Research in Brief:

Physical Activity and Student Achievement

Regular physical activity is important for healthy growth and development. Regular exercise in childhood develops cardiovascular fitness, strength, and flexibility. Physical activity plays an essential role in the health, well-being, and quality of life of Canadians and helps to prevent chronic disease like cancer, Type 2 diabetes and heart disease later in life. Exercise is reported to be one of the most important things that can be done to improve health.

Over the past few years, pressures for improving scores on standardized academic assessments have increased instructional time and minimized the amount of physical education and unstructured play (i.e. recess). Unfortunately, children do not regain the lost physical activity after school, resulting in increased sedentary behaviours and the prevalence of obesity.

Recently, supporters of physical activity have increased the number of research studies assessing the impact of physical activity on academic achievement. Proponents wanted to justify the need for devoted physical education time in lieu of instructional tasks. However, due to study limitations, there have been inconsistent findings concerning the relationship between physical activity and children's cognitive functioning. The purpose of a meta-anaylsis by Fedewa and Soyeon (2011) was to quantitatively synthesize the research on physical activity and children's cognitive outcomes and to discuss implications for educators and other stakeholders in children's academic achievement.

Why does this matter?

⇒ *Devoted time for physical education and unstructured play is being replaced by instructional tasks in academic subjects. Due to the escalating rates of obesity and health-related concerns for children, there is an increase in the number of research studies assessing the impact of physical activity on children's academic achievement.*

⇒ *The current article reports that physical activity has a positive impact on cognitive outcomes and academic achievement.*

⇒ *Teachers can play a role in improving children's cognitive and achievement outcomes through the incorporation of physical activity into the school day.*

⇒ *Acknowledging the significant effects of physical activity on academic performance is critical if physical education programs are going to survive and children are going to excel, not only academically, but physically and psychologically (Graham, 2008)*

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What was done?

A meta-analysis was conducted with 59 published and unpublished studies from 1947 to 2009. Within these selected studies, participants' age ranged from 3 to 18 years, most studies included children who were considered 'average' in their cognitive and physical capabilities, the interventions were performed at the classroom level, and various physical activities and achievement tests were performed.

What is a meta-analysis?

A meta-analysis is a study that combines the results of several other studies. It involves selecting several high quality studies in a specific research area and analyzing the findings collectively. This method provides researchers with a larger sample size and allows them to draw stronger conclusions than those based on individual studies.

What did we learn?

- Results indicated a significant and positive effect of physical activity on student achievement and cognitive outcomes.
- Aerobic programs yielded the greatest impact followed by regular physical education programs and perceptual motor training. Flexibility and combined training programs did not impact cognitive and achievement outcomes.
- Interventions provided three times per week were found to have a stronger influence than those provide once or twice weekly.
- Children's mathematics achievement showed the largest effect from physical activity followed closely by IQ and reading achievement.
- Children at the elementary level experienced the greatest benefits followed by students at the middle and secondary school levels.
- More physically fit children tended to have higher cognitive functions and academic achievement, a correlational finding supported in most, but not all, of the literature.
- Students with cognitive impairments or classified as physically disabled showed greater change in general achievement then the cognitively 'typical' or average student. Therefore, physical activity should not be overlooked as an effective intervention in stimulating student learning.
- Smaller group physical activities resulted in higher cognitive and achievement outcomes (possibly due to the motivation from the presence of peers). Thus, it may be helpful to target children who could most benefit both academically and physically if limited school resources exist.

When time is allocated to physical activity and not solely to instruction, it should be viewed as enhancing, not impeding, children's academic achievement. In the future, more experimental studies, as opposed to correlational or cross-sectional designs are encouraged as they may find stronger effects of physical activity on children's cognitive and achievement outcomes.

This brief summary was prepared from:
Fedewa, A. & Soyeon, A. (2011). *The Effects of Physical Activity and Physical Fitness on Children's Achievement and Cognitive Outcomes: A Meta-Analysis.* Research Quarterly for Exercise and Sport, 82 (3), 521-535.

Please see the original document for full details. In the case of any disagreement between this summary and the original document, the original document should be seen as authoritative.