Yusuf, executive director of the PHRI and Distinguished University Professor at McMaster, is the senior author and the Principal Investigator.

The study involved investigators from 13 countries and included participants from 26 countries and every inhabited continent of the world.

The study was published by *The Lancet* today and concurrently presented at the European Society of Cardiology Congress by Joseph.

FDC treatment strategies trialed by the researchers were previously thought to substantially reduce CVD events and are called 'polypills' when used in a single-tablet drug formula, but proof of the benefits has not been available until the last two years.

The concept of a combination pill was first proposed exactly 20 years ago as a strategy to substantially reduce CVD in the population and also in those who already have had a previous heart attack or stroke.

Early trials demonstrated improved patient adherence to treatment regimens and better risk factor control with a polypill, compared to the use of single drugs, usual care, or placebos.

"These results are huge, and its wide use can avoid between 5 and 10 million individuals experiencing a stroke, heart attack or dying from these conditions yearly," said Yusuf.

"I could see a future with development of a stronger polypill where we could see a lowering of cardiovascular disease by 65 or 70 percent around the world and leading to even greater benefits.

"Given that all the components of the polypill are generic and low cost, polypills can be provided to people at modest costs and are likely to be very cost effective."

Researchers gleaned their findings from combining data from three big studies on a total of 18,000 people followed for about 5 years; and these included the International Polycap Study (TIPS)-3, the Heart Outcomes Prevention Evaluation (HOPE)-3 study and the PolyIran trial.

Other international experts and organizations praised the study results.

"The World Heart Federation (WHF) is committed to promoting cardiovascular health for everyone by reducing the CVD burden worldwide, in both developed and developing countries," said WHF president Professor Fausto Pinto.

"The demonstration of a low-cost approach using fixed dose combinations to reduce CVD by about 50 percent is extraordinary and represents a huge opportunity to tackle the condition globally, with a major potential impact on people's lives. The WHF has supported the use of a polypill for the last decade and these results provide robust evidence to strengthen our global advocacy strategy."

Wellcome Trust Director Sir Jeremy Farrar said, "The Wellcome Trust supported one of the three major studies that are included in the analysis, based on the recommendations that emanated from a workshop convened with the World Health Organization in London in August 2001. The Wellcome Trust has been committed to evaluating low-cost widely applicable solutions for common diseases including cardiovascular disease. We are pleased that our support has contributed to the development of robust evidence indicating that the polypill or fixed dose combinations involving [blood pressure](#) lowering, statins and aspirin can reduce CVD substantially."

More information: Philip Joseph et al, Fixed-dose combination therapies with and without aspirin for primary prevention of cardiovascular disease: an individual participant data meta-analysis, *The Lancet* (2021). [DOI: 10.1016/S0140-6736\(21\)01827-4](https://doi.org/10.1016/S0140-6736(21)01827-4)

Provided by McMaster University

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