

Study finds moderate-vigorous physical activity is the most efficient at improving fitness

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In the largest study performed to date to understand the relationship between habitual physical activity and physical fitness, researchers from Boston University School of Medicine (BUSM) have found that higher amount of time spent performing exercise (moderate-vigorous physical activity) and low-moderate level activity (steps) and less time spent sedentary, translated to greater physical fitness.

"By establishing the relationship between different forms of habitual physical activity and detailed [fitness](#) measures, we hope that our study will provide important information that can ultimately be used to improve physical fitness and overall health across the [life course](#)," explained corresponding author Matthew Naylor, MD, MPH, assistant professor of medicine at BUSM.

He and his team studied approximately 2,000 participants from the community-based Framingham Heart Study who underwent

comprehensive cardiopulmonary exercise tests (CPET) for the "gold standard" measurement of physical fitness. Physical fitness measurements were associated with physical activity data obtained through accelerometers (device that measures frequency and intensity of human movement) that were worn for one week around the time of CPET and approximately eight years earlier.

They found dedicated exercise (moderate-[vigorous physical activity](#)) was the most efficient at improving fitness. Specifically, exercise was three times more efficient than walking alone and more than 14 times more efficient than reducing the time spent sedentary. Additionally, they found that the greater time spent exercising and higher steps/day could partially offset the [negative effects](#) of being sedentary in terms of [physical fitness](#).

According to the researchers, while the study was focused on the relationship of physical activity and fitness specifically (rather than any health-related outcomes), fitness has a powerful influence on health and is associated with lower risk of cardiovascular disease, diabetes, cancer and premature death. "Therefore, improved understanding of methods to improve fitness would be expected to have broad implications for improved health," said Naylor, a cardiologist at Boston Medical Center.

These findings appear online in the *European Heart Journal*.

More information: Matthew Naylor et al, Physical activity and fitness in the community: the Framingham Heart Study, *European Heart Journal* (2021). [DOI: 10.1093/eurheartj/ehab580](https://doi.org/10.1093/eurheartj/ehab580)

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