

# THE MANY WAYS EXERCISE HELPS YOUR HEART... *a single exercise session may provide immediate and long-lasting protection*



## *Harvard Heart Letter*

**W**hy is exercise so good for your health? *Let us count the ways.* One obvious answer is that exercise burns calories, which can help you maintain or reach a healthy weight. Regular exercise also improves factors linked to cardiovascular health, resulting in lower blood pressure, healthier cholesterol levels, and better blood sugar regulation.

And that's not all: Exercise also promotes positive physiological changes, such as encouraging the heart's arteries to dilate more readily. It also helps your sympathetic nervous system (which controls your heart rate and blood pressure) to be less reactive. But these changes can take many weeks, months, or even years to reach their full effect.

However, even a single bout of exercise may protect your heart immediately through a process known as ischemic preconditioning, according to a review article in the November issue of *JAMA Cardiology*. As it turns

out, a little bit of ischemia — defined as an inadequate blood supply to part of the body, especially the heart — may be a good thing.

**“As for duration, thirty minutes of exercise a day is the sweet spot for nearly maximal health protection...”**



Animal studies suggest that ischemic preconditioning seems to protect the heart if a heart attack does occur later on, reducing damage by as much as 50 percent.

### An insurance policy for your heart

People at risk for heart disease often struggle with the uncertainty of knowing whether their arteries contain fatty plaque that might cause a heart attack. Unless they have symptoms, it's hard to justify doing potentially invasive and/or expensive testing, says Dr. Wasfy. What can be reassuring, however, is to think of exercising as an insurance policy that may offer both short- and long-term protection for your heart. A single exercise session may protect the cardiovascular system for two to three hours, the authors postulate. "In essence, you're training your heart to be more resilient," says Dr. Wasfy.



But that protection likely depends on reaching a certain intensity of exercise, she adds. Simply puttering around all day long (even if you're on your feet much of the day) may not do the trick.

To make your heart work hard enough to activate the metabolic molecular pathways responsible for preconditioning the heart, you need to engage in

### Go with the flow

"The idea is that when you have a coronary blockage and you exercise, the area of heart that is beyond the blockage is starved for blood supply — more so than when you are at rest," says cardiologist Dr. Meagan Wasfy of the Cardiovascular Performance Program at Harvard-affiliated Massachusetts General Hospital. "That sets up a number of molecular and metabolic pathways that help the heart adapt to that inadequate blood flow," she explains.

Ischemic (or exercise) preconditioning is similar to something Dr. Wasfy and her colleagues hear about routinely from patients with heart disease who exercise. They start out on a run but feel tired or have angina fairly quickly, so they walk for a few minutes. "But once they start running again, it feels remarkably easier on the second try," Dr. Wasfy says. Known as "warm-up angina," this phenomenon was first described some 200 years ago.

The exact biological mechanism of ischemic preconditioning remains elusive. One theory points to a factor found in the blood involved in opioid receptor activation, according to the authors of the review article. More importantly, the benefits may extend beyond making exercise easier.

Type of Walking	Pace	How it Feels	Intensity
Easy	Leisurely Stroll	Light effort, breathing easily; you can sing	Light
Moderate	Purposeful <i>(like you have someplace to get)</i>	Some effort, breathing more noticeable; you can talk in full sentences	Light to moderate
Brisk	In a bit of a hurry	Moderate effort, breathing harder; you can talk in full sentences but need to take more breaths	Moderate
Fast	Late for an appointment	Hard effort, slightly breathless; you can talk in phrases	Moderate to vigorous

moderate to vigorous exercise (see “The meaning of moderate”).

As for duration, 30 minutes a day is the sweet spot for nearly maximal health protection, says Dr. Wasfy. But it's fine to break that up into three 10—minute sessions. As always, if you're not accustomed to getting any exercise, get clearance from your physician before starting.

### **The meaning of moderate**

Exercise intensity levels are very subjective and depend partly on your current fitness level. These descriptions will give you a sense of the different levels. Moderate to vigorous exercise may be especially helpful for your heart, thanks to a phenomenon known as ischemic pre-conditioning.

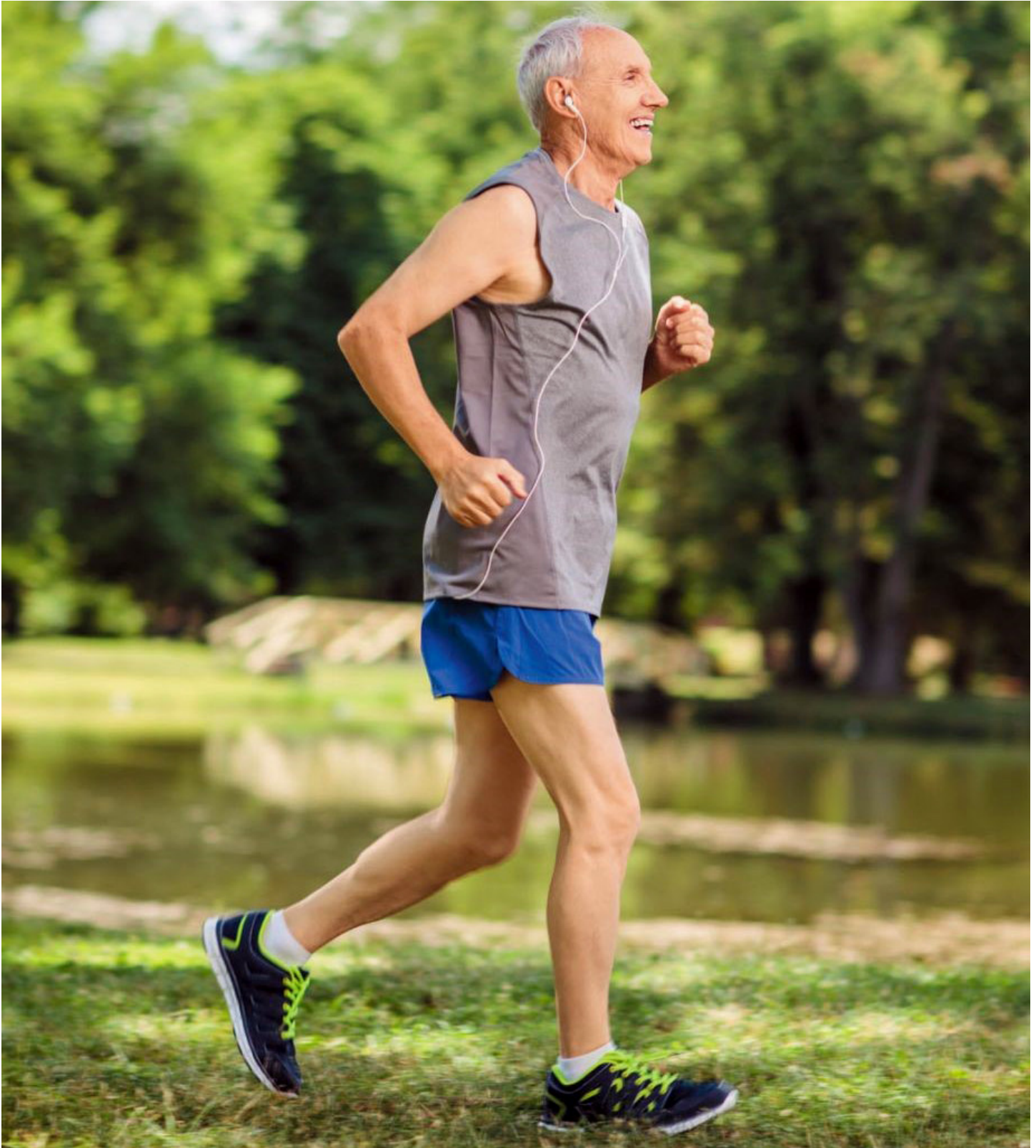


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