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Sport preferences survey – future of martial arts

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Summary

Background:	The awareness of the positive effect of active and healthy lifestyle in the adolescent population should be a main priority. Coaches, instructors, and teachers should know the structure of sport preferences of their athletes and should try to improve their programs by popular content and interesting forms of presentation.
Material/Methods:	We have used two questionnaires: 1. sport preferences questionnaire, 2. international physical activity questionnaire (IPAQ). The statistical analysis was carried out with Mann-Whitney U-test and Spearman correlation coefficient. The preparation of this research methods (online form of questionnaire), which will uncover the structure of sport preferences, is useful for consecutive interventions.
Results:	Acquired results indicate, that differences of sport activities between boys and girls are not so obvious. The most preferred sport activities in boys are – soccer, ice hockey, basketball, cycling, snowboarding, and skating (in-line). The most preferred sport activities in girls are – aerobics, volleyball, cycling, horse riding, basketball, snowboarding, and skating (in-line). Boys are more active than girls are. Boys reached 4,992 MET-minutes/weeks, while girls reached 4,246 MET-minutes/weeks.
Conclusions:	The online form of survey was effective in school environment. Acquired data allow reappraise efficiency of current sport facilities and offered sport programs. Acquired results in context with real status and conditions in given area can increase total amount of physical activity. The most preferred martial arts in boys are – kick-boxing, boxing, karate, kung-fu, and taekwon-do. The most preferred martial arts in girls are – karate, kickboxing, judo, and boxing. This research is part of international project INDARES (www.indares.com). INDARES.COM is a complex on-line system focused on recording, analyzing, and comparing of data concerning physical activity of its users. The purpose of INDARES.COM project is to support education and research in the field of physical activity. It is also aiming at increasing users' knowledgebase in physical activity issues and at providing means to improve their life-style. INDARES.COM system has been developed in cooperation with the Center for Kinanthropology Research at Faculty of Physical Culture of Palacký University in Olomouc, the Czech Republic.
Key words:	online research • active lifestyle • youth • physical activity • interventions

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BACKGROUND

The present civilization influences human movement significantly, which is the fundamental expression and need of human life [1–3]. In opinion of many authors, lifestyle is the most important factor, which influences on health. A lack of movement routine, which is essential part of our lives, and current sedentary lifestyle, has negative impact because of formation of public (mass) noninfectious diseases [4–9]. The results of previous research projects and surveys point out the insufficiency of physical activity (PA) in all age categories [10,11].

The development of physical, mental, and social dimension of personality of high school students, which is realized by PA, is situated mainly to the area of out-of-school interest activity. There are many other institutions (school sports clubs and other leisure time institutions) in this phase of human development, which present a unique role for adolescents – family, peers and social surrounding. 75–85% of all PA is realized in leisure time, out of school and only 15–25% is organized at school [12–14].

School institutions should respect the wishes and interests of students and contribute to the optimal development of healthy lifestyle. The active contribution of the high school is from this point of view often minimal. The orientation on the adolescent phase of human development is crucial, because, that attitude towards physical activity is made in childhood and in adolescence. The schools have a unique opportunity to influence and support PA of youth [15].

The uncovering of the structure of PA and preferences of sport activities of high school students should be one of the most productive pillars for improving the current situation. In addition there is a confirmation from various surveys of specific area of preferences of physical or sport activities [16,17]. By way of this kind of survey, we will contribute to making better conditions and facilities for children and youth.

We should respect preferences of developing motor abilities in school physical education, which is typical for contemporary conception. The pupil is in the center of our pedagogical focus in this prospective [18,19]. Discrepancies between preferences, sensitive phases of human development and goals should be treated by popular content and interesting forms of presentation.

The main goal of this project is to analyze structure of sport activity preferences of secondary school population, to describe current state of sport-preferences sphere and to provide to all participating schools with feedback information.

Partial goals

1. Examine the application of online alternative of research at school environment.
2. Contribute to detailed and easy monitoring of sport preferences.
3. What is the structure of sport activities in the category of martial arts?

MATERIAL AND METHODS

Under the terms of the research were used two questionnaires, which survey basic information about participating of respondents in organized and unorganized form of physical activity – sport preferences questionnaire and international physical activity questionnaire (IPAQ).

The research sample of this pilot study was made up of students of high schools in two regions in Slovakia. The total size of this sample ($n=3,492$) was divided to both regions in ratio – Košice region ($n=1,756$) and Prešov region ($n=1,736$).

The research sample of the second part of this research, which is more suitable for evaluating physical activity, were realized via IPAQ questionnaire made up of Czech adolescents of age 15-20 years. The total number of respondents in this part ($n=1,391$), was 618 boys and 773 girls (Table 1).

The structure of preferences of sport activities was surveyed in eight areas: 1. Individual sports, 2. Team sports, 3. Conditioning activities, 4. Water sport activities, 5. Outdoor sport activities, 6. Martial arts, 7. Rhythmical, and dancing activities and 8. Sport activities – overall.

One of the important components of standardization of this questionnaire was verified the stability by means of method test-retest and by Spearman correlation coefficient (r_s). The most balanced results between the first and the second measurement were found in the area of team sports (0.81 and 0.76). On the other side, the biggest spreads in ranking between two measurements were found in the areas of rhythmical and dancing activities (0.62 and 0.68) and martial arts (0.68 and 0.61) [20]. The coefficient of reliability of IPAQ questionnaire is 0,8 [21].

The statistical analysis was made in program Statistica 6.0 [22]. After processing the results, we used basic statistical data – Spearman correlation coefficient and Mann-Whitney U-test.

RESULTS

Acquired results give us total summary about the sport preferences sphere. In the context with real situation and sport conditions in the given area, we are able to increase the total amount of physical activity. The results from the area of “Martial arts” (Table 2) confirmed that the differences in preferred sport activities between girls and boys are not so obvious. These results could be an impulse for launching coeducational physical education classes. The proclamation is confirmed by Spearman correlation coefficient, which was for the area “Martial sports” 0.81 (Prešov region), 0.60 (Košice region) ($p=0.05$).

There were similar results in the other categories, which were in our questionnaire. When we made inter-sexual comparison in the last category “Sport activities – overall”, we have found out also similarity between boys and girls. The biggest difference was found in category “Rhythmical and dancing activities” ($r_s=0.35$). There were found no significant differences between both regions (Figure 1).

The results acquired from the IPAQ survey showed us the similar results like in previous surveys.

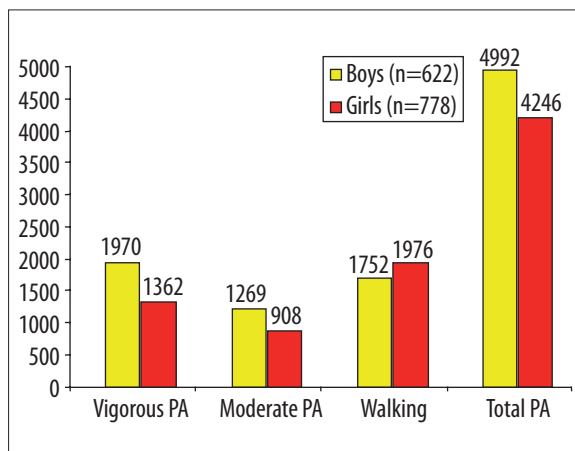


Table 1. Basic somatic characteristics of respondents of IPAQ survey.

Group/size (n)	Age(years)	Weight (kg)	Height (cm)	BMI (kg/m ²)
Boys (n=622)	17.96±1.70	72.41±11.15	180.00±8.01	22.31±2.97
Girls (n=778)	18.12±1.67	58.87±7.54	168.58±6.23	20.70±2.38
Total (n=1,400)	18.05±1.68	64.89±11.49	173.65±9.07	21.42±2.77

Table 2. Sport activity preferences – the area „Martial arts“.

Ranking	Martial arts			
	Prešov – boys	Prešov – girls	Košice – boys	Košice – girls
1	Kick-boxing	Karate	Kick-boxing	Karate
2	Boxing	Kick-boxing	Boxing	Boxing
3	Karate	Kung-Fu	Karate	Judo
4	Kung-Fu	Judo	Kung-Fu	Kick-boxing
5	Taekwon-Do	Boxing	Taekwon-Do	Kung-Fu
6	Judo	Taekwon-Do	Wrestling	Aikido
7	Wrestling	Aikido	Aikido	Taekwon-Do
8	Aikido	Wrestling	Judo	Wrestling
9	Musado	Musado	Musado	Musado

**Figure 1.** The level of all types of physical activity (MET-minutes/week).

Boys are more active than girls are. Boys reached 4,992 MET-minutes/weeks, while girls reached 4,246 MET-minutes/weeks. The results confirm previous research projects, according to them girls (women) are less active than boys (men) are [10,23].

DISCUSSION

The representative research sample of the adolescent population is not casual, because this developmental phase is often labeled critical. This is critical because of the character of this phase, but certain part is the result of impact of social surrounding, environment, mass media etc. One

of the possible causes of this unsatisfied trend can be the discrepancy between “supply and demand” on the market, managing with sport activities. Implementation of proper combat or martial arts can be one of the possible direction, how to change total amount of the level of physical activity among children and youth.

School physical education is the factor, which should contribute to level of physical activity. The current situation in the area of school physical education is unsatisfied and need changes, i.e. in organizing, staff, PE teachers' qualification, methodical teaching. One of the main reasons is the fact, that school represents one of the basic socializing factors in the human development as well as family, peers, and considerably influences human perception of lifestyle [24].

We can fight against this inactivity of children and youth by promoting quality school physical education and improving predispositions for physically active lifestyle in adulthood. Physical education represents one school subject, where there are compensated health risks. The underrating of the physical education and the work of PE teachers can lead to deterioration of physical education and belittling of the importance of this school subject.

The human qualities we associate with the mind can never exist separately from the body because movement is an indispensable part of learning and thinking, as well as all integral part of mental processing. Furthermore, thinking and learning do not take place only in our head; people need to become more aware of the body's role in learning. Physical activity can indirectly improve results of educa-

tion of students by improving mental health, self-respect, and vigilance [25].

The awareness of the positive effect of active and healthy lifestyle in the adolescent population should be the main goal. The preparation of the research methods (online form of questionnaire), which will uncover structure of sport preferences is very useful for consecutive interventions in the given area.

We have to note, in comparison with previous results from the area of sport activity preferences, that trends in the development of sport preferences are making dynamic system, which is changeable in time [10, 26]. However, there is a spectrum of sport activities, which were, are and probably still will be preferred (soccer, volleyball, aerobics, swimming).

The results from the category of martial arts can show us orientation of our focus into cross-training. What kind of martial arts are preferred by our young athletes.

It is necessary to mention, that acquired results are characteristic for concrete research sample, living in given socio-economics conditions and influenced by many factors such as culture, traditions and habits, current needs and values, family and peers. The issue of gender is to a certain extent unknown. We have to respect this fact in forming of corresponding conditions and facilities, which will lead to meet needs and wishes of students.

CONCLUSIONS

The knowledge of the structure of sport preferences is important for all of coaches, teachers, lectors and leading workers. We cannot talk about ideal cooperation and maximal effort without the knowing this specific structure. It is obvious in all spheres of human live. The main purpose of this research was to uncover real structure of sport preferences, compare it with real situation, and indicate some changes, if it is necessary. The focus in this article put on the area of martial arts. We can summarize our results in few points:

- Acquired results indicate, that differences of sport activities between boys and girls are not so obvious.
- There is visible dynamic in the development of the structure of sport preferences, despite of this fact there is a spectrum of sports, which is constantly preferred (soccer, volleyball, aerobics, swimming).
- The most preferred sport activities in boys are – soccer, ice hockey, basketball, cycling, snowboarding and skating (in-line).
- The most preferred sport activities in girls are – aerobics, volleyball, cycling, horse riding, basketball, snowboarding and skating (in-line).
- The most preferred martial arts in boys are – kick-boxing, boxing, karate, kung-fu and taekwon-do.
- The most preferred martial arts in girls are – karate, kick-boxing, judo and boxing.
- There were not found any significant differences in structure of sport activity preferences between two regions (Košice, Prešov).
- Boys are more active than girls. The total amount of physical activity in boys is 4992 MET-minutes/week, while in girls 4264 MET-minutes/week.

- Acquired data allow reappraise efficiency of current sport facilities and offered sport programs.
- Acquired results in context with real status and conditions in given area can increase total amount of physical activity.
- Research of sport activity preferences can help in socialization of student via activities which are preferred by boys and girls together; coeducational PE classes can take place.
- Realization of online form of survey in school environment was effective (next perfection and making whole system more attractive is necessary).

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REFERENCES:

1. Hodaň B: Tělesná kultura – sociokulturní fenomén: východiska a vztahy. Olomouc: Univerzita Palackého; 2000 [in Czech]
2. Stejskal P: Pohybem za zdravím? *Osobní lékař*, 2004; 11: 12–14 [in Czech]
3. Věle F: Kineziologie pro klinickou praxi. Praha: Grada; 1997 [in Czech]
4. Berger M, Kemmer FW: Discussion: Exercise, fitness, and diabetes. In: Bouchard C, Shepard RJ, Stephens T, Sutton JR, McPherson BD, editors. Exercise, fitness, and health. A consensus of current knowledge. Toronto: Human Kinetics Publishers; 1988; 491–95
5. Dishman RK: The impact of behavior on quality of life. *Quality of Life Research*, 2003; 12: 43–49
6. Garfinkel PE, Coscina DV: Discussion: Exercise and obesity. In: Bouchard C, Shepard RJ, Stephens T, Sutton JR, McPherson BD (eds.), Exercise, fitness, and health. A consensus of current knowledge. Toronto: Human Kinetics Publishers; 1988; 511–15
7. Stejskal P: Proč a jak se zdravě hýbat. Břeclav: Presstempus; 2004 [in Czech]
8. US Department of Health and Human Services. Physical activity fundamental to preventing disease 2000. Available from: URL: http://www.aspe.hhs.gov/health/reports/physical_activity/index.shtml
9. Vondruška V, Barták K: Pohybová aktivita ve zdraví a v nemoci. Hradec Králové: Klinika tělovýchovného lékařství FN a LFUK; 1999 [in Czech]
10. Frömel K, Novosad J, Svozil Z: Pohybová aktivita a sportovní zájmy mládeže. Olomouc: Univerzita Palackého; 1999 [in Czech]
11. US Department of Health and Human services. Healthy people 2010: Physical activity and fitness 2000. Available from: URL: <http://www.healthypeople.gov/document/html/volume2/22physical.htm>
12. Bartoszewicz R: Aktywność ruchowa uczniów szkół specjalnych dla upośledzonych umysłowo w stopniu lekkim. In: Śleżyński J, editor. Efekty kształcenia i wychowania w kulturze fizycznej. Katowice: Akademia Wychowania Fizycznego; 1998 [in Polish]
13. Bouchard C, Shephard RJ, Stephens T: Physical activity, fitness, and health. Champaign, IL: Human Kinetics; 1994
14. Hallal PC, Victora CG, Azevedo MR, Wells JCK: *Sports Medicine* 2006; 36(12): 1019–30
15. Wallhead TL, Buckworth J: The role of physical education in the promotion of youth physical activity. *QUEST*, 2004; 56: 285–301
16. Booth ML, Bauman A, Owen N, Gore CH: Physical activity preferences, preferred sources of assistance, and perceived barriers to increased activity among physically inactive Australians. *Preventive Medicine*, 1997; 26: 131–37
17. Burgeson CHR, Wechsler H, Brener ND et al: Physical education and activity: Results from the school health policies and programs study 2000. *Journal of Physical Education, Recreation & Dance*, 2003; 74(1): 20–36
18. Jones D, Ward P: Changing the face of secondary physical education through sport education. *Journal of Physical Education, Recreation & Dance*, 1998; 69(5): 40–45



19. Virgilio SJ. Physical activity motivation: The missing link. *Teaching Elementary Physical Education*, 2000; 11(2): 5-7, 11
20. Sigmund E, Mitáš J, Kudláček M, Frömel K: Stability of physical activity preferences survey in physical education students aged 21-24 [CD]. In Hodaň B (ed.), *Movement & Health*; Olomouc: Univerzita Palackého; 2007; 1-5
21. Craig CL, Marshall AL, Sjörström M et al: International physical activity questionnaire: 12-country reliability and validity. *Medicine & Science in Sports & Exercise*, 2003; 35(8): 1381-95
22. StatSoft CR: s. r. o. *Statistica Cz. Verze 6.0*. Praha: StatSoft; 2002 [in Czech]
23. Garcia AW, Pender NJ, Antonakos CL, Ronis DL: Changes in physical activity beliefs and behaviors of boys and girls across the transition to junior high school. *J Adolesc Health*, 1998; 22: 394-402
24. Biddle JB, Bank JB, Marlin MM: Parental and peer influence on adolescents. *Social Forces*, 1980; 58(4): 1057-79
25. Blakemore CL: Movement is essential to learning. *Journal of Physical Education, Recreation & Dance*, 2003; 74(9): 22-25, 41
26. Rychtecký A: *Monitorování účasti mládeže ve sportu a pohybové aktivitě v České republice*. Praha: Univerzita Karlova; 2006 [in Czech]