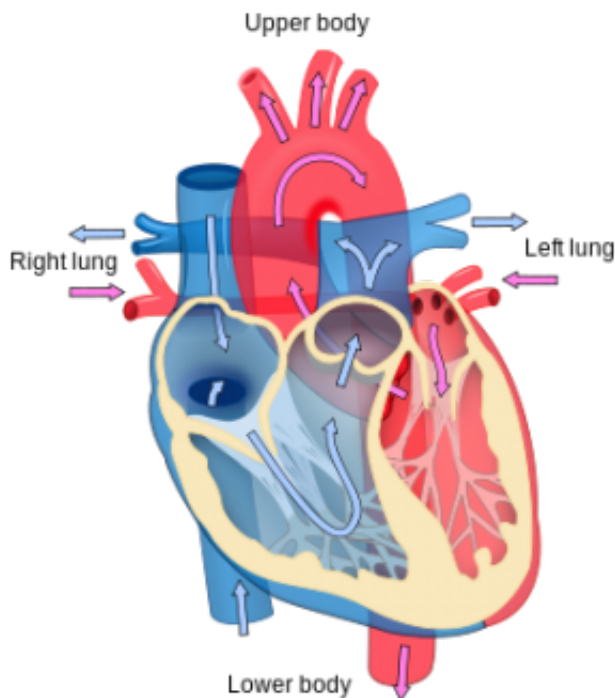


Study shows poor heart function could be major risk for Alzheimer's disease

March 3 2015



Heart diagram. Credit: Wikipedia

A healthier heart could prevent Alzheimer's disease, according to new research at Vanderbilt University Medical Center.

The study, published online Feb. 19 in *Circulation*, associates [heart function](#) with the development of [dementia](#) and Alzheimer's disease. Participants with decreased heart function, measured by cardiac index,

were two to three times more likely to develop significant memory loss over the follow-up period.

"Heart function could prove to be a major risk factor for dementia and Alzheimer's disease," said Angela Jefferson, Ph.D., director of the Vanderbilt Memory & Alzheimer's Center, and principal investigator of the study.

"A very encouraging aspect of our findings is that [heart health](#) is a modifiable risk. You may not be able to change your genetics or family history, but you can engage in a heart healthy lifestyle through diet and exercise at any point in your lifetime."

The research used data from the Framingham Heart Study, an effort that began in 1948 to identify [risk factors](#) for heart disease. 1,039 participants from Framingham's Offspring Cohort were followed for up to 11 years to compare cardiac index to the development of dementia.

"Cardiac index is a measure of heart health. It reflects cardiac output or the amount of blood that leaves the heart and is pumped through the body taking into consideration a person's body size. A low cardiac index value means there is less blood leaving the heart," Jefferson said.

Over the study period, 32 participants developed dementia, including 26 cases of Alzheimer's disease. Compared to normal cardiac index, individuals with clinically low cardiac index had a higher relative risk of dementia.

"We thought heart disease might be driving the increased risk of dementia and Alzheimer's disease. When we excluded participants with [heart disease](#) and other heart conditions, we were surprised that the risk of dementia and Alzheimer's disease got even worse," Jefferson said.

Jefferson said the research community has long associated heart health with brain health, but cardiac index has not been previously recognized as a risk factor for significant memory loss or dementia.

"For the average adult, the brain accounts for 2 percent of overall body weight but receives as much as 15 percent of blood leaving the heart. If there are changes in the heart's ability to pump blood, the brain is resilient and does a great job at regulating blood flow to maintain a consistent level to support brain tissue and activity. But as we age, our vessels tend to be less healthy. They become less adaptable to blood flow changes, and those changes may affect brain health and function," she said.

"The risk we found between lower cardiac index and the development of dementia may reflect a subtle but protracted process that occurs over decades —essentially a lifetime burden of subtle reductions in oxygen and nutrient delivery to the brain. That possibility is concerning given the observation that one in three participants in our study met the medical definition for low cardiac index."

Jefferson emphasizes that this research points only to a risk factor.

"At present, there is no proven method for preventing dementia or Alzheimer's disease. But leading a [heart](#) healthy lifestyle could help. When 30 percent of the population is exposed to a potential risk factor, like low cardiac index, that suggests it may be of significant public health concern."

Provided by Vanderbilt University Medical Center

Citation: Study shows poor heart function could be major risk for Alzheimer's disease (2015, March 3) retrieved 23 April 2024 from <https://medicalxpress.com/news/2015-03-poor-heart->

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