Medical News & Perspectives | QUICK UPTAKES

Study: Short Spurts of Vigorous Physical Activity During Daily Life Are Associated With Lower Mortality

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Even for people who don't hit the gym, a daily handful of short, intense bursts of everyday activity may lower the risk of mortality, according to new research published in *Nature Medicine*.

These bursts aren't exercise in the traditional sense. Rather, they're actions embedded into daily life—such as climbing stairs or briskly walking during a commute. A few 1- to 2-minute bouts a day could slash the risk of mortality, the study suggests.

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The Backstory

The updated 2018 Physical Activity Guidelines for Americans, published in *JAMA*, emphasized that "even short episodes or small amounts of physical activity are beneficial," regardless of whether they last 10 minutes or less.

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But a 2021 scoping review in *Sports Medicine* reported a lack of scientific literature on vigorous intermittent lifestyle physical activity, or VILPA. The authors, who coined the term *VILPA*, outlined a framework to measure it and its effects on health. Lead author Emmanuel Stamatakis, PhD, MSc, also led the *Nature Medicine* study.

Why This Matters

The US Department of Health and Human Services (HHS) recommends at least 2.5 hours a week of moderate-intensity activity equivalent to brisk walking, and the World Health Organization (WHO) has similar guidelines. However, many adults don't exercise regularly during their leisure time, assuming they exercise at all, Stamatakis wrote in an email to *JAMA*.

An HHS report noted that in 2020, about three-quarters of adults aged 18 years or older weren't active enough. And the most recent estimates from WHO found "more than 1.4 billion adults [are] at risk of developing or exacerbating diseases linked to inactivity."

"Whatever the reasons for this are, we need to better understand how these people can benefit from lifestyle physical activity that occurs during daily routines," said Stamatakis, a professor of physical activity, lifestyle, and population health in the University of Sydney's Charles Perkins Centre and Faculty of Medicine and Health. "VILPA and lifestyle physical activity in general have important practical advantages over structured exercise as they do not require any special arrangement or time commitment, traveling to a health club, or any expenses."

I-Min Lee, MBBS, ScD, MPH, who wasn't involved with this study but has conducted related research with Stamatakis, also shared why she thinks research on quick bouts of vigorous everyday activity is important.

"We don't need new studies to tell us that physical activity benefits good health and functioning: plenty of data already exist," Lee, an epidemiologist at Brigham and Women's Hospital and a professor at Harvard University, wrote in an email. "However, less clear is how much—or, probably more relevant to much of us, how little—physical activity is needed."

The Study Design

To examine the relationship between activity spurts and mortality risk, researchers analyzed data collected from 25 241 individuals aged 40 to 69 years who participated in a UK Biobank accelerometry study. All participants wore accelerometers on their wrists for more than 16 hours a day for a minimum of 3 days during a weeklong period; at least 1 day of monitoring data came from a weekend. These participants were "nonexercisers," meaning they reported that they did not exercise at all during leisure time and did not go for more than 1 recreational walk per week.

The researchers compared mortality rates among nonexercisers who did and did not have bouts of VILPA recorded by their accelerometers. They also compared the nonexercisers with 62 344 UK Biobank study participants who reported engaging in leisure-time exercise. Health outcomes for all participants were tracked for approximately 7 years.

The Findings

- The accelerometers recorded instances of VILPA among nearly 89% of the nonexercisers. The median frequency of VILPA bursts were the equivalent of 3 daily bouts lasting 1 or 2 minutes each. No one in this group completed more than the equivalent of 11 bouts in a given day.

- Among the nonexercisers, 852 participants died during the follow-up period, with 511 deaths attributed to cancer and 266 deaths attributed to cardiovascular disease. Death from any cause or from cancer was 38% to 40% lower among those who engaged in a minimum of 1 or 2 minutes of VILPA 3 times a day than among those who did not engage in any VILPA. VILPA was also associated with a 48% to 49% decrease in mortality from cardiovascular disease.
- The accelerometers recorded instances of vigorous physical activity, or VPA, which can be achieved through traditional exercise or VILPA, among 93% of the self-reported exercisers. Roughly 93% of their VPA bouts lasted up to 2 minutes.
- The association between activity and mortality was similar in the cohort that reported exercising during leisure time: "VPA in exercisers exhibited an almost identical daily duration and frequency-dose response to VILPA in nonexercisers for all-cause mortality," the study concluded.

The research builds on a recent study in the *European Heart Journal* that was senior authored by Stamatakis and coauthored by Lee. The study, which included 71 893 UK Biobank participants, suggested that 15 to 20 minutes of VPA per week accrued through bursts lasting up to 2 minutes were associated with a 16% to 40% mortality reduction.

"Our December 2022 *Nature Medicine* paper extends these findings by focusing specifically on the context of day-to-day activities outside the leisure-time exercise domain," Stamatakis explained.

Strengths and Limitations

In an email to *JAMA*, Julie Gralow, MD, chief medical officer and executive vice president of the American Society of Clinical Oncology, praised how the VILPA and VPA studies were "not dependent on individual recall of activity." Gralow, who wasn't involved with either project, said this was a strength of the research.

However, the study's authors pointed out that only about 6% of people asked to participate in the UK Biobank study accepted the invitation, so the participants may not be representative of the general population. And, they noted, not all short bursts of intense physical activity—such as lugging heavy shopping bags—may be accurately captured by the accelerometers.

Lastly, the results of the observational study in *Nature Medicine* can't show a definitive causal relationship between VILPA and mortality risk—people who had more bouts of vigorous activity may have been healthier to begin with. The researchers did, however, exclude participants who died during the first 2 years of follow-up and adjusted for factors including age, smoking, alcohol use, medication use, and fruit and vegetable consumption. What's more, the results were not appreciably different when the researchers excluded participants with poor health and adjusted for body mass index.

The Bottom Line

According to Gralow, the research suggests that every little bit of movement matters. "We can take away that even small amounts of activity are beneficial," she said.

As for what counts as VILPA, Stamatakis said to be aware of the hallmark traits: feeling an increased heart rate and being out of breath—similar to how someone may feel after traditional exercise.

"The general principle is that if we [can] sing while doing the activity, it's light intensity; if we can speak but not sing, it's moderate intensity; if we can hardly speak more than a few words, we are hitting the vigorous intensity zone—this is high-quality movement that likely has great health-enhancing potential if repeated regularly," he added.

But is leisure-time exercise unnecessary if a person gets enough bursts of vigorous activity in their everyday life?

"Our study does not support the idea that VILPA should be a replacement for a regular and comprehensive exercise program," Stamatakis emphasized. Nevertheless, "the best physical activity routine for every individual is the one they can fit into their weekly or daily routine and can stick to in the long term." ■

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Note: Source references are available through embedded hyperlinks in the article text online.