Physical activity before school, including active commuting to school: associations with cognition and academic achievement in adolescents


Background
Physical activity immediately before school may increase attention, physiological arousal and thereby academic achievement in adolescents. Besides, active commuting to school may stimulate overall physical activity levels. The latter, physical activity is positively associated with cognition and academic achievement in adolescents. Therefore, physical activity before school, including active commuting to school, may stimulate cognitive performance and academic achievement in adolescents.

So far, only one study investigated the association between subjectively measured active commuting to school and cognition in adolescents, reporting a positive association in adolescent girls. To date there is no study investigating the association between physical activity before school and cognition and academic achievement in adolescents. Therefore, we investigated the association between physical activity before school, including active commuting to school, and cognition and academic achievement in adolescents.

Methods
Cross-sectional study in 441 students (grade 7 and 9). Physical activity before school measured objectively with an accelerometer (ActivPAL³™) attached at the thigh. Participants wore the device one week (24 hrs/day). Active commuting to school measured by self-report. Cognitive performance measured by two neuropsychological tests (D2 test of attention, Symbol Digit Modalities Test). Academic achievement (Dutch, mathematics, English) provided by the school. Regression analysis was used to analyse associations between physical activity before school, active commuting to school and cognition and academic achievement.

Results
In progress. Results will be available during ISBNPA 2013.

Discussion
The objective measurement of physical activity before school and high compliance of the participants (96% participants with useful accelerometer data) are important strengths of this study.