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Original Research

The Association Between Objectively Measured Physical Activity and Academic Achievement in Dutch Adolescents: Findings From the GOALS Study

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The main goal of this study was to investigate the association between objectively measured physical activity and academic achievement in adolescents. Students in Grades 7 and 9 ($N = 255$) were included. Overall, we found no significant dose–response association between physical activity and academic achievement. However, in Grade 7 total physical activity volume (Total PA) was negatively associated with academic achievement, while moderate-to-vigorous physical activity (MVPA) was negatively associated with both academic achievement and mathematics performance. In contrast, in Grade 9 both Total PA and MVPA were positively associated with mathematics performance. In addition, the overall association between MVPA and academic achievement followed an inverted U-shaped curve. Finally, Total PA was positively associated with executive functioning, while executive functioning in turn mediated the associations between Total PA and both academic achievement and mathematics performance. These results indicate that the association between physical activity and academic achievement in adolescents is complex and might be affected by academic year, physical activity volume and intensity, and school grade.

Keywords: exercise, accelerometry, school performance, youth

Authors: [Martin L. Van Dijk](#), [Renate H.M. De Groot](#), [Hans H.C.M. Savelberg](#), [Frederik Van Acker](#), [Paul A. Kirschner](#)