

Objectively versus subjectively measured physical activity: associations with cognition and academic achievement in adolescents

Citation for published version (APA):

Van Dijk, M., De Groot, R., Van Acker, F., Savelberg, H., & Kirschner, P. A. (2013). *Objectively versus subjectively measured physical activity: associations with cognition and academic achievement in adolescents*. Poster session presented at ICAMPAM conference 2013, Amherst, Massachusetts, United States.

Document status and date:

Published: 18/06/2013

Document Version:

Peer reviewed version

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

<https://www.ou.nl/taverne-agreement>

Take down policy

If you believe that this document breaches copyright please contact us at:

pure-support@ou.nl

providing details and we will investigate your claim.

Downloaded from <https://research.ou.nl/> on date: 26 Sep. 2023

Open Universiteit
www.ou.nl



Objectively versus subjectively measured physical activity: associations with cognition and academic achievement in adolescents

Van Dijk, M. L.¹, De Groot, R. H. M., Van Acker, F., Savelberg, H.C.M., & Kirschner, P. A. (2012)

1) Centre for Learning Sciences and Technologies (CELSTEC). Open Universiteit in the Netherlands.

Background

Physical activity has a positive effect on cognitive performance in adults. Therefore, physical activity may stimulate cognitive performance and thereby academic achievement in adolescents as well.

However, the association between physical activity and cognitive performance in adolescents is still unclear, because only a few studies investigated this association and reported mixed results. One shortcoming of these studies is the lack of an objective instrument to measure physical activity. Physical activity was generally based on self-report, a method that is sensitive for social desirability and recall bias. Therefore, we investigated associations in adolescents between objectively and subjectively measured physical activity on the one hand and cognition and academic achievement on the other hand, controlling for covariates.

Methods

Cross-sectional study in 441 students (grade 7 and 9). Physical activity measured objectively by accelerometry. Participants wore an accelerometer (ActivPAL3™) one week (24 hrs/day). Physical activity measured subjectively by questionnaire (IPAQ-A). Cognitive performance measured by two neuropsychological tests (D2 test of attention, Symbol Digit Modalities Test). Academic achievement (Dutch, mathematics, English) provided by the school. Aerobic fitness, BMI measured objectively. Socioeconomic status, pubertal phase measured by self-report. Regression analysis was used to analyse associations between physical activity and cognition and academic achievement.

Results

Objectively measured physical activity showed a negative association with academic achievement in adolescents ($\beta = -.110$, $P = .030$). Subjectively measured physical activity showed a positive trend with cognition, however not significant.

Conclusion

Objective results in contrast, while subjective results are in line with most studies measuring physical activity subjectively.