



Research Report

RESEARCH ON SPORTS ACTIVITY AND SPORTS ACADEMIES: AN OVERVIEW

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INTRODUCTION

According to Weiss (2008), physical activity primarily includes organized sports, school physical education, recreational activities, motor skill development programs, dance, recess, and active transport like walking and biking. Of these, organized sports is particularly important for children and adolescents.

Although the focus of this literature overview is on sports academies, it is often difficult to differentiate in the literature between organized sports, and school physical education. The overview has two parts: first, a brief review of some of the literature on sports and student achievement; and secondly, an examination of sports academies.

RELATIONSHIP BETWEEN SPORTS/PHYSICAL ACTIVITIES AND STUDENT ACHIEVEMENT

Why Would Sports Have a Positive Effect on Student Achievement?

According to Weiss (2008), despite its potential to promote social, psychological, and physical development and health-related outcomes, the youth sport context is often neglected in the "physical activity" literature. Organized sports can be related to positive youth development through self-perceptions; motivation; character development; social relationships; and observational learning. Recent research has examined skill acquisition on one domain (e.g., sports) that is beneficial to other domains (e.g., school, home/family) and leads to healthy and adaptive outcomes.

What Does the Literature Say about Student Achievement?

In the literature, the word most often summarizing the relationship between physical activity/sports and academic achievement is "mixed." Studies showing a negative relationship are rare – the general consensus is that involvement in physical activity/sports does not harm academic achievement among large populations. Many studies show no significant relationship; others show a slight positive relationship. However, there is not complete agreement on how this learning occurs and why, and moreover to what degree it is consistent across cultural groups, gender, age/grade, and socioeconomic characteristics.

For example, two recent reviews of the literature found mixed results, in part attributable to the limitations of current research. Prosser and Jiang (2008) examined the literature from the 1980's until 2006 and found many of the studies with significant but weak correlations, or no

correlations, between activity level and better academic performance. In part, this may be because most studies have had a relatively short period of intervention. Prosser and Jiang advised an urgent need for longitudinal analysis with cross sectional measurements, such as the *Lifestyle of Our Kids* (LOOK) project that started in Canberra in 2005.

Tomporowski et al. (2008) reviewed studies that examined the effects of exercise on children's intelligence, cognition, or academic achievement. The examination of exercise and academic achievement assumes that children, who participate in physical activities that promote cooperation, sharing, and learning to follow rules, will develop skills that transfer to classroom settings. They looked at a number of studies including American, Canadian, and Australian, both elementary and secondary, and found a lack of agreement among these studies. Possible reasons for the uneven results may include tests that are not sensitive to the combination of exercise and mental functioning; age of the student may result in different results; different exercises may result in different outcomes; there were substantial differences among the populations of the studies, and so population difference factors (including gender) may have contributed to different outcomes.

Still, Tomporowski et al. point out that gains due to exercise are most clearly seen on tasks that involve executive functions (e.g., goal directed actions in complex environments). Exercise training programs may prove to be simple, yet important, methods of enhancing aspects of mental functioning that are central to cognitive and social development. This is important given that the amount of time taken devoted to physical education and physical activity in schools has declined over time, partly due to increased time taken for standardized test preparation.

As well, overall physical fitness may have an indirect result on achievement. Thus, according to Vail (2006), students who get regular physical education and exercise are better able to concentrate when they are in the classroom; and exercise can reduce asthma symptoms, a major cause of student absenteeism, especially in low-income areas.

The current lack of detailed information on subgroups as noted by Tomporowski et al. can also be seen in a number of more detailed studies. Carlson et al. (2008) looked at time spent in physical education and academic achievement in a longitudinal study of students from kindergarten to fifth grade. They found no relationship among boys, though higher amounts of physical education may be associated with academic achievement among girls. Yu et al. (2006) examined the relationship of academic achievement, conduct, physical activity, and self-esteem

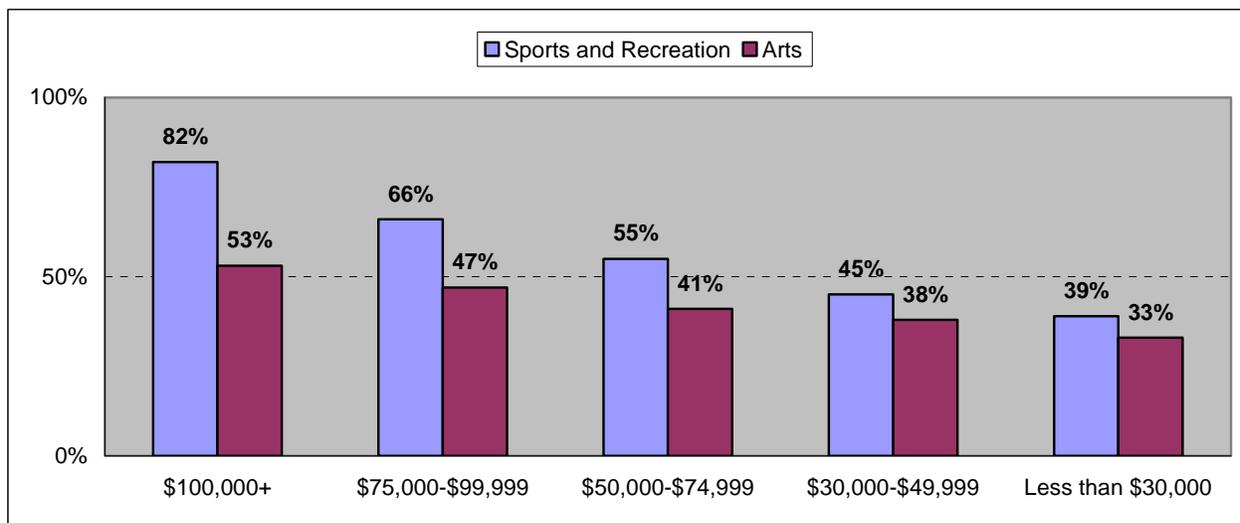
in a population of 8-12 year olds in Hong Kong. They found physical activity to be an independent entity related to neither academic achievement, nor school conduct; moreover, regression results found that only academically high-achieving boys, and physically active boys, had higher self-esteem.

Toronto District School Board (TDSB) Research

Research on the Parent Census found a clear relationship between self-described income of parents, and student participation in extra-curricular activities. Students participated most frequently in sports and recreation, followed by arts-related activity. Of those from households with incomes of \$100,000 or over, 82% participated; of those with very low incomes of less than \$30,000, 39% participated (see Figure 1).

Parents of White students were more likely to report frequent participation in sports and recreation activities outside of school, compared to other racial groups. As well, single parent families, immigrant parents (where both were born outside Canada), and those without post-secondary education, were less likely to report that their children frequently took part in sports and recreational activities (Yau and O'Reilly, 2008).

Figure 1: Extracurricular Activities by Income¹



Participation in extracurricular sports and recreational activities (along with participation in the arts) is one of the traits associated with student resiliency in challenging circumstances, according to a TDSB study (Sinay, 2009) that examined academically resilient Grade 6 students.

¹ Adapted from Yau, M., & O'Reilly, J. (2008). *2008 Parent Census, Kindergarten – Grade 6: System Overview and Detailed Findings*.

SPORTS ACADEMIES

There are a variety of sports schools throughout the world, but evaluation of sports schools in the academic literature is sparse. Radtke and Coalter (2007) of the University of Stirling conducted one very useful international review. Radtke and Coalter looked at sports schools in ten countries. Most sports schools were founded in the early 1990's, although some are the result of more recent initiatives in Italy (2001) and Singapore (2004). Of the 10 countries, Canada had the smallest number (1) while Sweden had 61. Germany had the highest number of pupils (more than 11,000).

The direction and development of these schools varies: sometimes it is a matter for individual schools; sometimes countries set clear and formal criteria. All are formally linked to elite sports systems and sports federations. Generally, the schools are government funded. It is noted that as most students will not go on to professional sports careers; sports schools must be judged on their ability to provide a good secondary education for elite athletes. There are three broad approaches to combining training and competition: 1) wholly integrated (where the schools integrate into regular classes with other pupils); 2) partly integrated, (where sports sections and sports classes are integrated into a regular secondary school, but with certain specialist sports classes for pupil athletes); and, 3) specialist provision, (where the school caters exclusively to pupil athletes and are not linked to a regular school). In all cases, the schools are multiple-sports schools (even the Calgary Sports School, which concentrates on winter sports) and offer a range of sports.

In most countries, the schools are public and include pupils of all educational levels. To compensate for reduced classroom time as a result of sports activity, a number of approaches are adopted: extra tutorials; distant learning materials; laptops/Internet support; year-round schooling or extending study by a year; a focus on fewer subjects. Finland has the most adaptable curriculum where pupils can construct their own timetables, in part because the national curriculum is decentralized and highly flexible.

Radtke and Coalter found it difficult to obtain accurate academic information about all schools. Most found achievement to be above the national average (however, they cautioned that they had no information on social class). In Finland, there was little difference. In the Canadian example, high school completion appeared to be complete, and 90-95% went onto post-secondary education. 'Drop-out' rate of the program (where students went into mainstream

schools) varied widely. There was little definitive research on assessment of sporting performance. Many students in these programs went to represent their countries in top events, but given they are selected for athletic achievement, it could not be determined if their performance was improved by attending a sports school.

The Youth Sports Trust (2008) examined the impact of the British Sports College Network. The Network grew from 11 schools in 1997 to over 430 schools in 2008. Sports College schools recorded higher increases in English and Mathematics tests compared to specialist schools and the national average. School teachers in both English and Mathematics reported that the specialization on sports had a positive impact on student attendance, behavior, staying on task, and punctuality. However, there was no analysis of social divisions.

Canada

Canada's first and (until 2008) only full-time sports academy was the National Sports School of Canada, founded in 1994. The Grade 9-12 secondary school is specifically designed for Canadian Olympic caliber athletes, to be able to train and travel internationally while staying in school. The Calgary location of the school allows students access to major sports facilities in the city, many of which were built for the 1988 Olympics. The school offers special accommodations to students, including allowing students to enter and exit throughout the year without losing credit for work already done. On average, each student has access to three computers. There is a low teacher-student ratio. In the 2006 Winter Olympics, 20 members of the Canadian Olympic team had attended the school

(see [http://en.wikipedia.org/wiki/National_Sport_School_\(Canada\)](http://en.wikipedia.org/wiki/National_Sport_School_(Canada))).

According to Young (2009), Ontario has a variety of specialized sports programs in secondary schools. These programs offer physical education courses that concentrate on a particular sport such as swimming, volleyball, baseball, and hockey. Examples include the Hockey Canada Skills Academy, within Sir Frederick Banting School in London, Ontario. This, and other sports academies, such as the Ecole Secondaire Publique Louis-Riel in Ottawa, appear to cater to a diverse range of student abilities, from high performance to recreational abilities. Louis-Riel (where the sports program is for Grade 7-8 students) offers coaching in seven different sports. In contrast, Canada Basketball's NEDA in Hamilton, partnering with schools in that city, brings together the top 12 male and female athletes across Canada to train under Canadian Basketball national team program strategies from September to June. Similarly, Westmount Sports Academy at Westmount Secondary School (SS) in Hamilton offers flexible, self-paced learning

and customized, fully integrated timetables to high-performing athletes in Grades 9-10 from the Hamilton area.

Bill Crothers Secondary School

Canada's second full sports academy opened in York Region in 2008. Bill Crothers S.S. for Healthy Active Living and Sports includes the following students:

- a. Active – students who want to have a healthy lifestyle and want to be in an environment that embraces those attributes, participate in house league, school sports, recreational programs, creative movement – yoga, etc.
- b. Intensive – students who compete within a club system or development program
- c. High Performance – students who have been named to provincial or national teams

The school does not define itself as an elite sports school but rather “an inclusive, character-focused learning environment that links excellence in education and athletics with a commitment to healthy, active living for all students” (see <http://www.billcrothers.ss.yrdsb.edu.on.ca>).

The school, when full, will have 1,500 Grade 9-12 students. It features flexible school structures, including a calendar that runs from early August to late June (in other words, adding approximately a month to the school year). There is a supervised integrated-learning instructional period four days a week. Students and staff have a late-start day each Wednesday for planning sessions (Young, 2009).

Toronto Programs

Toronto has no full-time sports academy. There are four schools that are considered to be Specialized Schools and Programs in Athletics and the Arts: Birchmount Park Collegiate Institute (CI), Northview Heights SS, Silverthorn CI, and Vaughan Road Academy. As well, St. Andrews Junior High School and Hollycrest Middle School have “High Performance Athletics Programs”. To be considered a Specialized School or Program, the school must have a clearly articulated specific program focus. For example, the Birchmount Park Exceptional Athlete Program started in 1989. It integrates academics with a training program, and includes over 200 Grade 9-12 students from across Toronto. Over the years, over 30 different sports have been represented. Each student is attached to a coach outside of school who instructs in the technical portion of the specific sport (see http://schools.tdsb.on.ca/birchmount/services/program_info.asp).

CONCLUSION

According to Martin and Chalmers (2007), “Retaining and enhancing quality physical education programs for the learning of motor skills and health benefits may be justified. Rationalizing school physical education as a means to also improve achievement of students, however, does not appear to be justified.” Behind this rather stark conclusion is a more complex situation. There is general agreement that sports and physical activity does not actually harm academic achievement, and usually benefits achievement – although the relationship is limited. But researchers don't really know who benefits the most – boys, girls, gifted students, economically-challenged students, have all been shown to benefit in some way – but often in contradictory ways.

In this respect, the benefits of sports academies are not entirely clear. That being said, it is interesting that sports academies had their greatest initial growth in Sweden – one of the countries with the greatest commitment to social equity; while they are limited in the United States (US), where social inequities are pronounced. Given the strong relationship of family income to extracurricular activity in sports, perhaps the Swedish educational system's commitment to sports academies may be more related to social considerations, rather than academic improvement.

In any case, with sports academies, there is a wide range of models. Many of the choices are strikingly similar to the range of models in arts schools and programs; with which sports has a number of other parallels (e.g., the two are the most frequent extracurricular activities). Most sports academies are intended for high-level athletes, and are thus similar in general function to arts academies or gifted programs. However, some programs are intended for anyone with an interest in certain sports. Certainly, given the socio-economic divide of sports extra-curricular activity seen in the Parent Census, the characteristics of students in any TDSB academy should be carefully monitored.

Most examples of sports academies in the literature are in the secondary panel (although middle schools academies also exist). Generally, sports academies offer instruction in a wide range of sports, while specific programs within a school offer instruction in a smaller subset of skill instruction. Some are gender specific while others are co-educational. It is unclear how sports programs within schools compare to sports academies in terms of advantages or disadvantages.

The lack of clear choices in terms of sports academies is a double-edged sword. It provides a certain freedom of choice, in that it is difficult to argue against organization models. Consequently, the wisdom of these choices will become apparent only with time.

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