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'Seat of Learning'?

11 August 2011

This article highlighted the importance of decreasing the amount of time children spend sitting at school to reduce cardiovascular disease and metabolic disorders. However there may be further benefits which coincide with one of the fundamental reasons our children attend school in the first place. We believe that sitting less during the school day and being more physically active can not only benefit cardiometabolic health but also improve academic achievement. This is contrary to concerns from education authorities that increasing time spent physically active will decrease the time for teaching and result in lower overall school performance.

Current research suggests that engagement in physical activity may improve cognitive function and academic achievement. School-based physical activity can be scheduled as part of the curriculum, be performed during recess, extracurricular, or during classroom based academic lessons. A systematic review in 2010, including 32 experimental and quasi-experimental studies showed that school-based physical activity is positively associated with educational outcomes in the majority of studies. In 98.5% of the studies no detrimental effect on academic achievement were found [1].

Classroom based physical activity is associated with improved time-on-task, attention-to-task and concentration which are crucial for adequate academic achievement. Physically active academic lessons therefore offer an opportunity to both reduce sedentary behaviour and improve school performance without being constrained by the limited opportunities for physical education in the curriculum. Physical Activity Across the Curriculum (PAAC) [2] and Take10! [3] demonstrated that it is practical and feasible for schools and teachers to combine the delivery of academic material with short physically active games (~10min) and that this improved significantly performance scores in maths, reading, and spelling [2,3].

Despite the interest in the effect of both exercise and sedentary behaviour on future health risk, there is little evidence on the effect of these on cognitive function or academic achievement. Sedentary behaviour could have two alternative effects of cognitive performance depending on the nature of the behaviour i.e. related or not to inactivity whilst studying or doing homework etc. Future research on sedentary behaviour should expand the scope toward its impact on cognitive function and mental health.

Meanwhile the existing evidence on the benefits of physical activity should motivate education authorities to maximize the opportunities for children to be physically active and to sit less throughout the school day; this may have a positive impact not only on physical health, but also on cognitive function and school performance.

References

1 Centers for Disease Control and Prevention. The association between school based physical activity, including physical education, and academic performance. Atlanta, GA: U.S. Department of Health and Human Services 2010.

2 Donnelly JE and Lambourne K. Classroom-based physical activity, cognition, and academic achievement. *Prev Med* 2011; 52 Suppl 1:S36-42

3 Kibbe DL, Hackett J, Hurley M, McFarland A, Schubert KG, Schultz A, et al. Ten Years of TAKE 10!?: Integrating physical activity with academic concepts in elementary school classrooms. *Prev Med* 2011; 52 Suppl 1:S43- 50.

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