

Study: Physical activity in the evening lowers blood sugar levels

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New research reveals that moderate to vigorous physical activity in the evening for sedentary adults with overweight and obesity is most beneficial in lowering daily blood sugar levels, according to a [study](#) titled

"Impact of Lifestyle Moderate-to-Vigorous Physical Activity Timing on Glycemic Control in Sedentary Adults with Overweight/Obesity and Metabolic Impairments" appearing in the journal *Obesity*.

Experts explain that it has been well established that moderate to [vigorous physical activity](#) enhances [glucose homeostasis](#) in adults with overweight and obesity who are at higher risk of developing insulin resistance. However, little is known about the optimal timing of moderate to vigorous physical activity to improve daily blood glucose control.

"Our results highlight the importance of the field of precision exercise prescription. In [clinical practice](#), certified sports and medical personnel should consider the optimal timing of the day to enhance the effectiveness of the exercise and physical activity programs they prescribe," said Jonatan R. Ruiz, Ph.D., professor of physical activity and health, Department of Physical and Sports Education, Faculty of Sport Sciences-Sport and Health University Research Institute (iMUDS), University of Granada, IBS.Granada and CIBEROBN, Spain.

Ruiz is one of two corresponding authors of the study with predoctoral researcher Antonio Clavero-Jimeno from the same research center.

Data for the study was used from baseline examinations from a multi-center randomized controlled trial conducted in Granada and Pamplona, Spain. The aim of the trial was to study the efficacy and feasibility of time-restricted eating on visceral adipose tissue (primary outcome), body composition and cardiometabolic risk factors in adults with overweight and obesity.

A total of 186 adults with an average age of 46 years and a [body mass index](#) of 32.9 kg/m² with overweight or obesity participated in the cross-sectional study. The physical activity and glucose patterns of participants

were simultaneously monitored over a 14-day period using a triaxial accelerometer worn on the non-dominant wrist and a continuous glucose-monitoring device.

The study's researchers classified the volume of moderate to vigorous physical activity accumulated for each day. Categories included inactive (if no activity was accumulated), and as 'morning,' 'afternoon' or 'evening' if more than 50% of the moderate to vigorous physical activity minutes for that day were accumulated between 6 a.m. to noon, noon to 6 p.m., 6 p.m. to 12 p.m., or as 'mixed' if none of the defined time windows accounted for greater than 50% of the moderate to vigorous physical activity for that day.

Results showed that accumulating greater than 50% of moderate to vigorous physical activity in the evening was associated with lowering day, night and overall blood glucose levels compared with being inactive. This association was stronger in those participants with impaired glucose regulation. The pattern of these associations was similar in both men and women.

"As the field moves towards individualized exercise prescriptions for different chronic conditions, this study now provides additional insights beyond just telling patients to 'move more,' but instead to move as often as possible and to prioritize afternoon-to-evening movement when feasible for glucose regulation," said Renee J. Rogers, Ph.D., FACSM, senior scientist, Division of Physical Activity and Weight Management, University of Kansas Medical Center. Rogers was not associated with the research.

More information: Antonio Clavero-Jimeno et al, Impact of lifestyle moderate-to-vigorous physical activity timing on glycemic control in sedentary adults with overweight/obesity and metabolic impairments, *Obesity* (2024). [DOI: 10.1002/oby.24063](https://doi.org/10.1002/oby.24063)

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