

Motivation for Undertaking Extracurricular Physical Activity in Adolescents

Authors' Contribution:

A – Study Design
 B – Data Collection
 C – Statistical Analysis
 D – Data Interpretation
 E – Manuscript Preparation
 F – Literature Search
 G – Funds Collection

Izabela Droblińska^(A, B, D, E, F), Agata Hejmowska^(D, E, F),
 Natalia Mazurkiewicz^(B, C, D)

the University of Gdansk, the Institute of Psychology, Gdansk, Poland

Key words: motivation, adolescence, physical activity

Abstract

Background: Motivation is what drives all aspects of human functioning – from the physiological needs to self-realization. It has, therefore, great impact upon undertaking physical activity and may be connected with various factors such as attitudes and role models taken from home, but also with social influences later in life e.g. peers' opinion.

Material/Methods: 400 students of the lower-secondary schools in Gdynia and Gdańsk took part in the research. Each of them received a questionnaire with questions regarding their and their parents' / 'guardians' physical activity. In statistical analysis Cross Tabulation (χ^2 statistics) and Frequency Tabulation were used.

Results: Undertaking physical activity is more strongly related with the male sex. The factors which had the strongest influence on undertaking sport behaviours in teenagers turned out to be: influence of a peer group and satisfaction with undertaking these behaviours. Among the weakest ones were: siblings, offer of sport clubs as well as Physical Education teachers. It was also proved that the father's influence on undertaking physical activity by children is greater than the mother's.

Conclusions: The main factors which influence interest in sport in adolescents are consecutively the influence of peers and satisfaction from the sport itself.

Word count: 3.828

Tables: 0

Figures: 0

References: 42

Received: January 2013

Accepted: February 2013

Published: March 2013

Corresponding author:

Izabela Droblińska
 ul. Dedala 1c/6, 81-197 Gdynia
 Phone: +48 506696583,
 E-mail: drobek21@wp.pl

Introduction

Motivation is what conditions undertaking any kind of activity. According to Łukaszewski, these are "all mechanisms responsible for the activation, orientation, maintenance and completion of behaviour; these are mechanisms of behaviours which can be simple or complex, internal and external, affective and cognitive" [1]. Motivation is the impulsion which allows for the individual's development in the biological, cognitive and spiritual aspect. Biological theories define motivation primarily as the inborn impulsion of any living organism which ensures the survival of this organism as well as of the entire species. Later theories refer strictly to human behaviour: Freud postulated the existence of inborn urges controlling human behaviour; behavioural concepts emphasize reinforcements (every stimulus increases the chance that the action evoked by it will be repeated); humanistic theories of Maslow and Rogers indicate the intentionality of human endeavours and indicate extra physiological needs, and cognitive concepts define motivation as the strive for the reduction of excitement inflicted by a cognitive conflict exemplified by Festinger's cognitive dissonance.

Motivational processes ruling human behaviour can be divided into external and internal ones. We talk about internal motivation, when a person undertakes a given activity out of the sheer willingness of its undertaking. We talk about external motivation when the aim of undertaking this activity is to benefit from it. Internal motivation is usually stronger and more tenacious. For the behaviour to be motivated internally it must be recognised as important and, in itself, necessary [1]. Positive emotions and sensations accompanying such a form of learning enhance motivation for similar activities in the future [2]. The prize is success, not material gain.

Let us take a look at physical activity, or physical effort. Physical effort is defined as "work of the skeletal muscles together with an entire set of accompanying functional changes within the human organism" [3, p. 155]. It should be an inherent part of human existence as it is indispensable, crucial for the proper development of the entire body – from the optimal mineralisation and biomechanics of the skeleton to the proper development of the brain structure. It is a key component of a healthy lifestyle [4]. Without physical effort it is impossible to maintain the organism's fitness and health [5]. According to Kozłowski [6], for a sedentary, overfed and usually overtly emotionally excited person movement – physical effort is a biological necessity both for the purpose of prevention and treatment. An appropriate level of physical activity, in a prophylactic and therapeutic dose, depends on individual needs and abilities of an individual as well as on his or her age, sex and health condition.

Systematic physical effort and amateur or even competitive participation in sports can be very beneficial for the organism. It is, above all, related to improvements in efficiency of organs and systems as a result of the training changes developing in them. Physical effort influences: (1) improvement in the neuromuscular coordination and, in turn, harmony, precision as well as a decrease in energy cost of the work of muscles, (2) growth of muscle fibres and strength, (3) increase in weight and degree of bone mineralisation, (4) increase in the cartilage volume in the joints under strain, (5) improvement in the skin elasticity (in people who train endurance over a longer period of time), (6) increase in the efficiency of the circulatory system, (7) increase in effectiveness of the respiratory system [3, p. 155].

Physical activity is, therefore, an indispensable determinant of proper human development. However, one might observe that some people undertake it to a great degree, others – to a minimum, trifling degree. It is known that a particular genome determines, to some extent, the presence of some physical features of the organism (including height, physiognomic features, obesity tendencies) as well as the psychological ones (intelligence level, spatial imagination, etc.) [7]. Results of extensive research indicate a possibility of inheriting certain predispositions for pathological behaviours and disorders such as aggression, alcoholism, or anorexia nervosa [7]. However, according to researchers, none of the enumerated features appears based solely on the genetic background but is formed as a resultant of inherited and environmental factors [7]. Are, then, salutogenic behaviours, undertaking physical effort - as counterbalance to pathological inclinations - coded in the genes and activated under the influence of our environment? Why do people undertake physical activity? Are the genes together with the environment a motor, or

maybe there are other factors? Real-life examples show, take the participants of the Paralympics, that whatever seems an obstacle may not pose difficulties at all. A lot depends on attitude and willingness. Another factor within this scope is the developmental lability of sport behaviour motivation. At the beginning, in the childhood period participants treat activity of this sort as a kind of play, an enjoyable form of spending free time [8]. It is later that other aims come to the fore, such as maintaining health or competition [9]. Characteristic needs become a priority with respect to the given development stage – in adolescence it could be e.g. the need of recognition from peers as the peer group is the main point of relevance for adolescents [10].

A child growing up in a family learns specific behaviours and habits and develops in line with the family's current lifestyle. This is especially apparent with regard to behaviours connected with health and hygiene such as nutrition [11], personal hygiene, ways of tackling stress [12]. Parents' attitudes, therefore, have considerable influence on the formulation of the child's preferences. The emotional-motivational component, which involves the emotional attitude towards the offspring's behaviours and interests, is of the greatest importance. It is the parent's attitude which leads to the child's success or failure [13]. It is noteworthy that a small child, whose greatest authority are its parents, through identification and modelling develops certain habits [14]. These habits formed in childhood are extremely difficult to change in later life. If the taught examples of healthy behaviours are negative, harmful effects become apparent in adulthood, e.g. development of civilisation diseases [15]. Early acquired habits, in many cases, often solidify and turn into a lifestyle. This is why it is so important to inculcate positive role models from the early years. This involves undertaking any form of physical activity including sports [16, 17]. Results of multiple studies show that salutogenic behaviours and attitudes in children are a reflection of the behaviours and attitudes of their parents [15]. This is also true with regard to sport and physical activity. Children, whose parents perceived physical activity as important and necessary, presented the same convictions, were more engaged in sports and achieved better results than children of parents who did not find sports as significant [18-21]. Many researchers stress the importance of parents support in undertaking any type of physical activity by the children. Support is understood both in terms of material (purchasing equipment, driving children to classes) and nonmaterial (cheering, participation in the child's success) categories [21-25].

In the adolescent period the influence of parental authority diminishes, overshadowed by the influence of peers. Young man tries to find his identity, and its formulation becomes the primary objective in adolescence [26]. A teenager experiments with roles and seeks new experience and new points of relevance. The amount of interpersonal contacts outside of the family grows and, simultaneously, the authority of the peer group increases [10]. Research on adolescents shows that physical activity in boys raises their social status within the group and improves their attractiveness in the eyes of other group members. In girls it is dependent upon the norms which the group holds dear. The factor which is of greatest importance for undertaking physical activity is the satisfaction it gives and which stems from the peers' company [27]. Other important factors include friends' support, group's acceptance and the quality of relations between individual members [28].

In spite of these findings, family support may turn out more significant than support showed by the peers [15]. Moreover, persons who do not receive support from the family are more prone to show anti-health and risky behaviours [15]. Results of Ornelas' research on the familial conditioning of undertaking physical activity in adolescents show that good relations within the family, family integrity and engagement in its life positively influence children's physical activity [29]. Research shows that people from families which allow an individual to express opinions and make decisions as well as from families attributed with good interpersonal relations are more prone to undertake salutogenic behaviours. This is due to the conviction that such behaviours make sense as well as the feeling of personal agency, both of which give higher chances for achieving success. All these factors contribute, in turn, to an increase in motivation levels [30]. It is worth noting that a teenager in good relations with his or her parents, brought up in a family attributed with warmth, is more likely to choose peers with similar experience and, consequently, similar role

models. Other research regarding this question shows that support and encouragement from the family are equal to the role of peers [31].

The role which the school and its environment play in shaping attitudes is not insignificant. Starting from the earliest years the teacher is a mentor for the child and, after parents, the next authority. This regularity changes with age. Small children are not critical towards adults unlike teenagers, who tend to question and protest against everyone and everything. What is important in shaping pro-sports attitudes is the ability to induce enthusiasm and eagerness towards sports in the child. Sport should give pleasure in order to become an activity taken up willingly. We learn more effectively and willingly, if in the process of education we are accompanied by positive emotions such as joy, enthusiasm and feeling of satisfaction [2]. The role of both school and home is to induce passion towards physical activity in the child. However, this requires the ability of individualization in teaching – the teacher discovers specific skills and interests of individual students allowing them to improve their own developmental tendencies and giving each and every student a chance to succeed. Success secondarily enhances motivation for further participation. The proper attitude of the teacher towards the subject taught is also of great importance. Otherwise, he shall not become a role model for the young listener.

Finally, the role of the media in popularizing physical activity should be mentioned. They tend to promote the image of sport stars as people successful not only in the domain of sport but also in the domain of finance. Leaders of sport rankings are role models for young people and influence the way they shape their attitudes towards physical activity. According to the Theory of Reasoned Action (TRA), the factors which condition undertaking sport activity are attitudes and the social approval towards it [34]. In the light of TRA assumptions social exposures of sport celebrities also motivate undertaking physical activity and on several occasions even a specific discipline, which is reflected in observable social trends.

Aim of the research

The aim of this research was to verify and establish what kind of motivation drives adolescents to undertaking extracurricular sport activity. It was also the aim to establish if and what interdependencies there are between undertaking (at present or in the past) sport activities by the parents and adolescents spending free time actively. The influence of gender on participation in sports as well as the degree to which peer groups influence undertaking physical activities were also analyzed.

Material and Methods

In the process of drawing up and conducting the research a definition of physical activity by J. Barankiewicz was used. In his lexicon physical activity is described as "undertaking, for relaxation, various kinds of plays, exercises and sport disciplines for pleasure, recreation and health, improvement of exercise capacity, obtaining specific skills and physical abilities, preventing civilisation diseases (improvement in circulatory, motor and respiratory systems, counteracting psychological stress), increasing beneficial influence on physical and mental work" [35, p. 11].

The research was conducted in the period between January and March 2012 and focused on 400 students from three lower-secondary schools in Tricity. 65 students from Zespół Szkół Sportowych i Ogólnokształcących in Gdańsk (Complex of Sports and Comprehensive Schools in Gdańsk), 261 students from Gimnazjum no. 17 in Gdynia (No. 17 Lower-secondary School in Gdynia), 74 students from Gimnazjum no. 12 in Gdynia (No. 12 Lower-secondary School in Gdynia). The sample comprised 178 girls (44.5% of the entire study group) and 222 boys (55.5% of the entire study group). Each student received an identical copy of a questionnaire prepared for the purpose of this research. It included 15 mainly multiple choice questions. The respondents were supposed to choose one or several relevant options. It was also possible to add an answer not included in the questionnaire under the "other" position. The survey's introductory part consisted of positions devoted to collecting sociometric data. The part which focused on extracurricular physical activities asked such questions as: does the respondent do any sports in a club or a sports unit?; does the respondent systematically participate in sport classes?; does the respondent

spend his/her free time actively with peers?; how much time weekly does the respondent devote to physical activity? (answers grouped into 30 minute periods from 0 to 3 hours and more); what made the respondent undertake physical activity? The further part of the survey collected information about the studied pupils' parents' activity. It contained questions about their past and current physical activity, about the past and current sport disciplines practised by mothers and fathers. The last two questions regarded common physical activity of the child and the parents and the circumstances of such activity: summer holidays, winter holidays, feast days, common days.

Results

Statistical calculations were conducted using IBM® SPSS® Statistics v.20. For this purpose Cross Tabulation (statistics χ^2) and Frequency Tabulation were used.

There is a link between undertaking sports and gender. Out of 217 (54.2%) children who declared physical activity 85 (39.2%) were girls and 132 (60.8%) were boys ($\chi^2(1)=5.455$; $p=0.02$). Therefore, boys more often declare participation in sport activity than girls.

As predicted, more fathers (61.3%) than mothers (45.8%) of the students participating in the research had been physically active in the past ($\chi^2(1)=23.839$; $p<0.001$). However, 45% of women and 47.5% of men are, according to their children, nowadays physically active, so there is no significant difference among the parents with regard to current activity.

According to the analysis of the collected data, the two main (almost equally important) reasons for children being interested in sports are: "encouragement from colleagues, friends, classmates" (15-23% for $p=0.05$) and put into one group and interpreted (categorized) as internal motivation: care about fitness, health, figure, joy that sport gives, etc. (12-22% for $p=0.05$). The answer connected with family placed third (11-19% for $p=0.05$). The weakest motivators turned out to be: siblings (2-6%, for $p=0.05$), the offer of sport clubs in media (4-8% for $p=0.05$) and physical education teachers (4-10%, for $p=0.05$) This means that the main reasons for undertaking sport behaviours by young adolescents are both the example set by peers and the inner understanding of the beneficial nature of sport. The influence of parents is also significant.

Physical activity of parents, both past and present, influences the child's physical activity. 52.3% of children of mothers who had done sports in the past, declared that they do sports nowadays. Only 39.9% of children declare activity if the mother had never been active ($\chi^2(1)=6.050$; $p=0.014$). 72% of children who declared physical activity had fathers active in the past, while 54.4% of fathers of active children ($\chi^2(1)=12.795$; $p=0.000$) had never trained in the past.

47.6% of students who declared sport activity have physically active mothers; mothers of 44.1% of children do not undertake any physical activity ($\chi^2(1)=0.481$; $p=0.488$). The fathers of 59% of students who do sports are physically active, and the fathers of 40.1% of students are not ($\chi^2(1)=13.376$; $p=0.000$). It may be concluded that the fact of undertaking physical activity by either one of the parents in the past fosters undertaking sports by the child, while physical activity at present determines activity in the child only in the case of the father. Present physical activity of the mother does not seem to have any influence on undertaking sports by the child.

There is a link between the parent's gender and their influence on undertaking physical activity by an adolescent. Out of 84 girls who declared doing sport mothers of 57.1% had also done sports in the past, while only 42.9% of girls are active, despite the fact that their mothers had not done any sports ($\chi^2(1)=7.520$; $p=0.006$). In turn, in the group which consists of 130 boys, only 49.2% followed the example of a mother who had been active in the past. 50.8% of boys do sports even if their mothers had never done any sports ($\chi^2(1)=0.671$; $p=0.431$). It could be assumed, that for girls mothers are role models in terms of physical activity; for boys, past physical activity of their mothers has no influence on their present interest in sports.

69.5% of fathers, in a group of 82 girls declaring current physical activity, had done sports before, while 30.5% had not been physically active ($\chi^2(1)=3.555$; $p=0.059$). 73.6% of fathers of 129 boys declaring physical activity had also been physically active in the past, while 26.4% of boys declare physical activity despite the lack of such activity in their fathers. This shows that the past physical activity of the father has substantial influence ($\chi^2(1)=9.333$; $p=0.002$) on the son's physical activity. It has, however, no influence on the daughter's physical activity.

The interdependence between the parents' past physical activity and the current active time spending of the children is also perceivable. Out of 292 (74.5%) of people who claimed that they spend their free time with parents, 144 (49.3%) mentioned that the mother had done sports in the past and 148 (50.7%) that the mother had not done any sports. This result is not statistically significant ($\chi^2(1)=3.184$; $p=0.074$). On the other hand, out of the group of 287 people who declare common physical activity with their parents in their free time, 196 (68.3%) answered positively to the question regarding the past physical activity of the father. 91 respondents (31.7%) answered negatively. This result is statistically significant ($\chi^2(1)=8.668$; $p=0.003$). This could mean that if the father had been physically active in the past, there is high probability that he will be willing to spend his free time with the family actively. No such interdependence appears in the mothers.

Discussion

The obtained results clearly state that parental attitudes are not without meaning, when their influence on the child's preference regarding physical activity is concerned. In families where parents had been or currently are physically active, the motivation for sport in the child is higher. As the above mentioned results show, children who find physical activity important and necessary had parents who presented similar attitudes towards sports [18, 19, 22]. Gender, both of the child and the parent, also has influence on the child's interest in sports. The percentage of boys doing sports or being physically active is higher than the percentage of girls. This could be an outcome of cultural messages and stereotypes, ordering men to be strong and more active than women. Identification with gender roles should also be remembered – the culture, in which we live, imposes certain schemes regarding gender. These schemes are adopted by children from the early years as appropriate and socially accepted [36]. Despite that, there are no significant differences in the numbers of mothers and fathers who, according to the respondents, are currently physically active. Yet another interesting interdependence is worth noting – mothers have a greater influence on daughters than sons when it comes to participation in sports, while fathers' activity influences the physical activity of their sons. Similar results were obtained by Bauer, who researched the influence of parental physical activity on salutogenic behaviours of adolescents [15]. What is more, fathers have a greater influence on undertaking sports by children in general, which is also in line with the results of previous research within this scope [37, 38]. Choosing active leisure activities with the family is also determined by attitudes towards sports presented by the fathers. This, as well, is probably conditioned culturally.

When motivation to undertake physical activity by teenagers is concerned, apart from parental influence, the main determinants are satisfaction from the undertaking itself as well as peers' influence. The role of peers is understandable when the developmental tasks that lie ahead of the adolescent are taken into consideration. The group is his or her point of reference in building his or her new identity; therefore, the group's opinions are of great importance for the adolescent. Its significance for sport behaviours in adolescents is also confirmed by the outcomes of previous research [39,40,41]. Positive emotions are, as stated earlier, a strong motivator for undertaking any kind of activity. This is reinforced by results of research [42] on adolescents' engagement in sports. Satisfaction from participation and effort during trainings placed first. Both factors are connected with inner motivation. Insufficient alternatives to sport, such as TV or the computer, expectations of the society and circumstances facilitating physical activity, e.g. friends' company, took more distant places [42].

Conclusions

1. Undertaking sport activity is strongly related with gender; boys engage in sports more often than girls, which can be explained by role models and expectations of the society towards the specific sex: the man - agile and aggressive; the woman - submissive and caring about home.
2. Among the most important factors motivating adolescents to do sports is the peers' influence and satisfaction from undertaking the activity itself - classified as inner motivation. The high, yet unexpected in this age group, position of inner motivators for undertaking physical activity creates challenges for institutions proclaiming active time spending in adolescents. If a young per-

son does sports out of sheer satisfaction they give, perhaps the offer of sport-related institutions should be advertised with help of arguments referring to inner motivation.

3. Past undertaking of physical activity by either one of the parents facilitates undertaking sports by the child, which is the result of modelling within the family. A child brought up in a family where physical fitness is an important element of life will probably adopt this rule into its system of values.
4. Sons' interest in sports is more influenced by the fathers, and the interest in sports among daughters is more influenced by the mothers. However, if the parent's gender is the only factor taken into account, the father has a greater influence on the child than the mother.
5. Among the least effective factors stimulating the sport motivation of adolescents is the influence of physical education teachers. Research on the reasons for such a state of matters is advised. Does this tendency stem from the particular stage of development, where other authorities prevail, or ought the source for such status quo to be searched elsewhere?

References

1. Łukaszewski W. Motywacja w najważniejszych schematach teoretycznych [in Polish] [Motivation in the most important theoretical schemes]. In: Strelau J, editor. *Psychologia. Podręcznik akademicki. T. 2 [Psychology. Academy textbook. Vol. 2]*. Gdańsk: Gdańskie Wydawnictwo Psychologiczne; 2000, 433-435.
2. Spitzer M. Jak uczy się mózg [in Polish] [How the brain learns]. Warszawa: Wydawnictwo Naukowe PWN; 2007.
3. Kozłowski S, Nazar K. Wprowadzenie do fizjologii klinicznej [in Polish] [Introduction to the clinical physiology]. Warszawa: Wydawnictwo Lekarskie PZWL; 1995.
4. Barankiewicz J. Leksykon wychowania fizycznego i sportu szkolnego [in Polish] [Encyclopedia of physical education and school sport]. Warszawa: Wydawnictwo Szkolne i Pedagogiczne; 1998.
5. Musiał D. Kształtowanie się tożsamości w adolescencji [in Polish] [The formation of identity in adolescence]. *Studia z psychologii w KUL* 2007;14:73-92.
6. Kozłowski S. Granice przystosowania [in Polish] [Limits of adaptation]. Warszawa: Wiedza Powszechna; 1986.
7. Bee H. Psychologia rozwoju człowieka [in Polish] [Lifespan Development]. Poznań: Zys i Spółka; 2002.
8. Krawczyński M, Nowicki D. Psychologia sportu w treningu dzieci i młodzieży [in Polish] [Sport psychology in the training of children and adolescents]. Warszawa: COS; 2004.
9. Gracz J, Sankowski T. Psychologia Sportu [in Polish] [Sport psychology]. Poznań: Wydawnictwo AWF, 1995.
10. Obuchowska I. Adolescencja [in Polish] [Adolescence]. In: Harwas-Napierała B, Trempała J, editors. *Psychologia rozwoju człowieka, tom 2 [Lifespan development. Vol. 2]*. Warszawa: PWN; 2005.
11. Ogińska-Bulik N. Psychologia nadmiernego jedzenia [in Polish] [Psychology of overeating]. Łódź: Wydawnictwo Uniwersytetu Łódzkiego; 2004.
12. Zadworna-Cieślak M, Ogińska-Bulik N. Zachowania zdrowotne młodzieży: uwarunkowania podmiotowe i rodzinne [in Polish] [Health behaviours of adolescents: personal and family factors]. Warszawa: Difin; 2011.
13. Ziemska M. Postawy rodzicielskie [in Polish] [Parental attitudes]. Warszawa: Wiedza Powszechna; 1973.
14. Jacher W. Czym jest socjalizacja w rodzinie [in Polish] [What is socialisation in the family]. *Problemy Rodziny* 2002;1:35-38.
15. Zadworna-Cieślak M, Kaflik-Pieróg M. Psychospołeczne determinanty zachowań zdrowotnych młodzieży [in Polish] [Psychosocial determinants of youth health behaviours]. *Polskie Forum Psychologiczne* 2010;15(2):140-153.
16. Welk G, Wood K, Morss G. Parental influences on physical activity in children: An exploration of potential mechanisms. *Pediatric Exerc Sci* 2003;15:19-33.
17. Mattocks C, Deere K, Leary S, et al. Early life determinants of physical activity in 11 to 12 year olds: cohort study. *BMJ (International Edition)* 2008;1/5:26-29.
18. Xiang P, McBride R, Bruene A. Relations of parents' beliefs to children's motivation in an elementary physical education running program. *J Teach Phys Educ* 2003;22:410-425.
19. Power T, Woolger C. Parenting practices and age-group swimming: correlational study. *Res Q Exercise Sport* 1994;65(1):59-66.
20. Fredrics J, Eccles J. Family socialization, gender and sport motivation and involvement. *J Sport Exercise Psy* 2005;27:3-31.
21. Edwardson C, Gorely T. Parental influences on different types and intensities of physical activity in youth: A systematic review. *Psychology of Sport & Exercise* 2010;11:522-535.

22. Bauer K, Nelson M, Boutelle K, Neumark-Szteiner D. Parental influences on adolescents' physical activity and sedentary behavior: longitudinal findings from Project EAT-II. *International Journal of Behavioral Nutrition & Physical Activity* 2008;5:1-7.
23. Gustafson S, Rhodes R. Parental Correlates of Physical Activity in Children and Early Adolescents. *J Sport Exercise Psy* 2006;29:158-159.
24. DiNallo J, Savage J, Downs D. Adolescent body satisfaction: The role of perceived parental encouragement for physical activity. *J Sport Exercise Psy* 2007;29:158-159.
25. Beets M, Cardinal B, Alderman B. Parental social support and the Physical Activity-Related Behaviours of Youth: A Review. *Health Education & Behavior* 2010;37(5):621-644.
26. Erikson E. Dzieciństwo i społeczeństwo [in Polish] [Childhood and society]. Poznań: Rebis; 2000.
27. Jago R, Brockman R, Fox K, Cartwright K, Page A, Thompson J. Friendship groups and physical activity: qualitative findings on how physical activity is initiated and maintained among 10–11 year old children. *International Journal of Behavioral Nutrition and Physical Activity* 2009;6(4):1-9.
28. Fitzgerald A, Fitzgerald N, Aherne C. Do peers matter? A review of peer and/or friends' influence on physical activity among American adolescents. *J Adolescence* 2012;35(4):941-958.
29. Ornelas I, Perreira K, Ayala G. Parental influences on adolescent physical activity: a longitudinal study. *International Journal of Behavioral Nutrition and Physical Activity* 2007;4:3.
30. Kowal A, Szymona K, Płotka A, Jabłonski L. Środowisko rodzinne w kształtowaniu poczucia koherencji (SOC) uczniów szkół średnich [in Polish] [The role of the family environment in the development of a sense of coherence (SOC) in high school students]. *Annales Universitatis Mariae Curie-Skłodowska* 2005;LX(Suppl. XVI):243 Sectio D.
31. Anderssen N, Wold B. Parental and peer influences on leisure-time physical activity in young adolescents. *Res Q Exercise Sport* 1992;63:341-348.
32. Mroczkowska H. Identyfikacja i rozwój młodych talentów. Psychologiczne aspekty trwałego zaangażowania dzieci i młodzieży w aktywność sportową [in Polish] [Identification and development of young talents. Psychological aspects of sustainable involvement in sport among children and youth]. *Sport Wyczynowy* 2010;48(2):8-17.
33. Wodnicka E. Rola nauczyciela wychowania fizycznego w kształtowaniu pozytywnych postaw wobec kultury fizycznej [in Polish] [The role of the physical education in developing positive attitudes towards physical culture]. *Lider* 2004;6:10-16.
34. Jarvis M. Psychologia sportu [in Polish] [Sport psychology]. Gdańsk: GWP; 2003.
35. Barankiewicz J. Leksykon wychowania fizycznego i sportu szkolnego [in Polish] [Encyclopedia of physical education and school sport]. Warszawa: Wydawnictwa Szkolne i Pedagogiczne; 1998.
36. Vasta R, Haith M, Miller S. Psychologia dziecka [in Polish] [Child psychology]. Warszawa: WsiP; 1995.
37. Kirby J, Levin K, Inchley J. Parental and peer influences on physical activity among Scottish adolescents: a longitudinal study. *Journal of Physical Activity & Health* 2011;8(6):785-93.
38. Ramanathan S, Crocer P. The Influence of Family and Culture on Physical Activity Among Female Adolescents From the Indian Diaspora. *Qual Health Res* 2009;19(4):492-503.
39. Finnerty T, Reeves S, Dabinett J, Jeanes Y, Vögele C. Effects of peer influence on dietary intake and physical activity in schoolchildren. *Public Health Nutrition* 2010;13(3):376-83.
40. Yli-Piipari S, Jaakkola T, Liukkonen J, Kiuru N, Watt A. The role of peer groups in male and female adolescents' task values and physical activity. *Psychol Rep* 2011;108(1):75-93.
41. Salvy S, de la Haye K, Bowker J, Hermans R. Influence of peers and friends on children's and adolescents' eating and activity behaviors. *Physiol Behav* 2012;106(3):369-78.
42. Scanlan T, Carpenter P, Schmidt G, Simons J, Keeler B. An introduction to the Sport Commitment Model. *J Sport Exercise Psy* 1993;15:1-15.