

## Marathoners Face Greater Risk of Artery Problems

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If regular exercise such as jogging is good for the heart, then turbo-charged workouts like training for marathons must be even better, right?

Not so fast, according to new research by Greek doctors who found that marathon runners have increased stiffness of the large arteries, suggesting that some types of high-intensity exercise may actually be bad for the heart, potentially leading to hardening of the arteries, high blood pressure, heart attack and even death.

"Our data suggest that exercise may have an inverted U-shape relation with arterial stiffness. In other words, when you do not exercise you have higher risk of cardiovascular events, but the same also happens when you exercise too much," study lead investigator Dr. Despina Kardara, of Athens Medical School, Hippokraton Hospital, said in a news release. "Regular long-term endurance training is generally beneficial for heart health, but it seems that the cardiovascular system is like a sports car engine. If you do not use it, it will decay, but if you run it too fast for too long, you might burn it out."

The findings were presented Saturday at the American College of Cardiology's annual scientific session, in Atlanta.

The study, which the researchers said was the first to examine the long-term effect of intense, protracted endurance training on the elastic properties of the large arteries, found that male marathon runners (females were not included in the study) had significantly increased stiffness of the aorta -- the major artery leading from the heart -- when compared with people who took part in recreational exercise.

The researchers evaluated blood pressure and artery elasticity in 49 healthy men who regularly trained to run marathons and 46 control subjects who weren't endurance athletes. The marathoners had significantly higher systolic blood pressure (the top number in a reading) than the non-marathoners, about 11 points higher on average, when measured at the brachial artery in the upper arm. Their mean blood pressure was also about 8 points higher on average than the control subjects.

The researchers concluded that the study participants' exercise regimens were related to arterial stiffness, suggesting that more intense exercise may lead to increased stiffness of the large arteries.

"This is important because stiff arteries lead to high blood pressure and can impair the heart, keeping it from performing properly," Kardara said. "Overall, aortic stiffness is an indicator of cardiovascular disease and hardening of the arteries, and a predictor of heart attack and related death."

The researchers said there may be several explanations for the stiffer arteries found in marathoners. One is that extreme exercise may place repeated and excessive stress on the artery wall, leading to its fatigue, said Dr. Charalambos Vlachopoulos, also of Athens Medical School, Hippokraton Hospital, and a co-investigator of the study.

"Endurance athletes should be cautious about the amount and volume of their training programs, trying not to wear themselves out, and always work in close collaboration with their physicians, especially before participating in an intense endeavor like marathon running, Kardara said.