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## The BMJ Press Release

### Lowering cholesterol with vegetable oils may not curb heart disease risk or help you live longer

*Study adds to doubts around the health benefits of replacing saturated fat with common vegetable oils*

Replacing saturated fats with vegetable oils rich in linoleic acid lowers blood cholesterol, but doesn't curb heart disease risk or help you live longer, suggests a study published by **The BMJ** today.

The findings add to doubts around the widely held belief that vegetable oils rich in linoleic acid are good for heart health.

The traditional "diet-heart hypothesis" predicts that replacing saturated fat with vegetable oils rich in linoleic acid will reduce cardiovascular deaths by lowering blood cholesterol levels.

Although many studies support this theory, this paradigm has never been causally demonstrated in a randomized controlled trial and thus has remained uncertain for over 50 years. Furthermore, key findings from landmark trials on this topic were not published.

So a team of US researchers, led by Christopher Ramsden at the National Institutes of Health and University of North Carolina, set out to re-examine this hypothesis by analysing recovered data from a large randomized controlled trial that took place 45 years ago.

The Minnesota Coronary Experiment (MCE) followed 9,423 participants from state mental hospitals and a nursing home for up to four and a half years.

The trial tested whether replacing saturated fat with vegetable oil rich in linoleic acid (corn oil) reduces the risk of coronary heart disease and death by lowering blood cholesterol levels. The control group ate a diet high in saturated fat.

As expected, the diet enriched with linoleic acid lowered cholesterol levels, but this did not translate to improved survival. In fact, participants who had greater reduction in blood cholesterol had higher, rather than lower, risk of death.

In 2013, the researchers examined unpublished data from a similar trial - the Sydney Diet Heart Study – and found that the risk of death from coronary heart disease was higher in those who replaced saturated fat with vegetable oil rich in linoleic acid.

To test their findings further, the team reviewed and analysed the results of all similar randomized controlled trials - and failed to find any reduction in death from coronary heart disease or other causes.

After emphasizing limitations of available data, they reason that collective findings from controlled trials “do not provide support for the central diet-heart tenet that the serum cholesterol lowering effects of replacing saturated fat with linoleic acid translate to reduced risks of coronary heart disease and death.”

And they conclude that findings from the MCE “add to growing evidence that incomplete publication has contributed to overestimation of the benefits of replacing saturated fat with vegetable oils rich in linoleic acid.”

The researchers also note that, although small amounts of linoleic acid are essential for health, high intakes are not natural to human diets, and preliminary evidence links by-products of linoleic acid to chronic pain and other diseases.

In a linked editorial, Lennert Veerman, senior lecturer at the University of Queensland, says: “The benefits of choosing polyunsaturated fat over saturated fat seem a little less certain than we thought.”

He points to some study limitations that could have influenced the results, and suggests that “a careful review of the evidence that underpins dietary recommendations is warranted.”

In the meantime, he says “we should continue to eat (and to advise others to eat) more fish, fruits, vegetables, and whole grains. We should avoid salt, sugar, industrial trans fats, and avoid over eating.”

[Ends]

### **Note to Editors**

Research: Re-evaluation of traditional diet-heart hypothesis: analysis of recovered data from Minnesota Coronary Experiment (1968-73)

<http://www.bmj.com/cgi/doi/10.1136/bmj.i1246>

Editorial: Dietary fats: a new look at old data challenges established wisdom

<http://www.bmj.com/cgi/doi/10.1136/bmj.i1512>

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