

**Public release date: 28-May-2007**

Contact: Hirohito Sone

[sone.hirohito@ocha.ac.jp](mailto:sone.hirohito@ocha.ac.jp)

[JAMA and Archives Journals](#)

## **Exercise may slightly boost 'good' cholesterol levels**

Regular exercise appears to modestly increase levels of high-density lipoprotein, or "good," cholesterol, according to a meta-analysis study in the May 28 issue of Archives of Internal Medicine, one of the JAMA/Archives journals.

A low level of high-density lipoprotein cholesterol (HDL-C) is an independent risk factor for cardiovascular disease, the leading cause of death worldwide, according to background information in the article. There is strong evidence that individuals who are more physically active have higher HDL-C levels. "Thus, the value of regular aerobic exercise in increasing serum [blood] HDL-C level and in reducing the risk of cardiovascular disease has received widespread acceptance," the authors write. "In contrast, results of aerobic exercise studies vary considerably, depending on the exercise program (e.g., duration, intensity or frequency) and characteristics of subjects at baseline."

Satoru Kodama, M.D., of Ochanomizu University, Tokyo, and colleagues performed a meta-analysis of 25 articles reporting the results of randomized controlled trials that were published between 1966 and 2005 and assessed the effects of exercise on HDL-C. To be included in the analysis, the studies had to evaluate aerobic exercise in adults with an average age of 20 or older, specify HDL-C measurements at the beginning and end of the study, have a length of at least eight weeks, and randomly assign some participants to a group of exercisers and others to a control group of non-exercisers.

The 25 articles analyzed included a total of 1,404 participants with an average age range of 23 to 75 years and an average study period of 27.4 weeks. The exercise groups were told to exercise for an average of 3.7 sessions per week at an average of 40.5 minutes each, burning an average of 1,019 calories per week.

In all the studies combined, HDL-C increased by an average of 2.53 milligrams per deciliter in the exercise groups. The minimum amount of weekly exercise that appeared necessary to change HDL-C levels was 120 minutes or 900 calories burned. The effect of exercise was

greater in those who had a higher total cholesterol level (220 milligrams per deciliter or greater) and in those with a body mass index of less than 28.

"In a previous observational study, every 1-milligram per deciliter increment in HDL-C level was reported to be associated with a 2 percent and 3 percent decreased risk of cardiovascular disease in men and women, respectively," the authors write. "If this observation were applied to our results, the increase in HDL-C level by exercise determined by this analysis would, by a rough estimate, result in a cardiovascular disease risk reduced by approximately 5.1 percent in men and 7.6 percent in women. This is potentially of substantial importance in public health, although the effect of reducing cardiovascular risk by increasing HDL-C level might be smaller than that by use of medications such as fibrates or niacin."

Only exercise duration, and not frequency or intensity, was associated with a change in HDL-C levels in the analysis. When the participants exercised for 23 to 74 minutes per session, each 10-minute increase in exercise duration corresponded to a 1.4-milligram per deciliter increase in HDL-C level. "This suggests that in improving blood HDL-C values, increasing time per session is better than performing multiple brief exercise sessions when total time for exercise is limited, as is the case for many people," the authors write.

###

(Arch Intern Med. 2007;167:999-1008. Available pre-embargo to the media at [www.jamamedia.org](http://www.jamamedia.org).)

Editor's Note: This work was supported by Health Sciences Research Grants from the Japanese Ministry of Health, Labor, and Welfare. Dr. H. Sone is a recipient of a Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science. Please see the article for additional information, including other authors, author contributions and affiliations, financial disclosures, funding and support, etc.

---