

RELATIONSHIP BETWEEN LEISURE & SPORTS ACTIVITIES AND SCHOOL PERFORMANCE IN THE LIGHT OF DATA FROM THE NATIONAL ASSESSMENT OF BASIC COMPETENCIES (NABC) 2017 SURVEY

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Abstract

The National Assessment of Basic Competencies (NABC) measures the literacy and mathematics skills & performance of students attending 6th, 8th and 10th grade once a year. The purpose of this study is to demonstrate the results of the National Assessment of Basic Competencies (NABC) linked to sport activities. The Authors describe the frequency of regular sporting habits outside school and at school by age groups, gender, and type of school. Highlights: (1) Among both sexes, it can be stated that the 6th grade athlete ratio in the subsequent grades shows a downward trend of about 10-10%. (2) From the point of view of the types of schools, the proportion of regular sports students is by far the most favorable among students attending grammar school. (3) The advantage of athletes is the most consistent in the girls' mathematical scores: with one exception, athletes in all grades and in all types of schools outperform the athletes. (4) Athletic girls at primary schools and six-year high school students athletes outperformed non-athletic girls in both mathematics and literacy competency scores.

Keywords: National Assessment of Basic Competencies (NABC) ▪ sport ▪ leisure sport
▪ mathematics ▪ literacy

INTRODUCTION

Social psychology / sports sociology

“The most important feature of social psychology as an interdisciplinary field of science is that it puts the understanding of the psychological state and behavior of individuals into a social matrix” (Pikó, 2012). The regularities of social processes provide an essential guide to understanding and analyzing factors

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affecting mental health (Kopp et al., 2010). During individualisation, the individual separates himself/herself from others and determines himself/herself (Gurevics, 2003). As a result, the relationship between the individual and the community changes, weakens, and social norms and responsibilities loosen. A deeper understanding of this process is offered, among other things, by existential psychology (Lukas, 2009), as well as by the temporal theory of self-regulation (Hall & Fong, 2007). Such a “value-oriented area” is, for example, religion (e. g. Bergin, 1991), the army (eg Dunivin, 1994) and sport (eg Pikó, 2005). The lack of exercise and physical activity is a cause of increasing social concern in many areas (Garrett, Brasure, Schmitz, Schultz, Huber, 2004). Among others, there is a problem in health (Biddle, 2012), mortality (Kopp and Skrabski, 2004) and economics (Ding et al., 2017). Not only for adults but amongst young people as well (Tremblay et al., 2011). Satisfactory physical activity is available through sport, leisure and everyday life (Moran, 2012). Of course, top professional sports affect only the narrow part of society whose members (and their families) lives are dominated by sports. In connection with the physical activities embedded in everyday life we recommend the work of Moran (2012) and Róbert Urbán's (2017) health psychological book in Hungarian. In the remainder of the study, we will look more deeply into recreational sports activities, their regularity and their relationships.

Adolescent leisure sport activity

In adolescence, joint activities with peers are at the forefront, which also significantly influences their health related behavior (Pikó, 2006). From a health-psychological point of view, some recreational activities have a risk-increasing effect (prone to smoking, alcohol and drug use), while others have a protective effect. The former include unstructured time spent with peers, consumption-oriented activities, and creative activities, sports, religion and intellectual interest (Pikó, 2005). While regular leisure exercise is an integral part of children's life (Kulig, Brener & McManus (2003), this is a decreasing trend in late adolescence (Telama & Yang, 2000). So, as with all health behaviors, the practice of recreational sporting activity develops during late childhood and early adolescence (Perkins, Jacobs, Barber & Eccles, 2004). This also explains that childhood sporting activity is a unique and highly prominent predictor of adult sports activity (Moran, 2012). The release of sport as a result of age is particularly evident among girls, which is explained by the learned helplessness and minor engagement resulting from the several negative experience of physical education lessons, and the lower level of interest and involvement in comparison to boys in sports (Coakley & White, 1992; Ennis, 1996). The aptitude of boys to sports is further explained by the relationship between their affection to sports with masculine identity and the resulting competitive spirit and result-centricity (Lantz & Schroeder, 1999; Koivula, 1999). What can bring for girls back their

enthusiasm and commitment to sports? Parents, as a good example, only affect boys (Sallis, Alcaraz, McKenzie, Hovell, 1999), but girls can be motivated very much if some girls in their immediate environment are engaged in sports (Coakley & White 1992; Keresztes, Pikó, Pluhar, Page, 2008).

Leisure activities of adolescents in Hungary

As a report summary on the 2004 “South Great Plain” Youth Research, Bettina Pikó (2012) reports that in case of a very large national adolescent sample (N = 1114), out-of-school sports activities were carried out by about two-thirds of participants (65.6%) at least once a week. Keresztes, Pluhár, Pikó and Page (2008) found in a 548 Hungarian adolescent sample that one third (31.9%) of the participants did not participate regularly in recreational sports. The difference between boys (30.4%) and girls (32.9%) has been minimal in this field.

Psychological aspects of sports activities

The time spent on regular leisure sports returns by long-term health care (Warburton, Nicol & Bredin, 2006), which is reflected in the avoidance of chronic diseases at a higher rate, as well as improved health and survival rates (Macintyre & Mutrie, 2004). But beyond physical health, physical exercise significantly contributes to psychological well-being (Fox, 1999), better general state of health, mental health (Ahn & Fedewa, 2011), physical fitness (Perkins, Jacobs, Barber & Eccles, 2004), lower levels of harmful behavior to the health (Pate, Trost, Levin & Dowda, 2000) and fewer drug-addiction problems (Greza and Surányi, 2014; Greza et al., 2015). Biddle and Asare (2011) reviewed 18 reviews of the impact of physical activity on health psychological variables such as self-esteem, depression, anxiety and cognitive function among children and adolescents. According to their results, physical activity is beneficial to mental health. In Hungary, Kovács and Perényi (2014) examined the relationship between sport and health – among others, mental health – on young people. Their results have shown the protective nature of sports in case of mental well-being. Athletes are protected from depression by their lifestyle due to regular exercise, as well as their self-confidence, support from society and social contacts (Armstrong, Oomen-Early, 2001). The positive impact of sport on mental health was also supported by a research of Vörös (2017), in which he examined the relationship between the inclination to sports and mental health. From a neuropsychological point of view, regular exercise results in increased cerebral blood flow and metabolism (Blakemore, 2003), which can lead to a more mature nervous system and bodily functions in the longrun, which appears in the growth of the cognitive performance (Hillmann, Castelli and Buck, 2005). These processes of the development of capability do not necessarily appear in school grades (Taras, 2005), the relevant research experience are contradictory (Biddle and Asari, 2011; Rasberry et al., 2011).

METHOD

This paper contains analysis of the entire sample of the National Assessment of Basic Competencies (NABC). The following two questions were used for grouping:

What kind of regular extracurricular classes do you attend at school?

- o Tutoring, development work
- o Talent management classes
- o School-organized leisure sports

Do you attend extracurricular tutorial lessons, private lessons out of the following subjects?

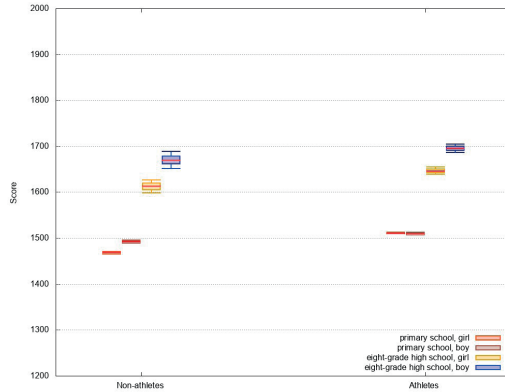
- o Mathematics
- o Foreign language
- o Music
- o Sports
- o Other

From the two questions above we were able to form the following groups: „probably not doing sports regularly”, „regular athlete” and „passive” groups, where the first and last categories might as well considered to be equivalent. After that, the analyses were grouped, examined and described by gender, grade, and type of school. –Due to the size of the tables and data, the exact results and figures of the inquiry can be obtained in an additional source, from the website of the journal: PSYC_HU.

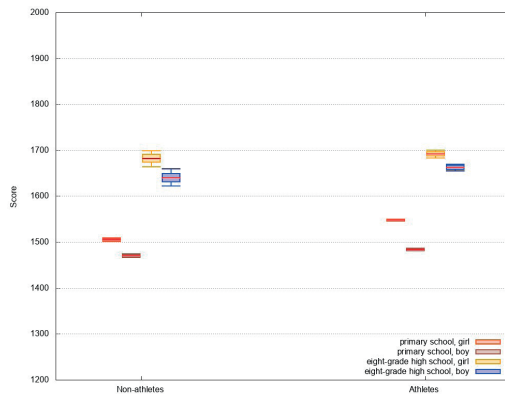
The mathematical statistical methodology underlying the results is discussed in detail in the thematic edition, see (T. Kárász, 2019b) in Hungarian and (T. Kárász, 2019a) in English.

RESULTS

Figures (1-8) and Table 1 below show the performance of mathematics and literacy in regular leisure sports active and passive students in this respect.

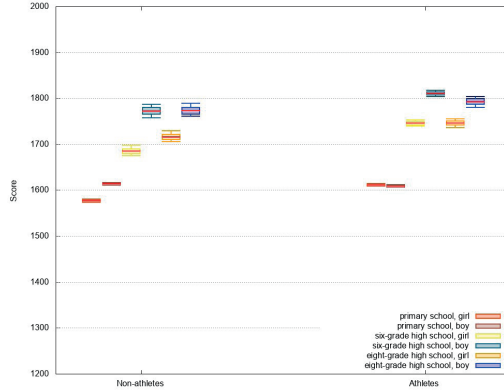


You can see on Figure 1 that among 6th grader girls athletes outperform passive ones in every type of school. The same difference can be found among boys in the elementary school only, not in the secondary school, where there is no such difference between athletes and non-athletes.

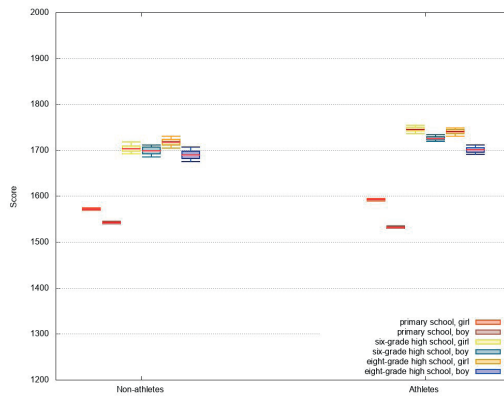


Due to Figure 2, in 6th grade, athletes do not perform better in literacy than passives in secondary school, but in elementary school they do. This result fits boys and girls as well.

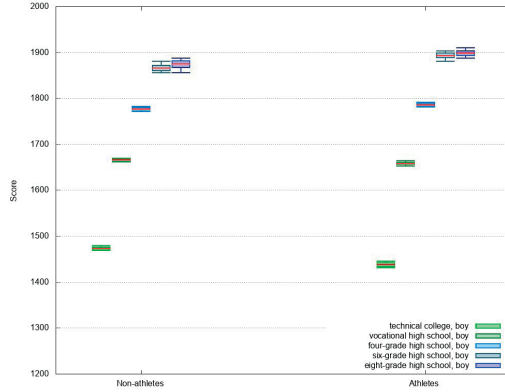
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One can see on Figure 3 that in 8th grade, athlete girls outperform non athletes in math scores. Regarding boys, the results are not so straightforward: the forementioned difference exists only in six-year high school.



Regarding Figure 4, we can state that in 8th grade, athletes outperform non-athletes in literacy scores, but not in every school type: in six-year high school and in elementary school yes, but not in eight-year high school.



One can see in Figure 5 that among 10th grader boys, there are not so much difference in math scores between athletes and non-athletes. One exception is the technical school where passives outperform athletes. Similarly, among girls (see Figure 6), athletes have higher math scores, except for technical school attendees.

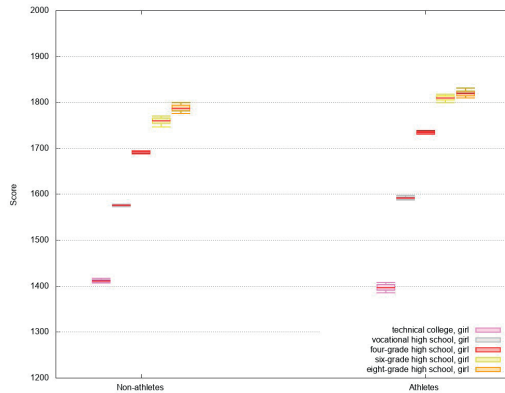
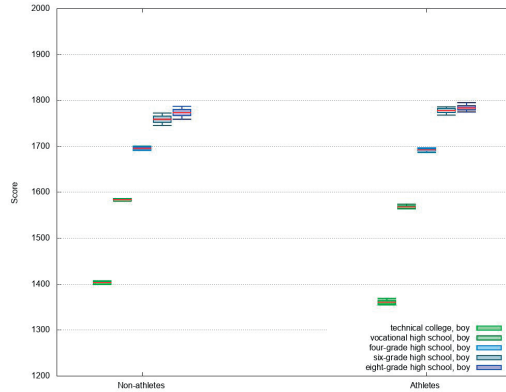


Table 1: Comparison of the average of competency scores for sportsmen and non-athletes by different levels of class-school-gender variables

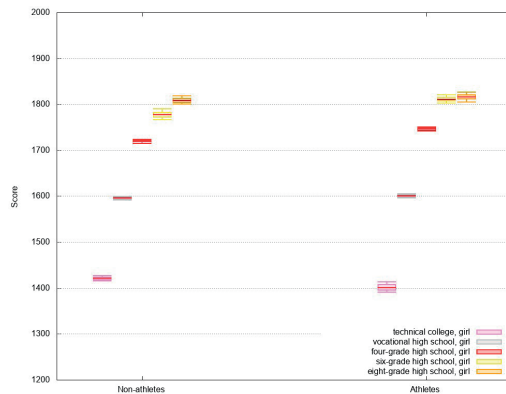
Class/Grade	School type	Boys				Girls			
		Mathematics		Literacy		Mathematics		Literacy	
		active	passive	active	passive	active	passive	active	passive
6.	Primary school	Green	White	Green	White	Green	White	Green	White
	8 grade secondary school	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
8.	Primary school	Grey	Grey	White	Green	Green	White	Green	White
	6 grade secondary school	Green	White	Green	White	Green	White	Green	White
10.	8 grade secondary school	Grey	Grey	Grey	Grey	Green	White	Grey	Grey
	Secondary school	White	Green	White	Green	Grey	White	White	Green
	Vocational high school	Grey	Grey	White	Green	Green	White	Grey	Grey
	4 grade secondary school	Grey	Grey	Grey	Grey	Green	White	Green	White
	6 grade secondary school	Grey	Grey	Grey	Grey	Green	White	Green	White
	8 grade secondary school	Grey	Grey	Grey	Grey	Green	White	Grey	Grey

Legend:

	: overlapping confidence intervals, so there is no significant difference between athletes and passives in the given class for the given type of school of pupils in a given grade in the given competency (mathematics or literacy)
	: non-overlapping confidence intervals, those in the group reach a higher score in the given competency than their different sporting peers
	: non-overlapping confidence intervals, those in the group reach a lower point in their respective competencies than their sporting counterparts



Among 10th grader boys, the same can be stated for their literacy score differences as for their math scores above, but the athlete-passive difference exists in vocational high school attendees as well. In high school we found no difference among the average of athlete- and passive students.



Among 10th grader girls, we can state that athletes outperform passives in literacy in four-year and six-year high schools, but not in eight-year high schools and vocational high schools. In technical schools, passive students achieved higher literacy scores than athletes. *Table 1* shows summarized results.

CONCLUSIONS

There may be several factors behind the overall positive level of competence in recreational sport activities. Beside the neuropsychological aspect (Blakemore, 2003; Hillmann, Castelli and Buck, 2005; Earth, 2000; Trudeau and Shephard, 2008), it can be assumed from a stress-theoretical approach that regular sporting activities test and develop psychological adaptive skills and endurance, resilience and, at least in the long run, they are certainly an advantage in learning and in a variety of performance situations. It is also worth mentioning the limitations of the National Assessment of Basic Competencies (NABC) reference section on Sport. The undifferentiated sporting habits survey restricts the exact capture of the relationship between sports and cognitive abilities, as all the athletes are grouped together without differentiation, e.g.: a professional water polo player doing 10 trainings a week fall under same category as an amateur football player playing once a week. Following a person-oriented approach, similarly to ones in personality psychology (Surányi, Hitchcock, Hittner, Vargha, & Urbán, 2013; Kövi et al., 2019), we could identify subtypes (clusters, Bergman, Vargha, & Kövi, 2017) among those doing sports, and analyze these types separately. In addition, we also must beware of the cause-and-effect statement, because even if the overall score of athletes' competency score is better than that of non-athletes, it is not proven that sport is the single cause of this important difference. For a better understanding, follow-up testing would be ideal, or at least multi-directional analysis with data e.g.: what the student is doing, since when and how often. In any case, it is important to identify and highlight the fact that the annual National Assessment of Basic Competencies (NABC) provides a unique opportunity to grasp trends of social level, or even trends related to gender or to school types in the future. Among other things, the long term development of rates of athletes versus passive student can be well measured in connection with amendments to the law, sport-world changes, changes of gender roles, educational law amendments. If readers are only interested in surveys of the physical condition of this age group, we can suggest data on physical fitness measurements available from 2014/2015 data:

(https://www.oktatas.hu/kozneveles/meresek/fizikai_fittsegi_meres/lebonyolitas).

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