

Moderate to vigorous exercise boosts teens' academic performance

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Regular moderate to vigorous exercise improves teens' academic performance, and particularly seems to help girls do better in science, indicates research published online in the British Journal of Sports Medicine.

The improvements were sustained over the long term, with the findings pointing to a dose-response effect -- the more intensive exercise was taken, the greater the impact on test results.

If confirmed by further research, this could have implications for public health and education policy, say the authors.

They base their findings on a representative sample of almost 5000 children who were all part of the Children of the 90s study, also known as the Avon Longitudinal Study of Parents and Children (ALSPAC). This is tracking the long term health of around 14,000 children born in the UK between 1991 and 1992 in the South West of England.

The duration and intensity of the children's daily physical activity levels were measured for periods of between three and seven days, when they were aged 11, using a device called an accelerometer, worn on an elasticated belt.

The accelerometer showed that the average daily number of minutes of moderate to vigorous exercise the 11 year olds clocked up was 29 for boys and 18 for girls -- significantly less than the recommended 60 minutes.

The children's academic performance in English, maths, and science was then formally assessed at the ages of 11 (compulsory national test key stage 1), 13 (compulsory national test, key stage 2), and 15/16 (General Certificate of Secondary Education; GCSE; key stage 4).

Factors likely to influence academic attainment, such as birthweight; mother's age at delivery; oily fish intake and smoking during the pregnancy; whether the child had reached puberty; current weight; and socioeconomic factors were fully adjusted for.

The analysis showed that at the age of 11, better academic performance across all three subjects was linked to the amount of moderate to vigorous physical activity undertaken. Physical activity benefited girls' performance in science, in particular.

Academic performance at the age of 13 was similarly linked to how much moderate to vigorous exercise pupils had had at the age of 11.

By the age of 15/16 GCSE exam results also showed a link to exercise, with an increase in performance for every additional 17 minutes/day (boys) and 12 minutes/day (girls) spent doing more intensive exercise at the age of 11.

Once again, girls' science results seemed to benefit the most. "This is an important finding, especially in light of the current UK and European Commission policy aimed at increasing the number of females in science subjects," comment the authors.

They add that this could, of course, be a chance finding, but suggest that the results may also reflect gender differences in the impact of physical activity on the brain.

Their findings prompt the authors to speculate on what might happen to academic performance if children increased the amount of moderate to vigorous physical activity they did to the recommended 60 minutes.

"If moderate to vigorous physical activity does influence academic attainment this has implications for public health and education policy by providing schools and parents with a potentially important stake in meaningful and sustained increases in physical activity," they conclude.

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Journal Reference:

1. J N Booth, S D Leary, C Joinson, R Ness, P D Tomporowski, J M Boyle, J J Reilly. **Associations between objectively measured physical activity and academic attainment in adolescents from a UK cohort.** *British Journal of Sports Medicine.*, October 2013
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