MedicalXpress

Marathon training could help the heart

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Marathon training is associated with improved risk factors related to cardiovascular disease among middle-aged recreational male runners, suggesting that race preparation may be an effective strategy for reducing heart disease risk, according to research to be presented at the American College of Cardiology's 63rd Annual Scientific Session.

Over the last decade, marathon participation has risen steadily among middle-aged people seeking the reported health benefits of regular physical exercise. Some studies have shown that older men are significantly more at risk of cardiac arrest while running marathon races. However, little is known about the effects of the marathon training process on heart health, particularly in non-elite recreational runners.

Researchers studied 45 recreational male runners, age 35 to 65, who were planning to run the 2013 Boston Marathon. Participants were recruited from the Dana-Farber Marathon Challenge fundraising team and were not time-qualified for the Boston Marathon. Approximately half of the participants had run three or more marathons in their lifetime, while the other half had run two or less. They were invited to participate in the 18-week training program, which included group runs, endurance training, a detailed training guide, access to cross-training facilities in the Boston area, nutrition tips, advice about pacing, preparation hints and regular coaching correspondence. Participants were instructed to run 12 to 36 miles each week, depending on the phase of training. Researchers tracked adherence to the training program using running logs provided by the participants.

"We chose charity runners because we wanted to focus on the non-elite type of runner, just the average Joe who decides to get out there and train for a marathon," said Jodi L. Zilinski, M.D., at Massachusetts General Hospital, and lead investigator of the study. "They turned out to be a healthier population than we expected with a lot of them already exercising on a pretty regular basis, but they were still nowhere near the levels of elite runners."

Prior to beginning the training program, participants underwent a full medical evaluation that included cardiopulmonary exercise stress testing, heart imaging studies and cholesterol screening. Just over half of study participants (24 of 45) had at least one cardiovascular risk factor including high cholesterol, high blood pressure or a family history of heart disease. Participants were re-evaluated at the end of the training program prior to running the marathon.

Participation in the 18-week program led to significant overall changes in key determinants of cardiovascular risk. Low-density lipoprotein, or LDL, known as "bad" cholesterol, was reduced by 5 percent; total cholesterol fell 4 percent, and triglycerides dropped 15 percent. There was also a 1 percent decrease in body mass index, and a 4 percent increase in peak oxygen consumption, a measurement of cardiorespiratory fitness, which is a potent prognostic marker of cardiovascular mortality.

"Overall, participants experienced cardiac remodeling – improvements in the size, shape, structure and function of the heart," Zilinski said. "Even with a relatively healthy population that was not exercise naïve, our study participants still had overall improvements in key indices of heart health."

Zilinski said the study underscores the potential for regular exercise to improve risk factors for heart disease, but cautions that individuals

should always check with their health care provider prior to participating in a rigorous training program.

The study was designed to focus on middle-aged, recreational male runners, a population previously identified as being at highest risk for adverse cardiovascular events during marathon running, so the applicability of the results to other populations such as recreational female runners or elite athletes may be limited. Future research that is targeted at novice runners to define the optimal dose-response relationships between exercise and cardiovascular disease risk reduction is warranted.

Provided by American College of Cardiology