





Association of Timing of Moderate-to-Vigorous Physical Activity With Changes in Glycemic Control Over 4 Years in Adults With Type 2 Diabetes From the Look AHEAD Trial

Jingyi Qian  ; Qian Xiao ; Michael P. Walkup; Mace Coday; Melissa L. Erickson; Jessica Unick; John M. Jakicic; Kun Hu; Frank A.J.L. Scheer; Roeland J.W. Middelbeek  ; Look AHEAD Research Group



* A complete list of the Look AHEAD Research Group can be found in the supplementary material online.

Corresponding authors: Jingyi Qian, jqian@bwh.harvard.edu, or Roeland J.W. Middelbeek, roeland.middelbeek@joslin.harvard.edu
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OBJECTIVE

We aimed to determine the association of the time-of-day of bout-related moderate-to-vigorous physical activity (bMVPA) with changes in glycemic control across 4 years in adults with overweight/obesity and type 2 diabetes.

RESEARCH DESIGN AND METHODS

Among 2,416 participants (57% women; mean age, 59 years) with 7-day waist-worn accelerometry recording at year 1 or 4, we assigned bMVPA timing groups based on the participants' temporal distribution of bMVPA at year 1 and recategorized them at year 4. The time-varying exposure of bMVPA (≥ 10 -min bout) timing was defined as $\geq 50\%$ of bMVPA occurring during the same time period (morning, midday, afternoon, or evening), $< 50\%$ of bMVPA in any time period (mixed), and ≤ 1 day with bMVPA per week (inactive).

RESULTS

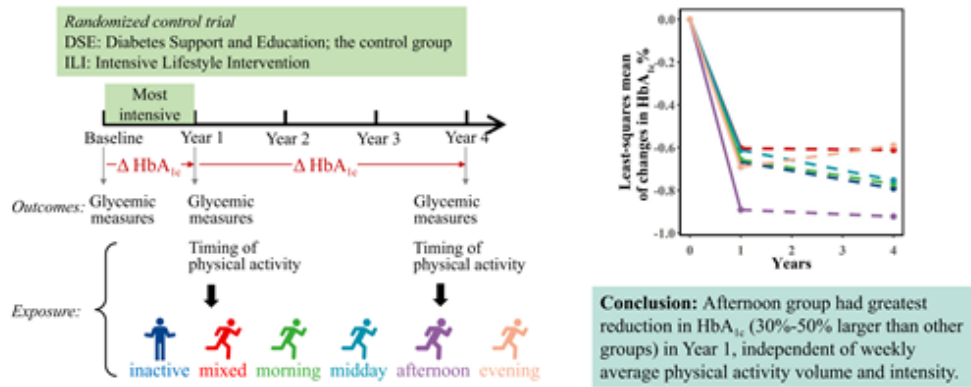
HbA_{1c} reduction at year 1 varied among bMVPA timing groups ($P = 0.02$), independent of weekly bMVPA volume and intensity. The afternoon group had the greatest HbA_{1c} reduction versus inactive (-0.22% [95%CI -0.39% , -0.06%]), the magnitude of which was 30–50% larger than the other groups. The odds of discontinuation versus maintaining or initiating glucose-lowering medications at year 1 differed by bMVPA timing ($P = 0.04$). The afternoon group had the highest odds (odds ratio 2.13 [95% CI 1.29, 3.52]). For all the year-4 bMVPA timing groups, there were no significant changes in HbA_{1c} between year 1 and 4.

CONCLUSION

bMVPA performed in the afternoon is associated with improvements in glycemic control in adults with diabetes, especially within the initial 12 months of an intervention. Experimental studies are needed to examine causality.

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- Retrospective cohort study
- 2,416 overweight/obese adults with type 2 diabetes who underwent a 4-year lifestyle intervention trial

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