Studia Kinanthropologica, XXVI, 2026, 77–84
The Scientific Journal for Kinanthropology
doi: 10.32725/sk.2026.010

INTERAKCIE MEDZI POHYBOVOU AKTIVITOU, RADOSŤOU Z POHYBU A KVALITOU ŽIVOTA 8 ROČNÝCH DETÍ V KONTEXTE PROJEKTU CHILDREN'S WORLDS

INTERACTIONS BETWEEN PHYSICAL ACTIVITY, ENJOYMENT OF MOVEMENT, AND QUALITY OF LIFE IN 8-YEAR-OLD CHILDREN IN THE CONTEXT OF THE CHILDREN'S WORLDS PROJECT

J. Broďáni,[1] T. Fehérová,[2] & M. Czaková[2]

[1]Catholic University in Ružomberok Slovakia, Faculty of Education, Department of Physical Education and Sports
[2]Constantine the Philosopher University in Nitra Slovakia, Faculty of Education, Department of Physical Education and Sport

Abstract

The paper points to differences and mutual interactions between physical activity, enjoyment of movement, and areas of quality of life in 8-year-old boys and girls. The Physical Activity Questionnaire (PAQ), enjoyment of physical activity (PACES) and the International Survey of Children's Well-Being questionnaire (ISCWeB) were used to collect the data. The survey involved 71 boys and 77 girls from primary schools. Statistical and substantive significance of differences and relationships was assessed using nonparametric methods (Mann-Whitney U test; Z - score; effect size coefficient r; Spearman's rank correlation coefficient r_s. The results showed that no statistically significant difference was found between boys and girls in the level of physical activity ($p = .092$, $r = .139$) or enjoyment of movement ($p = .776$, $r = .023$) In the ISCWeB quality-of-life domain a more pronounced difference appeared only in the dimension "Money and things that you have," in which boys achieved higher scores than girls (p = .045, $r_s = .165$). No significant differences were found in the other quality-of-life domains (p = n.s.). With regard to the relationships between the variables, it was shown that higher physical activity was associated with greater enjoyment of movement and, at the same time, with more favorable evaluations of several quality-of-life domains. These associations were present in both sexes, although they were generally somewhat stronger and more consistent among boys than among girls, without any statistically significant differences between the groups. Overall, sex was not a decisive factor for most of the monitored indicators. It was confirmed again that supporting physical activity and a positive relationship with movement may be associated with a better subjective perception of quality of life in children.

Keywords: physical activity; enjoyment of movement; quality of life; differences; interactions; boys; girls validation

Súhrn

Príspevok poukazuje na diferencie a vzájomné interakcie medzi pohybovou aktivitou, radosťou z pohybu a oblasťami kvality života u 8 ročných chlapcov a dievčat. Na získanie údajov boli použité dotazníky PAQ, PACES a dotazník Children´s Worlds, the International Survey of Children´s Well-Being (ISCWeB). Prieskumu sa zúčastnilo 71 chlapcov a 77 dievčat základných škôl. Štatistickú a vecnú významnosť rozdielov, resp. vzťahov posudzujeme neparametrickými metódami (U, Z, r, r_s). Z výsledkov vyplynulo, že medzi chlapcami a dievčatami sa v úrovni pohybovej aktivity (p = .092, r = .139) a radosti z pohybu (p = .776, r = .023) nepreukázal štatisticky významný rozdiel. V oblasti kvality života ISCWeB sa významnejší rozdiel objavil len v dimenzii „Peniaze a veci, ktoré patria tebe", v ktorej chlapci dosiahli vyššie skóre než dievčatá (p = .045, r = .165). V ostatných oblastiach

kvality života sa významné rozdiely nepreukázali (p = n.s.). Z hľadiska vzťahov medzi premennými sa preukázalo, že vyššia pohybová aktivita súvisela s väčšou radosťou z pohybu a zároveň s priaznivejším hodnotením viacerých oblastí kvality života. Tieto súvislosti boli prítomné u oboch pohlaví, pričom u chlapcov pôsobili vo všeobecnosti o niečo silnejšie a konzistentnejšie než u dievčat, bez preukázania štatisticky významných rozdielov medzi skupinami. Celkovo teda pohlavie nepredstavovalo rozhodujúci faktor pri väčšine sledovaných ukazovateľov. Opätovne sa potvrdilo, že podpora pohybovej aktivity a pozitívneho vzťahu k pohybu môže mať súvis s lepším subjektívnym vnímaním kvality života u detí a adolescentov.

Kľúčové slová: pohybová aktivita; radosť z pohybu; kvalita života; diferencie; interakcie; chlapci; dievčatá

Introduction

Physical activity is considered one of the fundamental determinants of children's health and plays a significant role in their physical, psychological, and social development. Regular physical activity promotes healthy growth and development, enhances motor competence, supports cardiovascular health and metabolic function, contributes to bone health, and is associated with greater psychological well-being and social integration among children (Strong et al., 2005; Janssen & LeBlanc, 2010; World Health Organization [WHO], 2020). Beyond its health benefits, physical activity provides an important context for fostering self-confidence, autonomy, and social competence, as well as for establishing healthy lifestyle habits that may persist into adulthood (Poitras et al., 2016). Sallis et al. (2000) further emphasise that physical activity is a complex behaviour influenced by individual, social, and environmental factors, with the relative importance of these determinants varying according to children's age and developmental stage.

Despite the well-established benefits of physical activity, numerous international studies have documented persistently insufficient and declining levels of physical activity among children and adolescents. According to the WHO (2020) recommendations, children should engage in an average of at least 60 minutes per day of moderate-to-vigorous physical activity; however, a substantial proportion of the child and adolescent population fails to meet these recommendations. Related guidelines also emphasise the importance of integrating regular physical activity throughout the day and considering it alongside other components of children's lifestyles, including the need to limit sedentary behaviour (Tremblay et al., 2016). Insufficient physical activity is associated not only with an increased risk of adverse health outcomes but also with lower levels of psychological well-being, poorer self-perceptions, and lower quality of life (Biddle & Asare, 2011; Lubans et al., 2016; Rodriguez-Ayllon et al., 2019).

In recent years, research attention has increasingly shifted from focusing solely on the amount of physical activity performed to considering its affective dimension, particularly physical activity enjoyment. Enjoyment of physical activity represents an important motivational factor influencing children's willingness to engage regularly in physical activity and to maintain an active lifestyle over the long term (Motl et al., 2001; Heesch et al., 2006). Positive affective experiences associated with physical activity foster children's intrinsic motivation and contribute substantially to their regular participation in both organised and unorganised physical activities (Dishman et al., 2005).

Increasing attention has also been devoted to children's quality of life, which is currently conceptualised as a multidimensional construct encompassing children's subjective evaluations of various domains of everyday life, including family environment, school, peer relationships, material well-being, leisure time, and overall life satisfaction (Pollard & Lee, 2003). The importance of children's subjective perspectives is also emphasised within the Children's Worlds – International Survey of Children's Well-Being (ISCWeB), which recognises children themselves as a primary and reliable source of information about their own experiences and well-being (Rees & Dinisman, 2015). Research conducted within the Children's Worlds project further indicates that children's quality of life is shaped by the interplay of multiple individual, family, school, and social factors (Casas & González-Carrasco, 2019).

More recent analyses of data from the Children's Worlds project further indicate that children's subjective well-being can be examined through multiple interrelated indicators and domains, with the relative importance of individual factors varying according to children's age and contextual circumstances (González-Carrasco et al., 2024). These findings support the conceptualisation of children's

quality of life as a multidimensional construct and underscore the importance of examining its individual domains separately.

A growing body of international research has demonstrated positive associations between regular physical activity, psychological well-being, and quality of life among children and adolescents (Wu et al., 2017; Eime et al., 2013; Rodriguez-Ayllon et al., 2019). Children with higher levels of physical activity and more positive attitudes towards physical activity are assumed to report more favourable outcomes across several quality-of-life domains, particularly those related to social relationships, leisure time, self-perceptions, and overall life satisfaction (Lubans et al., 2016; Wu et al., 2017). Despite the growing body of international evidence, the relationships between physical activity, physical activity enjoyment, and children's quality of life remain relatively underexplored in the Slovak context.

Accordingly, the present study examines sex differences in physical activity levels, physical activity enjoyment, and individual domains of quality of life among 8-year-old boys and girls, as well as the interrelationships among these variables. The study draws on data collected within the international Children's Worlds – International Survey of Children's Well-Being (ISCWeB) project.

Aim

The aim of the study was to examine the levels of and interrelationships between physical activity, physical activity enjoyment, and individual domains of quality of life among 8-year-old boys and girls in the Slovak Republic.

Methods

A total of 148 eight-year-old children attending the first grade of primary school participated in the study examining subjective evaluations of quality of life, well-being, and physical activity. The study sample comprised 71 boys ($n = 71$) and 77 girls ($n = 77$), all of whom were born in the Slovak Republic and resided in the western region of Slovakia.

Physical activity was assessed using the Physical Activity Questionnaire (PAQ / hours per week). Enjoyment of physical activity was assessed using the Physical Activity Enjoyment Scale (PACES), which consists of 16 items rated on a 5-point Likert-type scale (Hayes, 1998). A total PACES score was calculated by summing the responses to the individual items (total score). Higher total scores indicate greater enjoyment of physical activity, whereas lower total scores reflect lower levels of physical activity enjoyment (Heesch, Masse, & Dunn, 2006).

Children's subjective perceptions of their lives and well-being were assessed using the International Survey of Children's Well-Being (ISCWeB; 2019) questionnaire. The questionnaire comprises eight main domains: Your Home and the People You Live With (2 items), Money and Things You Have (7 items), Your Friends and Other People (8 items), The Area Where You Live (5 items), School (10 items), How You Use Your Time (7 items), More About You (8 items), and Your Life as a Whole (9 items). Depending on the item, responses are provided using 3-, 5-, or 10-point response scales. Higher total scores across all responses indicate positive evaluations, whereas lower scores indicate negative evaluations of the respective domain (total score). Scoring was carried out in accordance with the ISCWeB methodology.

Given the nature and distributional characteristics of the data, non-parametric methods were used for data analysis. Sex differences were assessed using the Mann–Whitney U test, with effect size expressed as r. Associations between weekly physical activity frequency, physical activity enjoyment, and individual quality-of-life domains were examined using Spearman's rank-order correlation coefficient (r_s). The correlation analyses included the PACES total score, scores for the individual ISCWeB domains, and PAQ-derived physical activity levels. Statistical significance was evaluated at $p < .05$ and $p < .01$. The magnitude of the associations was interpreted according to Cohen's (1988) criteria, with $r = .10$ indicating a small effect, $r = .30$ a medium effect, and $r = .50$ a large effect.

The study was conducted in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of the Catholic University (No. 14/2026). The questionnaire included informed consent from the children's legal guardians.

Results

Table 1 presents a comparison of physical activity levels, physical activity enjoyment, and individual quality-of-life domains between 8-year-old boys and girls. No statistically significant differences

between boys and girls were observed in either physical activity levels ($p = .092$, $r = .139$) or physical activity enjoyment ($p = .776$, $r = .023$). Among the quality-of-life domains examined, a statistically significant sex difference was found only for the "Money and Things You Have" domain, with boys reporting higher scores than girls ($p = .045$, $r = .165$). No statistically significant sex differences were observed in the remaining quality-of-life domains (Your Home and the People You Live With; Your Friends and Other People; The Area Where You Live; School; How You Use Your Time; More About You; and Your Life as a Whole).

Tabuľka 1./ Table 1.

Porovnanie úroveň pohybovej aktivity, radosti z pohybových aktivít a oblastí kvality života 8 ročných žiakov a žiačok./ Comparison of Physical Activity Levels, Physical Activity Enjoyment, and Quality-of-Life Domains between 8-Year-Old Boys and Girls.

	Boys (n=71)		Girls (n=77)		Differences			
	M_B	SD	M_G	SD	U	Z	p	r
Physical Activity (h/w)	11.59	2.58	10.94	2.61	2298.0	1.68	.092	.139
Physical Activity Enjoyment (ts)	61.35	10.14	61.29	9.47	2659.5	.28	.776	.023
Your Home and the People You Live With (ts)	48.49	7.62	49.17	7.26	2442.5	1.12	.263	.092
Money and Things You Have (ts)	15.99	2.28	15.40	2.11	2217.0	2.01⋆	.045	.165
Your Friends and Other People (ts)	27.31	4.70	27.73	5.00	2654.0	.31	.760	.025
The Area Where You Live (ts)	19.92	3.32	19.94	3.25	2712.5	.08	.935	.007
School (ts)	33.52	6.59	34.22	6.47	2572.5	.62	.536	.051
How You Use Your Time (ts)	20.03	5.29	20.61	4.55	2608.5	.48	.630	.040
More About You (ts)	35.31	4.75	35.77	3.85	2647.0	.33	.738	.028
Your Life (ts)	34.35	5.33	33.74	5.57	2559.5	.67	.502	.055

Note. M - mean, SD - standard deviation, U - Mann-Whitney U test, Z score; p-value; ⋆p $< .05$; ⋆⋆p $< .01$; effect size r = .10 indicating a small effect, $r = .30$ a medium effect and $r = .50$ a large effect, ts - total score, h/w - hour per week

Tabuľka 2./ Table 2.

Interakcie pohybovej aktivity s radosťou z pohybu a oblasťami kvality života chlapcov a dievčat./ Interactions of Physical Activity with Enjoyment of Movement and Quality-of-Life Domains in Boys and Girls.

		Boys [n=71]	Girls [n=77]
Physical Activity Enjoyment	r_s	.461⋆⋆	.341⋆
	p	.001	.002
Your Home and the People You Live With	r_s	.282⋆	.252⋆
	p	.017	.027
Money and Things You Have	r_s	.097	.206
	p	.419	.072
Your Friends and Other People	r_s	.363⋆⋆	.321⋆⋆
	p	.002	.004
The Area Where You Live	r_s	.209	.280⋆
	p	.079	.014
School	r_s	.209	.329⋆⋆
	p	.080	.004
How You Use Your Time	r_s	.309⋆⋆	.419⋆⋆
	p	.009	.001
More About You	r_s	.370⋆⋆	.289⋆
	p	.001	.011
Your Life as a Whole	r_s	.241⋆	.155
	p	.043	.180

Note. r_s Spearman's correlation coefficient; ⋆p $< .05$, ⋆⋆p $< .01$.

The results of the correlation analysis examining the associations between physical activity levels and the individual study variables are presented in Table 2. Among boys, statistically significant positive correlations were found between physical activity and physical activity enjoyment ($r_s = .461$, $p = .001$), as well as the quality-of-life domains Your Home and the People You Live With ($r_s = .282$, $p = .017$), Your Friends and Other People ($r_s = .363$, $p = .002$), How You Use Your Time ($r_s = .309$, $p = .009$), More About You ($r_s = .370$, $p = .001$), and Your Life as a Whole ($r_s = .241$, $p = .043$). No statistically significant associations were observed between physical activity and the domains Money and Things You Have, The Area Where You Live, or School.

Among girls, physical activity was significantly and positively correlated with physical activity enjoyment ($r_s = .341$, $p = .002$), as well as with the quality-of-life domains Your Home and the People You Live With ($r_s = .252$, $p = .27$), Your Friends and Other People ($r_s = .321$, $p = .004$), The Area Where You Live ($r_s = .280$, $p = .014$), School ($r_s = .329$, $p = .004$), How You Use Your Time ($r_s = .419$, $p = .001$), and More About You ($r_s = .289$, $p = .011$). No statistically significant associations were found between physical activity and the domains Money and Things You Have or Your Life as a Whole.

Table 3 presents the associations between physical activity enjoyment and the individual quality-of-life domains. Among boys, statistically significant positive correlations were found between physical activity enjoyment and the domains Your Home and the People You Live With ($r_s = .406$, $p = .001$), Your Friends and Other People ($r_s = .434$, $p = .001$), The Area Where You Live ($r_s = .505$, $p = .001$), School ($r_s = .315$, $p = .007$), How You Use Your Time ($r_s = .311$, $p = .008$), More About You ($r_s = .513$, $p = .001$), and Your Life as a Whole ($r_s = .253$, $p = .033$). No statistically significant association was observed between physical activity enjoyment and the Money and Things You Have domain.

Among girls, physical activity enjoyment was significantly and positively correlated with the domains Your Home and the People You Live With ($r_s = .257$, $p = .024$), Your Friends and Other People ($r_s = .301$, $p = .008$), The Area Where You Live ($r_s = .339$, $p = .003$), School ($r_s = .221$, $p = .054$), How You Use Your Time ($r_s = .295$, $p = .009$), More About You ($r_s = .344$, $p = .002$), and Your Life as a Whole ($r_s = .311$, $p = .006$). No statistically significant correlation was found between physical activity enjoyment and the Money and Things You Have domain.

Tabuľka 3./ Table 3.

Interakcie radosti z pohybovej aktivity a oblastí kvality života chlapcov a dievčat./ Associations between Physical Activity Enjoyment and Quality-of-Life Domains among Boys and Girls.

		Boys [n=71]	Girls [n=77]
Your Home and the People You Live With	r_s	.406⋆⋆	.257⋆
	p	.001	.024
Money and Things You Have	r_s	-.006	.162
	p	.963	.159
Your Friends and Other People	r_s	.434⋆⋆	.301⋆⋆
	p	.001	.008
The Area Where You Live	r_s	.505⋆⋆	.339⋆⋆
	p	.001	.003
School	r_s	.315⋆⋆	.221
	p	.007	.054
How You Use Your Time	r_s	.311⋆⋆	.295⋆⋆
	p	.008	.009
More About You	r_s	.513⋆⋆	.344⋆⋆
	p	.001	.002
Your Life as a Whole	r_s	.253⋆	.311⋆⋆
	p	.033	.006

Note. r_s Spearman's correlation coefficient; ⋆p $< .05$, ⋆⋆p $< .01$.

Discussion

The present study focused on comparing physical activity levels, physical activity enjoyment, and individual quality-of-life domains between 8-year-old boys and girls, as well as on examining the interrelationships among these variables. The findings indicated no statistically significant sex differences in the majority of the outcomes examined. A statistically significant difference was observed only in the "Money and Things You Have" domain, in which boys reported higher scores than girls.

The absence of statistically significant differences in physical activity levels between boys and girls is consistent with findings from several international studies conducted among children of primary school age (Bouchard et al., 2006, Telama 2009). According to the World Health Organization recommendations, regular physical activity represents an important prerequisite for healthy physical and psychological development in children, irrespective of sex (WHO, 2020). Furthermore, the systematic review by Wu et al. (2017) demonstrated a consistent positive association between physical activity and quality of life among children and adolescents. In the present study, positive correlations were observed between physical activity and several quality-of-life domains, as well as between physical activity and physical activity enjoyment. These findings are consistent with those reported by Biddle and Asare (2011) and Lubans et al. (2016), who highlighted the importance of physical activity for psychological well-being, positive self-perceptions, and children's overall psychosocial development. The observed associations further support the premise that physical activity constitutes an important component of a healthy lifestyle from the early school years onwards.

Positive associations were also identified between physical activity enjoyment and the majority of the quality-of-life domains examined. This finding is consistent with Heesch et al. (2006), who suggested that positive affective experiences associated with physical activity foster children's intrinsic motivation to engage in regular physical activity. In this regard, physical activity enjoyment may represent an important factor contributing to the long-term development and maintenance of an active lifestyle.

The findings can also be interpreted within the framework of the Children's Worlds – International Survey of Children's Well-Being (ISCWeB) project, which emphasises children's subjective evaluations of their own lives. Rees and Dinisman (2015) highlight that children's quality of life is influenced by multiple interconnected domains, including the family environment, peer relationships, school, and leisure time. From this perspective, the positive associations observed between physical activity, physical activity enjoyment, and several quality-of-life domains are consistent with and provide further support for the multidimensional nature of children's well-being.

The findings may also be considered within the broader conceptual framework of children's well-being as a multidimensional construct. Bradshaw et al. (2007) emphasise that children's well-being encompasses multiple interconnected domains, including material circumstances, housing, health, education, relationships, safety, and subjective well-being. Accordingly, the observed associations between physical activity, physical activity enjoyment, and individual quality-of-life domains are consistent with the conceptualisation of children's well-being as a complex and multidimensional construct that cannot be reduced to any single domain of life.

Some differences were observed in the patterns of correlations between boys and girls. Among girls, statistically significant associations were also identified for the School and The Area Where You Live domains, whereas among boys, a significant association was observed for the Your Life as a Whole domain. Given that these differences were not consistently observed across all domains examined and that the correlation coefficients were predominantly small to moderate in magnitude, these findings should be interpreted with caution.

Several limitations of this cross-sectional study should be acknowledged. The sample size and its regional composition may limit the generalisability of the findings to the broader population of Slovak children. An additional limitation is the reliance on self-report questionnaires, which may be subject to response bias and inaccuracies inherent in subjective assessment. The observed associations do not allow conclusions to be drawn about the direction of the relationships or the causal links between physical activity, enjoyment of movement, and quality of life. Future research should therefore examine these associations in larger and more geographically diverse samples drawn from multiple regions of Slovakia. Moreover, self-reported data should be complemented by objective measures of

physical activity, such as accelerometer-based assessments, to provide a more comprehensive and robust evaluation of children's physical activity patterns.

Conclusion

The findings revealed no statistically significant differences between 8-year-old boys and girls in physical activity levels, enjoyment of movement, or most domains of quality of life.

A statistically significant difference was found only in the "Money and Things You Have" domain, where boys reported higher scores than girls.

Correlation analysis showed that physical activity was positively associated with enjoyment of movement in both boys and girls. This association was slightly stronger in boys; however, the difference between the groups was not statistically significant.

Overall, the results suggest that higher levels of physical activity are associated with greater enjoyment of movement and more positive ratings in several ISCWeB quality-of-life domains in both boys and girls. The associations were predominantly positive and weak to moderate in strength. They appeared more consistent among boys and were slightly stronger in some domains than among girls, although no statistically significant differences between the groups were demonstrated.

References

Biddle, S. J. H., & Asare, M. (2011). Physical activity and mental health in children and adolescents: A review of reviews. *British Journal of Sports Medicine, 45*(11), 886–895. https://doi.org/10.1136/bjsports-2011-090185

Bouchard, C.; Blair, S. N., & Haskell, W. L. (2006). *Physical Activity and Health*. Human Kinetics.

Bradshaw, J., Hoelscher, P., & Richardson, D. (2007). An index of child well-being in the European Union. *Social Indicators Research, 80*(1), 133–177. https://doi.org/10.1007/s11205-006-9024-z

Casas, F., & González-Carrasco, M. (2019). Subjective well-being decreasing with age: New research on children over 8. *Child Development, 90*(2), 375–394. https://doi.org/10.1111/cdev.13133

Children´s Worlds. (2019). *Children´s Worlds: International Survey od Children´s Well-Being (ISCWeB): Questionnaire for children aged 8 years*. Children´s Worlds Project.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Dishman, R. K., Molt. R. W., Sallis, J. F., Dunn, A. L., Birnbaum, A. S., Welk, G. J., Bedimo-Rung, A. L., Voorhees, C. C., & Jobe, J. B. (2005). Self-management strategies mediate self-efficacy and physical activity. *American Journal of Preventive Medicine, 29*(1), 10–18. https://doi.org/10.1016/j.amepre.2005.03.012

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: Informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity, 10*, 98. https://doi.org/10.1186/1479-5868-10-98

González-Carrasco, M., Aciar, S., Casas, F., Oriol, X., & Fabregat, R. (2024). A machine learning approach to well-being in late childhood and early adolescence: The Children´s Worlds data case. *Social Indicators Research, 175*, 25–47. https://doi.org/10.1007/s11205-024-03429-1

Hayes, N. (1998). *Základy sociální psychologie*. Portál.

Heesch, K. C., Masse, L. C., & Dunn, A. L. (2006). Using Rasch modeling to re-evaluate three scales related to physical activity: Enjoyment perceived benefits and perceived barriers. *Health Education Research, 21* (Suppl. 1), i58–i72. https://doi.org/10.1093/her/cyl090

Janssen, I., & LeBlanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity, 7*, 40. https://doi.org/10.1186/1479-5868-7-40

Lubans, D. R., Richards, J., Hillman, C. H., Faulkner, G. Beauchamp, M. R., Nilsson, M., Kelly, P., Smith, J. J., Raine, L. B., & Biddle, S. J. H. (2016). Physical activity for cognitive and mental health in youth: A systematic review of mechanisms. *Pediatrics, 138*(3), e20161642. https://doi.org/10.1542/peds.2016-1642

Motl, R. W., Dishman, R. K., Saunders, R., Dowda, M., Felton, G., & Pate, R. R. (2001). Measuring enjoyment of physical activity in adolescent girls. *American Journal of Preventive Medicine, 21*(2), 110–117. https://doi.org/10.1016/S0749-3797(01)00326-9

Poitras, V. J., Gray, C. E., Borghese, M. M., Carson, V., Chaput, J. P., Janssen, I., Katzmarzyk, P. T., Pate, R. R., Connor Gorber, S., Kho, M. E., Sampson, M, & Tremblay, M. S. (2016). Systematic review of the relationships between objectively measured physical activity and health indicators in school-aged children and youth. *Applied Physiology, Nutrition, and Metabolism, 41*(6 Suppl. 3), S197–S239. https://doi.org/10.1139/apnm-2015-0663

Pollard, E. L., & Lee, P. D. (2003). Child well-being: A systematic review of the literature. *Social Indicators Research, 61*(1), 59–78. https://doi.org/10.1023/A:1021284215801

Rees, G., & Dinisman, T. (2015). *Children´s Worlds: Comparative study of children´s well-being.* Children´s Worlds Project.

Rodriguez-Ayllon, M., Cadenas-Sanchéz, C., Estévez-López, F., Muñoz, N. E., Mora-Gonzalez, J., Migueles, J. H., Molina-García, P., Henriksson, H., Mena-Molina, A., Martínez-Vizcaíno, V., Catena, A., Löf, M., Erickson, K. I., Lubans, D. R., Ortega, F. B., & Esteban-Cornejo, I. (2019). Role of physical activity and sedentary behavior in the mental health of preschoolers, children and adolescents: A systematic review and meta-analysis. *Sports Medicine, 49*(9), 1383–1410. https://doi.org/10.1007/s40279-019-01099-5

Sallis, J. F., Prochaska, J. J., & Taylor, W. C. (2000). A review of correlates of physical activity of children and adolescents. *Medicine & Science in Sports & Exercise, 32*(5), 963–975.

Strong, W. B., Malina, R. M., Blimkie, C. J. R., Daniels, S. R., Dishman, R. K., Gutin, B., Hergenroeder, A. C., Must, A., Nixon, P. A., Pivarnik, J. M., Rowland, T., Trost, S. & Trudeau, F. (2005). Evidence based physical activity for school-age youth. *The Journal of Pediatrics, 146*(6), 732–737.

Telama, R. (2009). Tracking of physical activity from childhood to adulthood: a review. Online. *Obesity Facts, 2*(3), 187–195. DOI: 10.1159/000222244

Tremblay, M. S., Carson, V., Chaput, J.-P., Connor Gorber, S., Dinh, T., Duggan, M., Faulkner, G., Gray, C. E., Gruber, R., Janson, K., Janssen, I., Katzmarzyk, P. T., Kho, M. E., Latimer-Cheung, A. E., LeBlanc, C., Okely, A. D., Olds, T., Pate, R. R., Phillips, A., Poitras, V. J., Rodenburg, S., Sampson, M., Saunders, T. J., Stone, J. A., Stratton, G., Weiss, S. K., & Zehr, L. (2016). Canadian 24-hour movement guidelines for children and youth: An integration of physical activity, sedentary behaviour, and sleep. *Applied Physiology, Nutrition, and Metabolism, 41*(6 Suppl. 3), S311–S327. https://doi.org/10.1139/apnm-2016-0151

Wu, X. Y., Han, L. H., Zhang, J. H., Luo, S., Hu, J. W., & Sun, K. (2017). The influence of physical activity, sedentary behavior on health-related quality of life among children and adolescents: A systematic review. *PLOS ONE, 12*(11), e0187668. https://doi.org/10.1371/journal.pone.0187668

World Health Organization. (2020). *WHO guidelines on physical activity and sedentary behaviour.* World Health Organization. https://www.who.int/publications/i/item/9789240015128

doc. PaedDr. Jaroslav Broďáni, PhD.
Department of Physical Education and Sports
Faculty of Education
Catholic University
Hrabovská cesta 1A
034 01 Ružomberok
Slovakia
jaroslav.brodani@ku.sk