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Physical Activity: The Future of Learning?

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The vast majority of the nations' children and adolescents attend school (K–12). As such, educational milieus are a logical and economically sensible setting to deliver health promotion programming. Nevertheless, such is not a schools' primary mission. The United States Department of Education's mission is "...to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access."¹ This decree is echoed in national efforts to "enhance" the achievement of today's youth through high quality teachers, accountability, and oversight of adequate yearly progress (*No Child Left Behind*). Given that over the past 3 decades the United States has consistently fallen in international rankings of science, technology, engineering, and math achievement (STEM) as well as the attainment of university degrees,^{2,3} it is not surprising our educational system places academic achievement as its primary focus.

Due to this strong academic focus, decisions are often made that reallocate school resources, both time and human capital, away from non-core curriculum classes (physical education, recess, music, arts).⁴ These decisions are founded largely on the time-based Carnegie Unit System which focuses almost exclusively on the input side of the learning equation (e.g., seat-time) rather than the output.⁵ As such, it is often believed that increases in "seat-time" will necessarily correlate with increased scholastic performance.^{6,7} Unfortunately, this is not always the case. Increments in sedentariness and decrements in physical activity have the unintended consequence of diminishing "on-task behavior."⁸ It is attentiveness (i.e., on-task behavior), not seat time that correlates most highly with learning and academic success.⁹ Numerous studies suggest that regular physical activity breaks during the school day not only enhance academic performance directly, but also improve the behavioral elements that are foundational to learning.¹⁰ Likewise, evidence is now emerging that links high levels of physical fitness (a common by-product of increased physical activity) to achievement on statewide standardized testing.^{11,12} Con-

versely, numerous studies suggest that replacing opportunities for physical activity with increases in sedentariness (i.e., seat time) do not improve academic performance in the short term and are potentially detrimental to the health of our nation in the long run.^{13,14}

Overall, the results from the past decades' laboratory and school-based studies strongly suggest increased physical activity leads to enhanced cognitive functioning, improved classroom behavior, and increased academic performance.^{8,15,16} Surprisingly, these outcomes have been largely absent from the vast majority of school-based physical activity/obesity prevention interventions. Most research has focused on the physiological benefits from physical activity as the primary outcome (e.g., reductions in BMI, improvements in metabolic syndrome), with few if any noteworthy results.^{17,18} With so little benefit, it comes as no surprise that when faced with resource allocation decisions and academic accountabilities, physical activity opportunities in the form of physical education and recess are diminished or removed altogether.

Given that the primary directive of schools is to *promote student achievement*, perhaps the marketing of school-based physical activity interventions should be in alignment with that goal. Substantial evidence supports the thesis that the most cost-effective solution to address mediocre academic performance is increased physical activity. As such, future school-based physical activity studies need to be focused on academic performance as a distal outcome, and more importantly examine the proximal outcomes that resonate with both administrators and classroom teachers. These include classroom behavior, time on task, disruptiveness, memory, concentration, homework completion, and classroom management. The repackaging of physical activity interventions as a tool for academic performance enhancement does not preclude the physiological benefits of physical activity; rather it allows academic administrators to view them as a productive by-product of improving academic performance and its antecedents.

Over the past 3 decades, a strong empirical base linking physical activity to improved academic outcomes

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has been established. Perhaps the dissemination of these results will improve the chances of reintegrating physical activity back into the regular school-day.

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