

Different physical activity 'cocktails' have similar health benefits

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A new study from Columbia University and an international team of researchers identifies multiple ways to achieve the same health benefits from exercise—as long as the exercise "cocktail" includes plenty of light physical activity.

"For decades, we've been telling people that the way to stay healthy is to get at least 30 minutes of [exercise](#) five days a week," says Keith Diaz, Ph.D., assistant professor of behavioral medicine and director of the exercise testing laboratory at the Center for Behavioral Cardiovascular Health at Columbia University Vagelos College of Physicians and Surgeons.

"But even if you're one of the few adults who can stick to this advice, 30 minutes represents just 2% of your entire day," says Diaz. "Is it really possible that our activity habits for just 2% of the day is all that matters when it comes to health?"

Diaz says that the recommendation about how much exercise to do may be insufficient depending on how individuals spend the rest of their waking day.

Previous studies tended to look at the impact of one type of activity or another in isolation. But each activity has either harmful or beneficial effects on health. "What we don't know is the best combination, or cocktail, of ingredients needed to prolong life," Diaz says.

Only through recent cheap and easy-to-use activity monitors, which can be worn by study participants throughout the day, have researchers been able to address the question.

With data from six studies that included more than 130,000 adults in the United Kingdom, United States, and Sweden, the authors used a technique called compositional analysis to determine how different combinations of activities—including moderate-to-[vigorous exercise](#) (such as brisk walking, running, or other activities that increase heart rate), light physical activity (such as housework or casual walking), and sedentary behavior—affect mortality.

Here are the main take-aways:

The benefits of 30 minutes of moderate-to-vigorous exercise depends on how you spend the rest of the day.

Although the current recommendation of 30 minutes per day of moderate-to-vigorous physical activity reduced the odds of an earlier death by up to 80% for some—those who sat for less than 7 hours—it did not reduce mortality risk for individuals who were very sedentary (over 11 to 12 hours per day), the researchers found.

"In other words, it is not as simple as checking off that 'exercise' box on your to-do list," says Diaz. "A healthy movement profile requires more than 30 minutes of daily exercise. Moving around and not remaining sedentary all day also matters."

"Getting 30 minutes of physical activity per day, or

150 minutes per week, is what's currently recommended, but you still have the potential to undo all that good work if you sit too long," says Sebastien Chastin, Ph.D., professor of health behavior dynamics at Glasgow Caledonian University in Scotland and lead author of the study.

Light physical activity is more important than you think.

The research found that people who spent just a few minutes engaging in moderate-to-vigorous physical activity lowered their risk of early death by 30% as long as they also spent six hours engaging in light physical activity.

"Perhaps you're a parent with young kids and you simply can't get to the gym to exercise," Diaz says. "But you can still have a healthy movement profile as long as you move around a lot throughout the day as you tend to your everyday activities."

Sitting isn't as bad for your health as smoking, but it's still bad, Diaz says. "While there will always be sitting in our lives, as with most things in life, it's about sitting in moderation. The key is to find the right balance of sedentary time and physical activity."

A cocktail formula of 3 to 1 is best.

The researchers found that getting three minutes of moderate-to-vigorous activity or 12 minutes of light activity per hour of sitting was optimal for improving health and reducing the risk of early death.

"Our new formula gets at the right balance between moderate-to-vigorous exercise and sitting to help people lead a longer, healthier life," says Chastin. "The leftover hours should be spent moving around as much as possible and getting a good night's sleep."

Using this basic formula, the study found that multiple combinations of activities reduced the risk of early death by 30%:

- 55 minutes of exercise, 4 hours of light physical activity, and 11 hours of sitting
- 13 minutes of exercise, 5.5 hours of light

- physical activity, and 10.3 hours of sitting
- 3 minutes of exercise, 6 hours of light physical activity, and 9.7 hours of sitting

Although the researchers found that replacing sedentary time with just two minutes of moderate-to-vigorous exercise is more efficient than replacing it with light physical activity—two minutes of moderate-to-vigorous exercise is equivalent to four to 12 minutes of light physical activity—both have value.

"This is good news for people who may not have the time, ability, or desire to engage in formal exercise," Diaz says. "They can get [health benefits](#) from a lot of light physical activity and just a little moderate-to-vigorous activity."

"Our study shows that there is no one-size-fits-all approach to [physical activity](#), and we get to choose which ones we like best," Diaz says. "It may be more important to mix a movement cocktail that includes a healthy dose of exercise and [light](#) activity to take the place of sitting."

More information: Sebastien Chastin et al, Joint association between accelerometry-measured daily combination of time spent in physical activity, sedentary behaviour and sleep and all-cause mortality: a pooled analysis of six prospective cohorts using compositional analysis, *British Journal of Sports Medicine* (2021). [DOI: 10.1136/bjsports-2020-102345](https://doi.org/10.1136/bjsports-2020-102345)

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