

Impact of exercise on heart

Why 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 may take weeks, months, or even years to reach their full effect. However, even a single bout of exercise may protect your heart right away through a process known as ischemic preconditioning, according to a review article in the Nov. 29, 2017, 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.

Go with the flow

"The idea is that when you have a coronary blockage and you exercise, the area of heart beyond the blockage is starved for blood supply — more so than when you're 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. 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%.

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 or expensive testing, says Dr. Wasfy. What may be reassuring, however, is to think of exercise 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 moderate to vigorous exercise.

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.