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Sports club participation impact on motor competences, dispositional goal orientations, and perceptions of school-based physical education among Finnish third-grade children

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Abstract

Across the world, youth sports clubs are prominent and the main opportunity for engaging children and youth in physical activities. The primary purpose of this study was to investigate the impact of sports club participation on actual and perceived motor competences, achievement goal perspectives, and perceptions of school physical education among Finnish third-grade children. Participants were 114 girls and 100 boys ($N = 214$). All children were 10-years-old, or they would turn 10-years-old during the year of data collection. The participants, based on their involvement or non-involvement in their local sports clubs, fit into four subgroups. The subgroupings were 'never' participated in a sports club ($N = 40$), 'quit' sports club ($N = 24$), active in a 'recreational' sports club ($N = 53$), and active in a 'competitive' sports club ($N = 97$). Children completed the Körperkoordinations Test für Kinder and questionnaires, assessing their perceived motor competences, achievement goal orientations, and expectancy-related beliefs and objective task values. The main finding of the study was that participation in competitive sports clubs related positively to actual and perceived motor competences, the ego goal orientation, and expectancy-related beliefs toward school physical education. Importantly, all children regardless of gender benefited equally from competitive sports participation.

Keywords: physical activity, extracurricular sport, KTK-test, Achievement Goal Theory, ability beliefs, gender differences.

Introduction

Regular participation in physical activity (PA) positively affects physical, psychological, and social health and well-being (Biddle, Asare, 2011; Fraser-Thomas et al., 2005; Janssen, LeBlanc, 2010). Research suggests that children at a young age decide to adopt a physically active lifestyle and that quality learning and sport experiences in childhood increase the probability that children will sustain their involvement in physical activity across their lifespan (Kirk, 2005). However, empirical evidences shows that children's physical activity levels, across most parts of the world, are inadequate (Tremblay et al., 2016). There is also a marked drop in participation in organized sports during adolescent years (Armentrout, Kamphoff, 2011). The consistent

findings, concerning physical inactivity levels, strongly suggest the need for additional research effort. Specifically, researchers must address the issues, related to continuing participation in physical activity and sports among children and youths.

If not school organized, parents expose their children to physical and sporting activities through extra-school leisure-time activity organized by sport organizations. The research team conducted this study with Finnish children, where national sport system basis is the local sports clubs rather than school-based sport programs as found in countries such as the United States. In Finland, approximately 10,000 sports clubs that arrange sport and exercise for both participation- and performance-oriented

children and youth exist presently (Mäenpää, 2016). According to Finnish national survey, more than 400,000 children between ages 3 to 18 are participants in organized sports (National Finnish Sports Federation, Report on Trends and Participation in Organized Youth Sports, 2010). This statistic data highlights that children, involved in organized sports, represent a significant subpopulation in the national physical culture and sports. Additionally, Finnish children, most likely, begin their sports participation pathway before primary school (Aarresola, Konttinen, 2012). Thus, sports clubs play a significant role in constituting the formation of a physically active lifestyle before avenues such as school-based physical education programs.

The research team designed the data collection to examine the relationship between the levels of participation in youth sports clubs and factors that could potentially influence a child's sustained engagement in PA, not just during childhood and adolescence, but throughout the whole lifespan as well. The first factor under examination concerned motor competences (MC) as an underlying mechanism of sports participation in childhood. A recent systematic review concluded that the level of motor proficiency associates positively with PA among of preschool children (Figuroa, An, 2017). Many researchers have reported this positive relationship with children of ages 6 to 10 (Lopes et al., 2011; Vandorpe et al., 2011). In addition to actual MC, there has also been increased empirical focus on children's perceptions of their motor competences (De Meester et al., 2016). In their systematic review of reviews, Sterdt et al. (2014) reported that perceived competence is a positive predictor of PA in youth. Barnett and colleagues initially argued that the relationship between actual MC and PA strengthens because of the mediating role of individuals' perceived MC (Barnett et al., 2008). In subsequent research, Barnett and colleagues have not supported this relationship in full (Barnett et al., 2011). Regardless, in some combination, fundamental motor skills along with perceived motor competences positively contribute to physical activity participation. Thus, the impact of sports club participation on motor skills and perceived motor skill competences is important to examine.

Our second factor of interest concerned achievement motivation, analyzed from the perspective of Nicholls' (1984) Achievement Goal Theory (AGT). This dichotomous achievement goal framework postulates two orientations by which a person judges his or her competency. A person adopting an ego goal construes competence in normative terms such as winning or outperforming others. A person endorsing a task orientation judges his or her competency based on self-referenced standards such as improvement and personal mastery. Achievement goals in sport is a popular area in youth sport research as evidenced by a recent large-scale meta-analytic review (Lochbaum et al., 2016). The most recent meta-analytic review of achievement goal points to the task-orientation related to adaptive motivations, emotions, competency, and behaviours (Lochbaum et al., 2016). M. Lochbaum and colleagues' review pointed to the ego-orientation correlated with maladaptive behavioural patterns, but also positive aspects of sports participation such as perceived competence and intrinsic motivation. An additional meta-analytic review by Lochbaum and his colleagues (Lochbaum et al., 2017) points to the goal orientations being stable across the youth sport experience. Thus, achievement goals are important to the youth sports experience and especially pertinent to our investigation as goal orientations positively relates to perceived competences (Lochbaum et al., 2016).

The third factor under examination relates to children's perceptions of physical activity, assessed regarding expectancy-related beliefs and objective task values based on expectancy-value theory (Eccles et al., 1983). In this model, the definition of expectancy-related beliefs is a person's evaluations of his or her competence in certain contexts and beliefs, concerning the upcoming tasks (Eccles et al., 1983). Concerning the task value, this study concerned three different components: attainment value, intrinsic value, and utility value. Attainment value is the personal importance of performing the activity well. Intrinsic value refers to the enjoyment person gets from that activity. Finally, the definition of utility value is a person's perception about how well the activity relates to his or her plans. In this study, we attempted to determine the associations between children's perceptions of PA and the levels of sports club participation. However, given that all participants were not involved in extra-school

physical activities, the relations of involvement in club sports to ability beliefs and subjective task values were examined within the contexts of school-based physical education (PE). PE in schools is the only structured setting that provides all children with an opportunity (a) to engage in regular physical activity, and (b) to learn important movement skills (Yli-Piipari, 2011).

In all, the general aim of this study was to extend our evidence-based knowledge of the potential factors that may influence school-aged children's long-term attitudes and participation behaviours in sport and physical activity settings. The study design was cross-sectional study design. We, unique to the literature base, examined the main and interaction effects of level of participation in sports clubs (non-member, withdrawn, recreational, or competitive) and gender on motor competences, dispositional goal orientations and expectancy-related beliefs, and objective task values in a sample of Finnish 10-year-old children.

Methods

Participants

Participants were 214 primary school children (114 girls, 100 boys). All children were 10-years-old, or they would turn 10-years of age during the year of data collection. The children were on average 139.12 (SD = 6.98) cm in height and 32.94 (SD = 5.87) kg in weight. The research team recruited participating children from eleven primary schools in the city of Rovaniemi (Finland) with direct contact with school principals being the first point of contact. The city of Rovaniemi has a population of 61,000. It is in the region of Northern Finland on the Arctic Circle. The city area provides diverse indoor and outdoor facilities for both winter and summer sporting activities.

Instrumentation

The Körperkoordinations Test für Kinder (KTK) determined participants' actual motor competences (Kiphard, Schilling, 1974, 2007). It is a standardized test battery, suitable for children between ages 5 and 15. The KTK measures a person's gross motor coordination. The KTK coordination tasks are (1) jumping on one leg over a pile of pillows increasing in height with consecutive steps of five centimeters; (2) walking backwards three times along three balance beams of decreasing width (six, four and a half, and

three centimeters); (3) moving sideways on wooden boxes during a period of 15 seconds; (4) hopping sideways with two feet over a wooden slat during 15 seconds. Children had to answer four bipolar items aiming to assess their motor competences perception. The respondents were asked to rate them on four specific components of motor competences on a 5-point Osgood scale. The stem for each item was "In my physical education class or leisure-time activities, I am...". The components relate to physical performance capacity and evaluated endurance, speed, strength, and balance.

The Finnish version of the Perception of Success Questionnaire (POSQ) assessed dispositional goal orientations (Liukkonen, 1998; Liukkonen, Leskinen, 1999). The POSQ is comprised of six items to measure the task orientation and six items to measure the ego orientation. The stem for each item is: "When I am doing sports, I feel myself most successful when...". The respondent is requested to indicate the most preferred alternatives (e.g., task orientation question "I succeed at something I could not do before."; ego orientation question "I accomplish something others cannot do.") responding on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

A modified Finnish version of the Self-Perception Questionnaire (SPQ, Eccles et al., 1983; Yli-Piipari, 2011) measured children's expectancy-related beliefs in the contexts of school-based PE. Participants responded to each item via a five-point Likert scale ranging from 1 (very bad) to 5 (very good). We asked the children the following three questions: "How good are you at physical education? Compared to other pupils, how good at physical education are you? How good will you be at learning something new in physical education next term?"

A modified Finnish version of the Task Value Scale (Niemivirta, 2002; Viljaranta et al., 2009; Yli-Piipari, 2011) assessed task values towards school-based physical education. Participants responded to each item via a five-point Likert scale ranging from 1 to 5 (1=not so important/interesting/useful; 5=very important/interesting/useful). Children answered three questions, concerning attainment, interest, and utility task values. The questions were as follows: "How important do you find school physical education? How interesting do you find school physical education? How useful do you find school physical education?"

PE class in the most recent school report represented each child’s academic achievement in physical education. A numerical grade is the Finnish index of child’s effort, athletic ability, and participation in PE class. Teacher’s professional judgment of learning standards is the basis of the Finnish school grading system. The grading, applied in Finnish schools, is a scale of 4=weak/fail to 10=excellent.

Lintunen’s (1995) modified Finnish version of the Perceived Physical Competence Scale (PPCS) measured children’s perceived motor skill competences. Four bipolar items comprised our modified scale that yielded four scores. Children rated themselves on specific components compared with those of other players of the same age and gender on a 5-point Osgood scale. These specific components were endurance (I possess endurance./I tire easily.), speed (I am fast./I am slow.), strength (I am strong./I am weak.), and balance (I possess good balance./I possess poor balance.).

Procedures

The Ethical Committee of the University of Jyväskylä (Finland) approved this study. Before gaining child and parent participation, the lead researcher contacted the Rovaniemi Education Department for permission. After receiving the Rovaniemi Education Department permission, we sought permission from individual primary school principals. Within each school, we obtained written parental and child consent. The consent form explained the aims and execution of the project to the children and their parents/guardians in written consent. Both children and parents knew that they would have a right to withdraw from the study whenever they want without any negative repercussions. Additionally, they knew that there would not be any direct benefit (e.g., extra credit) for their participation in the study based on the written consent materials. Only these children, who returned a consent form signed by themselves and their parent or guardian, participated in the sample.

Motor skill proficiency assessment occurred in school gymnasiums. The research team, who was conducting the assessments, instructed the children to wear appropriate sports clothes and shoes a day before testing. A trained research team member in the KTK-test organized and supervised testing of the children with standardized instructions. Children

completed the survey questions on paper. A member of the research team distributed the questionnaire to the participants after the KTK-test. Children completed the questionnaire at home. The consent documents encouraged questionnaire completion with the assistance of parents or guardians. Also, based on the consent document, participants knew to return the questionnaire in an envelope to their schoolteacher.

Data reduction and statistical analysis

Based on their self-reported involvement, children fell into four participation groups based on their involvement or non-involvement as members of local sports clubs (Table 1). The four groupings were (1) children, who had never participated in any sports club (Never); (2) children, who participated in a sports club, but discontinued their participation (Quit); (3) children, who currently participated in sports club for recreation purposes (Recreation); and (4) children, who currently participated in sports club for competitive sports (Competitive). The children did not differ statistically ($p > 0.05$) by height or weight across the four groupings.

Table 1

Distribution of children in each sports club participation

Groupings	group					
	All		Girls		Boys	
	N	% total	N	% girls	N	% boys
Never	40	18.7	27	23.7	13	13.0
Quit	24	11.2	13	11.4	11	11.0
Recreation	53	24.8	26	22.8	27	27.0
Competitive	97	45.3	48	42.1	49	49.0

The raw performance scores on the four subtests of the KTK test battery were converted into motor quotients. The sum of the four individual standardized quotients resulted in one score – the Motor Quotient (MQ). The MQ provided us with an age- and gender-specific reference value of actual motor competences (Kiphard, Schilling, 2007).

To test the primary purpose of the investigation, whether sports club participation influences actual and perceived motor competences, demonstration of achievement goal perspectives, and perceptions of compulsory PE among third-grade children, we conducted analyses beyond general descriptive statistics. We ran a factorial group (4) by gender (2) univariate analysis of variance (ANOVA) for MQ, as well as for PE class. Given that other

variables of interest had more than one construct for these variables, we conducted a factorial multivariate analysis of variance (MANOVA) (i.e., perceived MC, dispositional goal orientations, and PE perceptions). Wilks' lambda was the test for statistics. For the MANOVAs, we examined significant follow-up univariate F-tests for the main group effects and group by gender interactions. Scheffe's test was the post hoc test. All conducted statistical analyses were via IBM SPSS version 24.0. Statistical significance was set at $p < 0.05$. Also, we used Cohen's (1988) interpretation of computed effect size (ES) differences criteria with 0.20 as small, 0.50 as medium, 0.80 as large, and 1.30 as very large.

Results

Concerning actual motor competences, the factorial ANOVA revealed a statistically significant group main effect, $F(3, 217) = 9.53$, $p < 0.001$. The group by gender interaction did not reach statistical significance, $F(3, 217) = 1.94$, implying that the observed differences in MQ values between the four groups were not dependent on gender. Post hoc analyses showed that children in the Competitive group performed significantly and moderately to about large in meaningfulness, better on the KTK than the Never group ($p < 0.001$; $ES = 0.74$) and the Recreation group ($p < 0.01$; $ES = 0.58$) (Table 2).

Table 2

Descriptive information for study variables by sports club grouping

Group		MQ	Task Goal	Ego Goal	PE Expectancy	PE Value	PE class	Perceived MC
Never	Mean	90.58	4.19	2.80	3.78	4.15	8.08	2.33
	SD	15.73	0.47	0.88	0.58	0.59	0.63	0.61
Quit	Mean	97.35	4.18	2.56	3.64	3.96	8.21	2.25
	SD	10.70	0.74	0.94	0.69	0.86	0.54	0.75
Recreational	Mean	92.87	4.29	2.83	3.87	3.98	8.20	1.93
	SD	16.07	0.47	0.96	0.61	0.69	0.59	0.63
Competitive	Mean	102.16	4.39	3.14	4.13	4.20	8.58	1.89
	SD	12.34	0.53	0.92	0.51	0.55	0.60	0.60

The MANOVA, concerning children's perceived motor competences, showed a statistically significant group main effect, $F(12, 685) = 1.97$, $p < 0.05$. The group by gender interaction did not reach statistical significance, $F(12, 2686) = 1.74$. The ANOVA demonstrated that the groups differed in terms of endurance, $F(3, 262) = 5.14$, $p < 0.01$, strength, $F(3,$

$262) = 3.10$, $p < 0.05$, and speed, $F(3, 262) = 4.41$, $p < .01$.

Post hoc analyses showed that children in the Competitive group considered themselves more as enduring ($p < 0.001$, $ES = .76$), faster ($p < 0.05$, $ES = .55$), and stronger ($p < 0.05$, $ES = 0.53$) than their counterparts in the Never group and more enduring ($p < .05$, $ES = .59$) and stronger ($p < 0.05$, $ES = 0.60$) than the Quit group. Children in the Recreation group also considered themselves as faster runners than children in the Never group ($p < 0.05$; $ES = 0.53$). All differences were moderate to nearly large in meaningfulness.

The MANOVA results on children's dispositional goal orientations showed a statistically significant group main effect, $F(6, 538) = 2.63$, $p < 0.05$. The group by gender interaction did not reach statistical significance, $F(6, 538) = 0.38$. The ANOVA demonstrated that the groups differed only regarding ego orientation, $F(3, 270) = 3.61$, $p < 0.01$. According to post hoc analysis, children in the Competitive group reported higher scores in ego orientation than children in the Quit group of small to moderate in meaningfulness ($p < 0.05$; $ES = 0.39$).

The MANOVA results, concerning children's expectancy-related beliefs and subjective task values towards school-based PE, demonstrated statistically significant group main effect, $F(6, 534) = 4.44$, $p < 0.001$. The group by gender interaction was not statistically significant, $F(6, 534) = 0.26$. The univariate analyses showed that the groups differed regarding expectancy-related beliefs, $F(3, 268) = 8.01$, $p < 0.001$. Post hoc results showed that the children in the Competitive group achieved significantly and moderately higher scores in meaningfulness than the Never group ($p < 0.01$; $ES = 0.60$), the Quit group ($p < 0.001$; $ES = 0.71$), and the Recreation group ($p < 0.05$; $ES = 0.43$).

In regards to school PE class, the ANOVA showed a statistically significant group main effect, $F(3, 242) = 10.23$, $p < 0.001$. The group by gender interaction was not statistically significant, $F(3, 242) = 1.32$. Post hoc results showed that the children in the Competitive group scored significantly and moderately to large in meaningfully higher on the PE class than the Never group ($p < 0.001$; $ES = 0.79$), the Quit group ($p < 0.05$; $ES = 0.69$), and the Recreation group ($p < 0.01$; $ES = 0.64$).

Discussion

This study set out to examine the relationships between sports participation among school-aged children and potential factors that may influence the adoption of a physically active lifestyle later in adolescence and adulthood. We focused on extra-school leisure-time sport activities, organized in the form of local sports club. Therefore, we could determine the influences of club participation on our measured variables, four group options separated the participants based on their involvement or non-involvement in sports club. We examined independent main and interaction effects of sports participation level and gender on three underlying mechanisms that potentially promote engagement in regular physical activity.

The first addressed research question was the relations of involvement in sports clubs to children's actual motor competences and perceptions of their motor competences. Children, who reported organized competitive sports club participation, demonstrated higher levels of both actual and perceived motor competences than the children, who reported no past sports club involvement. This finding lends support for the earlier empirical studies suggesting that consistent participation in organized youth sports relates to higher levels of actual and perceived motor skills (De Meester et al., 2016; Vandorpe et al., 2012). Additionally, children in the Competitive group demonstrated higher motor competences than the children who were also current members of recreational sports club, extending the earlier findings on the association between sports participation and motor competences. This result implies that this relationship is dependent on the nature of sports participation in such a way that higher motor competences is specifically associated with involvement in competitive sports, rather than with recreational participation or non-involvement in sports club.

Interestingly, there were not any statistically significant differences between the Competitive and Quit groups regarding actual and perceived motor competences, suggesting that in the latter group, the reasons for withdrawal from organized sporting activities had not related to motor skills proficiency, perceptions of motor skills levels, or their collective impact. Thus, the present results imply that even though motor competences are an important underlying mechanism of physically active lifestyle,

it may not be a sufficient condition for continuing sports participation in club settings among school-aged children.

Secondly, we examined the relationships between engagement in sport activities, organized by sports clubs, and children's dispositional goal perspectives. Even though, the results showed a statistically significant main effect of participation group, the closer inspection of the data revealed that only the ego orientations might play a role, when it comes to the sports participation behaviour in organized youth sports among younger children. Lochbaum and his colleagues (2017) demonstrated that across the youth sport experience both goal orientations remain stable. In the current investigation, only the ego goal orientation differed from the children, who discontinued sports club participation, and those in competitive sports club. Thus, it seems important for sports club organizations to be sensitive to children, not motivated by social comparisons or winning, in order to keep those children involved.

Given that these two groups (Competitive and Quit) did not differ in terms of actual and perceived motor competences, these findings together suggest that high motor competences is not a key factor of the continuation sports participation in a youth sports club, if the child is not prone to judge his or her ability with respect to normative comparisons within group competitions. If so, the future challenge for sports clubs is to provide opportunities, not just for participation-oriented children who wish to engage in competitive sports, but also for those adolescents who wish enjoyment, social relationships, physical fitness improvement, and skills development.

Our third research question concerned the influence of participation in sports club in children's perceptions of compulsory school-based physical education. The results demonstrated that the Competitive group differed from the other three groups on their ability beliefs within the context of PE. Also, the data showed that, in the Competitive group, children had achieved better PE class than in other groups, implying that, according to a teacher's professional judgment, the children, involved in competitive sports, had met the expected learning standards for PE more often than their counterparts in other grouping. In summary, the present data show that the children, involved in competitive sports club, display higher perceived and evaluated competence in PA also within the contexts of school-based PE.

In contrast to expectancy-related beliefs and PE class at school, the analyses of objective task values towards PE did not demonstrate any statistically significant differences between the four participation groups. In other words, personal importance of performing the activity well, enjoyment person gets from that activity, or perception about how well the activity relates to his or her plans did not differentiate among the participating children.

The limitation of the present study is its study design. The cross-sectional design does not provide us with any causal evidence, concerning the relationships between issues like sports club membership, levels of motor coordination, or goal perspectives. Therefore, we recommend applying longitudinal study designs to gain a better insight of the effectiveness and potential benefits of sports club participation across a wide range of interrelated variables, influencing continued participation. Additionally, the city of Rovaniemi provides exceptionally diverse indoor and outdoor facilities throughout the year for both winter and summer sport activities. Thus, the data collection occurred in one urban area that may or may not extend other urban areas in Finland. Another limitation is that our target group comprised children, representing one age-cohort. Even with our noted limitations, this work extends past research in many areas and importantly brings into focus the potential importance of competitive sports club participation.

In conclusion, the present data demonstrate positive associations of participation in youth sports club including engagement in competitive activities with certain potential factors, promoting life-long and health-enhancing physical activity. There was not any statistically significant interaction effects of sports participation level and gender on the three underlying mechanisms, indicating that the observed tendencies apply to both male and female participants. These results on children's motor competences, dispositional goal perspective, expectancy-related beliefs, and PE class are not in parallel with the earlier empirical evidence, concerning the negative impacts of competitive youth sports setting on children. However, the present study was not designed to determine issues like parental pressure, burnout or overuse injuries as examples of negative factors, surrounding organized youth sports (Bean et al., 2014). We recommend to design efficient physical activity

interventions to prevent the risks of physical inactivity through increased participation in sports clubs that sports clubs must be a research focus as involvement in organized competitive in nature youth sports, related to positive outcomes in the present study.

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SUOMIJOS TREČIOS KLASĖS MOKINIŲ DALYVAVIMO SPORTO KLUBŲ VEIKLOJE ĮTAKA
MOTORINIAMS ĮGŪDŽIAMS, TIKSLŲ UŽSIBRĖŽIMUI, MOKYKLINIO FIZINIO LAVINIMO
SUVOKIMUI

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SANTRAUKA

Daugelyje pasaulio šalių sporto klubai yra pagrindinė vieta, kur vaikai bei jaunimas gali užsiimti fizine veikla. Svarbiausias šio tyrimo tikslas buvo išsiaiškinti Suomijos trečios klasės mokinių dalyvavimo sporto klubų veikloje įtaką realiems ir suvokiamiems motoriniams gebėjimams, tikslų išsikėlimui ir mokyklinio fizinio lavinimo suvokimui. Tyrime dalyvavo 114 mergaičių ir 100 berniukų (N = 214). Visi vaikai buvo 10 metų amžiaus arba tai metais turėjo sulaukti šio amžiaus. Tyrimo dalyviai, atsižvelgiant į jų dalyvavimą ar nedalyvavimą vietinių sporto klubų veikloje, buvo suskirstyti į keturias grupes: „niekada“ nepriklausė sporto klubui (N = 40), „nutraukė“ sporto klubo lankymą (N = 24), aktyviai dalyvauja „laisvalaikiu“ (N = 53) ir aktyviai dalyvauja „varžybinėje“ sporto klubo veikloje (N = 97). Vaikams buvo duotas atlikti testas (*Körperkoordinations Test für Kinder*) ir klausimynas, kurių duomenimis remiantis buvo įvertintas vaikų motorinių gebėjimų suvokimas, tikslų išsikėlimas, užduočių atlikimas pagal tikėtumo ir realaus atlikimo vertes. Pagrindinė tyrimo išvada – dalyvavimas varžybinėje sporto klubo veikloje teigiamai veikia tikruosius ir suvokiamus motorinius gebėjimus, ego tikslų išsikėlimą, pasitikėjimą mokykliniu fiziniu lavinimu. Ir svarbiausia, visi vaikai, neatsižvelgiant į lytį, kaip nustatyta, iš varžybinio dalyvavimo gauna vienodą naudą.

Raktažodžiai: fizinis aktyvumas, popamokinis sportas, KTK testas, tikslų pasiekimo teorija, gebėjimų suvokimas, lyčių skirtumai.

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