# Meeting greater number of recommended cardiovascular health factors linked with lower risk of death

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In a study that included a nationally representative sample of nearly 45,000 adults, participants who met more of seven recommended cardiovascular health behaviors or factors (such as not smoking, having normal cholesterol levels, eating a healthy diet), had a lower risk of death compared to participants who met fewer factors, although only a low percentage of adults met all seven factors, according to a study appearing in *JAMA*. The study is being published early online to coincide with its presentation at a specialty meeting of the American Heart Association.

"Cardiovascular disease (CVD) is the leading cause of deaths in the United States [greater than 800,000, or about 1 in 3 overall deaths/year], with estimated annual direct and overall costs of $273 billion and $444 billion, respectively," according to background information in the article. The American Heart Association (AHA) recently published recommendations aimed at improving cardiovascular health and reducing deaths from CVD in the United States by encouraging the general population to meet seven defined ideal cardiovascular health behaviors or factors (for this study, called cardiovascular health metrics). The metrics are not smoking; being physically active; having normal blood pressure, blood glucose and total cholesterol levels, and weight; and eating a healthy diet.

Quanhe Yang, Ph.D., of the Centers for Disease Control and Prevention, Atlanta, and colleagues conducted a study to examine the trends of these

health metrics and estimated their associations with risk of all-cause and CVD mortality. The study included 44,959 U.S. adults (age 20 years or older), using data from the National Health and Nutrition Examination Survey (NHANES) 1988-1994,1999-2004, and 2005-2010 and the NHANES III Linked Mortality File (through 2006).

The researchers found that regarding trends over the study period, the prevalence of current smoking continued to decline since 1988. However, the desirable level of untreated blood pressure and total cholesterol level remained unchanged, and the prevalence of desirable levels of body mass index (BMI) (less than 25) and fasting glucose continued to decline for the study period.

Few participants met all 7 cardiovascular health metrics (2.0 percent in 1988-1994, 1.2 percent in 2005-2010). Younger participants, women, non-Hispanic whites, and those with higher education levels tended to meet a greater number of cardiovascular health metrics.

The authors found that meeting a greater number of cardiovascular health metrics was associated with a significantly lower risk of all-cause, CVD, and ischemic heart disease (IHD) mortality. "During a median [midpoint] of 14.5 years of follow-up in the NHANES III Linked Mortality File cohort, participants who met 6 or more vs. 1 or fewer cardiovascular health metrics had a 51 percent lower risk of all-cause mortality, a 76 percent lower risk of CVD mortality, and a 70 percent lower risk of IHD mortality. In addition, meeting a greater number of cardiovascular health metrics also appeared to be associated with lower risk for all-cancer mortality."

The researchers add that a significant interaction between cardiovascular health metrics and age group (less than 60 vs. 60 years or older) on CVD mortality suggested that meeting cardiovascular health metrics might offer greater protection against premature CVD deaths among younger

participants.

"In summary, our findings indicate that the presence of a greater number of cardiovascular health metrics was associated with a graded and significantly lower risk of total and CVD mortality," the authors write.

"Healthy People 2020 and the AHA's national strategy to reduce CVD morbidity and mortality by 20 percent by 2020 through promoting ideal cardiovascular health metrics represents a great challenge but also an achievable goal. Coordinated efforts, such as the recently announced Million Hearts initiative, align CVD prevention and control activities across the public and private sectors, creating opportunities to reduce the burden of CVD across a large segment of the population."

In an accompanying editorial, Donald M. Lloyd-Jones, M.D., Sc.M., of the Northwestern University Feinberg School of Medicine, Chicago, writes that regarding what can be done to improve cardiovascular health, a proposed concept to shift the population distribution toward greater health is the key.

"Despite the apparent difficulties in achieving the goal, there is much to be optimistic about, and opportunities abound for physicians, policy makers, and consumers to support improvements in cardiovascular health. Continued focus through the health care system on meeting primary and secondary prevention targets is critically important, so that individuals at risk can take one step forward from poor to intermediate cardiovascular health. Advocacy will be needed for new public health and social policies to tilt the playing field toward healthier choices, so more individuals can move from intermediate to ideal levels or maintain ideal cardiovascular health. The debate over this year's farm bill, which will set policy for years to come, represents an opportunity for advocacy for cardiovascular health and a healthier food supply for all. Efforts to reduce sodium in the food supply are ongoing on multiple fronts."

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