JUMORA: JURNAL MODERASI OLAHRAGA
E-ISSN: 2797-8761
Volume 3, No. 2, December 2023
DOI: 10.53863/mor.v3i2.903
Department of Sports Education, Universitas Ma'arif Nahdlatul Ulama Kebumen

Original Article Research

The Use of Basketball Variations in Ukrainian General Secondary Education Institutions for Enhancing High School Students' Physical Capacity

Iryna Anheliuk [1], *Volodymyr Naumchuk* [2]*

[1,2]*Department Department of Theory and Methods of Physical Education, Faculty of Physical Education, Ternopil Volodymyr Hnatiuk National Pedagogical University, Ternopil, Ukraine*

*email corresponding author: *v_i_n@tnpu.edu.ua*

Received: 16/11/2023 *Revised: 06/12/2023* *Accepted: 27/12/2023*

Abstract

Amidst the ongoing reforms in Ukraine's educational sector, prioritizing students' health and improving their physical prowess has become imperative. This study explores the feasibility and effectiveness of integrating diverse forms of traditional basketball into high school physical education lessons to enhance the work capacity of students. The research cohort comprised 29 male 11th-grade students. The assessment of physical work capacity focused on the Harvard Step Test (HST), utilizing its metrics to measure students' development. Univariate analysis was employed for data analysis. Results indicated a satisfactory level of physical fitness among students, slightly below the established norm. These findings emphasize the need to incorporate various basketball derivatives, including streetball, korfball, netball, rezball, ringball, slamball, and cestoball, into the general secondary education physical education curriculum. The comprehensive adoption of these variations not only improves high school students' functional capabilities and enhances their enthusiasm for physical activities but also deepens their understanding of the objectives of physical culture, contributing to the broader objectives of the educational sphere. Future research should focus on defining a set of informative indicators and developing comprehensive means of enhancing motor skills and proficiency in basketball. This approach is expected to boost high school students' work capacity and foster increased interest in basketball and its derivatives.

Keywords: physical capacity, basketball variations, high school students, physical education lesson.

How to cite:

Anheliuk, I., & Naumchuk , V. (2023). The Use of Basketball Variations in Ukrainian General Secondary Education Institutions for Enhancing High School Students' Physical Capacity. *JUMORA: Jurnal Moderasi Olahraga*, 3(2), 108-119. https://doi.org/10.53863/mor.v3i2.903

1. INTRODUCTION

Physical education plays a pivotal role in fortifying health, bolstering work capacity, and enhancing motor skills among children and adolescents spanning different age brackets. Consequently, the core objective of this educational domain within Ukraine's general secondary education institutions hinges on fostering a balanced physical development of students' personas, amplifying bodily functional capabilities, refining essential motor proficiencies, and broadening motor experiences. This is facilitated by cultivating a resolute motivation among students to actively partake in physical education and sports (Physical Education., 2022).

The ongoing reformation of the educational sector, grounded in the principles of the New Ukrainian School (NUS), introduces contemporary mechanisms, regulations, and protocols governing the operations of general secondary education establishments. This reform endeavours to modernise the management framework, enhance collaborative practises, and usher in a culture of improved cooperation. Educational innovations are designed to nurture holistic development, instill values, and promote social integration while also igniting a drive for continual self-improvement and lifelong learning. The goal is to foster readiness for conscientious life choices and self-actualization (NUSh, 2022). These innovations underscore the necessity of ongoing exploration and application of inventive strategies, progressive programmes, methodologies, and modes of engagement among educational stakeholders. Such endeavours seek to address the challenges of deteriorating health and physical development among children and youth, as well as mitigate declining academic performance, sporadic instances of aggression, and an uptick in juvenile delinquency. However, despite the renewed impetus for educational enhancement, research highlights that approximately 50% of students lack enduring enthusiasm for physical education (Malechko et al., 2023), and conventional school-based lessons only manage to fulfil about 20% of the recommended level of physical activity for children (Andrieieva et al., 2018; Forostian & Nakonechnyi, 2019). The shift to remote learning further exacerbates this decline in motor activity, thereby adversely impacting physiological functions and the overall lifestyle of students (Lytvynenko & Cherepovska, 2022). Consequently, instances of stress, excessive workloads, and heightened fatigue have surged, stemming in part from decreased work capacity and heightened susceptibility to illnesses among students of various age groups (Prysiazhniuk, 2020). Notably, a teacher survey revealed that 73.5% of respondents advocate for diversifying the content of students' physical activities as a means of enhancing the efficacy of physical education lessons (Kryvutsa & Nesen, 2022).

Sports and active games stand as vital pillars within the realm of Ukrainian school education, encompassing a range of attributes such as enlightenment, voluntariness, creativity, communicativeness, representativeness, and the capacity for active, simultaneous impact on an individual's psychophysiological and motor faculties (Grehaigne, 2005; Naumchuk, 2019; Gil-Madrona, 2022). Unlike many other forms of physical activity within the curricula of general secondary education institutions, games offer a platform for emotionally immersive interaction with one's surroundings. They contribute to adapting cognitive processes to individual student traits, cultivating an inclination towards healthy lifestyles, efficient use of leisure time, and the establishment of an atmosphere of liberty and comfort, all while fostering psychosomatic equilibrium. Sports games, in particular, provide a simulated arena for a person's actions in challenging scenarios, enabling deliberate targeting of key vital attributes and heightening performance. This is due to the unique environment of games, where individuals strive to

showcase their full capabilities, revealing their inherent psychophysical and intellectual resources (Naumchuk, 2018).

Avenues for unlocking the potential of games within general secondary education involve a comprehensive grasp of classic sports games, with basketball and its various adaptations emerging as potent pedagogical tools. The premise revolves around harnessing the potential of diverse basketball formats, particularly through modelling, emulation, competition, and the transformation of game involvement into a cognitive-intellectual endeavour. This integration connects game-based activities with other facets of education. This pursuit involves an exploration of the historical evolution of basketball and its variations, encompassing streetball, 3x3 basketball, korfball, and mini-basketball (Sushko, 2017; Tsymbalyiuk et al., 2022), as well as understanding the content and characteristics (Lavrin et al., 2023), techniques, and tactics of basketball variations (Lavrin, 2017; Naumchuk, 2018; Serra-Olivares, 2018). It also delves into the foundational aspects of basketball player physical training (Smoliuk et al., 2022) and the development of physical qualities among schoolchildren through mini-basketball (Yuzkovets, 2020).

In contemporary times, the educational landscape within general secondary education is shaped by a host of objective and subjective elements, encompassing factors like external aggression, wartime conditions in Ukraine, COVID-19 restrictions with distance or hybrid learning models, and the resultant stressors and diminution of students' functional capacities. In light of such circumstances, it becomes pertinent to explore avenues for enhancing students' physical performance through novel iterations of classical basketball. Additionally, understanding their impact on the quality of the educational process serves as the focal point of our research endeavour. We posit that the integration of basketball variations into the curriculum—serving as the primary conduit for physical education within general secondary education institutions—will heighten high school students' work capacity. By doing so, we anticipate that our approach will underscore the efficacy of this method in enhancing the physical and holistic well-being of this specific demographic of students.

2. METHOD

The study was conducted in accordance with a predefined research plan of the Department of Theoretical Foundations and Methods of Physical Education in Ternopil Volodymyr Hnatiuk National Pedagogical University on the topic: "Professional and pedagogical training of future specialists for the formation of schoolchildren's physical culture" (State registration number: 0120U103906).

The research methodology employed a comprehensive interconnection of methods, including analysis, synthesis, generalisation, and comparison of scientific information on the research problem, as well as references to specialised educational and methodological literature and internet sources. These approaches were adopted to scrutinise the issue's current status, substantiate its relevance, and derive insights. Pedagogical observation was utilised to ascertain class content and conditions and to gauge the students' interest in basketball variations. Pedagogical testing assessed students' physical performance levels, while a pedagogical experiment evaluated the efficacy of the proposed basketball variations. The analysis method was employed to scrutinise the amassed data.

2.1 Participants

The study involved 29 boys from the 11th grade at Ternopil Secondary School No. 10. The control group comprised 15 students and received physical education lessons based on variable modules within the curriculum. The experimental group, consisting of 14 individuals, experienced modified lessons enriched with various basketball variations.

2.2 Research Design

To fulfil the research objective, a pedagogical experiment was meticulously devised and executed, encompassing two distinct stages: declarative and formative. The initial stage facilitated the assessment and documentation of the physical capacity level among high school students, while the subsequent stage encompassed the integration of an experimental element (varieties of basketball) into the educational process to assess its efficacy. The formative experiment introduced innovative pedagogical approaches to physical education within the experimental group. This phase was meticulously designed to establish correlations across different aspects of the educational process, factoring in the outcomes of alterations made. The content of physical education lessons underwent augmentation through the inclusion of educational content centred around a range of game types: streetball, korfball, netball, ropeball, ringball, slamball, and cestoball. The theoretical instruction offered to high school students encompassed the assimilation of knowledge pertaining to the distinct attributes of each basketball variation. This instructional component delved into a detailed analysis of discrepancies between these game types, an exploration of their influence, and the potential they hold for enhancing the functional capabilities of students' bodies and preventing injuries during physical activities. Furthermore, the technical and tactical training provided to students ensured their adeptness in fundamental game techniques relevant to the aforementioned variations. This encompassed mastery of specific techniques and strategies pertinent to each game type. The array of physical training methods employed was meticulously tailored to comprehensively foster students' development. These methods aimed to bolster their overall health, amplify functional capacities, cultivate physical attributes and motor skills, and facilitate recovery processes, among other benefits.

2.3 Instruments

The Harvard Step Test (HST) served as the principal tool to assess the level of physical performance among high school students. This test entails the execution of a motor task involving moderate physical exertion—ascending a 45-cm-high step within a 5-minute timeframe, aligned with the established norms for young males aged 12 to 18 years (Chyzhyk, 1999). The task entails climbing the step 30 times in 1 minute. The exercise unfolds in four distinct counts: "one" (stepping onto the step with one foot), "two" (doing the same with the opposite leg), "three" (lifting one foot to the floor), and "four" (repeating the step with the other foot). Immediately following the exercise, the heart rate (HR) is gauged for a 30-second interval. Heart rate measurements occur on three occasions: first (F1) during the 60–90 second interval, second (F2) in the span of 120–150 seconds, and third (F3) from 180–210 seconds. The index is computed employing the subsequent formula:

$$\text{HST} = \frac{\text{T sec.} \times 100}{(f1 + f2 + f3) \times 2}$$

The HST indicator determined students' physical capacity levels, categorised as shown in Table 1:

Table 1.

Physical capacity assessment according to the Harvard Step Test (HST)

HST	PHYSICAL CAPACITY LEVELS
50 AND BELOW	Very low
51-60	Low
61-70	Sufficient
71-80	Average
81-90	High
91 AND ABOVE	Very high

2.4 Procedures

The pedagogical experiment extended throughout the second semester of the study, spanning from February to May 2023. Physical education lessons were conducted three times a week, each lasting 45 minutes. The assessment of high school students' physical capacity was facilitated by HST measurements both at the commencement and conclusion of the pedagogical experiment.

Approximate Structure of a Physical Education Lesson for Experimental Group Students

Preparatory Part (12–15 min):

a. organizational and motivational component;

b. warm-up sequence: General → Special → Individual;

c. development of flexibility, diverse speed, and coordination abilities.

Main Part (25–30 min):

a. proficiency in game technique: Motor imagination → Motor ability → Motor skill → System of higher-order skills (super skills);

b. assimilation of tactical manoeuvres: Individual → Group → Team;

c. nurturing strength capabilities and various forms of endurance;

d. incorporation of educational games.

Final Part (3-5 min):

a. diminution of functional activity;

b. summary and conclusion.

2.5 Data Analysis

Our study employed univariate analysis. During the initial phase of the pedagogical experiment, we tested the null hypothesis, suggesting the absence of any impact from new variations of classical basketball on the high school students' physical performance. The metrics

pertaining to the physical performance indicators for students in both the control and experimental groups corresponded to a shared general population, thereby permitting the rejection of the null hypothesis. Towards the conclusion of the formative experiment, a quantitative evaluation of the influence stemming from the basketball variations was conducted. Furthermore, a percentage-based comparison was made regarding the enhancement in the physical performance index across all high school students.

3. RESULTS

Exploration of the scientific and informational landscape related to the research problem has yielded fundamental principles and prerequisites for a range of basketball variations. This endeavour has delineated shared and distinct characteristics among streetball, korfball, netball, slamball, rezball, ringball, and cestoball (O'Connor et al., 2022). This acquired knowledge served as a cornerstone for designing a pedagogical model that fosters student comprehension and engagement in the games (Stolz & Pill, 2014). The shared objective across these games is to score by shooting the ball into a basket. Noteworthy differences emerge in court sizes and requirements. While rezball and streetball necessitate specific courts for ball usage, games like korfball, cestoball, ringball, and netball can be played on versatile courts, each following distinct markings aligned with the corresponding game's regulations (Dervent et al., 2022). The uniqueness of slamball lies in its demand for a designated platform equipped with trampolines (Lavrin et al., 2023). Furthermore, the height of the basket exhibits variability. Korfball and ringball deviate from classic basketball's 305 cm (10 feet), featuring distinct basket heights. In the other games mentioned above, the height of the basket corresponds to the rules of basketball. Korfball, netball, cestoball, and ringball lack a basketball backboard, as their baskets are integrated into special structures (Richards et al., 2022). Additionally, rules circumscribe game actions within specific zones (sections) of the court for korfball, netball, cestoball, and ringball, whereas other games have no such constraints (IKF, 2022; INF, 2022). Diverse attributes encompass game length, player count on the court, and ball size and requisites. A clear grasp of these basketball variations and their educational potential not only expanded the repertoire of motor activities available to students, diversifying educational content, but also established the organisational and pedagogical prerequisites for their effective integration. This comprehensive approach ultimately led to the enhancement of students' physical capacity.

The outcomes of the evaluation of high school students' physical capacity, who participated in the pedagogical experiment, based on the Harvard Step Test (HST) index, are presented in Tables 2 and 3.

Table 2.

Indicators of Physical Capacity for Control and Experimental Groups at the Start of the Pedagogical Experiment.

CONTROL INDICATOR	TYPE OF TEST	CONTROL GROUP X1 ±Σ1	EXPERIMENTAL GROUP X2 ±Σ2
PHYSICAL CAPACITY	Harvard Step Test	61,2±1,8	63,1±2,4

JUMORA: JURNAL MODERASI OLAHRAGA
E-ISSN: 2797-8761
Volume 3, No. 2, December 2023
DOI: 10.53863/mor.v3i2.903
Department of Sports Education, Universitas Ma'arif Nahdlatul Ulama Kebumen

At the ascertainment stage of the pedagogical experiment, no significant disparities were identified in the Harvard Step Test indicators between students in the control and experimental groups. This observation points towards the absence of discernible influence from the investigated factor—varieties of basketball. Notably, the indicator for the control group was measured at 61.2±1.8, and for the experimental group, it was 63.1±2.4. Both groups demonstrated HST indicators that corresponded to a satisfactory level of physical capacity.

Table 3.

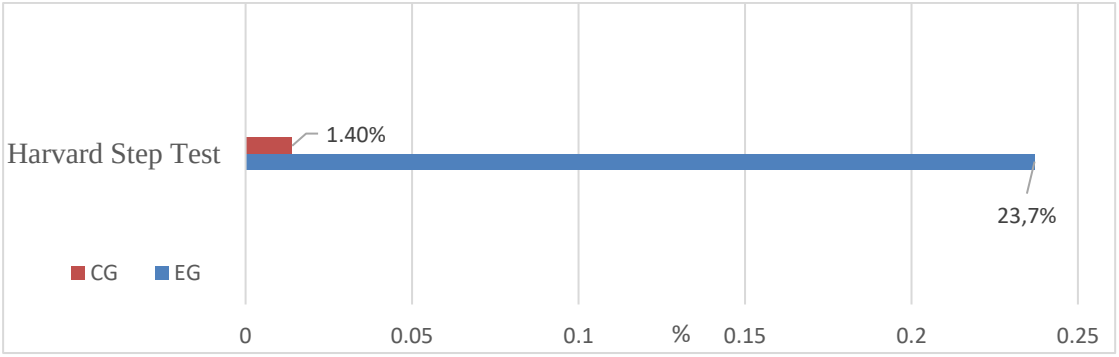
Indicators of Physical Capacity for Control and Experimental Groups at the Conclusion of the Formative Stage of the Pedagogical Experiment.

CONTROL INDICATOR	TYPE OF TEST	CONTROL GROUP X1 ±Σ1	EXPERIMENTAL GROUP X2 ±Σ2
PHYSICAL CAPACITY	Harvard Step Test	62,1±1,4	78,1±0,9

Upon the conclusion of the formative stage of the pedagogical experiment, a re-evaluation of physical capacity was executed for both the control and experimental groups. Among students in the experimental group, the HST indicator experienced a noteworthy rise to 78.1±0.9, corresponding to the upper bounds of an average physical capacity level. Conversely, in the control group, the HST indicator also increased (62.1±1.4). However, this magnitude of enhancement wasn't sufficient to elevate the physical capacity level beyond satisfactory. In terms of percentage, the increase in the Harvard Step Test indicators stood at 23.7% for the experimental group, as opposed to 1.4% in the control group (as illustrated in Figure 1).

Figure.1.

Percentage Comparison of HST Indicator Growth in Control (CG) and Experimental Groups (EG)



Therefore, the results obtained firmly support the conclusion that the incorporation of basketball variations into the physical education curriculum yields an enhancement in the physical capacity of high school students.

The elevated performance indicator observed among students in the experimental group is intrinsically linked to the introduction of diversified motor activities typical of schoolchildren during physical education sessions. This incorporation sparked a heightened interest in a range

of games, including streetball, korfball, netball, rezball, ringball, slamball, and cestoball. Moreover, the application of novel teaching methods and approaches throughout theoretical, technical, tactical, and physical training played a pivotal role in achieving this outcome. This amalgamation was accompanied by the establishment of organisational and pedagogical conditions that effectively fostered the realisation of pedagogical objectives.

4. DISCUSSIONS

The ongoing development and implementation of new educational standards in Ukraine signify a reform in secondary education, driven by the principles of the New Ukrainian School. Aligned with the mandates of the State Standard of Basic and Complete General Secondary Education, a curriculum for physical education targeting 10th and 11th graders is proposed. This curriculum follows a modular structure that emphasises variability (Physical Education, 2022). It comprises two obligatory modules – theoretical and methodological knowledge and general physical training – alongside 35 flexible modules. Students are required to master 2–3 variable modules during the academic year. The potential for adjusting the hours allocated to specific modules based on motivation is also contemplated. Educators, including physical education specialists, have the freedom to create and propose new variable modules for inclusion. These module programmes must undergo evaluation, secure approval from the Ministry of Education and Science of Ukraine, and be made accessible for public use. The outcomes of our study will constitute an initial stride towards incorporating modules like streetball, korfball, netball, rezball, ringball, slamball, and cestoball into the curriculum.

Within the gamut of classical basketball variations, the present physical education curriculum solely introduces korfball for study, despite the existence of numerous other derivatives of this popular game among schoolchildren (Yuzkovets, 2020; Tsymbaliuk, 2022; Richards et al., 2022; Lavrin et al., 2023). While subject-based game lessons effectively ensure the appropriate motor activity of students, providing enjoyment and satisfaction, the pursuit of alternative sports games or their variations remains pertinent (Azlan et al., 2020). Expanding the repertoire of games will enable a deeper comprehension and heightened efficacy of their integration into the educational process. This expansion allows for the formulation of more distinct game objectives and educational tasks while fostering dynamic networking models that can be applied to other activities (Ribas et al., 2023). Simultaneously, the inclusion of game variations maximises opportunities for fostering students' motivation, an integral factor in nurturing the enduring habits of an active and healthy lifestyle (Wintle, 2022). Moreover, within physical education lessons, game variations can serve as a potent instrument for stimulating physical activity among students, particularly for those less inclined towards sports engagement (Azlan et al., 2020).

The findings of our research corroborate a sufficient level of physical capacity among high school students, slightly below the norm, and compellingly substantiate the viability of incorporating streetball, korfball, netball, rezball, ringball, slamball, and cestoball into the physical education curriculum of general secondary education institutions. These findings align with previous studies that highlight the effectiveness of integrating basketball-related games within physical education classes for students with varying fitness levels (Lavrin et al., 2023). The inclusion of these basketball variations positively impacts the functioning of bodily organs and systems while fostering the holistic development of students' personalities.

Among the organisational and pedagogical prerequisites fostering the successful integration of basketball variations into physical education lessons and accomplishing the lesson's objectives, several factors are noteworthy. These include:

a. the continual professional development of educators;
b. increasing students' motivation for classes and diversifying their interest in various game types;
c. adequate preparation of spaces, essential equipment, and inventory for classes;
d. training assistants and engaging students in diverse responsibilities;
e. varied lesson content that aligns with other subjects, ensuring optimal motor activity;
f. creating an environment that nurtures individual self-realisation, initiative, and creativity;
g. incorporating interdisciplinary connections and enriching students' perspectives;
h. cultivating positive emotions and fostering a culture of success;
i. ensuring proper monitoring and self-assessment;
j. adherence to safety regulations.

5. CONCLUSIONS

The integration of basketball variations into the educational framework of general secondary education institutions leads to improved work capacity among high school students. Employing the Harvard Step Test, our experimental findings affirm that incorporating physical education lessons centred around streetball, korfball, netball, rezball, ringball, slamball, and cestoball fosters active motor engagement among students. This approach expands the potential for purposeful pedagogical influence, not only enhancing functional indicators among high school students but also significantly bolstering their motivation for class participation. The comprehensive application of these basketball variations contributes to a better understanding of the essence of physical culture and aids in the successful attainment of educational objectives in this domain.

Acknowledgment

We extend our sincere gratitude to the administration of Ternopil Secondary School No. 10 for their support during the organization and execution of our research. Special thanks to the 11th-grade students for their active participation in the pedagogical experiment.

REFERENCES

Andrieieva, O., Kovalova, N., & Khrypko, I. (2018). Analysis of problems and prospects of the implementation of health and recreational activities of high school students in the conditions of a comprehensive educational institution. *Fizychna kultura, sport ta zdorovia natsii: zb. nauk. Prats*, 5:11–18. http://eprints.zu.edu.ua/27429/

Azlan, A., Ismail, N., Mohamad Fauzi, N. F., & Talib, R. A. (2020). Incorporating Traditional Games in Physical Education Lesson to Increase Physical Activity Among Secondary School Students: A Preliminary Study. *Enhancing Health and Sports Performance by*

Design. MoHE 2019. Lecture Notes in Bioengineering. Springer, Singapore. https://doi.org/10.1007/978-981-15-3270-2_26

Chyzhyk, V. V. (1999). *Determination of physical capacity of schoolchildren and athletes*. Lutsk: RVV «Vezha».

Dervent, F., Güler, M. L., & Çotuk, M. Y. (2022) Improving Students' Korfball Skills With In-Depth Content Knowledge, *Journal of Physical Education, Recreation & Dance*, 93:9, 39-50, DOI: 10.1080/07303084.2022.2120131

Forostian, O. I., & Nakonechnyi I. V. (2019). Formation of a healthy lifestyle by means of physical culture in high school. *Suchasni problemy fizychnoho vykhovannia, sportu ta zdorovia liudyny*, Odesa, Za red.: P. B. Dzhurynskyi, O. I. Forostian. S. 81-86. http://dspace.pdpu.edu.ua/bitstream/123456789/5759/1/Forostyan%20O.%20I.%2C%20Nakonechnyj%20I.%20V..pdf

Grehaigne, J.-F. (2005). *Teaching and learning team sports and games.* New York, Routledge, Taylor & Francis Group.

Gil-Madrona, P. (2022). *Handbook of research on using motor games in teaching and learning strategy.* Pennsylvania: IGI Global. DOI: 10.4018/978-1-7998-9621-0

International Korfball Federation (IKF). (2022). *The rules of korfball.* https://korfball.sport/playing-rules/

International Netball Federation (INF). (2022). *The rules of netball.* https://netball.sport/game/the-rules-of-netball

Kryvutsa, I., & Nesen, O. (2022). Integrated lessons of physical culture in secondary education institutions during distance education. *Fizychna kultura i sport. Vyklyky suchasnosti*, Kharkiv, (rr. 45-54). https://doi.org/10.5281/zenodo.7249092

Lavrin, H., Anheliuk, I., & Osip, N. (2023). The main characteristics and features of games similar to basketball and its varieties. *Sportyvni ihry*, 2(28), 61–71. DOI: https://doi.org/10.15391/si.2023-2.06

Lavrin, H. (2017). Technology of concentrated training as one of ways to optimization students' basketball trainings. *Physical Education of Students*, 21(2), 78–83. https://doi.org/10.15561/20755279.2017.0205

Lytvynenko, O., & Cherepovska, H. (2022). Problems of distance learning in teaching pe in general secondary institutions and the ways to solve them. Veresen, 3 (94), 56-64. DOI: https://doi.org/10.54662/veresen.3.2022.06

Malechko, T. A., Kolomoiets, H. A., & Pustoliakova, L. M. (2023). The influence of the New Ukrainian School on the formation of motivation for physical education lessons. *Naukovyi chasopys NPU imeni M. P. Drahomanova*, 3K(162):238-241. http://enpuir.npu.edu.ua/handle/123456789/40751

Naumchuk, V. I. (2019). Characterization of the Four-Stage Structure of the Process of Learning Motor Actions in Sports Games, *International Journal of Human Movement and Sports Sciences*, 7(4), 81-88. DOI: 10.13189/saj.2019.070403.

Naumchuk, V. I. (2018). *Theoretical and methodical bases of teaching sports games.*

Saarbrücken: LAP LAMBERT Academic Publishing.

New Ukrainian school – everything about NUS in 2022. (2022). https://odo.com.ua/blog/sovety-pokupatelyam/nova-ukrayinska-shkola-vse-pro-nush-u-2022-rotsi/

O'Connor, J., Alfrey, L., & Penney, D. (2022) Rethinking the classification of games and sports in physical education: a response to changes in sport and participation, *Physical Education and Sport Pedagogy*, DOI: 10.1080/17408989.2022.2061938

Prysiazhniuk, S. I. (2020). Dynamics of indicators of the cardiovascular and respiratory systems under the influence of physical load of secondary school students. *Naukovyi chasopys NPU imeni M. P. Drahomanova,* 3K(123):345–350. http://enpuir.npu.edu.ua/handle/123456789/32937

Physical Education. 10-11 grades. Curriculum for institutions of general secondary education. (2022). https://mon.gov.ua/storage/app/media/zagalna%20serednya/programy-10-11-klas/2022/08/15/navchalna.programa-2022.fizichna-kultura-10-11-standart.pdf

Ribas, J. P, Hernández-Moreno, J., Díaz-Díaz, R., Borges-Hernández, P. J., Ruiz-Omeñaca, J. V., & Jaqueira, A. R. (2023). How to understand sports and traditional games and how to apply it to physical education. On the "Goal of Game". *Frontiers in Sports and Active Living*, 5:1123340. doi: 10.3389/fspor.2023.1123340

Richards, J., Sherry, E., Tamala, F., Schuster, S., Schulenkorf, N., & Keane, L. (2022). Netball Shoots for Physical and Mental Wellbeing in Samoa. *A Natural Experiment. International journal of environmental research and public health,* 19(5), 2663. https://doi.org/10.3390/ijerph19052663

Serra-Olivares, J. (Ed.). (2018). *Sport Pedagogy - Recent Approach to Technical-Tactical Alphabetization.* InTech. doi: 10.5772/intechopen.71400

Smoliuk, V. I., Hlushko, P. V., Shevchuk, A. B., Shvai, O. D., & Radchenko, O. V. (2022). *Basics of physical training of basketball players.* Lutsk: Volynskyi natsionalnyi universytet imeni Lesi Ukrainky. https://evnuir.vnu.edu.ua/bitstream/123456789/21223/1/basketbol.pdf

Stolz, S., & Pill, S. (2014). Teaching games and sport for understanding: Exploring and reconsidering its relevance in physical education. *European Physical Education Review*, 20(1):36–71. DOI: 10.1177/1356336X13496001

Sushko, R. O. (2017). *Theoretical and methodological foundations of sports games development in the globalization conditions (basketball material).* (Dissertation of Doctor of Philosophy). National University of Physical Education and Sport of Ukraine, Kyiv.

Tsymbaliuk, Zh. O., Nesen, O. O., Musiienko, A. V., & Yurchenko, I. M. (2022). *Basketball and its varieties in children's physical education.* Kharkiv. KhNPU. https://dspace.hnpu.edu.ua/handle/123456789/7566

Wintle, J. (2022). Physical education and physical activity promotion: lifestyle sports as meaningful experiences. *Education Sciences, Special Issue Lifestyle Sports and Physical Education,* 12(3), 181; https://doi.org/10.3390/educsci12030181

Yuzkovets, I. O. (2020). *Comprehensive development of physical abilities of junior schoolchildren by means of mini-basketball.* (Dissertation of Doctor of Philosophy). SHEI

"Pereiaslav-Khmelnytsky Hryhoriy SkovorodaState Pedagogical University", Prydniprovsk State Academy of Physical Culture and Sports, Dnipro.