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Holistic approach in Physical education and Modern trends in sport sciences

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Esports: Videogames or sports?

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Introduction

Esports are defined as organized competitive human activities involving specific video games played over the internet or a local area network (LAN). The popularity of esports and their inclusion in the background of the 2021 and 2024 Olympics, under the patronage of the International Olympic Committee, has led to an intense debate in the field of philosophy of sport about whether esports can be considered as real sports (Llorens, 2017; Parry, 2019). This paper aims to critically approach esports as to whether they can be considered as real sports.

Method

This is a theoretical paper. It uses analytical philosophical thinking and conceptual analysis. It presents arguments from the literature in the field of philosophy of sport, without being a formal literature review.

Results and discussion

In esports, players must be based on real competitive play, either individually or in teams, with the goal of winning. The game is played in discrete matches with fixed time and game sets, either online or on local area networks (LANs) (Llorens, 2017). It demands personal interaction, high levels of concentration, dexterity, accuracy, body control, strategy, stamina, fast motion and team strategy. All of these elements are prerequisites for being considered a real sport (Llorens, 2017). However, there is concern about whether these skills outweigh physical abilities and whether the similarities with conventional sports are sufficient for them to be considered real sports. Parry (2019) argues that esports are an indirect human activity, involving fine motor skills rather than gross motor skills typically required in sports. Parry (2019) argues that esports lack stable institutionalization and clear legitimacy. The discussion suggests that considering esports as sports is difficult based solely on their formalistic approach, and their ethical nature should be discussed.

Conclusion

The consideration of esports as either video games or real sports is a challenging task. In the literature on the philosophy of sport, the focus is mainly on formalistic characteristics, to the detriment of the humanistic value that sport embodies.

Key words: videogames, sport, formalism, philosophy of sport

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Organizational Leisure Support and Workplace Happiness: A Study on Workplace Recreation in İstanbul

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Introduction
Although it is possible for employers and employees to contribute to societal development by enhancing quality of life through maintaining physical and mental health via recreational activities and increasing workplace productivity while being happy at work, there is a lack of knowledge about workplace recreation, insufficient practices, and a shortage of scientific research, data, and resources in Turkey. This highlights the necessity for this study. Particularly, focusing on employees in thermal power plants as the sample group, examining the relationship between workplace recreation support and workplace happiness in a high-risk industry represents the original value of this research. The purpose of this study is to examine the relationship between perceived organizational leisure support and workplace happiness among thermal power plant employees and to compare these relationships across various variables.

Method
The research employs a relational survey model, and the sample is created through convenience sampling. The sample consists of 292 individuals employed at the Ambarlı Thermal Power Plant in Istanbul, aged between 19 and 72 years ($\bar{X}$ age = 41.36, sd= 9.86), including 9 females (3.1%) and 283 males (96.9%). The data collection instrument used in the study consists of two parts. The first part includes questions related to demographic characteristics, while the second part utilizes the Perceived Organizational Leisure Support Scale adapted to Turkish culture by Koç and Pekel (2023) and the Workplace Happiness Scale adapted to Turkish by Bilginoğlu and Yozgat (2020). Statistical analyses, including descriptive statistics, independent samples t-test, one-way analysis of variance (ANOVA) for multiple comparisons, and Pearson correlation test, were used to analyze the data. Statistical analyses were conducted at a significance level of 0.05 with a 95% confidence interval.

Results and discussion
According to the research results, significant differences were found in the scores of the perceived organizational leisure support scale and workplace happiness scale based on marital status, educational level, years of service in the organization, and perceived workload among thermal power plant workers.

Conclusion
In conclusion, a positive significant relationship was identified between workers' scores on the perceived organizational leisure support scale and workplace happiness scale, indicating that as workers' perception of organizational leisure support increases, their workplace happiness also increases.

Key words: Workplace recreation, organizational leisure support, workplace happiness.

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Physical activity level of female students and implemented programs as a way to positive changes in movement behavior

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Introduction

Physical activity has proven benefits for physical, mental, and cognitive health. It affects overall health and well-being and is important in every period of lifespan (WHO, 2020). When it comes to young adults and especially the group of university students, physical activity has proven to be beneficial for physical, psychological, and social health (Gothe et al., 2020); it positively affects academic performance, stress load, and recovery (Touber, Leyhr & Sudek, 2024). Besides perceived benefits from PA for university students, many studies confirm the decline in PA levels (Maselli et al., 2018; Blake et al., 2017; Kljajevic et al., 2022 Alkhawaldeh et al., 2024) and nearly 80% of students do not meet WHO recommendation for PA (Guthold et al., 2020) which is significantly notable for female students compared to male students. Following the WHO guidelines on physical activity and sedentary behavior (2023), adults aged between 18 and 64 which includes our target group as well, should do at least 75–150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate-and vigorous-intensity activity throughout the week. This study is focused on examination of physical activity level among students at Goce Delcev University in North Maceodona and example of different PA programs aimed to improve students physical activity levels.

Method

The study sample included 235 female students at different years of study and from different faculties at Goce Delcev Univeristy in Stip, North Macedonia. Physical activity level of students was examined using the short version of IPAQ questionnaire. The results were analyzed using basic statistic parameters. In addition, four different intervention programs applied as pilot programs for the improvement of PA levels of students are presented.

Results and discussion

Obtained results for the physical activity level of female students suggest that only 16% do at least 75 min of of vigorous-intensity physical activity, and only 14% do at least 150 minutes of moderate-intensity PA. Most of the participants walk daily, while only 38% walk every day. In days spent walking, 28% walk approximately 60 min while only 15% walk more than 120 minutes daily. Following this results, it can be concluded that majority of the students don`t meet the required criteria. Considering the amount of time spent at university, the faculties and university have an important role in providing possibilities for improvement of PA level. In this regard, as pilot program, Goce Delcev University implemented a program of 4 different intervention aimed to increase PA level of female students. This interventional program included the following 4 types of activity programs: indoor activity – HIIT and pilates program; outdoor activities – running, cycling, and walking programs; online program – Tabata and HIIT training and active breaks.

Conclusion

Study results indicate a decreased level of PA in female students and failure to meet the recommendations for PA and sedentary behavior in young adults. Following the role of the university as an institution that

should also support the health, PA, and well-being of students, the suggested interventional programs should help female students in their efforts to be actively engaged in different forms of physical activity and improve their personal physical health, movement behavior, and overall wellbeing.

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Investigation of Perceived Service Quality in Local Governments Youth Centres in Athletes

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Introduction

Meeting the needs in social life is given to local governments by the state. Local governments are obliged to meet the social needs of individuals. Nowadays, youth centres are established by local governments to meet the social needs of young people and to create social areas. These are areas opened by local governments to protect the mental and physical health of all young people, to provide socio-cultural support, to contribute to the education of young people in line with their interests and to develop their skills. These areas are mostly used by athletes for their physical development. Considering these explanations and statements, our study aimed to examine the service quality perceived by athletes in local governments youth centres.

Method

In our study, a 10-question personal information form (Gender, Education Status, Branch, Monthly Income Status, Age, Mother's Education Status, Father's Education Status, Mother's Occupation, Father's Occupation) created by the researchers and a 5-point Likert-type "Perceived Service Quality Scale in Youth Centres" consisting of 23 items and three sub-dimensions (Physical Environment Quality, Interaction Quality, Output Quality), the validity and reliability study of which was conducted by Polat et al. (2013), were used. The sample of the study consists of 349 (n=145 Female, n=204 Male) volunteer athletes who are actively involved in three different sports branches (n=177 Athletics, n=116 Table Tennis, n=116 Cycling). The data of the analytical cross-sectional study were collected face-to-face after obtaining approval from Siirt University Social and Human Sciences Research Ethics Committee. The data obtained in the study were evaluated in SPSS 25.0 package programme.

Results and discussion

As a result of the normality analysis of the scale, it was seen that the significance values were greater than 0.05 and it was decided to use nonparametric analyses in the analysis. Kruskal Wallis H Test and Man Witney U Test were applied in our study. In the statistical analyses, it was seen that there was a statistically significant difference between the variables of gender, educational status, monthly income status, mother's educational status, father's educational status and the sub-dimensions of the perceived service quality scale in youth centres and the scale general scores ($p<0.05$), while there was no statistical difference between the variables of branch, age, mother's occupation, father's occupation and the sub-dimensions of the perceived service quality scale in youth centres and the scale general scores ($p>0.05$).

Conclusion

In line with the findings obtained in our research, it was determined that the perceived service quality in local governments' youth centres differed statistically with mother and father education status, gender, education status, monthly income status.

Key words; Athlete, Local Government, Youth Centre, Perceived Service Quality.

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Effect of average heart rate intensity measured with activity tracker on health outcomes

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Introduction

Over the last decade we are witnessing an absolute explosion in popularity of activity trackers, wearable devices that are designed to provide instant monitoring and storing of health data derived from daily life and physical activity. Current research consistently shows that wearing an activity tracker can lead to improved health outcomes (Gualtieri et al., 2016). Most of the research is concentrated on older adults or individuals with chronic medical conditions. There is lack of research done on young to middle aged adults that in fact are the ones that use activity trackers the most, especially during physical exercise.
The aim of this study is to investigate the use of said trackers by recreational athletes during physical exercise in group setting and whether the recorded average heart rate influences body weight, fat percentage, fat mass, fat free mass and BMI.

Method

This study was conducted with 12 participants, 6 women and 6 men, at average age 39,83 ± 8,51. The participants were using an activity tracker "MYZONE". Body composition estimations are done using BIA technology body composition analyser TANITA MC780. The participants were attending group fitness sessions in an exercise centre in Skopje. For the study the results were divided in two groups according to the average heart rate during the training sessions that were conducted for 15 weeks.

Results and discussion

From the gathered data of the activity trackers the participants were divided in two groups, one with average heart rate above 75% of their predicted maximum, and one group with average heart rate below 75% of their predicted maximum heart rate. The data suggests that there is a difference in the results between the groups in all measured and calculated variables. Since the discrepancy trend in the results, related to the grouping by average heart rate exists in all the chosen improving health parameters, the use of activity trackers is found as useful in recreational training. The participants were exercising the same physical fitness program, but they were not given any additional nutritional advice.

Conclusion

The sample size is small, but it shows a definite trend and necessity for further developments. From the gathered data we can conclude that those participants that were exercising with higher average heart rate, or those that were exercising with greater intensity have better results in the parameters that were chosen as critical for improving their health.

Key words: average heart rate, activity trackers, health

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Dissemination of Cost Action Ca19101 Determinants Of Physical Activities In Settings

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From the reason the DE-PASS COST Action is unique in focus, extent, constitution and as an effective Knowledge Transfer Platform (KTP), this presentation has a will to explain it to the targeted audience from this congress and reach potential stakeholders to review previous and engage with further COST Action activities. On the other hand, DE-PASS focuses on identifying, understanding and measuring the determinants which promote, maintain or inhibit Physical Activity Behaviors (PABs) across the lifespan and in different settings and translating this knowledge to assist policy-makers to achieve greater health impact that can be very interesting for FIEPS European Congress participants, mostly due to the reason this presentation might help opening discussion on the issues such as why individuals and/or societies adopt a physically active or inactive lifestyle. To date enormous energy has been invested by researchers in answering this question, however, the knowledge gained and the impact achieved through this investment is fragmented, not readily translatable and rarely transcends the state of the art and this dissemination conference grant might strengthen it as it will reach huge auditorium interested to solve these issues. This presentation will help DE-PASS to further promote the following: 1) use a settings approach (home, school, work etc.) to bridge the knowledge and translation gap; 2) enact a multi- disciplinary, Pan-European, international network of established, young and Early Career Investigators (ECIs) and policy-makers; 3) exploit, consolidate and further integrate existing relevant expertise, evidence, resources and influence; 4) develop capacities and careers for ECIs; 5) provide a new European PABs conceptual framework, a best evidence statement and implementation guidelines for policy-makers; 6) define and standardize European measurement protocols; 7) establish a new, high functioning, open access European database of determinants of PABs with a cohort extension and 8) define an evidenced- based and aspirational Pan-European research harmonization and implementation strategy as well as involve some new group members and supporters from the scientific community and practice that will attend the FIEPS European Congress.

Examination Of the Reasons Preventing Female Football Fans from Watching Football Matches

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Introduction
Football is a type of sport that continues to be popular from the past to the present. 1.5 billion people worldwide It is stated that they watch and support football. This situation has been observed from the past to the present and still today. Thanks to its popularity as a major institute. With football becoming an institution, the world the existence of patriarchal societies on societies in general leads to the exclusion or disappearance of women in football to be counted as women. Among the many factors that prevent women from watching football matches It is stated that it is due to the security effect. The difficulties experienced within the football sector are generally the security effect. There are factors such as difficulty in reaching the stadium and match time. Considering these situations to investigate the reasons preventing female football fans from watching football matches intended.

Method
7424 volunteers of the 4 big teams (Galatasaray; N= 3088, 41,6%, Fenerbahçe; N=2000, 26,9%, Beşiktaş; N= 1632, 22,0%, Trabzon sports; N= 704, 9,5%) in the sports toto super league for the 2022- 2023 season. Female football fans constitute the sample group of the study. In the study conducted by Çelik (2015), 24 items consisting of 7 sub-dimensions (fear, difficulty in travelling to the stadium, tastes, family influence, service and tickets being expensive, lack of security and service, match time) were used. Research
The data were analysed in SPSS, 25 package programme.

Results and discussion
Significance of the normality analysis result for the scale values were found to be greater than 0.05 and nonparametric analyses (Man Witney U, KruskalWallis H) was decided to be used. When the findings of the study are analysed, education status, marital status, It is seen that there is a statistically significant difference between the variables of difficulty of access to the stadium, tastes, family influence, cost of services and tickets, match time and scale total scores in the variables of age, occupation, monthly income status, which team are you a fan of, what football means to you; in the sub-dimension of security and lack of service in the variables of educational status, monthly income status, which team are you a fan of, what football means to you; in the sub-dimension of fear in the variables of age, occupation, monthly income status and what football means to you ($p<0.05$).

Conclusion
As a result: In the total score of the scale, age, educational status, marital status, occupation, monthly income status, which team are you a fan of, what football means to you variables, the difficulty of access to the stadium is statistically different, the effect of this situation on the tastes of individuals, the cost of tickets and services during the competition, and the time of the match. (Replace this with your text.)

Key words; Women, Football Fans, Barrier.

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Diversity in the way of viewing a sporting event from an aesthetic point of view

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Introduction

The purpose of this paper is to critically discuss the main thesis of Mumford (2012) who attempts to defend the sports purists attitude as the best option for watching a sporting event in relation to the aesthetic experience that a spectator can engage in. On the other hand, he considers that the partisans attitude is a wrong way of watching sports, stressing that excessive focus on winning, excessive passion and competitiveness create the conditions for a situation of complete loss of aesthetic recruitment

Method

It is a philosophical study based on the analysis of arguments.

Results and discussion

The aesthetic reception as an experience during a sporting event is for Mumford (1) a field of discussion as well as confrontations between philosophers who have dealt extensively with the sporting spectacle. The view that the purists attitude of watching a sporting event is the best in terms of aesthetic experiences contradicts the views of Dixon (2), Jones (3) and Elliot (4) who consider that the lack of passion, dedication and competitiveness do not allow the intake of aesthetic experiences. Almost everyone agrees that aesthetic pleasure is a necessary condition of satisfaction, which derives from watching a sporting event, but the way it can be achieved differs from theory to theory and the scientific approach to the subject makes the question an essential tool for understanding the sporting spectacle

Conclusion

The attempt to investigate the differences between purists and partisans in relation to the recruitment of aesthetic experiences creates the conditions for new categorizations without seals, covering a wide spectrum of partisans or purists behavior among which it is possible to analyze the aesthetic experience, in its entirety.

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Countermovement jump depth influence dynamic strength index

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Introduction

The Dynamic Strength Index (DSI) has been proposed as a promising tool for gaining insight into an athlete's strength and power qualities, as well as for determining individual training needs based on DSI values. The DSI is calculated as the ratio between force production during ballistic and isometric tasks, reflecting athlete's dynamic force production capacity relative to their maximal force capacity. The aim of this study was to check the differences and associations between DSI values from bilateral and unilateral countermovement jump with controlled (90° knee angle) (CMJ_C) and not controlled countermovement depth (CMJ_{NC}) and bilateral and unilateral isometric squat (ISQ) performed at knee angle of 90°. The hypothesis is that DSI_C values will be significantly lower than DSI_{NC} values.

Methods

Participants (n = 45) performed three repetitions of all CMJ variations (bilateral and unilateral CMJ_{NC} andCMJ_C) and three repetitions of bilateral and unilateral ISQ on force plate.

Results and discussion

Mean DSI_{NC} was 1.10 ± 0.16 for bilateral variation and 1.25 ± 0.16 and 1.21 ± 0.16 for unilateral variations. On the other hand mean values for DSI_C were 1.03 ± 0.11 for bilateral variations and 1.11 ± 0.11 and 1.06 ± 0.13 for unilateral variations. Further anaylsis with paired t-test showed significant differences between DSI_{NC} and DSI_C for all variations ($p < 0.001$; d for bilateral variation = 0.45; d for unilateral variations = 1.02-1.07) with strong correlations between them ($r = 0.785$-0.836; $p < 0.001$). Strong correlations indicate that both methods provide similar information, while significant differences in DSI values indicate that deepth of the CMJ significantly influences DSI values, thus caution is needed when interpreting DSI values in the context of training direction.

Conclusion

Both variations seem to provide similar information, but caution is needed when using DSI values and interpretating results for further training related decision-making.

Key words: diagnostics, testing, strength, power, performance

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Indian Folk Games: A Cultural Vehicle To Promote Social And Motor Skill Among Children

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Introduction

Culture plays a significant role in the development of the nation. India has rich cultural diversity and plurality. Among many varieties of intangible cultural heritage, folk games are one that used to occupy much of the leisure time of children and youth. Folk games, also known as traditional games, are played informally with minimal equipment and infrastructure and with unwritten, simple, and flexible rules. These activities children teach each other and are passed down between generations. The few popular traditional games in India are Camel Race, Game of Dice, Archery, Bull Race, Buffalo Race, Marbels, Mallakhamb, Kite flying, Hopscotch, Spinning the Top, Boat Race, and Kalaripayattu. Today's fast-paced lifestyle, urbanization, unit families, and popularity of video games and sedentary games are discouraging children from playing outdoor games and folk games. Still, these games have enough potential to provide unique opportunities for physical development, amusement, creativity, transmission of culture, and peer group interactions.

Objective

The purpose of the study was to identify and analyze the different components of folk games that develop social and motor skills among children.

Methodology

For the collection of data, the present study used primary and secondary sources, which included questionnaires, books, websites, and journals. As a primary source, the Google form questionnaire, comprised of closed-ended, and open-ended questions, was given randomly to 600 participants of 20 to 60 years from the known circle; however, only 500 subjects answered. The journals, books, and websites were used as secondary sources.

Results

It was observed that rural children largely engage in folk games, which are locally organized, and safe. It was noted that many types of traditional games, such as games of physical skill, strategy, memory, rhythmic games, simulation, and verbal games, play an important role in the development of children's minds, cognitive and social skills and their motor skills, including balance, spatial awareness, and enhances hand-eye coordination.

Moreover, it was found that participation in folk games has positive effects on a wide range of outcomes in life, related to collaboration, cooperation, communication, mutual respect, cultural exchange, cultural identification, community bonding, problem-solving, celebration, stress reduction, and overall well-being.

Conclusion

The traditional folk games serve as a valuable institution within society, as an educational hub for the nurturing of values, the fostering of dynamic motivation and socialization, the enhancement of motor skills, and the building of cultural identity in youngsters.

Keywords: traditional games, cultural transmission, socialization, personal development, motor

Comparing Kendo to Fencing: Refereeing issues

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Introduction

Although a lot of people understand that kendo, which is one of the Japanese martial arts and similar to fencing, is not sport, they cannot explain how it is different from sport. My claim is that Kendo is not a practice like modern fencing where the winner is decided according to objective written rules but according to subjective judgments that high quality experts make.

Method

This is a philosophical paper, and its method is accordance with analytic philosophy.

Results and discussion

According to Reid (2012) "the unsurpassed prestige and longevity of the ancient Olympic Games (over a thousand years) depended heavily on the perceived accuracy and justice of its results." As this shows, objectivity in competition was a main factor contributing to the long duration of the ancient Olympic Games. This idea is of crucial importance when those involved have different ways of thinking and we still can see this in modern sport. In fencing competition, there is a standard which is designated by objective indicators and the judgements are made by the electrical apparatus in order to keep the accuracy of the judgements. Therefore, disagreements regarding the evaluation do not happen frequently.

On the other hand, in kendo competition, referees' decision making for valid points is not objective but instead subjective. There are quite a few elements in referees' decision making for valid strikes in kendo but it is not possible to evaluate some of them, such as spirits, by objective indicators. In addition to this, since no equipment is used in decision making about valid strikes, certain experiences are needed to evaluate attacks made by competitors. This is a different concept from the one in sport in which objectivity plays an important role.

Conclusion

Although fencing and kendo have similar backgrounds and competition styles, we can say that they are different activities from this point of view.

Key words: Kendo, Fencing Refereeing Martial Arts Sports

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An instrument for measuring theoretical knowledge in Physical Education: the process of development, validation and standardization

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Introduction

In the current period, even among specialists, there is confusion between two terms: Physical Education (PE) and Physical Activity (PA). PE is the field where students have the opportunity to acquire knowledge and skills, and PA is the area where individuals will apply the knowledge and skills acquired in PE. Correct understanding of the two terms highlights the educational character of the PE lesson. And the first step of any educational process involves the assimilation of the declarative (theoretical) knowledge.

Method

The purpose of this paper is to develop, validate and standardize an instrument that can be used to measure the level of students' theoretical knowledge from the PE discipline. Following the indications of the specialized literature that deals with the development of such an instrument, we built a 7 steps methodology with the help of which we developed a valid and standardized test for 5th grade students from Romania.

Results and discussion

The validity of the test was ensured by the fact that the items and answer options of the test present a high level of performance in terms of the clarity and relevance of the questioned content. Another important aspect refers to the fact that a balance was obtained regarding the level of difficulty of the items. Also, the result of the reliability test through the test-retest method ($t(29) = 0.73$, $p = .472$) demonstrated the ability of the test to provide similar results in successive applications.

Conclusions and future implications

Using the tool developed in this research, it is possible to measure the level of theoretical knowledge of Romanian students in PE discipline. This tool is useful both for PE teachers and researchers who have at their disposal a valid and standardized tool to consider this variable of specialized theoretical knowledge. Also, using the methodology developed in this research, other tools can be developed based on other contents - from other countries or even from other school subjects.

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Coordination abilities of student athletes and non-athletes in early school age

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Introduction

Coordination is one of the motor abilities that participates in the performance of each motor structure and is therefore extremely important in the overall efficiency of the motor behavior of human beings (Crnokić, 2011). Coordination is one of the motor skills that is largely genetically determined (Findak et al., 1996). Different authors similarly define the ability to coordinate - as the ability to control the movements of the body or parts of the body during the fast and precise execution of complex motor tasks in rhythm (Milanović, 1993; Starc et al., 2004; Prskalo, Sporiš, 2016). It is very important for success in sports, especially in complex team sports (Bompa, 2005), but also in the performance of various every day, more complex tasks in the shortest possible time (Findak et al., 1996). The aim of the research was to determine the level of coordination ability of male and female students of early school age and to check possible differences based on gender and degree of involvement in sports activities. Based on the goals, the hypothesis was set that the difference in coordination abilities based on gender will be significant as well as based on the degree of involvement in sports activities

Method

For the purposes of this work, research was conducted in an elementary school in Zagreb. The sample of respondents consisted of 170 students (83 girls and 87 boys) from the first to the fourth grade, aged 7 to 11 years. The research was conducted at regular Physical Education classes for two months in accordance with the code of ethics for research with children (Ajduković, Kolesarić, 2003). The sample of respondents was divided based on involvement in sports training. Each respondent is defined as an athlete (training in a certain sport) or as a non-athlete (attending only Physical Education classes). To assess coordination abilities, three tests were used: guiding the ball with the hand between the cones (Metikoš, Prot, Hofman, Pintar & Oreb, 1989), polygon backward (Findak, Metikoš, Mraković, 1992) and non-rhythmic drumming (Metikoš, at al, 1989). The measurement results were processed in the *Statistica* program. Each test was measured three times, and the best achieved result was taken for analysis purposes. Basic descriptive parameters were analyzed. The normality of the distribution of the obtained results was checked with the Kolmogorov-Smirnov test. The Mann-Whitney U test was used to assess the statistical significance of differences based on gender and level of involvement in sports activities.

Results and discussion

A comparison of the descriptive parameters of the particles of all four classes shows a linear increase in anthropometric values according to age, which is expected.
Differences based on gender and involvement in sports activities are shown by class as follows.
The first grade:
Based on gender, a statistically significant difference was observed in the tests of guiding the ball with the hand and the polygon backwards in favor of boys. A significant difference in coordination abilities based on the degree of involvement in sports activities was recorded only in the test of guiding the ball with the hand and at the very limit of significance in favor of student athletes.
The second grade:
A statistically significant difference based on gender was confirmed only in the tests of guiding the ball with the hand and the polygon backwards in favor of boys, as well as in the first grade. It is very interesting

that there were no statistically significant differences between student athletes and non-athletes, although it might have been expected that student athletes would achieve significantly better results.
The threat grade:
A statistically significant difference based on gender was observed only in the guiding the ball with the hand in favor of boys.
The four grades:
A statistically significant difference based on gender was observed in the test of guiding the ball with the hand and in the backward polygon test in favor of boys. The significance of the differences between student athletes and non-athletes was confirmed only in the guiding the ball with hand test, as well as in the first and third grades. Although it was to be expected, there was no significant dominance of student-athletes in the results of tests used to check coordination abilities, regardless of their larger number. Differences were observed only in the test that requires good manipulation of the ball and one's own body.

Conclusion

The aim of this thesis was to examine the differences in coordination abilities based on gender, and special emphasis was placed on checking the differences in coordination between student athletes and non-athletes of early school age. Based on all the above, the following can be concluded. If children who play sports want to develop a higher level of coordination skills, it is necessary to add more exercises for the development of coordination to sports training programs. In the program of Physical Education, it is necessary to keep the contents that develop coordination, build on them and use them to the greatest extent possible for the purpose of its improvement, regardless of the degree of innateness.

Key words: kinesiology education, motor skills, primary education

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Artificial Intelligence and the future of sports: Opportunities and challenges

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Introduction

Artificial Intelligence has changed the way we live, work and play. This presentation will highlight various examples of the usage of AI in our lives. The examples given will be from sports industry and will help you rethink your concepts of what AI can do by sensitizing you with what AI is already doing.

Method

Online available data was collected on how sports industry is incorporating AI to improve various functions and what are the challenges faced.

Results and discussion

From this information, the possibilities of AI and the future of sports were discussed with opportunities and challenges. The findings indicate that AI is about to revolutanize the sports and fitness industry.

Conclusion

Feedback from the audience will help in streamlining this on-going research as the field of AI and sports is dynamic and evolving. The audience will gain tremendous insights into the usage of AI in sports.

Psychological Resilience in Elite Athletes: Overcoming Post-Traumatic States

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This research aims to investigate the emotional responses of high-level athletes during the post-injury period, aiming to understand their psychological characteristics and identify key factors aiding their recovery. Through analysis of theoretical sources and empirical study, the research seeks to comprehend existing findings on post-injury emotional states among athletes and determine the main psychological contributors to their resilience. By examining emotional response patterns and psychological factors, this study endeavours to enhance athletes' psychological well-being and expedite their recovery process. The research will delve into individual factors like goals and motivation, the significance of social support systems, the role of professional interventions, and the importance of fostering conducive environments. Ultimately, the study aims to contribute to a comprehensive understanding of psychological recovery in athletes, offering insights that can inform interventions and support systems aimed at promoting athletes' overall well-being during the post-injury phase.

Key Words*: Psychological rehabilitation, motivation, social support, emotional responses, injuries.*

Radio Exercise' in Japan: Its functions and effectiveness specifically among senior citizens in local communities

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Background

The 2021 pilot study conducted by the author concerning about the long life expectancy in Japan, four out of 57 participants answered that 'the radio exercise' was an activity they do habitually to keep them stay physically and mentally healthy. 'Radio Exercise', dated back to 1928, is the name of the warm-up exercises broadcasted on national radio four times a day, of which the earliest of 6:30-6:40 is most popular. Introduced to the elementary school system in 1951, it has contributed to welfare of school children, and has become an exercise widely practiced across various institutions and all generations in the entire nation. In local cities such as Hamamatsu, they offer 27 'Radio Exercise' groups, where people are eager to participate not only for keeping themselves healthy but also for other functions such as communications and information exchanges.The goal of this study is to demonstrate the historical background of 'Radio Exercise', its characteristics and effectiveness, and why it has been exercised in elementary schools, companies, and communities extensively. To show different functions of the exercise will be another goal.

Methods

Based on the pilot survey, on-going individual interviews have been conducted. Short interview data is translated from Japanese to English.

Conclusion

Interview data reveal that besides physical fitness, 'Radio Exercise' can offer multiple functions such as communication tools, information exchanges, group dynamics, filling generation gaps, and motivation to keep living especially in local communities.

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One-year post Covid – 19 change in physical fitness of Lithuanian primary school children

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Introduction

The year 2020 was marked by the global COVID-19 pandemic followed by confinement and home-schooling for almost a year. Physical activity in childhood is reported to have a significant accumulative impact on future health, particularly physical fitness (Telelama et al., 2014). Moreover, studies report increased body mass index as a negative consequence of the pandemic (Jarnig et al., 2021; Tsoukos & Bogdanis, 2021) as another health trigger. Physical fitness is defined as a state of good health that allows one to perform daily activities vigorously and also helps to reduce the risk of chronic diseases and premature death (Castro-Piñero et al. 2019). The main components of physical fitness are cardiorespiratory fitness, musculoskeletal fitness, and motor fitness. **The research aim**s to estimate physical fitness and its dynamics in a year post Covid – 19 among primary school children aged 7 to 10 years.

Methods

This analysis included a sample consisting of 902 students, who participated at both time points and whose additional data from questionnaires were collected. At Time 1 they were 1st to 3rd grade (7 - 9 years old) students and at Time 2, they were 2nd to 4th grade (8 – 10 years old) students. Among students, there were 49% of boys and 51% of girls. All children had their physical fitness evaluated. Eight out of nine tests from a 9-item test battery developed by Fjørtoft et al. (2011) and described in detail elsewhere (Fjortoft et al., 2011) were used to evaluate muscular, and motor fitness in primary school students.

Results

reveal that explosive muscle power (Standing broad jump) constantly increases with age in both boys and girls with a higher magnitude in older age for boys. The older the age the higher the difference in Standing broad jump results in comparison with the previous measurement one year before in boys. However, the increase in girls is not that smoothly rising – the gain between 7 and 8 years and 9 and 10 years is higher than between 8 and 9 years. Similarly, in constantly increasing order changes in leg muscle strength are observed performing Jumping on one foot test in girls for all age transitions and in boys from 8 to 10 years. Jumping on two feet test results increase from 8 to 10, with a higher magnitude between 8 and 9 in both genders. Hand muscle power and upper body muscle power (Tennis ball and Medicine ball, respectively) increase from year to year except for no significant gain in girls in the transition between 9 and 10 years for the Medicine ball test. Agility results in boys increasing across transitions from 8 to 9 years and from 9 to 10 years. There was no significant gain in one year between 7 and 8 years in boys for agility. In girls, agility increases across all age transitions, the highest increase is between ages 9 and 10 years. The speed significantly increases in boys and girls except for the transition in girls from 8 to 9 years.

Conclusions

As children grow and develop, their physical fitness levels tend to change in response to various factors including different physical activity indicators. Vigorous physical activity is uniquely related to a better performance in hand muscle power and agility a year later. Practicing moderate-to-vigorous physical activity uniquely contributes to greater motor physical fitness even controlling for sociodemographic variables, baseline values, current BMI, as well as other physical activity-related factors experienced currently or in the past.

The necessity of the theoretical component in the discipline of Physical Education

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Introduction

In the contemporary period, the ultimate goal of the Physical Education (PE) discipline is to promote a healthy and active lifestyle. To succeed in accomplishing this objective several approaches are used. In this paper, we aimed to scope the specialized literature in order to highlight the role that theoretical knowledge has in achieving the ultimate goal of the PE discipline.

Method

Based on the PRISMA statement's guidelines (Moher et al., 2009), we conducted a qualitative systematic review/qualitative evidence 'synthesis' in which we were interested in analyzing the specialists' opinions regarding the importance of theoretical knowledge in the educational process in the PE lesson. Following the process of identification and selection of the papers that fit the set inclusion criteria, 31 papers were the basis of the results.

Results and discussion

Theoretical knowledge is identified by scholars as the factor that makes the transition from the level of dependent practice of physical exercises to that of independent practice. Also, several authors emphasize the problem of confusion that can be found among the population related to the practice of physical exercises. Thus, the role of theoretical knowledge in the PE lesson is highlighted - that of ameliorating the confusion in the field.

Conclusion

In the PE discipline, the practical component is obvious, but theoretical knowledge is the variable that empowers people's motivation by offering them a rational and comprehensible understanding of the physical exercise practice area.

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Body composition of young adolescents from rural and urban area

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Introduction

The obesity rate among school age children has been in constant rise for several decades (WHO, 2023). The lack of physical activity and unhealthy dietexist in both cities and rural areas. The **primary aim** of this research is to compare body composition between the two groups of adolescents - rural and urban.

Method

The sample of 1122 examinees, all elementary school students, aged 10 to 15 (590 boys and 532 girls; 706 urban, and 416 rural area residents) has been subjected to testing and measuring 4 parameters: body mass, body height, Body-Mass-Index (BMI), and body fat percentage. By applying the ANOVA the impact of gender, age, and the place of residence on the average values of all 4 parameters was tested.

Results and discussion

The results of the respondents of this study (both sexes) for the variable of physical nutrition of young adolescents, indicate that obesity is identified in respondents aged 10-12 years in rural areas in 12.3%, and in urban areas in 7.8%. When it comes to slightly older, younger adolescents (age 13-15), in rural areas obesity is expressed as high as 18.9%, while in urban areas it is 10.9%. The results indicate that obesity is more prevalent in younger adolescents aged 13-15 years, which follows a trend in which the level of physical activity decreases for the mentioned age (Cooper et all, 2015), both in this study and in studies aimed at the same or similar research.

Conclusion

Boys and girls resided both in cities and rural areas did not have significantly different average values of all anthropometric variables. The examinees' age and gender proved to have the greatest impact on parameters' average values. Due to the natural biological development, the female examinees had lower body mass, yet higher fat than their male peers. BMI of urban and rural children were not significantly statistical different. 16% of overall sample was classified as overweight and obese.

Keywords: obesity, body weight, body height, body fat, overweight, development factors.

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Dynamics of development of some motor abilities in preschool children

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Introduction

A few authors consider the topic of the development of motor abilities in preschool children. Some of them, such as J. P. Piek et al. (2012), C.E.Cameron et al. (2016), M. Katagiri et al. (2021) indicate that the motor development of the child is a link between other types of development, such as linguisticly, socially and cognitively in the preschool age period. Moreover, this relationship has been derived from J. Piaget & B. Inhelder, (1966) when developing cognitive theory. J. Piaget proves that the development of the child's motor skills creates prerequisites to interact and discover the surrounding world and to develop his cognitive skills through adaptation. Knowing the importance of the motor development of the preschool child, we set out to track the dynamics of changes in some motor abilities in preschool children.

Method

The study included a total of 251 children, including 140 boys and 111 girls from II, III and IV preschool age group (4, 5 and 6 years old) by kindergartens in Sofia. The children underwent a single test through the exercises Dribble with hands and Drible with legs. The exercises have been aprobed and described in articels of Ulrich, D.A., (1985, 2000, 2013 & 2017) и Herrmann C. & al. (2018) and are part of the established complexes of test exercises TGMD and MOBAK. During the research work, we did not observe significant differences in the performance of individual exercises between boys and girls, which are rather a consequence of individual rates of formation and development of children from different age groups studied. We processed the survey data through the statistical software IBM SPSS v.25, Initially we applied variational and subsequently two-factor variance analysis, tracking the influence of signs of age and sex on children's achievements.

Results and discussion

The average achievement of boys in the exercise Dribling with hands at 4 years was 8.68 successful attempts, at 5 years they reached 12.14, and at the age of 6 12.30. In girls, these values were 8.65, 11, 97 and 12.89 successful attempts in 20 sec. Here there is a tendency for a gradual improvement in performance over the three-year period, with girls seeing the greatest improvement between 5 and 6 years of age, with their achievement better than boys' achievement at the end of the period. With regard to the Dribbling with Foot exercise, statistical data processing showed an improvement in performance in both sexes. There are greater differences between the average achievement of boys, and their relative increase is d = 36%, and for the girls d = 16%.

Conclusion

As a result of the study and the subsequent statistical processing of the results, we found a number of **significant** age and gender differences in terms of the ability of preschool children to dribble with a ball, respectively with hands and feet. This allows us to make a number of recommendations for the practice of physical education, such as differentiating by sex the work in terms of perfecting the skill of handling a ball.

Key word: preschool, motor abilities, dribbling, kids

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Distance Education and Physical Education. An example of Greek traditional dance.

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Introduction

The interweaving of distance education and the cognitive subject of Greek traditional dance as part of Physical Education has already attracted research interest (Syntichaki, Giossos, Anastasiades & Koutsouba, 2023). However, is there enough evidence to support the learning of this specific cognitive and kinesthetic skill through this type of education?

Method

A bibliographic review was carried out on the cases applying distance education or its elements in the teaching of Greek traditional dance in databases (Google Scholar, ERIC, Arts & Humanities), in institutional repositories of scientific papers and theses (ΕΚΤ, Πέργαμος, ΙΚΕΕ ΑΠΘ, ΙΚΕΕ ΔΠΘ κ.ά.) based on key words: distance learning and Greek traditional dance, distance learning of Greek traditional dance, dance knowledge and ability.

Results and discussion

It was found that the seven researches that combine the teaching and learning of the kinesthetic skill of Greek traditional dance with distance education with the characteristics and functions that define and delimit it as a specific form of education, do not provide sufficient data on dance ability and performance, the final product of the engaging in dance and the first level in its educational process. They refer either to tools, as an attempt to enrich conventional teaching methods, to websites and learning environments, or to teacher training with only one of them referring to the acquisition of kinesthetic skills without the result being generalizable and with the teaching of the dances essentially taking place at school (Syntichaki, et, al., 2023).

Conclusion

As distance education is in constant development, it is implemented in more and more subjects, it offers an alternative and innovative possibility in the area of kinesthetic activities and Greek traditional dance, which could not be influenced by these new educational developments (Giossos, Mavroidis & Koutsouba, 2008; Syntichaki, et, al., 2023). However, limited attention has been paid to the development, implementation and evaluation of integrated distance learning programs aimed at effective teaching and learning of this subject till now, so future research could be focused on this direction.

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Exploring Holistic Well-being Paradigms Among High-level Armenian Athletes

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Introduction

In elite sports, the balance between physical and mental demands is widely recognized. However, there's a rising awareness of the importance of overall well-being, including social, emotional, spiritual, and intellectual aspects, for athletes' success and fulfillment. This research aims to explore how these different dimensions of well-being relate to performance among Armenian high-level athletes, forming hypotheses to understand these connections better.

Method

The study involved 28 high-level athletes, distinguished by their notable accomplishments in international sports competitions, with an average age of 24.6 years (±5.6) and an average sports experience of 12 years (±4.9). Participants represented a range of sports disciplines, including boxing, judo, wrestling, and karate do. Data collection comprised a questionnaire gathering demographic details such as age, gender, experience, and recent and highest achievements, alongside psychological testing utilizing a methodology developed by the World Health Organization (WHO) and adapted by the St. Petersburg Bekhterev Psychoneurological Research Institute. This assessment encompassed 50 statements reflecting various components of well-being, including physical, social, emotional, spiritual, and intellectual well-being. Statistical analysis included descriptive statistics, correlation analysis, and one-way ANOVA using IBM SPSS software.

Results and discussion

The study findings reveal notable statistics regarding the well-being dimensions among Armenian high-level athletes. Specifically, physical well-being scores averaged 30.7 (±4.9), social well-being 34.7 (±4.7), emotional well-being 30.3 (±4.9), spiritual well-being 34.0 (±5.7), and intellectual well-being 28.4 (±5.4), with an overall well-being score of 158.25 (±20.8). Notably, intellectual well-being scores were relatively lower compared to other dimensions, all of which demonstrated high levels of well-being. Correlation analysis revealed significant positive correlations between athletes' experience and social well-being ($r = .462$, $p = .023$), emotional well-being ($r = .769$, $p < .001$), spiritual well-being ($r = .500$, $p = .013$), and overall well-being ($r = .498$, $p = .013$). Additionally, one-way ANOVA indicated significant differences in well-being scores across experience levels, with emotional, spiritual, intellectual, and overall well-being showing significant variations ($p < .05$).

The findings of this study reveal noteworthy insights into the well-being of Armenian high-level athletes. While athletes demonstrated generally high levels of well-being across most dimensions, intellectual well-being emerged as an area of potential concern, warranting further attention and targeted interventions. These results align with previous research indicating the importance of addressing athletes' holistic well-being to optimize their performance and success (Baniasadi & Salehian, 2021).

Notably, the significant positive correlations between experience and various dimensions of well-being underscore the potential benefits of prolonged engagement in sports activities for athletes' psychological health. These findings echo the literature highlighting the role of sports participation in promoting social connections, emotional resilience, and spiritual fulfillment among athletes (Fadare et al., 2022).

Limitations of the study include the relatively small sample size and the use of self-reported measures, suggesting avenues for future research to explore these relationships in larger and more diverse athlete populations, employing objective assessments where possible. Nonetheless, the findings offer valuable

insights for practitioners and coaches to implement targeted strategies aimed at enhancing athletes' holistic well-being throughout their careers.

Conclusion

This study sheds light on the multidimensional nature of well-being among Armenian high-level athletes, emphasizing the significance of experience in influencing various aspects of well-being. While athletes generally reported high levels of well-being, interventions targeting intellectual well-being may be warranted to ensure comprehensive support. These findings provide valuable insights for practitioners and coaches to develop tailored strategies aimed at promoting athletes' holistic well-being throughout their careers.

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Key words: Elite athletes, Psychological well-being, Sport experience

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Differences in activity level and HR zones of indoor and outdoor training programs

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Strategies aimed at increasing the level of physical activity among the sedentary population should be focused on the promotion of simple activities that can easily be integrated into their lifestyle. Aerobic training is beneficial in improving fitness and can be used as a preventive measure in people who are prone to developing cardiovascular diseases caused by obesity. Apart from the usual aerobic training carried out in the gym, one of the increasingly popular aerobic activities carried out outdoors is Nordic walking. However, the question arises whether Nordic walking can achieve the same level of training load that can be achieved by exercising indoors on trainers. This research was conducted on recreational participants (N=40) that were not included in the training process over the last 5 years and they were randomly assigned to indoor and outdoor training groups. The training program was conducted over 12 weeks with 2 training courses per week (total of 24 training courses). Multivariate analysis of variance was used to determine differences between indoor and outdoor training programs, in each training zone (5 of them). Indoor and outdoor training programs had different results of achieving and time spent in observed training zones ($F=18.83$; $p<0.01$). Results show significant differences of time spent in zone 3, 4 and 5 ($p<0.01$). It can be concluded that indoor training program exerted longer time spent in these three zones (70-100% of HRmax), so consequently this type of training could have a greater impact on changes in aerobic functional abilities. But the benefits of Nordic walking are also multiple and should not be neglected, especially due to the ease of outdoor implementation. Nevertheless, it can be stated that aerobic activities applied to a previously inactive population will certainly contribute to various improvements in terms of changing morphological characteristics and improving cardiorespiratory status.

***Key Words**: sedentary population, physical activity, aerobic training, Nordic walking, training zones*

The effectiveness of CrossFit-trainings in the process of development of speed-strength skills and speed-strength endurance of 10-12-year-old judokas

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Introduction

According to experts, one of the most important issues in sports activities today is the search for effective ways to achieve high results, while ensuring the health of athletes. In this sense, it can be noted that a similar type of sports activity is CrossFit, which is a constantly varied and high-intensity functional training. A number of specialists consider the application of CrossFit to be effective in the process of physical fitness of young judokas.

Method

In the framework of the research, methods of literature study and analysis, pedagogical experiment, pedagogical testing and mathematical statistics were used.

The pedagogical research experiment was held at the "Youth Sports and Cultural Training Center after Vahe Zakaryan" in Hrazdan, in the Republic of Armenia. The study was conducted between September 2021 and June 2022 to reveal the possible effectiveness of CrossFit-trainings on changing the level of speed-strength abilities of 10-12-year-old judokas. Dozens of athletes were included in the experimental and control groups. Their sports experience was on average three years. Before training in September, in February (mid-point test), and after the experiment (in July), both groups underwent physical fitness testing by using

CrossFit-trainings were implemented in the experimental group as the main mean of physical fitness. Workouts were held twice a week, for 15-20 minutes, mainly after the technical-tactical training. CrossFit famous Tabata, AMRAP, 21-15-9 methods with 60-70% intensity were used. During the physical fitness of the control group, only the classical methods and means of physical fitness were used with the same duration and frequency as recommended in the experimental group.

Data analyses were conducted with SPSS 27 (IBM Corp., Armonk, NY, USA). All data were checked for normality using a Shapiro-Wilks test for normality. Data are reported as mean ± standard deviation, and statistical significance was set at $p \leq 0.05$

Results and discussion

Judokas of the experimental group performed 20.5±1.57 repetitions of push-ups during the final testing, thus improving the result recorded before the experiment by 4.6 repetitions, while in the control group this result was 17.4±1.28, and the latter clearly worsened the result recorded in the baseline testing. In the case of the long jump used for speed-strength skill testing, an improvement of the index was observed in both groups. The judokas of the experimental group registered 187.6±6.26, and the athletes of the experimental group 179.1±5.39 ($p < 0.05$). The results of the squats (max reps in 60 sec) in both groups are interesting. During the final testing, the judokas of the experimental group performed an average of 64.1 repetitions of the exercise, improving the initial result by 12 repetitions. In the control group, there was a deterioration of the index. During the baseline testing, they recorded the result of 58.4, and during the final testing, they performed an average of 53.4 repetitions of the exercise.

In the case of the last exercise, burpees in 30 seconds, which was used to evaluate the level of speed-strength endurance of judokas, some improvement of the result was observed in the experimental group, and in the control group, as in the case of the previous exercise, here too, a deterioration of the index was recorded.

As we can see, the athletes of the experimental group improved their performance in all the suggested exercises, which we cannot mention for the control group. This, in turn, speaks about the correct planning of the CrossFit-trainings program.

Conclusion

Comparing the results of baseline, mid-point and final testing of the experimental and control group athletes, it can be stated that CrossFit-trainings clearly have a positive effect on the speed-strength skill and speed-strength endurance of 10-12-year-old judokas.

Key words: judo, motor skills, physical fitness

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Comparative study on high school physical education in Romania and European countries

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Introduction

Regardless of the international context, Romania aligned itself with the developed states regarding education development. He chose the best examples of European education, but simultaneously, he created his own style directly related to national particularities, going in the direction of cultural interference, and the circulation of values from one nation to another.
High school physical education in Romania has points in common, but also different, with that of European countries, constantly looking for solutions both regarding the conduct of classes and the framework in which it takes place, the role of the teacher to freely choose the methods and the most appropriate procedures. The school curriculum is flexible, allowing him to achieve his goals by implementing his strategy, based on the knowledge of the objectives of this essential discipline.

Method

Our study began by examining the information published in specialized literature about physical education lessons in high schools in Romania and other European countries. We have developed a cohesive concept that outlines the organization and structure of these lessons. Additionally, we have conducted a comparative analysis to identify the similarities and differences between the approaches taken in different countries.
Our study aims to identify the best practices in training physical education teachers from a European perspective. We will compare education systems across European countries, create information resources, and support teachers in innovating and exchanging effective practices. Our ultimate goal is to align the content and purpose of physical and sports education in Romania with the standards set by European countries.

Results and discussion

We are able to interpret obtained data as follows:
- out of 24 countries, 17 have compulsory physical education at high school, including Romania, 2 countries (Slovakia and Slovenia) until the age of 15 and 5 countries (Luxembourg, Malta, the Netherlands, Poland and Spain) until the age of 16 years.
- the age of students for the high school cycle in Romania is between 14-18 years, just like in 4 other countries, percentage 16.16% of the 24 countries analyzed, together with 2 other countries whose age is between 12-18 years with a percentage of 8.33%, 1 country aged between 13-16 years with a percentage of 4.16%, 1 country aged between 14-17 years with a percentage of 4.16%, 1 country with age 14-19 (4.16%), 6 countries age 15-18 (25%), 4 countries age 15-19 (16.66%), 2 countries age 16-18 (8 .33%) and 3 countries aged 16-19 (12.5%).
- Romania has 50 minutes/hour allocated to all high school classes (IXth - XIIth) being included in the percentage calculated for each class presented;
- The teaching staff has undergone professional training, and the university offers a 3-year bachelor's and 2-year master's study program that is approved by Romania and 13 other countries, accounting for 54.16% of the total. Additionally, six countries offer 4-year bachelor's degrees, accounting for 25%, one country offers a 4-year bachelor's degree plus 1-year master's, accounting for 4.16%, and four countries offer a 4-year bachelor's degree plus 2-year master's, accounting for 16.66%.

Conclusion

Romania only allocates one hour per week to physical education for students in grades 9-12, which we believe is insufficient to achieve the objectives set by the school curriculum for promoting the physical and mental well-being of students. It is important to note that young people today lead sedentary lives and often lack physical activity. Therefore, it is crucial to provide more time for physical education to ensure the healthy and harmonious development of students.

In Romania, the master's degree is mandatory for those who teach at high schools and many graduates follow this form of study, which is a beneficial thing for Romanian education.

It can be seen from the presentation that in Romania special emphasis is placed on the professional training of future physical education teachers, thus aligning with the majority of European countries. The deficiency of high school education, regarding physical education hours, lies in the number of hours allocated per week.

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Mental smart and behavioral strategies for achieving emotional self-control in elite football referees in Bulgaria

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Introduction

The role of emotional self-control in soccer refereeing is extremely important. Emotions are an important orientation and reaction to events, but at the same time, their high level of intensity can interfere with the management of attention, thinking and behavior. According to G. Ignatov (2021), "At the root of the mistakes that the judges make are not so much their sports and technical knowledge and skills as their mental instability." Our main hypotheses are that there is a relationship between the coping and control of emotions and the level of realization of the referees. Those with higher qualifications and experience will also have better anxiety and anger management skills and strategies.

Method

The research was conducted in the months of February and March 2022 at the beginning of the spring semester of the 2022/2023 season. The obtained results were processed using the statistical software SPSS v.22, applying specific statistical methods.

For the purposes and tasks of the present study, we used two psychological methods:

1. Test for the study of preferred strategies for coping with stress (COPE-1), consisting of 53 items organized into 13 subscales, adapted for the sports environment by M. Georgiev, G. Domuschieva-Rogleva, I. Tosheva (2003) on the Bulgarian version of the Carver, Scheier, Weintraub (1989) scale.
2. Thomas, Murphy & Hardy (1999) Thomas, Murphy & Hardy (1999) Questionnaire for the Study of Achievement Strategies, Bulgarian adaptation by Zhelyazkova-Koinova, Savcheva, Yordanov (2010), through which changes in the level of mental skills during training were tracked and during an official match.

Results and discussion

The results of the study almost completely confirmed our initial hypotheses about the role of emotional self-control in referee. The more highly skilled of them are also better at finding ways, strategies and skills to deal with emotions in different situations.

The emotional control during practice and competition is a characteristic which can be developed through individual experience and the specifics of activity and profession. The results show that the trait increases with the age of the referees. One of the reasons here is social and life experience. In other words, the football referee profession requires specific skills. Every one individual has to observe and react to quick situations and to make decisions in less than a second. Sometimes he or she has to be flexible and react differently in different game episodes, and in this case the professional experience is very important. The conclusion is - the best referees have a higher level of emotional control in all these situations and very well developed skills for movement on the pitch. There are statistically significant differences between age categories – $F=2,31$, $\alpha = 0,01$

Conclusion

The preferred coping strategies of referees with more experience and qualifications are more focused on seeking instrumental support, what actions are needed to deal with a given situation, than on recognizing and controlling emotions. When it comes to pre competition anxiety, they have overcome it and prefer to focus their energy and attention to the game.

Developing most of the skills during a match, be it mental or technical, is an extremely good prerequisite for activity and purposeful actions and quick and accurate handling of various situations.

Key words: football referees, emotional self-control, mental skills, behavioral strategies

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Influence of the morphology on aerobic performance in early adolescents: the training status perspective

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Introduction

Maximal oxygen uptake (VO_{2max}) is considered the best single variable for accessing aerobic physical performance in children, adolescents, and adults. Therefore, study aim was to explore impact of the various morphology indicators on the aerobic performance (i.e., VO_{2max}), and to discover is this relationship influenced from the perspective of the training status in early adolescents.

Method

The sample size consisted of 100 participants (50 boys and 50 girls, age 14.2±0.46 years, height 1.68±0.06 m, weight 59.1±10.3 kg). Progressive 20-meter shuttle run test was used for assessing VO_{2max}, body composition was measured using the bioelectrical impedance method, and anthropometric variables were obtained with the portable Martin's anthropometer. To gather information of overall levels of physical activity, The Fels Physical Activity Questionnaire for children was used.

Results and discussion

Trained participants have showed significantly higher VO_{2max} relative to untrained ($t=9.129$, $p<0.001$). Contrary, body mass index, body fat mass, and body fat percentage were higher in untrained than in trained participants (t: 2.194-2.588, $p\leq0.05$). Backward regression analysis singled out knee diameter and body fat percentage as variables that are the most significant determinants in describing of the VO_{2max} (trained: $r^2=0.379$; untrained: $r^2=0.670$).

Conclusion

From the obtained data we can conclude that higher knee diameter and lower body fat percentage are more desirable in accomplishing higher values od aerobic performance, and we can claim that this relationship is affected by training status, with higher mutual variance in trained early adolescents.

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Examining future Physical Education teachers' dispositions towards classroom instruction

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Introduction

Physical Education Teacher Education (PETE) is an important period of knowledge, skill and attitude development towards effective instruction. During this period, PETE students wiilingness to experiment with different teaching styles will depend both on their previous experiences and their perceived self-efficacy. Relevant literature shows that PETE stucents with higher levels of self-efficacy are more likely to try harder, be more focused and have a more positive mood in the classroom. Based on the above, the aim of this study is to examine PETE students intention to experiment with a variety of teaching styles, in relation with their perceived self efficacy.

Method

108 third-year students (female=50, male=58, 21 - 25 years) from the School of Physical Education and Sport Science of Athens, Greece participated in the study. All participants were conducting their school practicum in primary education and had no previous experience of teaching styles. Participants completed the Greek versions of: (a) PE Teaching Methods Questionnaire (Syrmpas & Digelidis 2014) and (b) Ohio State Teacher Efficacy scale (OSTES; Tsiggilis, 2005). Descriptive (M, SD) and inferential (t-tests, Pearson r correlations) statistical analyses were used with with SPSS 29.0.

Results and discussion

All students showed a higher intention to implement the Guided Discovery (3.72±1.04), Practice (3.56±.89), Convergent Discovery (3.46±1.02), and Self-teaching (3.45±1.07) teaching styles. On the other hand, the Reciprocal (2.72±1.04) and Divergent Production (2.14±1.10) teaching styles received the lowest implementation scores. Significant differences between genders were observed in the Practice (t=-2.03, p=.022, d=-.392) and Convergent Discovery (t=-2.09, p=.020, d=-.403) teaching styles, with female students rating higher the implementation of these two styles. The efficacy for instructional strategies was significantly correlated with the intention to implement the Inclusion (r=.20, p=.042) and Guided Discovery (r=.21, p=.034) teaching styles, the efficacy for student engagement was correlated with the Guided Discovery (r=.21, p=.029) and Convergent Discovery (r=.23, p=.020)teaching styles, whereas the efficacy for classroom managementwas not significantly correlated with any teaching style (p>.05).

Conclusion

The findings demonstrate that all students intended to use a variety of teaching styles, with a preference for student-centred teaching styles. Higher levels of self-efficacy influenced PETE students' intention to use the Inclusion, Guided Discovery, and Convergent Discovery styles. These findings highlight the importance of empowering future teachers' self-efficacy alongside their skills and knowledge of student-centred instructional methods in PETE programs. Future research can explore how specific interventions could enhance the above circumstances in real-world university settings.

Key words: Physical Education Teacher Education, Self-Efficacy, Mosston Spectrum, Intruction

Dietary differences of Croatian high school students on school days compared to non-school days

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Introduction

Dietary habits of adolescents are of great importance in the process of healthy development and combating obesity, which is a problem in Europe. This confirms that the nutritional composition of adolescent diets does not adhere to the dietary guidelines issued for high school age. Although many techniques have been implemented in working with adolescents, for a certain portion, adopting proper nutrition still remains unknown. Therefore, the primary goal of this study is to determine the quality of students' diets in high school, while the secondary goal is to compare fluctuations in the quality and quantity of diet between school days and non-school days (weekend).

Method

The research included 30 first-grade high school students. Students' dietary habits were assessed based on a three-day food diary, two days during the week and one day over the weekend. Analyzed parameters included: daily caloric intake, macronutrient intake (carbohydrates, proteins, and fats), starch, total sugars, fiber, fatty acids (saturated, monounsaturated, polyunsaturated, and trans fatty acids), minerals magnesium and iron, as well as vitamins C and D. Days were compared across two groups: school days during the week versus non-school days during the weekend. The difference between groups was assessed using the non-parametric Mann-Whitney U test ($p < 0.05$).

Results and discussion

The results showed no statistically significant difference in calorie intake during the week compared to the weekend ($z=0.251$, $p=0.802$). Regarding macronutrient intake, there was no statistically significant difference in carbohydrate intake ($z=-1.247$, $p=0.211$), protein intake ($z=-0.749$, $p=0.453$), and fat intake ($z=-0.586$, $p=0.277$) between weekdays and weekend days. However, a difference in dietary quality was observed in the energy distribution of daily macronutrient intake, as there was a statistically significant higher fat intake during non-school days over the weekend ($z=2.506$, $p=0.00604$) and higher carbohydrate intake during school days during the week ($z=2.506$, $p=0.006$). This difference in energy distribution suggests a variation in fast food or homemade food consumption on different days of the week during the school year.

Conclusion

Dietary plans should be designed as a sustainable long-term personal eating pattern, considering that current dietary habits are subject to change as they do not meet the given guidelines. It is essential to communicate and monitor them with the help of teachers, parents, and experts.

Keywords: adolescents, nutritional guidelines, macronutrients and micronutrients, caloric surplus

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A new paradigm of education and professionally significant copetencies of PE teacher

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Introduction

According to a new educational strategy, a modern teacher should not only traditionally transfer definite knowledge and competences, but, also, he should have positive attitude towards innovation, to be required in self-education and have desire to have partnership relation with students. An examination of students of coach faculty found that the main emphasis in their preparedness was subject area knowledge. This study reports data gathered from coach faculty students about their perceptions of the level and extent of professional competence experienced during their preparation.

Method

The questionnaire and self-esteem test (Japaridze, 2005) were used to collect data among the groups of 3rd – 4th course students on coach faculty of Georgian state teaching university of physical education and sport (n=105). First, the students were asked to complete an open ended questionnaire asking them to list their perceptions of PE teacher competencies. In self-esteem test the respondents were to evaluate the professionally valuable skills rating from 1 to 5 according to quality. After examining each form, the data were combined into the academic groups and the average number was calculated.

Results and discussion

The following 10 features were top-rated. The column reporting occurrences refer to how many times this particular competence was observed in the data.

The analysis of the result in the Table 1 shows that the list does not include the professionally valuable features such as: openness to innovations, humanness, and creativity. Moreover, the personality features like targeting at student's success, enthusiasm, classroom management, sense of humor were not mentioned at all: out of 10 skills, relatively high scores were given to skills such as communication, coordinative and didactic skills, speech and reflexivity; prognostic and diagnostic skills, openness to innovation, organizational skills, emotionality and academic skills were below the average.

Conclusion

This study into the quality of preparation coach department graduates using psychological methods (open-ended questionnaire, test) carried our at our university showed that teacher education continues to reflect old paradigm: teacher-textbook-student.

To be equipped for the current social order - that of knowledgeable and professionally competent individual teacher education must produce the teacher equipped with teaching innovations and professionally valuable competencies which development represent the essential component of prepatation.

Contemporary aducational strategy requires a new approach towards the student preparation which will produce an active, creative and open-minded teacher of physical education.

Key words: PE teacher education, pedagogy, professional valuable competences

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Exploring the relationship between muscular endurance and cognitive function in U10 youth soccer players

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Background
Soccer performance is characterised by several qualities, such as physical fitness, technical drills, and cognitive-perceptual abilities. Thus, from childhood, young players are requested to develop all these qualities simultaneously. Soccer has become faster and more focused on sustaining exhausting rhythms during the last decades, and maintaining high levels of physical efficiency throughout the game is considered a fundamental component of success in this discipline. Thus, during the match, time spent thinking about the correct technical gesture execution has consistently decreased, and the cognitive aspect has been as important as the physical aspect since childhood. Therefore, the following study aims to verify if there is a correlation between muscular endurance and short-term memory (STM) in young athletes under nine in an elite society practising soccer.

Methods
This exploratory study involved 41 young soccer players belonging to U10 squads from a sub-elitè club in the metropolitan city of Turin. Firstly, Weight, height, and BMI were registered before starting the testing session. Secondly, young players' speed resistance was evaluated with the 10x5 shuttle run, while physical efficiency was assessed with the Mini Cooper. Finally, the Digit Span test was used to determine the cognitive efficiency of the young players.

Results
The research found no significant correlation between the Digit Span test and the Mini-Cooper test ($r=0.136$; $p=0.397$) and between the Digit Span test and the Shuttle run test ($r= 0.138$; $p= 0.390$). However, there is a negative correlation between the Shuttle run test and the Mini-Cooper test, with a value of $r= -0.395$ and $p <0.011$.

Conclusion
These results indicate no correlation between cognitive-perceptual abilities and endurance in prolonged efforts. Therefore, physical efficiency and resistance to speed are unrelated to the cognitive efficiency of the young player, which must be considered when scouting talented young players. Thus, this outcome may be helpful to for coaches and talent scouts when selecting young soccer players

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Differences In Temporal Relations In Children's Climbing Motor Patterns of And The Relationship With Body Mass Index

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Introduction

Climbing belongs to those biotic motor skills that belong to the area of overcoming obstacles. Climbing implies developed abilities of coordination, balance, strength, endurance, flexibility, but also perception when choosing the direction of movement. More precisely, perceptual and motor adaptations improve coordination and are very significant for improving the level of climbing ability (Orth, Davids & Seifert, 2016), while anticipatory postural adaptations minimize the balance disturbance caused by movement (Testa & Debû, 1997).

Given that a smaller number of studies deal with the analysis of the kinematic parameters of climbing as biotic motor knowledge in children of early and preschool age, the results of this research can contribute to scientific and practical action. Temporal relations can indicate the efficiency of climbing, so the aim of this research is to analyse the influence of temporal relations on the success of mastering the motor structure of climbing in children of early and preschool age, and to determine their connection with the body mass index.

Method

The research was conducted with children of early and preschool age, i.e., a total of 174 children (97 girls and 77 boys). The children attended the regular all-day program of the Rijeka and their average age was 71 months.

The sample of variables consists of time indicators important for mastering the climbing frame: duration of climbing, duration of transition, duration of descent and total duration of task performance. It also includes the morphological status variable: body mass index (kg/m²). All variables of time indicators are expressed in seconds.The climbing activity was recorded with a video camera, and the videos were analysed in the Kinovea 0.9.5 software system. Statistical data processing was carried out using the Statistica 13.5 software package. Basic descriptive parameters were calculated, and the Student's t-test for independent samples and Pearson's correlation coefficient were applied.

Results and discussion

The results showed that older children have a statistically significantly ($p=0.00$) faster climbing phase, descending phase, as well as the total time of mastering the climbing frame. An increase in the body mass index makes more complex motor structures significantly ($p=0.00$) more difficult. No significant difference was found in the transition phase when climbing, and it was found that younger children have a different pattern of movement which is equally efficient.

It is desirable to allow children a certain level of freedom in solving motor challenges because they know how to properly assess their current motor potentials and adapt them to performance requirements, regardless of chronological age. Excessive body mass can significantly endanger the complete motor development of children and prevent the realization of their optimal motor potential in everyday activities. Research studies dealing with the analysis of kinematic parameters of climbing in children of an early and preschool age indicate similar results to this research. Seifert et al. (2020) investigated the dynamics of expert climbing fluency with a hold using an instrumented hold system that measures contact time at each

hold. The aforementioned research points to the importance of certain temporal features as good indicators of climbing fluency. Furthermore, the results indicate that an increase in the body mass index can significantly affect the quality of performance of motor patterns when children climb. As a rule, there is no significant difference between children when performing basic biotic motor skills with regard to the level of nutrition (Fei-Fei and Dong-Mei, 2023), but, as in this research, they appear with more complex motor structures (Petrić, 2022). Previous research confirms that overweight and obese peers have a lower level of basic movement skills than their normal weight peers (Han, Fu, Cobley, Sanders, 2017).

Conclusion

Older children had a statistically significantly faster climbing phase, descending phase as well as the total time to master the climbing frame. A statistically significant difference was not found in the transition phase, and it was determined that younger children have a different and equally efficient pattern of movement in the transition phase. An increase in the body mass index significantly hinders more complex motor structures and negatively affects the development of children's motor potential.

It has been shown that it is desirable to allow children a certain level of freedom in solving motor challenges because they know how to properly assess their current motor potential and adapt it to performance requirements, regardless of chronological age.

Keywords: children, temporal relations, body mass index, climbing, early age

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The harmonization of soul and body as one of the conditions for the acquisition of *arete* against the presocratics and its resonance in the modern world

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Introduction

The paper aims to highlight the values that pre-Socratic thinkers deem necessary for ethical living and the cultivation of a virtuous life.

Method

The qualitative method was applied, particularly the philosophical approach, which relied on deduction and reached conclusions through justification or inference from general principles to specific ones.

Conclusion and discussion

It is argued that, according to pre-Socratic philosophy, the harmonization of the human *psyche* and physical existence may be an additional requirement for the acquisition of *arete*. The paper also explores how this perception resonates in the modern world, particularly in the realm of athletics.

Key words: presocratic philosophy, *arete*, harmonization, soul, body

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Olympic Education in the Greek school system

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Introduction

The objective of the study is to highlight the value of one of the most important Greek cultural assets, the intellectual heritage of the ancient Olympic Games and the dynamic of a more practical application of Olympic Education in the Greek education system as a means for promoting sports and lifelong exercise.

Method

The qualitative method was applied, particularly the philosophical approach, which relied on deduction and reached conclusions through justification or inference from general principles to specific ones.

Conclusion and discussion

This paper investigates the significance of Olympic Education in the Greek school system. The examination begins with the value of the Olympic ideal and extends to the efforts that have been attempted to establish Olympic Education as an institution within the school structures of Greece, pointing out, however, the numerous and dramatic deficiencies documented in the literature.

Key words: Olympic Education, Greek education system, Olympic Games, Olympic ideal

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Teaching Greek Traditional Dance and Life Skills in New High School Physical Education Curricula: A Holistic Approach

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Introduction

Holistic physical education advocates a holistic approach to student health and well-being. Greek traditional dance, as a subject of physical education, can contribute substantially to the holistic development of the student as it contributes to motor, cognitive and emotional learning (Koutsouba, 2014). Moreover, teaching life skills in school physical education is used as a means for the holistic development of students. Life skills refer to a collection of abilities that empower individuals to successfully navigate the demands and complexities of daily life. The purpose of this study was to review Greek traditional dance as a subject in high school physical education, within the recent curriculum, and its connection to the concept of life skills.

Method

A bibliographic review was carried out in English and Greek literature in search engines (Google Scholar, Scopus, ProQuest, ScienceDirect) and institutional repositories of scientific papers and thesis (AEI, Πέργαμος, EKT, etc.) based on keywords: Greek traditional dance, life skills, holistic approach, holistic learning, physical education, school physical education.

Results and discussion

Research indicates that the method of teaching Greek traditional dance should be such as to contribute to the holistic approach. The morphological teaching method of Greek traditional dance is a holistic process in which, the student is treated as a whole person who feels, thinking and acting (Fountzoulas, 2021). Additionally, it was found that the interest in the integration of life skills in school physical education is particularly intense in the last two decades. These skills help students tackle daily challenges within their environment, necessitating thoughtful planning rather than mere participation in sports activities.

Conclusion

In the context of physical education, Greek traditional dance it becomes a gateway to holistic learning, fostering motor, emotional, and cognitive development. Furthermore, physical education serves as a foundation for imparting life skills, while school-based physical education creates an ideal environment for nurturing these skills. This reality also paves the way for fresh research perspectives on Greek traditional dance in the context of life skills.

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The relationship between smartphone addiction and physical activity levels in sports sciences students

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Introduction
Nowadays, with digitalization, people's connection with digital devices is increasing. This may cause them to reduce the time they spend on physical activity. In this context, this research aimed to determine the relationship between smartphone addiction levels and physical activity levels of sports science students.

Method
A total of 400 sports science students, 145 female and 255 male, participated in this research, which was conducted using the relational screening model, via an online survey method. As data collection tools; Personal Information Form, Smartphone Addiction Scale, and International Physical Activity Questionnaires (Short Form) were used. Independent groups t-test, Pearson correlation, and Regression techniques were used in the statistical analysis of the data obtained.

Results and discussion
When the research findings were examined, it was determined that there was a significant difference in smartphone addiction levels according to gender ($p<.05$), while there was no significant difference in physical activity levels ($p>.05$). Negative and low-significant relationships were detected between smartphone addiction and physical activity levels ($p<.05$). Additionally, it was determined that physical activity levels negatively predicted smartphone addiction by 4% ($p<.05$).
Conclusion: As a result, it is thought that increasing physical activity levels will reduce the smartphone addiction of sports science students.

Keywords: Student, Sport Sciences, Smartphone Addiction, Physical Activity.

Proprioceptive exercises for improving coordination and dexterity in fifth-grade students

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Introduction
The objective of this research is to analyze the effectiveness of proprioceptive exercises in improving coordination and dexterity among fifth-grade students.

Methods
This research involved 242 students from five middle schools in Bacău County, with each school consisting of two classes - control and experiment. To improve psychomotricity in physical education lessons for the experimental groups, we created and introduced proprioceptive exercises. A preliminary test was conducted, with intermediate and final testing to follow. We introduced static and dynamic proprioceptive exercises that can improve psychomotricity using equipment such as the BOSU Semisphere, Bobath medicine ball, and balance board. The tests applied were the Illinois Test and the Matorin Test. These tests were applied and introduced in the physical education class.

Results and discussion
The results were processed and presented using descriptive statistical methods. It was proven that by introducing proprioceptive exercises in the school physical education lesson, students manage to improve their dexterity, coordination, and physical performance.

Conclusion
The results of the preliminary test show that there are differences between the experimental and control groups. The proprioceptive exercises introduced in the physical education class for the experimental group are effective increased 21 %. However, we can conclude that the use of proprioceptive exercises in physical education can improve psychomotricity in fifth-grade students.

Keywords: proprioceptive exercises, dexterity and coordination in fifth-grade students

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The Effect of Irrational Performance Belief on Team Resılıence ın Women Football Players

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This research aims to examine the effect of irrational performance belief on team resilience in female football players playing in different leagues in women's football. 270 professional women football players who are actively playing football in 1st, 2nd and 3rd divisions of Turkish Football Federation (TFF) were participated in this study. In addition to the demographic information form, the Irrational Performance Beliefs Inventory was also administred in order to determine the levels of irrational beliefs, and the data on team resilience were collected by the Team Resilience Characteristics inventory in Sports. SPSS program was used to analyze the data. As a result of the findings obtained, it was determined that the irrational performance beliefs of professional female football players did not show a significant difference according to their educational status and league type. There is no significant difference between the averages in the sub-dimension of showing resilience characteristics according to their level of team resilience characteristics, educational status, and league type. It can be said that catastrophizing has a 6% effect on weaknesses shown under pressure, and deprecation has a 10% effect.
To sum up, it was seen that catastrophizing and deprecation, which are sub-dimensions of irrational performance belief, were a decisive element in female football players' weakness under pressure, which was negatively affected by the perceived team resilience towards their teams.

Keywords: Football player, irrational belief, team resilience.

A Review of the Performance and Physiological Effects of Rapid Weight Loss on Athletes

Şeyma Güney

Introduction
Rapid weight loss, a commonly used method among athletes, especially in combatsports to meet weight category restrictions, can lead to complex physiological processes that affect performance. This paper examines the effects of rapid weight loss on athletes' performance and the physiological side effects of this process.

Method
Studies evaluating the effects of rapid weight loss on athletes' performance and physiological status were researched through a literature review. The results of these studies were analyzed in terms of performance measurements and physiological parameters.

Findings
Rapid weight loss can enhance athletes' performance in the short term. A lighter bodyweight can provide advantages in certain sports and increase strength-power ratios. However, these advantages are often temporary, and the long-term effects are more concerning. Loss of water in the body, muscle loss, changes in metabolism, and nutrient deficiencies observed during rapid weight loss can negatively impact athletes' performance.

Conclusion
Athletes need to be cautious when using rapid weight loss methods. Short-term performance enhancement must be balanced with potential risks that may lead to long-term health issues. Preferring healthy and sustainable weight control methods is crucial for maintaining athletes' performance and health.

Taiwan's representation in international sporting events and China's reaction: can sport really mitigate the respective differences or, nowadays, it intensifies the existing political conflict?

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Introduction

On the basis of the central topic of this paper, it will be analyzed whether and to what extent high-level sport is instrumentalized by the political regime of Taiwan, examining both the relative reaction and aspects of a similar instrumentalization by the political establishment of the People's Republic of China, emphasizing to more recent specific incidents of the 21st century. The ultimate goal is to highlight the various purposes, and mainly the consequences, to the national and international sports & political arenas, of this instrumentalization of sport.

Method

This is a study of both sociological and philosophical aspects (Sociology & Philosophy of Sports) based on the analysis of arguments.

Results and discussion

The research focuses on the political entity of Taiwan (known as "Chinese Taipei" in the international field of sports) as well as the People's Republic of China, especially with regard to the last 2 decades, where China has dominated the framework of the Olympic movement and, parallelly, the international political developments make a solution through non-diplomatic means to the «one-China» political problem more probable! This kind of tension which takes place in other, typically under the control of Beijing areas, such as Hong Kong, will also form a small reference point of this study.
Our main intention is to discuss the degree of intervention of political processes in the sports development of Taiwan and to a lesser extent in China. Within this framework, we will see into issues such as a) the diplomacy through sport and the respective propaganda b) the close ties between China and the International Olympic Committee c) the relationship between the internal political "scene" and sport in Taiwan d) the role of specific sports such as baseball.

Conclusion

A fundamental consideration of our study is the belief that given the contemporary international developments both in field of sports and within the scope of the current political situation, this intense “nationalization” of the sports movement will ultimately qualify the rupture over the reconciliation regarding the respective issue. Key words: Chinese Taipei, Sport & Diplomacy.

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Development of the Women's Participation in World Rowing Championships and Olympic Games for 10-year Period

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Introduction

(In 2012, the FISA Council agreed that the International Rowing Federation should take steps towards increasing the numbers of women in rowing and to ultimately reach equality in numbers of participants and number of events at World Championships and Olympics. This study is an attempt to evaluate the development of the women rowing for the period of 10 years - from 2013-2023. The aim is to estimate whether the undertaken steps for increasing the number of female participants at Olympics and World Rowing Championships are achieving the desired goals.)

Method

(Olympic Qualification System for Rowing and athletes' entries and results for World Championships are reviewed, analyzed and evaluated.)

Results and discussion

After analysing the number of participants, the statistics show that the female participation in Olympics and World Rowing Championships for the period of last 10 years has slowly progressed. After the change of the WCH programme in 2018 the percentage of female compared to men participants increases from 37% in 2017 to 44% in 2019 and 2023. And for first time the rowers participating at the Olympics in Tokyo 2021 reached gender equality - 50% female and 50% male participated.

Conclusion

The undertaken steps by the International Rowing Federation towards increasing the number of women in rowing have positive effect on the female participation in Olympics and World Rowing Championships.
There is unbalanced women's participation between the countries. 50% of the women rowers worldwide come from 4 countries (Germany, USA, Great Britain and the Netherlands)
Originating as a male sport, rowing is dominated by men. Despite the conditions created in recent years to increase the number of women participating in World Championships, nowadays the percentage ration of men to women is still in favour of men.)

Key words: Rowing, Women's Participation, Gender Equality at Olympics

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Differences in coaches' attitudes about red-s syndrome as a clinical model that shows the harmful consequences for the health of athletes and the reduction of their sports abilities

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The purpose of this research is to assess the knowledge of coaches about RED-S syndrome and to determine the differences between coaches who know and those who do not know about RED-S. For those reasons, 68 coaches are surveyed in this research on the territory of the Republic of North Macedonia, who are professionally engaged in this profession, in collective and individual sports. One of the main tasks of this research is the positioning of coaches to identify athletes who eat inappropriately and face consequences related to health and sports performance. The results of this research will go in the direction of providing future methods for the education of sports trainers, both in the part of the correct training process and in the part of proper nutrition, as well as in the recognition of the symptoms of the RED-S syndrome. As a conclusion from the obtained results of this scientific research, it will aim to show the lack of educational material specific to RED-S, which is currently not included in the paths for accreditation of sports coaches on the territory of the Republic of North Macedonia.

Key words : RED-S, coaches, nutrition, athletes, performance

Reflections on the use of technology to assist refereeing in soccer

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Introduction

FIFA President Sepp Blater argued in 2010 against goal-line technology in football (Goal Line Technology/GLT) before it was implemented in 2013. In particular, he outlined eight reasons why GLT should not be used in football. In 2012 the philosopher Emily Ryall refuted all these reasons. Given that in 2018 Video Assistant Referee Technology introduced, the purpose of this presentation is to discuss one of Blater's reasons and its rebuttal by Ryall. Specifically, we will argue that although Ryall refutes this reason there are still some issues that have not been refuted and have not yet been answered.

Methodology

It is a philosophical study based on the analysis of arguments.

Results and discussion

One of Blater's positions was «If GLT were to be introduced then it would 'open the door' to calls for other officiating technology». Ryall considers this to be the slippery slope argument and as such rejects it as a logical fallacy. The slippery slope argument although a logical fallacy has been applied to many philosophical and ethical issues such as utilitarianism. Similarly, if it aims to control a situation it can be used.

Conclusion

Soccer has 17 laws by which the game is played. Laws. These laws distinguish between rules and standards. An example of a rule is that "a goal is scored when the whole of the ball passes over the goal line". An example of a standard is that of "unsporting behaviour". Technologies that help referees to judge rules such as GLT promote fair play and justice. Technologies that help referees to judge standards do not have the sole consequence of improving the level of justice. Does that mean that although Blater's position is a fallacy, is plausible?

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Olympic Games and Technology in a Changing and Developing World

Gamze Elif Adiloğulları, Zülbiye Kaçay

The Ancient Olympic Games, which were organized locally and held in a festival atmosphere, attributed to the god Zeus in the ancient city of Olympia, became universal with the 1896 modern Olympic Games. These games, which are followed the most by people all over the world and for which the world's best athletes have been preparing for years to be there, continue to exist by increasing their impact and power. The aim of this study was to reveal what impact technological developments have had on the Olympic Games from past to present and how they may affect the games in the future. For this purpose, the current situation has been tried to be revealed by conducting a literature review on the relevant subject. The findings within the scope of the study show that international live broadcast was made for the first time in the Winter Olympics held in Italy in 1956, running tracks were arranged in accordance with the technology in Mexico in 1968, the photo-finish camera system was introduced in 1976, and sports clothing and other equipment began to be produced with aerodynamic features. In addition, with the use of the internet and its increased prevalence since the 1990s, the application of technological information to the sports environment has accelerated.

Today, it can be said that virtual reality applications and especially studies on artificial intelligence have started, but the impact of artificial intelligence studies on the Olympic Games is not yet very intense.

However, it is possible to say that in the future, with the development of technologies such as artificial intelligence and virtual reality, personalized virtual assistants can be created for athletes, artificial intelligence tools that constantly examine the mental and physical state of the athlete can be developed, detailed analyzes of athlete performance in competitions and training can be made, and training environments can be designed with virtual reality. Therefore, in the near future, new technologies can be used in many sports organizations and the organizational structure can be strengthened and developed in the Olympic Games without damaging the spirit of Olympism, as has been the case from past to present.

Key Words: Olympic Games, Technology, World, Change

Differences in preschool educators' awareness and understanding of physical activity

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Introduction

Limited awareness and understanding of physical activity among preschool educators highlight the need for further investigation. Hence, the hypothesis was formulated to explore significant differences in understanding of physical activity based on their level of awareness, H1: There are significant differences in understanding of physical activity based on their level of awareness about the need to engage in physical activities.

Method

To determine differences in awareness and understanding of physical activity among preschool educators, a sample of 246 participants was surveyed. The participants had an average chronological age of 36.8 ± 10.8 years, ranging from 19 to 64 years. Of the surveyed educators, 93.90% (231) were employed, with 61.38% (151) having 3 or more years of work experience. The sample was evenly distributed across all counties of the Republic of Croatia. Data were collected using an online questionnaire comprising 43 items, administered from March 27th to April 3rd, 2023. For this study, 8 items were analyzed. Participants rated their agreement with each statement on a 5-point Likert scale (1=not at all, 5=exceptionally). Descriptive statistical parameters, including arithmetic mean, standard deviation, minimum and maximum results, skewness and kurtosis, were calculated for all variables. Canonical discriminant analysis was employed to determine significant differences among the three groups based on their level of awareness about the need to engage in physical activities in general in life.

Results and discussion

To determine significant differences in awareness and understanding of physical activity among three groups of preschool educators, canonical discriminant analysis was conducted. The groups were categorized based on their level of awareness about the need to engage in physical activities in general in life: Group 1 (assessment of awareness level < 4), Group 2 (assessment of awareness level = 4), and Group 3 (assessment of awareness level = 5). The analysis revealed one discrimination function that significantly differentiated the three groups (CANR=0.44, p=0.000). This function was primarily influenced by the educators' ability to discuss the impact of physical exercise on the health of preschool children and on growth and development, their interest in non-kindergarten sports activities of preschool children, and the assessment of the importance of the quality of children's free time content as a factor in upbringing and education. These results suggest that educators' understanding of physical activity varies significantly based on their level of awareness about the need to engage in physical activities in general in life.

Conclusion

This research identifies significant differences in preschool educators' understanding of physical activity based on their level of awareness about the need to engage in physical activities. The results underscore the necessity of targeted and continuous professional development programs to enhance educators' awareness, practices, and knowledge, thereby promoting effective physical activity in early childhood educational settings.

Key words educators, physical activity, experience, differences

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Differences in the precision of performance of the technical element serve in volleyball players of different ages

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Introduction

Volleyball, during its development, has been improved and perfected through all its segments. The modern way of playing requires a perfect mastery of the elements of technique (the most rational and precise execution of movements in order to solve certain tasks). In order for volleyball players to reach the stage of providing maximum results, they must go through a certain transformational processes. The dominant place in volleyball is occupied by specific motor skills, that is, the technique that the player needs to do before contact with the ball, as well as in the game itself.

Method

The study involved 60 male respondents, divided into two age groups. The first group consisted of respondents aged 15 to 17 years, and the second group of respondents aged 17 and up to 19 years. The measurements were conducted in the club "VGSK" in Veliko Gradiste. A battery of tests was used that were designed to determine the motor ability, the precision of performing the technical element serve: 1) Precision of tactical serving - School service 2) Precision of tactical serving - Tennis service 3) Precision of strong serving. The SPSS program (IBM SPSS Statistics 23) was used for detailed statistical analysis. The arithmetic mean (Mean) and standard deviation (Std.) Are shown for the dependent variable included in this study, and the range of minimum and maximum. The difference between the arithmetic means of the two groups (older and younger) was determined using a parametric test (T - test for independent samples).

Results and discussion

Previous research has mainly refered the effects of training on the accuracy of volleyball (Krističević, Madić & Krakan, 2016, Delektrat & Martinez, 2014). This research provides new information on the differences between younger and older categories.

The obtained data indicate that there is a statistically significant difference between the older and younger groups of respondents when it comes to all three tests. Test results Precision of tactical serving - School service (t = -2.483, df = 50.711 p <, 02 *). Precision of tactical serving - Tennis service (t = -3.941, df = 58.00 p <.00 **). Precision of strong serving (t = -8.111, df = 58.00 p <.00 *). It is also noticed that the biggest difference is between the older (M = 17.23, SD = 2.48, SEM = .41) and younger group (M = 15.66, SD = 2.71, SEM = .49) of the respondents in relation to the results of the strong serving precision test.

Conclusion

The main goal of this research was to determine a statistically significant difference in the precision of performing the technical element of the serve between younger and older volleyball players. It was confirmed that the volleyball players of the older age group were more successful in the applied tests for precision.

Key words: technique, cadets, juniors.

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The role of gait analysis of elementary school children

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Introduction

Gait analysis represents a key aspect in understanding the motor development and health of primary school children. Gait is a complex motor activity that involves the coordination of muscles, joints, and the nervous system, and changes in it can be indicative of various physical and neurological conditions. In the educational context, kinesiologists play an important role in observing and identifying possible irregularities in children's gait development. Health difficulties, such as flat feet, scoliosis, or muscle imbalances, are common among primary school children and can significantly affect the quality of their gait. Early symptoms of these conditions can often manifest through changes in walking, including limping, asymmetrical gait, or frequent falls, which are indicators of possible health problems. Kinesiologists are often the first to notice these changes due to their regular interaction with children through various physical activities. Training these educators in the basics of gait analysis can provide vital information for early problem detection. With this knowledge, a kinesiologist can adjust physical activities to be safer and more beneficial for all students, especially those with special needs. Understanding the significance and methodology of gait analysis enables kinesiologists to work preventively and interactively, promoting healthy physical development of every child. Also, timely recognition and addressing of possible health difficulties allow for better communication with parents and health experts, encouraging a multidisciplinary approach that is crucial for holistic health and development of students .

Methods

In physical education classes, the most accessible and simplest method of visualization available to teachers involves direct observation by the teacher and the use of simple 2D recording methods with standard digital cameras. Visual gait analysis is a key technique that allows for the assessment of motor abilities and the needs of children without the use of complex diagnostic equipment. Besides being accessible, this method is fast and can be applied in various environments. The method includes four basic actions: observing the gait from multiple directions, assessing the pace and rhythm of the walk, evaluating body posture, and analyzing foot contact with the ground

Results and discussion

Visual observation of a child gait in different directions (forward/backward, left/right) allows for an assessment of symmetry and balance, as well as the detection of any asymmetrical movements or limping. The pace of walking, rhythm/cadence, length and width of steps, individual phases of the gait, and their consistency provide insight into the coordination and functional ability of the child (4). Changes in these factors can indicate underlying physical or neurological challenges. Analyzing how a child holds their body while walking, including the position of the head, shoulders, arms, and pelvis, can identify potential postural abnormalities or muscular imbalances (9). Detailed observation of how the foot interacts with the ground can reveal irregularities that may indicate a need for changes in footwear, orthopedic insoles, physiotherapy, or medical intervention (5, 6, 7). Using 2D technology or recording with digital cameras further helps in a detailed analysis and evaluation of the effects of interventions or treatments by comparing recordings over time. Reviewing slowed and enlarged recordings makes it possible to more precisely assess the kinematics of walking. Gait analysis is particularly useful in primary schools where kinesiologists can notice and document early signs of motor difficulties. This information is useful for parents and medical experts in case further diagnostic procedures are needed (1).

Conclusion

Visual gait analysis is a non-invasive, informative, and easily applicable method that provides valuable insights into children's motor development. As a primary diagnostic technique, it enables quick identification of potential problems that could affect children's physical and neurological health. Understanding and applying this technique by professionals and educators plays a crucial role in supporting healthy development in children.

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Awareness Analysis of Benefits from Sports and Physical Activities

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The generally accepted theory is that sports have a positive impact on people's physical and mental health. In addition to long-term health preservation, today, regular and systematic physical activity increasingly targets the development of cognitive and intellectual abilities. Also, through the competitive spirit and the overall structure of sports, the focus is on developing interpersonal, leadership, and life skills, as well as strategic thinking, effective decision-making, better focus, and memory. With daily physical activity, a person achieves stress relief, inner peace, reduction of anxiety and depression, preventive and long-term effects on their health, and through communication and collaboration, improves teamwork and leadership. According to Bailey et al. (2015), there is an evident relationship between sports, physical activity, and human capital development, in terms of physical and mental health, social human capital, intellectual, and financial capital. Therefore, awareness of sports and physical activities' benefits should be at its highest level for every nation. Policymakers, national agencies, teachers and parents should all be aware of the positive impact that sports have on the human body and achievement of well-being.
The purpose of this paper is to analyze Macedonian population's awareness of the benefits of regular physical activities and sports, as part of the Activity Coopsports-Gr8tness of Sport, funded by the European Union, under the Civil Resilience Mechanism, implemented during the period July 2023 to February, 2024. The empirical research was done by collecting primary data from 198 surveys, using Microsoft Office Forms. The data is analyzed by using descriptive statistics and multiple regression analysis. The research intends to fill in a research gap related to these topic, in order to propose further recommendations for improving or offering new initiatives in the area of school sport, physical education, sport recreation etc.
Findings reveal that Macedonian population on average partially with a tendency towards full agreement of the benefits that sports, and physical activity provide to them. This should be taken as an imperative for sportsmen, coaches, teachers, authorities and policymakers in terms of undertaking many sport initiatives and physically educating children and youth for their own benefit, and finally for societal and economics improvement.

Keywords: awareness, sports, physical activities, benefits.

Awareness of women athletes about regularity of the menstrual cycle and it's impact on their performance

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The effect of the menstrual cycle on physical performance is being increasingly recognised as a key consideration for women's sport and a critical field for further research. The purpose of this research is to assess the awareness of the regularity of the menstrual cycle and its influence on sports woman performance. This study examine acquired performance, which consistently report that female athletes do not identify their performance as relatively variable depending on the different phases of the menstrual cycle. Overall sports performance can be influenced by acquired (subjective) consequences, physical factors and nutritional needs. Hence, to optimize performance and training management of eumenorrheic female athletes, there is a need for further research to quantify the influence of menstrual cycle phase on acquired and physical performance and to identify factors that influence variability in objective sports performance.

Keywords: Sport, Menstrual cycle, Nutrition, Performance

Warm-up Approach in Physical Education Classes

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Warming-up is essential element of every physical activity. Our opinion is that the intermission between lessons is sufficient to ensure the base part of the warm-up, so when the students enter in the gym it is going to be time for the specific part of the warm-up. We included 14 girls and 16 boys 10-year-old from private primary school "D-r Petar Beron" in Sofia, Bulgaria. We conducted three measures in the gym – one before the class, one after "traditional" warm-up, and one after specific warm-up. We measured body temperature and heart rate. Our findings show that specific warm-up leads to higher body temperature (Girls: 36,2: Boys: 36,2) and heart rate (Girls: 141,6: Boys: 152,6) relative to basic warm-up (Girls: body temperature 35,7: heart rate 117,6: Boys body temperature 35,9: heart rate 117). There is no statistically significant difference between body temperature (Girls: 35,8: Boys:36,1) and heart rate (Girls: 113,5: Boys: 125,2) before the lesson and after the basic warm-up. This in our opinion means that intermissions of the lessons are relatively sufficient to ensure the basic part of the warm-up. More investigations are needed with better apparatus and methods.

Key Words: base warm-up, specific warm-up, traditional warm-up, heart rate, body temperature

Technology and Conflict Resolution in Sports: An Analysis of the Role of Video Review and VAR

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Introduction

The use of technology in sports has become increasingly prevalent, with video review and VAR systems being implemented to aid in decision-making and conflict resolution on the field. In this study, we aim to investigate the effectiveness of video review and VAR in resolving conflicts during sports events and to test the hypotheses that these technologies lead to more accurate decision-making and reduced instances of dispute among players and officials.

The literature reviewed suggests that the implementation of video review and VAR systems in sports has led to more accurate decision-making and significantly reduced instances of disputes among players and officials. Importantly, several studies have underscored the overwhelmingly positive impact of these technologies on conflict resolution in sports, painting a promising and optimistic picture of their potential to enhance fair play and sportsmanship on the field.

Method

This study systematically reviewed academic papers, official sports regulations, and news articles to obtain comprehensive information on the role of video review and VAR in conflict resolution in sports. The selection criteria included relevance to the topic, publication date (from the introduction of VAR until 2023), and source credibility (peer-reviewed journals, official sports governing bodies, and reputable news sources). In addition, qualitative data analysis was conducted to identify key themes and insights related to the use of technology in sports conflict resolution. The methods used aimed to understand the impact and effectiveness of video review and VAR in minimizing conflicts and controversies in sports. This multifaceted study took a mixed-methods approach, combining quantitative analysis of game data with qualitative stakeholder assessments to provide a comprehensive understanding of the impact of VAR on soccer.

The research covers the period from the introduction of Var until 2023. It focuses on some top European leagues.

Results and discussion

Implementing Video Assistant Referee technology in football has significantly altered conflict resolution mechanisms during games. Moreover, related research highlights that including VAR can result in extended game duration and may impose additional physical strain on players, particularly during critical knockout stages, indicating a complexity in assessing its overall impact (Lacković & Franjković, 2023).

Consistent with other technological shifts in sports, VAR's deployment navigates a delicate balance between accuracy and football's innate dynamics, warranting ongoing analysis to optimize its application (Wilson, 2008).

To summarize, the advent of VAR has resolved certain conflicts and introduced fresh challenges that require consideration.

Conclusion

Integrating technologies such as video review and VAR has significantly impacted conflict resolution in sports. The ability to review controversial decisions has led to increased accuracy and fairness in sporting events. As technology advances, its impact on conflict resolution in sports will only grow. However, it is

essential to continually evaluate and improve the use of technology in sports to ensure that it serves its intended purpose of achieving fair and equitable results. With careful thought and adaptation, the combination of technology and conflict resolution in sports can continue to enhance the integrity and excitement of the sport for athletes and fans alike.

Keywords: VAR, Conflict resolution, Soccer, Technology in sports.

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Parental beliefs concerning the factors that shape the coaching climate in youth sport. A qualitative study.

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Introduction
In youth sports the roles of parents is pivotal in fostering a coaching climate conducive to the growth and development of young athletes. Particularly in the formative ages of 10-12 years, parents' influence is extending beyond mere support to significantly shaping the experiences of young athletes, both in positive and negative ways (Burke et al., 2021). Thus, understanding parental beliefs and their impact on young athletes' sport experiences becomes paramount. The aim of this study was to explore parents' beliefs concerning the factors that shape in the creation of a climate of positive growth and development within their children's team. The research was contextualized within the framework of a parent training program aimed at fostering a positive youth development in sport.

Method
Fourteen parents (male=9, female=5) of K13 athletes aged 10-12 of the same sport club participated in the study. Two focus group interviews were conducted, lasting one hour and 45 minutes each, during which all participants shared their beliefs and perceptions concerning the factors that influence the coaching climate in youth sport. Data were analyzed using thematic analysis with NVIVO. The study adhered to the COREQ criteria to ensure data trustworthiness, encompassing credibility, transferability, dependability, and confirmability, thus enhancing the rigor of the research process (Booth et al., 2014).

Results and discussion
Four main themes were produced from data analysis:
1. Holistic value of youth sport engagement: Parents underscored the significance of sport involvement in the overall development of their children.
2. Information regulation and management: Parents expressed concerns in regard to the pace and the vast volume of information that is accessible to young athletes through the internet.
3. Socially determined sport club choices: Parents tended to choose their children's sports club based on their beliefs about fostering proper personal and social development .
4. Adult influence on the creation of the sport coaching climate: Parents attributed the creation and maintenance of a positive coaching climate to adult role models in sport, (e.g., coaches, referees, tournament organizers and soccer federations).

Conclusion
Parents clearly recognize their supportive and formative roles in their children's sporting experiences. They associate their own and their children's satisfaction with the creation of a positive youth development climate, emphasizing the cultivation of individual and social skills such as managing defeat, promoting equal participation, and fostering fairness, equality, and respect. However, concerns remain regarding the value of youth tournaments as well as the unilateral focus placed by sport coaches and clubs on sport-as-competition. The above issues, highlight areas for future improvement within the youth sports ecosystem.

Key words: parental beliefs, youth sports, football, positive development, parental role,

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Physical Activity and Well-Being of Students during the educational process in Ukraine

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Introduction

The purpose of this study was to determine the effectiveness of special physical educational programs, designed for students enrolled in educational process.
Mein task of this study was to determine some characteristics that indicate general tendency inprogression some fitness features in students during their studies at the universities.

Method

This study involved 124 students of Kyiv universities. The methods of pedagogical observation, interviews and questionnaires, medical examination of students and statistical processing of the obtained data were used during this study.

Results and discussion

The study was conducted from March 2021 till March 2022. All the students, selected for this research, were divided into two equivalent groups on the principle of affinity their age, sex and anthropometric data. All the students (respondents) during entire observation period recorded changes in their well-being that occurred under the influence of intense educational stress.
For the students of the first (main) group were used special training programs based on the principles of correction their motor activity, nutrition and regulation of the load on their central nervous system. Students of the second (control) group did not use those programs.
Physiological conditions and well-being of the students were evaluated according to the special scale in points depending on the frequency, level of intensity and duration of well-being changes.

Conclusion

Summarizing the results of the study, it was found that the indicators of well-being and physiological condition of the students in the main group were better than those of the students in the control group. These results indicated that the special training programs, used for the students of the main group, helped to improve their will-being and functional state of their body.

Key words: health; well-being; educational process; training programs.

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Projections of audiomotor cognition in interpretive culture of children playing in an orchestra.

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Introduction

The references between playing a musical instrument and fine motor skills are manifested as synergy in the cognitive activity of sound and motor reactivity when performing a musical piece. This paper focuses on sensory psychomotor synchronization of children playing in an orchestra and performing choreography. The dance is understood as part of the musical performing activity. Attention is turned to flexible intonation as a level of verbalization of the musical phrase and motor experience of the sound structure in the process of ensemble playing. The research framework includes the analysis of the interaction between conative, affective and cognitive spheres of individual development, designed in the levels of collaborative creative activity.

Method

The level of coordination and equilibrium stability of 24 children - from 6 to 12 years old, playing in an orchestra, compared to children who play in an orchestra, but do not participate in the dance, are studied. The methods used are observation, description, discursive analysis and motor testing for coordination and equilibrium stability.

Results and discussion

It is proved that metrorhythmic synchronous movements improve coordination and concentration. Movement plays the role of a motivating component in will-intellectual activity and improves musical expression through motor experience of the sound structure.

Conclusion

Synchronizing dance movements with playing a musical instrument improves coordination, verbalizes musical expression through the spatial positioning of the phrase. Creates an environment of ensemble artistic expression and supports the intellectual and emotional development of the child

Key words: audiomotor, cognition, music, equilibrium stability

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Determination of differences in anthropometric characteristics in football players according to playing position

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Introduction
Current research indicates that anthropometric characteristics and body composition can influence the selection of athletes in many sports. In order to be successful in a certain sports discipline, it is very important that the athlete has an appropriate morphological-functional profile. The trend in modern football is increasingly focused on improvement on the performance of all players playing in different positions which will allow more movement for both attacking and defensive players.

Methods
The aim of the study was to determine differences in the anthropometric characteristics of football players, according to the playing position. The sample of respondents was drawn from a population of football players from the football club Silex between the ages of 17 and 30. 50 football players are included in the research. The sample is also classified according to the playing positions: defensive players - 15, players who play in the midfield - 15 and players who play in the attack - 15. A total of 18 variables were applied to assess the anthropometric characteristics. Within the statistical analysis, basic descriptive statistics and multivariate and univariate analysis of variance, as well as post-hoc analysis, were applied.

Results and discussion
Based on the obtained results, it can be concluded that football players who play in defense are on average taller, heavier, have a larger diameter of the hand and elbow joint, larger volumes of the upper arm, forearm, upper knee, larger values of the skin folds of the upper arm, forearm, subscapular, thigh and lower leg in relation to players playing in midfield and attack. In the anthropometric measures mentioned above, no statistically significant differences were determined between football players who play in the midfield and attack. Football players who play in the midfield have statistically significantly higher ankle diameter values compared to players who play in defense and attack. Football players who play in the attack have statistically significantly lower values of the anthropometric measure of lower leg circumference compared to players who play in the defense and midfield.

Conclusion
The obtained results could be used as normative morphological-functional indicators for regular sports examinations of football players in the Republic of Macedonia, and can also be used as a template for comparing morphological-functional data of players at a similar level, from different countries

Key words: soccer, anthropometry, playing positions

Olympic water polo champion in Tokyo and the body composition of their players compared to other participants

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Introduction
The Olympic Games always offer great interest when it comes to water polo. Actually, many selections have an approximate quality and always details decide who will win. That is why the authors wanted to check the body composition and anthropometric characteristics before the tournament of players of the two national teams, Serbia and Montenegro, which always have the highest ambitions at major competitions. The purpose of this research was to determine the differences in body composition and anthropometric characteristics between the water polo players of the national team of Serbia, which was the Olympic champion in Tokyo 2021, and Montenegro, which was in eighth place.

Method
Body mass index, fat percentage and muscle mass (body composition variables) were evaluated by Bioelectric Impedance type MC-980 and body height, body weight, triceps skinfold, biceps skinfold, skinfold of the back, abdominal skinfold, upper leg skinfold, lower leg skinfold (other anthropometric characteristics) were evaluated by an anthropometer and caliper.

Results and discussion
The T-test showed no statistically significant difference in the variables that determined body composition and anthropometric characteristics between the players of the two selections. Some variables had a quantitatively higher level in Serbian water polo players, some in Montenegrin water polo players, but not all these differences were statistically significant. The fat percentage, which is a disruptive factor in athletes, was lower in Montenegrin water polo players compared to Serbian players, but not statistically significant.

Conclusion
Although Serbia won the gold medal at the Olympic Games in Tokyo, and Montenegro was in eighth place, it can be stated that there were no statistically significant differences in body composition variables and anthropometric characteristics between water polo players from Serbia and Montenegro. It means that some other abilities influenced the achievement of results at the Tokyo Olympics in water polo, for example tactical, psychological, technical... which is to be shown by some other research.

Key words: water polo, Olympic Games, body composition, anthropometric characteristics
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"Fem Dansa" A multi-agency project to enhance the implementation of performing arts and dance into secondary education curriculum through Physical Education lessons

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Introduction

This is a specific dance project intervention within secondary education, carried out from 2015 across central counties in Catalonia. The project has been implementing over 7 years as part of multi-agency initiative for students aged 14 to 16 years old. The main objectives of the initiative are: to ensure the delivery of quality Physical Education lessons, providing an educational setting based on student's social interaction as well as acknowledging the value of performing arts and Dance as tools for improving gender equality and health quality standards among the participants.

Method

Is a part of a qualitative study based on testimonials. At the end of the project, testimonials recorded in diaries are grouped into three categories: negative outcomes, positive outcomes and improvements to apply. The analysis of the categories gives further dimensional outcomes with specific sub categories according to several participants profiles (female participants, male participants, scholars with social inclusion difficulties and leader students with lack of empathy). The current study is based in one of the fourteen participating schools with a total of 96 students (42 girls and 56 boys) taking part in the study.

Results and discussion

Although initial reticence from certain students and teachers was observed, the participants have been benefiting as the intervention have met general dance and Physical Education objectives and competencies, as well as improving emotional intelligence, personal and social values. It has been observed that the implicit will to empower female participants does not attempt male benefits, yet give them a wider sense of social empathy towards others, as well as accepting own limits and capacities. In Catalonia region there are other projects that uses dance as a chore subject for Physical Education delivery or Physical Activity improvement. In a curricular setting or as a part of an educational tool, we can find "Dansa ara" in primary education. "Versió Ciutat Dansa" is another project led by professional dancers and aimed to improve dance and performing arts knowledge among secondary education students that links schools with social entities, public facilities and public spaces. As a part of a leisure education program during holiday time, we can find "Creix amb dansa" which links, not only dance and performing arts, but the world of healths into a singular week project that ends with the creation of a whole dance spectacle. However, none of them are directly related to Physical Education Curriculum guidelines.

Conclusion

Having a dance project with students in educational settings is necessary and enriching way not only to improve Physical Education but to enlarge scholars Physical Activity options. Institutional projects led by multi-agency partners are sometimes, the only way to provide quality dance and performing arts to schools as teachers do not usually have enough training to do so by themselves. The unique atmosphere resulting of creating a dance show help students in achieving many sets of learnings as well as improving group social relationships. Although, and incipient training with PE teachers has started, few education professionals have the opportunity to carry on with the dance instruction within the school system tuition.

Therefore, dance and performing arts are only delivered as a unique and yearly project for small number of weeks and for a limited number of students. As per future improvements and in order to face the structural limitations, there is a need of strengthen the project by planning a greater number of lessons in Physical education settings from 7 to at least 10, including dance associations such as *ApDC* (Catalan association for dancers) and reaching agreements with regional government in charge of educational guidelines to support the generation of this training programs for Physical Education teachers

Key words: Quality Physical Education (QPE), performing arts, dance, gender equality, emotional intelligence, personal values and social values, social transformation pedagogy.

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Gender differences in running gait utilising Prosense sensors with the Smart4Fit app

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Introduction

Step length and cadence are among the most important biomechanical variables of running, and they can vary according to gender or running speed (Rajkumar, 2020). So far, very few studies have examined gender differences in running gait using wearables. Therefore, the aim of this study was to assess gender differences in step length and cadence while running at different treadmill speeds using two accelerometers.

Method

The study involved one male (n=10) and one female (n=10) group of recreational runners who ran on the treadmill according to a predetermined protocol while wearing two Prosense accelerometer sensors on each leg. The protocol included treadmill activities lasting 10 minutes: a 3-minute warm-up (at 8km/h), followed by one minute of running at speeds of 8, 10, 12, and 14 km/h (used for analysis), and 3 minutes of cool down (8 km/h). The analysis included the average length of individual steps (step length) and the number of steps per minute (cadence) for each speed. Data was extracted using the previously established MotionXrays methodology (Aleksić et al., 2023).

Results and discussion

Two-way between-within ANOVA with Bonferroni posthoc showed a significant increase in both step length and cadence with the increase of the running speed ($p<0.001$), while only gender differences were presented in the 14km/h running speed. In particular, males had greater step length ($p=0.046$), while females had greater cadence ($p=0.038$). This can be explained by the difference in average height between the tested females and males (12.5cm), which represents a significant factor in running biomechanics.

Conclusion

The results obtained in this research highlight the importance of different approaches when teaching and practicing running techniques in male and female recreational runners, especially when running faster.

Keywords: Wearables, treadmill, accelerometer, stride, cadence

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Exploring the Interplay of Perceived Coach Behaviours, Team Resilience, Perceived Available Support, and Collective Efficacy in Young Team Athletes

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In this study, the relationship between perceived coach behaviours, team resilience, perceived available support, and collective efficacy was examined. A total of 285 team sport athletes (99 females, 201 males; mean age 18.75) participated in the study, including football (n=66), basketball (n=61), volleyball (n=69), and handball (n=104) players. 7% of the participants reported competing at the national team level. According to the data collected from the athletes, their sports experience averaged 6.22 (3.77) years, with an average of 3.64 (1.37) days of weekly training and 2.29 (1.07) hours of daily training. Additionally, athletes reported working with the same coach for an average of 3.21 (2.50) years and being in the current team for 3.00 (2.40) years. The hypothetical model was analysed with structural equation modelling.
The analysis results revealed a positive relationship between displaying resilient characteristics, observational collective efficacy, and perceived supportive behaviours ($r = 0.702$, $p < 0.01$; $r = 0.525$, $p < 0.01$). However, a negative relationship was observed between displaying resilient characteristics and perceived controlling behaviours ($r = -0.343$, $p < 0.01$). Conversely, vulnerabilities displayed under pressure showed negative relationships with observational collective efficacy and perceived supportive behaviours ($r = -0.602$, $p < 0.01$; $r = -0.449$, $p < 0.01$). These findings suggest that as athletes' perceived social support increases, they are more likely to perceive coach behaviours as supportive and experience an increase in collective efficacy, leading to enhanced team resilience.

Sources of teacher self-efficacy for PETE students

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Introduction

Research on the development of Teaching Self-Efficacy (TSE) in preservice teachers has primarily focused on four hypothesized sources such as mastery experiences, vicarious experiences, verbal persuasion from teacher educators, and verbal persuasion from cooperating teachers (Clark & Newberry, 2019). However other studies with schoolteachers demonstrated that personality characteristics, skills, motivation and university training were additional sources of self-efficacy (SE), indicating that different sources of SE can emerge from different contexts (Clark & Newberry, 2019; Seung et al., 2019). The purpose of present study was to examine if there any additional sources of TSE for PETE students related to their experiences during the practicum.

Method

Thirteen PETE students participated in the study. A semi-structured interview was conducted about the sources and factors that influenced their TSE. Fourteen questions were included in the interview and the answers were coded and categorized in themes.

Results and discussion

Apart from the hypothesized sources, the results of the thematic analysis indicated additional sources of TSE such as nonverbal persuasion, academic training, teaching barriers, and personality characteristics. PETE students evaluated their TSE at the end of the practicum in terms of the skills acquired, such as understanding students' needs, implementing appropriate plans, improving theoretical knowledge, coping with unfamiliar subjects and their understanding of adolescents' psychology and motivation.

Conclusion

Methods that increase students' motivation and lesson satisfaction, the improvement of communication skills and extended microteaching sessions are some elements that should be included in the practicum of PE students for increased levels of SE.

Key words: physical education, teacher's self-efficacy, sources

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Title Research of several spatiotemporal parameters with high-tech and normal running shoes for athletes with different qualification

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Introduction

Technology development in producing running shoes in recent decades has made it possible to manipulate running technique and athletic performance. We hypothesize that highly skilled runners make better use of the functionalities of the new high-tech shoes, while recreational runners, can even do more harm.

Method

28 runners with different qualifications, according to their sporting achievements, participated in the study. They gave their consent to use their data from two tests in a 5 km race run with different brands of carbon plate shoes and with standard shoes without carbon plates. Data were taken from a portable Run Scribe device for vertical oscillation, ground reaction force, and leg spring stiffness. The data were processed with the statistical package SPSS.

Results and discussion

This study aimed to show how the properties of high-tech running shoes can be used by runners of different qualifications. 14 competitive runners and 14 amateurs provided their data from two 5 km tests. The spatiotemporal parameters were investigated vertical oscillation, ground reaction force, and leg spring stiffness using the Run Scribe portable device. The second group shows higher values for vertical oscillation and ground reaction force parameters, while for leg spring stiffness the data are heterogeneous.

Conclusion

The soles of running shoes have undergone significant adjustments in recent years. Many studies show that shoes can significantly improve sports performance. Runners who have more experience, more economical sports equipment, and more adequate musculature can hypothetically make better use of technology in sports shoes. Low-skilled and less-experienced runners find it more difficult to adapt their technique to carbon plate shoes.

Keywords: running shoes, running biomechanics, Run Scribe

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Enjoyment and Physical Education: Experimental Study for Enhancing Quality Performance in primary Physical Education

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Background
Enjoyment, defined as a positive and effective response to physical experience, is a recurring focus in the scientific literature, and it's a key aspect of promoting learning and motivation in physical activity (Scanlan & Simons, 1992). The content of this research concerns the analysis of the relationship between enjoyment and qualitative performance in school based physical education (PE) in childhood.

Methods
Experimental research, sample 39 children (8–9 years old) in a northwest Italian primary school. The experimental group (EG) and a control group (CG). The EG was involved in an 8-week PE project, designed with the aim of increasing the quality of Physical Education (QPE) through deliberate evidence-based programs. The CG continued with a traditional design PE project based on the free game. The instruments were the TGMD (Test Gross Motor Development—quality skills assessment) (Ulrich, 1985) and the Physical Activity Enjoyment Scale (PACES) (assessment enjoyment level) (Carraro et al., 2008). The validated tests were administered at the EG and CG pre-post (after 8-week intervention) and follow-up (after 8-week post) according to the Physical Education Evidence-Based (Cazzoli, 2014).

Results
The results showed a significant increase in the experimental group's scores (TGMD: +30%; PACES: +29%); in the control group, the changes scores were less significant (TGMD: +2%; PACES: +5%). Moreover, a positive correlation was found between the changes in the mean scores of the two variables in the three survey times (CG r = 0.966939 - EG r = 0.947469). In contrast, when examining individual scores, analysed at only one survey time, no correlation was found (first survey, r = 0.073386).

Conclusions
First, the improvement in qualitative performance was shown to be correlated with the increase in PACES scores. Therefore, increased feelings of enjoyment indeed played a decisive role in the improvement of TGMD scores in the experimental group. Second, the single PACES test score is not predictive in the case of qualitative performance in physical education. That is, having a high score on the PACES does not directly equate to being more proficient than those with a lower score.
The results of the research suggest continuing to deepen the relationship between PE and the evidence-based data to design effective and efficient physical PE programs based on scientific evidence-based evidence, guarantee educational richness for students in primary school, and respond to educational needs and challenges related to motor development and the opportunities of physical activity for the development of executive functions and cognitive skills of the 3rd millennium.

Keywords: enjoyment, quality physical education, primary school, performance, motivation.

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Multi station approach in primary Physical Education and Enjoyment: Evaluating the Impact of new Setting Learning Environment school based in Physical Education Teacher Training

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Background
Physical education (PE) plays a key role in the academic initial generalist Physical Education Teacher Training (PETE) for primary school. The PE in the Italian national system is in the compulsory curricula and oriented to acquire the basic skills learning (literacy motor skills), the efficacy perception and development of motivation to play physical activity in the students. The research was focuses on multistation approach PE school based and exploring the impact of the new learning environment by the enjoyment level perception.

Methods
The study was semi-experimental research. The sample volunteers 144 generalist PE in initial academic Teacher Training .The subjects were engaged in two block working setting on school based physical activity oriented to the literacy- motor skill learning: 1st setting waiting in line the turn for to play the skills (engaged in the relay) – long time no playing motor skills – small time on the learning task- small volume physical activity ; 2nd setting all the subjects were in activity in individual parallel track (personal space) – long time in playing motor skills, long time on the learning task- strong volume physical activity . At the end of the activities, the subjects fill out the Physical Activity Enjoyment Scale (PACES) test to assess their level of enjoyment, by reference Group A on the 1ST, group B on the 2nd setting.

Results
Group B, involved in individual parallel track (personal space), reported an average enjoyment score of 23.91, while group A, (engaged in the relay) , reported an average score of 2.84. The difference between the two research groups was statistically significant ($p < 0.001$).

Conclusions
These results underline the importance of environment and setting learning for the quality of PE in according with the UNESCO QPE (2016- 2023), the educational design to promote engagement and enjoyment in physical activity for learning and for healthy- active life style in according with the WHO Physical Activity Guidelines for prevention sedentary behoviour (2010-2021).
The results of the research suggest continuing to deepen the relationship between the widespread use of the relay setting and the effective times for learning 3rd millennium in childhood (3-11y aged), the fight against sedentary lifestyle through high volumes of physical activity in PE, the development of the perception of self-efficacy and motivation for QPE, and alliance with the extracurricular sports orientation.

Keywords: Physical Education, multi station setting learning environment, enjoyment, physical education teacher education

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Cheerleading - positive recreational practice for women of the third age

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Introduction

Sport, as a social phenomenon, forms a number of qualities, motivates a desire to achieve success, builds habits for a healthy lifestyle. A relatively young Olympic sport, cheerleading (cheerleading sport), combining the strength and beauty of gymnastics and the grace of dance, enjoys great popularity among women of the third age. The purpose of the present study is to investigate the impact of cheerleading on their lifestyle. We assume that cheerleading activities for women of the third age have a positive effect on health and contribute to the recovery of their working capacity.

Method

The research was conducted in June 2023. Sociological methods were used, survey and interview, with 60 women of retirement age, cheerleaders from the SC "Madarski Konnik" and SC "Zdrave", Shumen. The survey contains 15 questions.

Results

Good health and high working capacity are leading priorities for modern man. A number of studies in this direction note that motor activity reduces the risk of occurrence and development of diseases of the locomotor, cardiorespiratory, endocrine system, etc. [1, 2, 3, 4, etc.] In recent years in our country, the data in this direction are quite disturbing. The health culture of a person is part of the general culture and is composed of the following components: health awareness (cognitive and value), health needs, interests and habits, health behavior [2]. The age profile of the individuals involved in cheerleading in this study is impressive. 60% of respondents are aged 60 and 33% over 70. The fact that 97% of them exercise twice a week speaks of consistency, good health and relatively high work capacity.

Conclusions

People of the third (golden) age have more free time for hobbies and sports to stay active and in good health. The results of the sociological research are indicative of the positive recreational impact of cheerleading.

Key words: cheerleading, sport, healthy lifestyle, third age, recreation .

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Effects of specifically programmed classes of physical education on expression of attitudes with students

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Summary: A great misunderstanding and non-acceptance of school-age children towards students with disabilities is often manifested. Insufficiently developed empathy, it is to say, unpreparedness and a lack of education of children is often cited as one of the main reasons for a negative and unreasonable attitude towards children with disabilities. Due to physical contact, mostly through playing, children mainly forget and disregard mutual differences which favourably influences understanding of what is a different matter. Taking part in games, which is designated for persons with disabilities, enables children to raise a level of awareness and correct their previously negative attitudes. 80 school children aged from 11 to 12 have taken part in a survey. Experimental group has been made up of 40 examinees (20 boys and 20 girls), while a Control group has also been made up of 40 examinees of the same age and gender like Experimental one. Based on the results obtained to statistically significant changes for expressing attitude towards persons with disabilities, they are noticed with both examined variables (OFF i SS). A specifically programmed experimental program of classes of physical education has brought about positive changes on the attitudes of children towards inclusion of disabled children into physical education classes.

Key words: physical education, attitudes, paraolympic sport

Teaching Internship Experiences of Physical Education and Sports Teacher Candidates

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Introduction

The aim of this study was to examine the internship experiences of physical education and sports teaching students. During their education life, prospective teachers receive many theoretical and practical education for their profession and use their knowledge when they become teachers. However, they need to gain experience before they start teaching. In this process, it is important for prospective teachers to know the methods and current teaching models used in physical education and sports lessons, communication skills and classroom management because the use of appropriate teaching methods and models contributes to permanent learning. Teaching models are comprehensive plans that can be used to design curricula, classroom management and guidance (Joyce & Weil, 1980, as cited in Keske & Gürsel, 2015). Teaching skill is a phenomenon that can develop with time and experience. For this reason, pre-service teachers may encounter difficulties in practice even if they know the methods and current models used in physical education and sports lessons in theory. It is important for prospective teachers to be able to transfer their theoratical knowledge to the field and to improve themselves in classroom management and communication with students. For this reason, we aimed to answer the question "how much efficiency do prospective physical education and sports teachers get from their internship experiences?"

Method

The research was designed as a phenomenological research, one of the qualitative research methods. Phenomenological research is defined as a design that tries to reveal personal experiences about a phenomenon (Ersoy, 2019). The sample of the study consisted of a total of 8 students (5 female, 3 male) studying in the 4th grade of physical education and sports teaching. The sample of the study was determined by criterion sampling, which is one of the purposeful sampling methods. Criterion sampling can be created by the researcher or a pre-prepared criteria chart can be used (Yıldırım & Şimşek, 2021). Therefore, the criteria for the participants were studying in the last year of physical education and sports teaching and taking the teaching practice (internship) course. In the study, a semi-structured interview form created by the researchers was used as a data collection tool. Participants were asked 13 questions. The interviews were recorded using a voice recorder. Participants were given code names as K1, K2, K3 due to research ethics. Data were analyzed using MAXQDA 2020 qualitative research program. As a result of the analysis, the findings were coded as the support and guidance of the mentor teacher, lesson plan and experiences in preparing teaching materials.

Results and discussion

This study aimed to examine the teaching internship experiences of prospective physical education and sports teachers, the main findings of the study are as follows:
Within the scope of the research, it was concluded that the guidance and support provided by the mentor teachers was sufficient. In the study conducted by Ekin & Susam (2023), it was concluded that the support provided by the mentor teachers to the pre-service teachers during the course was sufficient. The result of this study is in parallel with the result of this study. In the study conducted by Kiraz (2001), it was concluded that the guidance received by pre-service teachers from their mentor teachers was inadequate. When other studies were examined, it was seen that pre-service teachers did not receive enough support from their mentor teachers and had a little problem in being informed (Özkılıç et al., 2008; Kocadere & Aşkar, 2013;

Kırksekiz et al., 2015). The results of this study are not in parallel with the results of these studies. It can be said that the guidance, support and feedback given by the mentor teachers can positively affect the professional development of pre-service teachers.

Another result of the study was that pre-service teachers did not have difficulties in preparing materials and plans. A study conducted by Kiraz (2002) concluded that pre-service teachers did not receive enough support from their mentor teachers in the selection of materials and planning of lessons during the teaching practice process. Gökçe Demirhan (2005) also stated that mentor teachers did not provide enough support to pre-service teachers in the process of developing course materials. The result of this research is not in parallel with the result of this research. It can be suggested that mentor teachers should support pre-service teachers in preparing materials and plans. In addition, if pre-service teachers are supported by mentor teachers, their learning experience can be more effective.

Conclusion

In conclusion, it was seen that the pre-service teachers were positively guided and supported by the mentor teachers and did not have difficulty in preparing plans and materials.

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Does The Availability Of A School Pool Affect The Level Of Swimming Performance Of Elementary School Students?

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Swimming, recognized since antiquity as a fundamental skill intertwined with human survival and holistic well-being, presents multifaceted physiological benefits and educational implications. This study explores the association between access to swimming facilities and the swimming performance of elementary school students in Slovakia. A cohort of 234 students from 30 schools participated in inter-school swimming races, with performances evaluated across four regions: Bratislava, Trnava, Nitra, and Trenčín. Statistical analyses, including correlation assessments, Kruskal-Wallis tests, and post hoc analyses, elucidated significant relationships between swimming proficiency and the availability of swimming pools and nearby educational programs. Results indicate a pronounced positive correlation between pool accessibility and students' swimming abilities, with both the quantity of pools and the presence of clubs offering swimming courses playing pivotal roles. Regional discrepancies in swimming performance underscore the imperative of ensuring equitable access to swimming resources. This study advocates for targeted investments in swimming infrastructure and educational initiatives to foster physical literacy and overall well-being among elementary school students. The findings contribute to the burgeoning body of research on the importance of swimming in educational curricula and underscore the necessity of comprehensive strategies to enhance swimming education and facility accessibility.

Key Words: Swimming, elementary school, students, school pool availability, regional analysis

Associations between sports participation and cardiorespiratory fitness in adolescents

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Introduction

Regular physical activity is playing a pivotal role in developing cardiorespiratory fitness (CRF), which has numerous benefits for present and future health (Ortega et al., 2018). The aim of this study was to explore CRF in adolescents, in regards to their sports participation, body mass index (BMI), age, and gender.

Method

The sample consisted of 172 students involved in sport (79 female) aged 12-14. The 20-m shuttle run test was used to estimate CRF. Data regarding years being active in sport, number of trainings weekly, age, and gender were acquired by a questionnaire, and BMI was calculated by using standard formula after measuring participants' weight and height. To investigate the relationship between adolescents' CRF and potential predictors, we performed multiple regression analysis.

Results and discussion

The results of multiple regression revealed that overall model predicted CRF significantly, $R = .58$, $R^2 = .34$, $F(7, 164) = 11.88$, $p < .01$. Further, BMI and female gender were negatively associated with CRF, $\beta = -.33$, $p < .01$ and $\beta = -.39$, $p < .01$, respectively. The only predictor which was positively predicting CRF was number of trainings weekly, $\beta = .22$, $p < .01$. The study results indicated that number of trainings weekly is more important predictor of adolescents' CRF than the time being involved in certain sport.

Conclusion

Our findings could emphasize the importance of frequent physical activity in a highly structured environments (i.e., sport clubs) for developing CRF. Further research could focus on CRF improvement in different sports.

Key words: sports involvement, training volume, BMI, gender, cardiorespiratory fitness.

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Sports photography as a motivation stimulator and promoter of recreational sports in girls

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The ability of sports photography to visually depict professional and recreational sports in an artistic way is its main advantage when it comes to popularizing both professional and recreational sports. In professional and recreational sports, movement represents an exceptional ‘’collaborator’’ to sports photography and its artistic ability to show moving and specifically moving phases of athletes and recreationists from different artistic angles and moments. Through sports photography, the movement that is created by the complex interaction of joints, muscles, especially specialized motor-sensitive fibers and the nervous system, remains permanently recorded in the form of those moving moments that represent movement as art. Thanks to its artistic and visual potential, sports photography can contribute to greater motivation of young people to be more physically active in various physical activities. For girls, motivation takes a very important place in understanding the proven scientific facts about the positive effects of regular physial activity on all aspects of health. However, in order for the proven scientific facts about the positive effects of regulary engaging in various physical activities to be accepted by curious and interested girls, it is necessary to present those activities in a special way that will be less strenuous and more visually interesting for their age. Sports photography is not only media support for professional sports, but also ‘’motivational’’ support for all those who want to engage in physical activities for the sake of health, proper physical development, and good looks. Sports photography, thanks to its visual power, can presents sports games and different forms of exercise in a creative way to girls and thus contribute to their greater interest in physical exercise.

Key words: physical activity, sports photography, motivation, girls.

Anthropometric Characteristics and Weight Status of Preschool Children: Exploring Urban-Rural and Sex Differences

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Introduction
Recent studies have reported a noticeable upward trend in the prevalence of overweight and obesity in children over the past two decades. The aim of this cross-sectional study was to determine the weight status among 6- and 7-year-old preschool children and to ascertain if there are urban-rural differences in weight status, as well as to determine the associations between weight status with urban-rural and sex of the participants.

Method
A sample of 368 preschool children (206 boys, and 162 girls) from municipality of Gornji Milanovac, Serbia was divided by residential status. The criteria for categorizing settlement types were administrative classification and population size. Rural settlements included villages and small towns with 10,000 or fewer inhabitants, while urban settlements had more than 10,000 inhabitants. Anthropometric characteristics were assessed using a battery of three variables: body height (BH), body mass (BM), and body mass index (BMI). BMI was categorized based on WHO cutoff values, determining children's weight status as underweight, normal weight, and overweight.

Results and discussion
Among boys, there were 3.4% underweight, 88.3% normal weight, and 8.3% overweight children, while among girls, there were 6.2% underweight, 81.5% normal weight, and 12.3% overweight. Independent samples t-test showed no differences in anthropometric characteristics between urban and rural children. The chi-square test indicated no association between weight status and gender of the children. The only association found was between weight status and residential status among boys, while there was no association between these variables among girls or in the total sample of children. These results indicate a significantly lower prevalence of obesity compared to their peers in the study by Aleksic-Veljkovic et al. (2023), where every fourth child was overweight. In our study, no urban-rural difference was found in the anthropometric characteristics of children, which is not consistent with the findings of other studies (Katanic et al., 2023). Regarding the association between weight status and residential status, our study found significance association in the group of boys, which is in line with other studies (Aleksic-Veljkovic et al., 2023). Nonetheless, for more comprehensive results, a larger system of anthropometric variables should be included.

Conclusion
This study contributed to diagnosing the anthropometric characteristics and weight status of children and can be considered significant as the first study in the population of children in this municipality, serving as a starting point for future practical and research steps.

Key words: prevalence of obesity, body mass index, nutritional status, urban-rural difference

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Teacher's Digital Competence: Implications for the Secondary Teacher Training Master's Degree in Physical Education Specialization

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Introduction
This study examines the level of digital teaching competence among secondary Physical Education teachers in Catalonia.

Method
It is part of a quantitative, non-experimental, cross-sectional study with a post-hoc design and descriptive, associative, and correlational analysis, in which 547 teachers participated.

Results and discussion
The results show a medium level of competence, with significant differences based on gender, age, and teaching experience.

Conclusion
In light of this evidence, it is proposed that the Secondary Teacher Training Master's degree in physical education should address the training of future teachers in the digital field. The current European Framework for digital teaching competence (DigCompEdu) defines six areas of development for this competence for all non-university teachers. However, after analyzing the curriculum of the various Catalan universities that offer the specialty of Physical Education in the Secondary Teacher Training Master's degree, it is noted that each university decides how to approach this digital competence training, which generally ends up being tangential and at the discretion and ability of the faculty teaching the various subjects that make up the curriculum. This reality alerts us to a need that has not yet been sufficiently addressed or resolved, given that the commitment made by universities is for teachers to achieve an A2 level of this competence upon completing their initial training. It is concluded that it is necessary to review these Master's degree curriculum, proposing specific activities in competency areas such as professional commitment, digital content, teaching and learning, assessment and feedback, student empowerment, and the development of their digital competence. Furthermore, emphasis is placed, on one hand, on the need to define a general framework for the development of this competence in a structured and homogeneous manner in the curriculum of the various universities, allowing for more than just the current simple proposal of occasional activities that may have the tangential character they currently possess; and on the other hand, on the need to implement actions aimed at training and professional updating in the digital field for the faculty teaching in this Master's degree, to ensure that the training activities planned from the various subjects of the Master's degree aimed at future teachers are not left to the discretion and ability of the faculty teaching them.

Key words: Digital competence, teacher training, Initial and continuing education, Physical Education

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A comparison study among age groups in children with intellectual disabilities for motor abilities in Albania

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Adolescents with intellectual disabilities (ID) often present with problems of balance, mobility and strengths. Therefore, in adolescent people with ID falls are more common compared to peers without ID. Measuring the balance and strength of children with intellectual disabilities is crucial for assessing their physical development and identifying any areas of concern. Additionally, enhancing balance and strength promotes overall physical fitness, facilitates inclusive participation in activities, and contributes to the holistic well-being of children with intellectual disabilities. The aim of this study was to compare balance and muscle performance among athletes according to age group between 5 to 21 years.
A group of 114 athletes with ID were investigated with one balance tests and one strength tests: timed up and go test and timed sit-to-stand test. Test used in this study is part of manuals and guides "Special Olympics FUNfitness" which is validated and used internationally. The participating athletes were from different Albanian cities.
The results show that from age group to age group athletes will have a fluctuation in balance and strength performance. Where athletes aged 7-8 years have the lowest performance in balance and strength (also age group 21+) compared to the age group 11-12 years for balance and 13-14 years for strength.

Keywords: Athletes; Intellectual disability (ID); Balance; Strength; Timed up and go test; Timed sit-to-stand test.

Gender Differences In Some Anthropometric Measures In Adolescents From The Republic Of Kosovo

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The main purpose of this research is to determine gender differences in some anthropometric measures among Kosovo adolescents. The research was carried out on a sample of 1000 adolescents, from 9 primary schools in the Republic of Kosovo. The sample is divided into two subsamples according to gender, namely 500 respondents are boys and 500 respondents are girls. The average age of the respondents of both sexes was 14-15 years old. To realize the objectives of the research were taken 12 anthropometric measures (IBP methodology). The results were statistically processed with SPSS, v. 26.0 for Windows (basic statistics, Student's t-test). The results are generally indicative that boys have greater body height, foot length and lower leg circumference compared to girls. On the other hand, girls have a larger thigh circumference and skin folds on the triceps, thigh and lower leg. The results of this research represent a small contribution to clarifying the problem of growth and development of anthropometric measures and body composition among students from the Republic of Kosovo.

Keywords: adolescents, anthropometric characteristics, students.

New Insights about the Effect of BMI on Physical Fitness and Motor Development

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Introduction

Gross-motor development represents one of the most important topics in the field of motor activity and physical education. Stodden et al. (2008) proposed a theoretical model explaining the potential role of motor development in promoting positive or negative trajectories of physical activity, health related-fitness and weight status, during infancy, adolescents, and adulthood. In this view, physical self-perception is a key factor promoting engagement in motor activity for health. The present cross-sectional study aims to assess the relation between gross-motor development, physical fitness and self-perception in a sample of normal weight and overweight-obese children. The hypothesis tested is that gross-motor development is negatively related to BMI, and positively related to physical fitness and self-perception.

Method

The sample consists of 79 primary schoolchildren aged 9-11 years (Male = 33, Female = 46) divided according to BMI cutoff in normal weight and overweight-obese. Gross-motor development has been assessed with TGMD-2, while 4x10 shuttle run, 20m slalom, standing long jump, 20m speed and medicine ball throw were used for physical fitness components. Physical self-perception was evaluated with a validated questionnaire. At first, a two-way factorial MANOVA was conducted to assess effects of gender and BMI on all dependent variables. Then, multiple regression analysis was conducted to assess total, direct and partial effect of BMI, physical fitness and self-perception on gross-motor development (dependent variables).

Results and discussion

Results (R1) revealed significant main effect for almost all variables according to gender and no difference according to BMI Cutoff. Moreover, interaction effect was not significant. Pairwise comparison showed significant better results in gross-motor development, 4x10, 20m slalom, 20m speed and MBT in male than in female ($p < .05$). No difference was highlighted according to BMI Cutoff, excepting for MBT, where overweight-obese performed better than normal-weight peers.
Regression analysis (R2) showed that both 20m speed and 20m slalom were significant predictors of gross-motor development ($p < .05$), independently of BMI and physical self-perception.
Since the relation between BMI, practice of physical activity and motor development emerged from 6 to 9 years (dan Uil et al., 2023), it can be inferred that sedentary lifestyles low levels of physical activity can limit motor development.

Conclusion

Results from the present study suggest future directions to investigate the relation between gross-motor development and physical fitness. Further studies should also investigate the effect of BMI and factors related to physical activity on motor development.

Key words: overweight; physical fitness; gross-motor development; physical self-perception; children.

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Obesity or Sedentary Lifestyles: What Matters Most?

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Introduction

International literature has widely highlighted the growing increase in overweight and obesity together with the progressive reduction of levels of physical activity (PAL) in children and adolescents during the last decades worldwide. Despite these evidence, the effect of BMI and daily practice of physical activity on physical fitness – as health status indicator - is still unclear (Ortega et al., 2018). The present cross-sectional study aims to assess (R1) differences in physical fitness components and practice of physical activity in young adolescents according to gender and BMI, and (R2) the direct effect of BMI and physical activity on physical fitness. The hypothesis tested is that physical activity is a more important determining factor for physical fitness than BMI.

Method

The sample consists of 168 students aged 14-18 years (Male = 85, Female = 83) divided according to BMI cutoff in normal weight and overweight-obese. Physical fitness components were assessed with Sit Up, Standing Long Jump (SLJ), Medicine Ball Throw 2Kg (MBT), Shuttle Run 10x5m (10x5) Cooper Test, 20m Sprint and 30m Sprint. A self-reported questionnaire (PAQ-A) was used for reporting daily practice o physical activity. At first, a two-way factorial MANOVA was conducted to assess effects of gender and BMI on physical fitness. Then, multiple regression analysis was conducted to assess total, direct and partial effect of BMI and PAL on physical fitness components (dependent variables).

Results and discussion

Results (R1) revealed significant main effect for almost all variables according to gender and BMI Cutoff, but interaction effect was not significant. Pairwise comparison showed better motor performance in male than in female ($p < .01$) and in normal wright compared to overweight-obese peers ($p <. 01$), excepting for MBT. Similarly, male and normal weight were more active than female and overweight groups ($p < .01$). Regression analysis (R2) showed that both BMI and PAL were significant predictors of physical fitness components. However, statistical analysis revealed that PAL significantly explained higher amount of variance than BMI ($p <.01$). The present study highlights the importance of physical activity and body weight management for enhancing health status through physical fitness components development.

The model proposed, moreover, can be useful for teachers and educators to carried out methodological and didactic implication in the field of physical activity to solicit new quantitative and qualitative opportunities for being physically active at school, and on the other hand the need to involve institutions and families to promote physical activity interventions during extra-curricular physical activity and leisure time (Contardo Ayala et al., 2024).

Results from the present study suggest that the development of physical fitness is not linked and determined exclusively by BMI, but it deepens on daily practice of physical activity. Future research ae needed to assess the effect of physical activity in mediating and moderating the relation between obesity and physical fitness.

Key words: overweight; physical fitness; health-status; physical activity; adolescents.

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Flipped Classroom in Primary Physical Education: A Systematic Literature Review

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Introduction

Flipped Classroom (FC) is a reverse classroom learning approach that involves more active student engagement. Yet, it is rarely used at the elementary school level because students must study learning content before discussing it in class (Han, & Mørk, 2020). However, flipped learning has received significant attention as a potential strategy for increasing student engagement, improving learning outcomes, and adapting to the changing educational landscape (Utami et al., 2024). However, despite the increased interest in flipped learning and its potential benefits, several obstacles and concerns still need to be addressed. Therefore, this systematic literature review aims to critically evaluate the adoption of the FC in primary physical education by assessing and evaluating the FC's impact on student learning in elementary schools.

Method

In accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, a search was undertaken in three international databases (PubMed, Scopus, and Web of Science) to identify FC's effectiveness and implications for primary physical education students.

Results and discussion

Using a systematic approach, a total of 15 research articles published until 1 May 2024 related to the effectiveness and implications of FC for primary physical education students were chosen for the review. The study's findings confirmed the hypothesis that FC-based learning is effectively implemented in primary schools, and the vast majority of studies show that FC can foster students' active participation and independence, as well as a sense of responsibility, critical thinking skills, curiosity, honesty, creativity, and motivation to learn at their own pace.

Conclusion

This study recommends that both students and teachers acquire certain knowledge and skills to avoid difficulties during the implementation of the FC-based learning model. This especially applies to teaching in the field of physical education, where the culture of this type of learning is not at an enviable level. By acquiring subject knowledge and skills, the learning process could run optimally.

Key words: flipped, classroom, physical, education, children

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Competition efficiency of Olympic medallists in freestyle wrestling

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Freestyle wrestling as an Olympic discipline is the most popular wrestling discipline around the world. One of the factors that can contribute to winning an Olympic medal in freestyle wrestling relates to the draw bearer, which gives the wrestler a probability of winning a medal. However, with knowledge of the structure of competitive efficiency (model characteristic) of medalists in the Olympic Games, that percentage significantly increases. The aim of this study was to determine the structure of technical-tactical efficiency of medalists in freestyle wrestling at the Olympic Games. The research was conducted on a sample of 96 freestyle wrestlers (medalists (N=24) and other wrestlers (N=72)) who competed at the Tokyo 2021 Olympic Games. A total of 18 variables of competitive efficiency were observed, with 11 variables relating to standing position and seven variables to ground position. The Mann-Whitney U test was used to determine differences between groups in the number of points scored. The WQ index was determined to be 1,72, confirming high offensive efficiency compared to the Olympic Games of 2012 and 2016. The structure of medalist wrestlers at the Olympic Games is described by a high level of efficiency in techniques such as leg attack, take down, suplex, step out, and activity time, as well as in variables like gut wrench, ankle lace, and turn over. Further research is needed to determine the causes and factors such as physical conditioning and preparedness, mental strength and stability, sports experience, and other factors significantly influencing technique performance and related to competitive efficiency.

Key Words: performance, technical and tactical efficiency, Olympic Games, Tokyo, success

Determination of differences in the body composition of football players according to playing position

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Introduction

Current research indicates that body composition can greatly influence the selection of athletes from different sports and sports disciplines. In order to be successful in a certain sports discipline, it is very important that the athlete has an adequate physical condition. Despite the recognition of the importance of body composition in the process of selection and training of soccer players, there is a lack of precise and accurate published information on body composition measurements of athletes, especially soccer players in the national league of our country.

Method

The aim of the study was to determine differences in body composition measures among football players, according to the playing position. The sample of respondents was drawn from a population of football players from the football club Silex between the ages of 17 and 30. 50 football players are included in the research. The sample is also classified according to playing positions: defensive players - 15, players who play in the midfield - 15 and players who play in the attack - 15. To achieve the goals of the research, a total of 8 measures of body composition were applied, measured by the method of bioelectric impendase. Within the statistical analysis, basic descriptive statistics and multivariate and univariate analysis of variance, as well as post-hoc analysis, were applied.

Results and discussion

Based on the obtained results, it can be concluded that football players who play in defense have statistically significantly higher values of muscle, bone mass and fat tissue expressed in kilograms, fat tissue expressed in percentages, the fat-free component and the body mass index in relation to the players who play in midfield and attack. In the above measures of body composition, no statistically significant differences have been determined between football players who play in the midfield and attack. Also, intergroup statistically significant differences were not determined in the variable muscle mass and bone mass expressed in percentage.

Conclusion

The obtained results of the research represent valuable material for scientists, but also for coaches, experts as well as for all others who are professionally involved in football. Considering that football is one of the most popular sports in the world, when selecting talented players, tests and measures should be used to monitor physiological and motor performance, together with measures of body composition and somatotype components.

Key words: football, body composition, playing positions

Youth Sport Coaches and Parents Perception of Existence and Forms of Peer Violence in Sport – Serbian Case

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Introduction

Various manifestations of aggression and violence fall into the category of acute problems in contemporary Serbian society. The reasons for this are decades-long post-socialist transformation, compounded by societal pauperization and numerous changes in social structure. Aggression and peer violence are negative features of the daily lives of children and youth (Hartill et al., 2023, Matic et al., 2022). Through this research, the authors have examined the perception of the prevalence of this issue in children's and youth sports, from the perspective of parents and coaches.

Method

The research results are based on two focus group discussions (N = 24), conducted at the Faculty of Sport and Physical Education, University of Novi Sad (Serbia). Participants in both discussions demonstrated high interest in the topic. Discussions were supported by numerous examples, illustrating the existence of various forms of aggression and peer violence (ranging from teasing, mocking, name-calling, to physical violence).

Results and discussion

It was revealed that some participants in the discussions also addressed the aggressive and violent behavior of coaches towards children, as well as the aggressive behavior of certain parents towards (their own and others') children. Although the research is exploratory in nature, the discussion results provided a deeper insight into the perception of adults and responsible individuals (parents and coaches) regarding this social phenomenon.

Conclusion

The research findings contribute to research highlighting the negative social (and psychological) consequences in sports peer groups, as well as in children's and youth sports in general.

Key words: aggressiveness and peer violence, youth sport, explorative research

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Exploring the Impact of Eccentric Strength Training on Hamstring-Quadriceps Ratio in Soccer Players

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The hamstrings and quadriceps muscles play complementary roles in the lower limb, particularly in activities like running, jumping, and changing direction, which are integral to soccer. An optimal balance between these muscle groups is essential for efficient movement patterns, force production, and injury prevention The purpose of this study was to investigate the effects of 8 weeks eccentric hamstring strength training on quadriceps/hamstring ratio in soccer players.

Method
Twenty male soccer players (age = 17.77 ± 0.44 years; body mass = 69.58 ± 8.58kg; body height = 177.41 ± 6.26 cm) with no history of lower extremity injury participated in the study. voluntarily. A total of 20 subjects were divided based on randomly into the eccentric strength training and control group. The pre-post-tests result were taken from the participant in this study. To measure the H:Q ratio, we used the Biodex Pro Isokinetic Device (Biodex Medical Systems, Shirley, NY) to perform knee concentric flexion and extension movements. Peak power, average power and quadriceps hamstring ratio measured of all participants.

Result
As a result of the study, it was determined that eccentric strength training positively hamstring quadriceps ratio in soccer players. A significant difference was detected when the hamstring quadricep ratio was compared before (0,5192±0.14) and after training37,36 ±,072)

Conclusion
Eccentric strength training offers a promising avenue for optimizing the hamstring-quadriceps ratio in soccer players, thereby enhancing performance, and reducing the likelihood of lower limb injuries.

Key Words: H:Q Ratio, Hamstring, Injury, Soccer, Strength

The Epistemic Judgement Chain to support Holistic Physical Education teacher development.

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Introduction

Epistemology is a valuable lens by which teachers can plan, deliver and reflect upon holistic physical education activities. Little support is available however to maximise the positive impact that a deeper knowledge and understanding of epistemology and its application can bring.

Method

A pilot study was conducted with 16 trainee Physical Education teachers following their final year 18 week teaching internship. Teachers were introduced to the Epistemic Judgement Chain (EJC) and mentored in its use. Each person created an EJC map in respect to their teaching experiences and their aspirations to deliver holistic PE in future. A focus group gained participant reflections on the EJC's structure, content and utility. Reflective Thematic Analysis was applied to the data.

Results and discussion

All participants provided positive feedback about the EJC's merit, value and constructs included. Four major themes were generated: Enhanced learning about the sector, Digging deeper to be more self-aware, Seeing connections, Planning the future me. Findings provide evidence that the EJC is a valuable asset in teacher training that makes philosophy to practice and alignment explicit. The study noted however that the pilot's trainee teachers were not aware of some professional and organizational stressors, educational policy constraints, and other hidden influences on the actual PE teaching world. Future studies that evaluate the EJC with diverse PE teaching cohorts is therefore required. The EJC would seem to function as an effective means to shine a light and delve below the surface into key PE practices.

Conclusion

The EJC provides a valuable scaffold by which teachers can reflect on their views, experiences, and future plans for implementing a holistic approach to Physical Education. Findings supported the EJC's ability to facilitate teachers' critically awareness of the environmental influences on teaching practice. In addition the EJC helped teachers navigate a path that was well aligned to their own values and beliefs about teaching and learning. Follow up studies are now needed to investigate the impact of the EJC professional development process on both teacher and pupil motivation and engagement.

Key words: Epistemology, Trainee Teachers, Holistic Development.

Promoting Inclusivity and Accessibility in Sports Facilities

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Introduction

Access to sports facilities plays a pivotal role in fostering physical activity, social inclusion, and community well-being. However, traditional sports facilities often fail to accommodate the diverse needs of individuals, including those with disabilities. This study explores the application of universal architectural design principles in sports facilities to ensure equitable access for all individuals, irrespective of their abilities, and aims to shed light on strategies for promoting inclusivity and accessibility in sports facilities.

Method

Drawing on interdisciplinary research in architecture, sports science, and disability studies, this study reviews the literature on promoting inclusivity and accessibility in sports facilities. Key universal design principles are identified, including flexibility, simplicity, and equitable use. Additionally, case studies of sports facilities that have successfully implemented inclusive design features are examined to illustrate best practices and innovative approaches.

Results and discussion

The results highlight the significance of applying universal design principles in sports facilities to ensure equitable access for individuals of all abilities. Barrier-free entrances, inclusive playgrounds, and sensory-friendly design elements are identified as key features that accommodate diverse needs and enhance the overall user experience. Case studies of inclusive sports facilities demonstrate the positive impact of inclusive design on promoting physical activity, social integration, and community cohesion.

Conclusion

In conclusion, this study emphasizes the critical role of universal design principles in promoting inclusivity and accessibility in sports facilities. By incorporating features of universal architectural design principles, sports facilities can create environments that cater to the diverse needs and abilities of all individuals. Moving forward, further research and practice are needed to continue advancing the field of inclusive sports facility design and ensuring equitable access for all members of society.

Key words: Sport facilities, inclusivity and accessibility, physical activity, architectural design

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Active Architecture: Designing Sports Facilities and Urban Spaces to Promote Physical Activity and Health

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Introduction

This article examines the symbiotic relationship between architecture, sport, physical activity, and public health. It explores how innovative architectural design and urban planning strategies can foster active lifestyles, enhance community well-being, and address public health challenges.

Method

Through a multidisciplinary approach encompassing research in architecture, urban planning, sports science, and public health, this study investigates the integration of sport and physical activity into the built environment. Case studies and examples of exemplary sports facilities, recreational spaces, and active urban designs are analyzed to identify effective design principles and strategies.

Results and discussion

The analysis highlights the significant impact of architecture on promoting physical activity and improving public health outcomes. Architectural features such as accessible sports facilities, pedestrian-friendly infrastructure, and inclusive public spaces are found to encourage active living and contribute to healthier communities.

Conclusion

Emphasizing the importance of active design principles, this article advocates for collaborative approaches among architects, urban planners, policymakers, and public health professionals to create environments that prioritize physical activity and support community health and well-being. By incorporating sport and physical activity into architectural practice and urban development initiatives, we can build more resilient, inclusive, and healthy cities for all.

Key words: architecture, design, urban planning, urban spaces

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Comparative Effects of High-Intensity Interval Training and Step Aerobic Training on Motor Abilities and Body Composition Among Recreational Women

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Introduction

Although the popularity of various fitness programs in the country is growing, there is not enough research that would quantify their benefits, especially for the female population. This 6-week study aimed to analyze and compare the effects of a HIIT protocol and a step aerobic training protocol on body composition, anthropometric measures, and motor abilities among female recreational athletes.

Methods

The research included 22 recreational women, distributed into two groups according to their designated training protocols: HIIT (n=12) and step aerobics (n=10). The protocols consisted of 18 training sessions distributed over six weeks (43 days). The participants underwent 3 assessments (initial, control and final) that included standardized physical fitness for assessing the lower body and trunk strength and endurance as well as body composition analysis using the OMRON BF511 body composition monitor. For all the variables, basic statistical parameters and tests for normality were calculated

Results and Discussion

The analysis showed statistically significant improvements within both groups for all tests assessing the motor abilities ($p < 0.05$) and most of the variables assessing the body composition. The HIIT group exhibited more significant increases in muscle mass ($\bar{X}$ =2.5%) and a larger decrease in fat mass ($\bar{X}$=1.7%) compared to the step aerobics group, which showed a muscle mass increase of 1.3% and a fat mass decrease of 1.1%. The limitations of this research as: limited time for conducting the experiment, relatively small number of subjects, impossibility of tracking the subjects' habits, lifestyle, diet and health. However, this research could be applied to another sample, over a longer period of time, in order to confirm changes in body composition and motor skills as a result of applying a specific exercise program. **Conclusion:** Both HIIT and step aerobics are effective in improving motor abilities and body composition among female recreational women. However, HIIT offers a more pronounced improvement in muscular strength and body fat reduction, suggesting its suitability for recreational women. This study supports the integration of both training protocols into fitness regimens for women looking to optimize physical conditioning and body composition outcomes effectively.

Keywords: HIIT, Step Aerobics, Motor Abilities, Body Composition, Female Athletes.

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Differences in split-step reaction time between higher and lower ranked professional ATP players

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Introduction
The split-step is a crucial technical aspect in the training of tennis players, as its quick and well-timed execution can significantly impact the players' overall performance.

Method
This study examined split-step performances in two groups of tennis players (players ranked 1-10 on the ATP rankings and players ranked 100-110). The sample consisted of 20 participants with an average age of 28±9, body weight of 78±12 kg, and body height of 188±12 cm. Three variables were examined in terms of split-step performance time: during the opponent's serve, return, and exchange of shots. Discrepancies from the ideal split-step performance were measured across all three variables using the Adobe Premiere Pro software.

Results and discussion
The results indicate a statistically significant difference between the two groups, favoring the higher-ranked players in all three aspects: serve ($p < 0.01$), return ($p < 0.00$), and exchange of shots ($p < 0.01$).

Conclusion
A well-executed split-step enables players to arrive at the ball on time and assume a favorable position for a shot, which is a crucial element of the tennis game that requires continuous improvement throughout a player's career.

Key words: tennis players, reaction speed, video analysis

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Teachers' Perceptions of Coach Involvement in Tandem Teaching in Physical and Sports Education

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Introduction

Tandem teaching, a collaborative approach involving two teachers in one classroom, is gaining popularity as an educational strategy. In Slovakia, the "Coaches at School" program, implemented in primary schools since the 2020/2021 academic year, exemplifies tandem teaching in physical and sports education (PSE). The objective of this study is to investigate teachers' perceptions of coach involvement in tandem teaching in physical and sports education.

Method

The research sample consisted of 408 primary school teachers from grades 1 to 4 in Slovakia who participated in the " Coaches at School" program during the 2022/2023 school year. Qualitative (nominal) data obtained by questionnaire were evaluated at the level of percentage analysis and the Chi-square (X^2) test for goodness of fit was used for statistical processing of empirical data.

Results and discussion

Teachers' evaluation of coaches' activities in physical and sports education classes is predominantly excellent (88.72%) with high statistical significance ($X^2 = 1213.15$, $p < 0.001$). Teachers also positively evaluate the coaches' lesson leadership, perceive an increasing attractiveness of physical activities for pupils, and indicate a positive impact on physical literacy.

Several years of experience with tandem teaching are also available in North Macedonia, where this teaching model was introduced in physical and health education (the official name of the subject) in 2019. The pilot study that was implemented brought positive results, as the introduction of tandem teaching of physical and health education eliminated the need to cancel classes, and all classes were conducted in full. Class teachers, pupils, and parents also had positive attitudes towards this teaching model (Popesca 2022; Popesca et al. 2023).

Conclusion

Our findings indicate that teachers in grades 1-4 of primary schools generally have a positive attitude towards the presence of coaches in the school environment, with their regular weekly visits being perceived as acceptable and desirable. The research provides important information about the perceptions of coaches by teachers in primary schools, which can help in the further development of tandem teaching programs.

The study is supported by The Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic (VEGA) with number č. 1/0127/23. It is titled “Tandem Teaching of Physical and Sports Education in Primary School and its Impact to Motor, Cognitive and Emotional Development of Pupils".

Key words: tandem teaching, physical and sports education, teachers, 1st grade of primary school, Coaches at school

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The relationship between physical education teachers' technopedagogical content knowledge and their attitudes towards wearable technologies

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Introduction
With the acceleration of innovative technologies in the last 50 years, technology has manifested itself in many fields such as engineering, health and education. Wearable devices and smart applications have transformed the teaching and training methodologies in both sports and physical education. Physical education teachers are expected to gain technology knowledge not only to develop the skills needed for digital citizenship in the 21st century but also to improve their teaching skills defined as techno-pedagogical content knowledge, which integrates technology with pedagogy and content knowledge. The aim of the study was to determine the relationship of physical education teachers' techno-pedagogical content knowledge and their attitudes towards wearable technologies.

Method
A total of 407 physical education teachers with an average age of 27.95± 2.65 were included in the cross-sectional study, and data was collected by applying the Wearable Technological Sports Products Usage Perception (WTSPUP) Scale and the Technological Pedagogical Content Knowledge (TPCK) Scale via Google form. The WTSPUP consists of 30 items included in 6 sub-dimensions, whereas TPCK consists of 51 items included in 7 sub-dimensions, while both scales are rated as a 5-point likert scales and were found valid and reliable according to their Cronbach Alpha coefficient values, 0.88 and 0.94, respectively. Descriptive statistics were presented as mean ± standard deviation and median (min-max), groups were compared by using the independent Student's T Test, Mann Whitney U test and Kruskal Wallis test analysis, while Pearson Correlation Analysis was used to determine the relationship between the attitude towards wearable technologies and the technopedagogical content knowledge and its sub dimensions at a significance level of $p<0.05$ for all statistical analyses.

Results and discussion
The findings of the study revealed that the physical education teachers' perception levels of wearable technological sports products usage increase as the time spent on the internet increases, showing significant differences between the groups of internet use for 0-3 hours and 4-6 hours ($p< 0.001$), while no significant difference was observed in groups according to gender and age. ($p>0.05$). A statistically significant high correlation was found only between wearable technology usage perceptions and technology knowledge ($r=.937$, $p= 0.000$). In contrast, techno-pedagogy knowledge, technological content knowledge, and techno-pedagogical content knowledge were not associated with wearable technology usage perception ($p>0.05$). On the other hand, the wearable technology usage perception was positively associated with the time spent on the internet ($r=.501$, $p= 0.000$).

Conclusion
It can be concluded that Physical educations teachers' perception levels of wearable technological sports products usage is closely associated to their technological knowledge and increases as time spent on the internet increases. However, a high level of technological knowledge is not sufficient to improve the Techno-pedagogy and technological content knowledge, while specialized training is needed to improve the the Techno-pedagogical content knowledge of physical education teachers.

Key words: Physical education teachers, wearable devices, Techno-pedagogical content knowledge, internet use, gender

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Notational analysis of kayak slalom racing at the Athens 2004 Olympic games

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Introduction

A study was conducted on the performance of Lazar Popovski and Michael Kurt in the second run of the 2004 Olympic Games in Athens, where Kurt had the fastest time, without any penalty seconds, securing the first place, while Popovski finished sixth, also without any penalty seconds.
The research aimed to determine the notational variables crucial for kayakers in negotiating the set of upstream gates on the slalom course.
Recent studies have focused on parameters corresponding to improved kayak performance in competitions, including visualization skills (Males et al., 1998; White & Hardy, 1998), mental preparation(Males & Kerr, 1996), energy systems(Zamparo et al., 2006), morphological characteristics of elite slalom kayakers (Norton & Olds, 1996; Ridge et al., 2007.
From a literature review perspective, a study by Hunter (2009) investigated the path taken, or trajectory, by kayakers and canoeists in negotiating upstream gates, showing a strong correlation between the time taken and the distance to the inside pole during the exit from the gate.

Method

Data were collected using video recordings of the kayakers' runs, with the video recorded at a sampling rate of 60 fps. The Kinovea 0.9.4 software tools were employed for slow-motion playback, frame-by-frame analysis, pausing, etc. The necessary performance indicators were obtained through these tools. Microsoft Excel was utilized for data processing.

Results and discussion

The study investigated notational variables in both kayakers when negotiating 6 challenging upstream gates. These gates were positioned three on the left and three on the right side, representing the most difficult part of the course. Among the numerous variables analyzed in the study, 8 characteristic variables were identified.
A weakness of this case study is that it considers a small sample, which suggests the possibility of additional research on a larger sample and the use of statistical analyses to more precisely determine correlational relationships and identify critical variables and factors.

Conclusion

The research showed that two upstream gates were particularly challenging to negotiate, specifically gates 5 and 17, where significant differences were noted, confirming the hypothesis that differences would arise concerning notational variables in negotiating the six upstream gates.

He values obtained from the research should help kayakers identify where they lose time in negotiating the upstream gates, how much they hold the paddle in the water or air, and with how many strokes they negotiate the upstream gates. These parameters provide data for planning the training process.

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The importance of physical education in the context of functional use of the students' leisure

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Introduction

The paper deals the question of the importance of the physical education in function of the students' free time. As a very important segment in people's life, physical education aims to preserve, stimulate and advance the growth, the development and the health of the individual. However, physical education not only ensures proper development of the body, but also affects the emotional state, by creating a clear mood, happiness and life joy. A healthy and physically active person is a happy person. Hence, the habits of using leisure time with physical activity should be developed in students from the early age. Namely, physical education can greatly contribute to the functional use of free time, as oppsed to today`s great passivity imposed by the social media, the Internet, video games, etc. In fact, the development of an "active lifestyle" that includes the acquisition of healthy habits, skills and knowledge, aims to reduce the passiveness of the student and improve their health and physical activity.

Method

The subject of our research is the free time of students as an educational as well as life style problem in today`s digital society. The purpose of the research was to examine students' attitudes and opinions from 4th and 5th grades in two primary schools in the Republic of Macedonia about the usage of their free time as well as how often they are physical active in their leisure time. The sample consists of 100 pupils (50 female and 50 male). In accordance with the purpose and assigned tasks, we applied the research technique: Surveying and following instrument: Questionnaire with 12 closed-type questions.For the statistic data processing we used the standard package SPSS1.7.

Results and discussion

The analysis of the data shows that 16% of students questioned spend time on educational web sites, 72% prefer to play games, and 12% say that what they most is being on a social networks. In this modern times, computers and internet technology takes a great part in the free time of all the people in general, and especially in the free time of the students at the age of 10 and11.

Conclusion

Physical education should be present more in the leisure time of students from the very young age. Namely, this is definitely a big task and the parents and the school should give their best for a successful realization. The data we obtained from the research showed that it is not at a dependent level nowadays. Actually, the students use it in various ways, but doing sport and sports activities should be a priority.

Key words : physical education, importance, leisure, students

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Determination of the validity and reliability of the Happiness Level For Recreational Activity Participation (HALRAP) Scale in young adults aged between 18-30 years

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Introduction

It is well known that regular physical activity has many benefits for all ages such as support for healthy growth and development in children and young people, prevention of the onset of chronic and metabolic diseases in adulthood and old age, protection against mental and psychological diseases and increased socialization at any age. Sportive recreation activities offer many Physical activity and exercise options for different age groups and voluntary participation is provided for variable purposes at any age, however, regular participation depends highly on the joy and happiness of participants during the activities. Thus, to assess the happiness level with an easy applicable and not time consuming scale during the recreational activity plays an important role to create enjoyable programs and thereby prevent drop-outs from physical activities. The aim of the study was to determine the validity and reliability of the Happiness Level for Recreational Activity Participation Scale for young adults which was adapted from the original form of the Happiness Level for Physical Education Lesson Scale for children.

Method

A total of 421 participants aged between 18-30 years were selected according to criterion sampling procedure and were included in the cross-sectional study on a voluntary basis. Demographic information such as age, gender, income and education was collected via the personel information form before applying the Happiness Level for Recreational Activity Participation (HALRAP) Scale. EFA and CFA analysis was conducted to evaluate internal consistency and structural validity, while measurement invariance was evaluated with regard to participants' gender to determine whether the scale accurately captured similar traits across diverse groups.

Results and discussion

According to the results of EFA and CFA analysis, the adapted form of the scale remained similar with only one sub-dimension consisting of 9 items, and the Cronbach Alpha coefficient was calculated as 0.972, KMO as 0.952, and BKT as $\chi 2$ (36= 4650,82; p=0.001). Findings of the multi-group confirmatory factor analysis for measurement invariance showed that the ΔCFI and ΔRMSEA values across all indices were less than or equal to 0.01, revealing that the item-factor structure, factor loadings, variances, covariances, and error variances of the scale were equivalent for both genders, male and female young adults.

Conclusion

It can be concluded that the adapted form of the Scale is valid and reliable to measure the happiness level for recreational activity participation in young adults aged between 18 and 30 years. The easy use and short application time will increase its useage to measure the joy and happiness level during sportif recreational activities , and thereby produce valuable feedback to create enjoyable recreation programs for different groups.

Key words : Young adults, Happiness level, Sportif Recreation, Gender, Scale adaptation

Development of sports from ancient origins to today's performances

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Introduction

The aim of this study is to make current comments on the development of sports from ancient origins to today's shows. A literature review was conducted. The history of sports with rules dates back 3000 years. Unregulated sports activities in ancient civilizations played a central role in human history until the regulated sports and exaggerated shows of modern times. When we think about the development of sports, we must recognize that they are much more than a simple game. Physical activities performed since ancient times represent the essence of the human spirit, endurance and desire. Sport has continued as a phenomenon that has the ability to inspire, entertain and unite people on a variety of topics across borders and generations. From ancient sports fields to state-of-the-art modern stadiums, the sports journey reveals humanity's historical past.

Conclusion

The sports adventure, which started in ancient times with the actions people performed for the purpose of living, continues today as an expression of passion, competition, cultural expression and the unyielding quest for greatness.

Key words: Antiquity, Sports, Performance, Era, Performance.

Basic non-running training tools from the second level for classic mountain running in a model of preparation for the “up and downhill” variant - macrostructural distribution

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The current study discusses the basic non-running training tools from the second level. It presents the distribution of these training tools in the annual cycle of highly qualified racers in a preparation focused on classical mountain running in the variant "Up and Downhill". The research **aims** to establish a basic model of the volume by week of the basic non-running training tools from the second level, in the macrostructure for training aimed at classical mountain running in variant - "Up and Downhill". The following **methods** were used: a) research of the weekly volume of the training tools within the framework of the separate mezzo-cycles in the macrostructure and b) variation analysis of the data received from the training tools explored. The results give the following **conclusions**: The training tools for developing „strength endurance” have been used throughout the whole year. They have the highest values in the general preparation stage and at the beginning of the special preparation stage. The training tools for developing of the sub-factor „speed-strength potential” are included periodically in the training process in the middle of the special preparatory stage till the stage of the late competitions. The ratio between the volumes of the training tools for developing the sub-factors „strength endurance“ and „speed-strength potential“ is close to 2:1.

Key words: mountain running, off-road running, achievement factors, basic training tools, model of annual periodization…

Student Abilities of Peer Assessment in Physical Education Tandem Teaching Classes

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Introduction

Tandem teaching in Physical Education (PE) is defined as a collaborative approach where two teachers, typically a generalist classroom teacher and a PE specialist, work together to deliver PE instruction to students. This model is often implemented in the early grades of primary education (Popeska, 2022). Peer assessment in PE can be a valuable tool, but its effectiveness depends on various factors, including student abilities and proper implementation (Hortigüela-Alcalá, 2021; Liu & Li, 2020). The aim of the study was to investigate how well students can assess their peers in a tandem teaching environment.

Method

Twenty fifth-grade students and two physical education teachers collaborating to deliver gymnastics instruction participated in this study. Peer assessment, utilizing specific rubrics, was employed to evaluate the technique of three fundamental gymnastics movements (forward roll, backward roll, and headstand). A total of 300 peer assessments were collected and compared to the teachers' evaluations. Percentage differences between student and teacher assessments were calculated to analyse variations in evaluation.

Results and discussion

The results of this study reveal interesting patterns in student peer assessment of fundamental gymnastics movements. In the assessment of the forward roll, a significant majority (75%) of students aligned with the teachers' evaluation, suggesting that students can accurately assess basic skills when provided with clear criteria and adequate training. However, a notable proportion (19.34%) of students assigned higher scores than the teachers, potentially indicating a tendency towards leniency or overestimation of their peers' abilities.

This trend of inflated peer assessment was more pronounced in the evaluation of the backward roll and headstand, where a majority of students (56.33% and 64.66%, respectively) gave higher scores than the teachers. This discrepancy could be attributed to several factors. First, the backward roll and headstand are more complex skills than the forward roll, and students may have struggled to accurately identify and evaluate technical errors. Second, social dynamics and peer pressure might have influenced students to give higher scores to avoid conflict or maintain positive relationships with their classmates.

The consistent finding that a small percentage of students consistently gave lower scores than the teachers across all three skills (ranging from 3.66% to 5.67%) is also noteworthy. This could reflect a more critical or discerning approach to assessment among some students, or it could be a manifestation of individual biases or personal preferences.

Conclusion

Overall, this study provides valuable insights into student abilities in peer assessment within the context of physical education. While students demonstrate a reasonable capacity for evaluating basic skills like the forward roll, they tend to overestimate their peers' performance in more complex movements. This highlights the need for continued teacher guidance and scaffolding to ensure that peer assessment is accurate, objective, and fair.

Future research should explore the impact of different training methods and assessment tools on the accuracy and consistency of student peer assessment. Additionally, investigating the influence of social

dynamics and individual differences on peer assessment could provide further insights into this complex phenomenon. By understanding the nuances of student peer assessment, educators can harness its potential to enhance student learning, motivation, and self-regulation in physical education.

Key words: peer assessment, Physical Education, tandem teaching

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Perceptions of General Teachers and Sports Coaches on Tandem Teaching in Primary Physical Education

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Introduction

Tandem teaching, defined as the collaborative effort of two or more educators who jointly plan, instruct, and assess a shared group of learners (Spilková, 2015), has been implemented in various forms across educational contexts (Samul, 2023). In Slovakia, the "Coaches in Schools" project, inspired by a similar initiative in the Czech Republic, has been facilitating tandem teaching between sports coaches and general teachers since 2021 (Antala et al., 2024; www.trenerivskole.sk). This study sought to examine the perspectives of these teachers and coaches regarding co-teaching within primary physical education classes.

Method

The sample of this study consisted of 165 respondents: 29 coaches and 136 primary general teachers. Two standardized questionnaires were used to assess their opinions after a joint physical education lesson. The questionnaire for coaches included 14 verification questions, while the one for teachers included 22. Data analysis focused on percentage shares. The Chi-square test of goodness of fit and the Chi-square test for contingency tables were employed to analyze statistical differences and relationships between selected variables.

Results and discussion

A significant proportion of coaches (51.72%) confirmed observing improvements in students' physical literacy following the intervention, whereas a smaller majority of teachers (43.64%) indicated a similar trend ($p<0.05$). Furthermore, coaches reported high levels of teacher engagement in co-teaching (72.41%, $p>0.05$). Notably, teachers overwhelmingly rated the project "excellent" (75.73%) or "commendable" (18.38%, $p<0.05$) and expressed a strong preference for continued collaboration with coaches (80%, $p<0.05$). This positive sentiment extended to their evaluation of both the coaches' teaching practices and the activities themselves, with the majority rating both aspects as "excellent" (78.67% and 86.76% respectively, $p<0.05$). Importantly, student engagement was consistently high, with no teachers reporting insufficient activity levels. Additionally, over 82% of teachers perceived the activities as maximally attractive to students, further supporting the program's effectiveness ($p<0.05$).

Conclusion

The findings of this study underscore the efficacy of the "Coaches in Schools" program in enhancing students' physical literacy and promoting collaborative teaching practices within primary physical education. The high levels of satisfaction reported by both coaches and teachers, coupled with the observed improvement in student engagement and perception of activity attractiveness, suggest that the program is not only effective but also sustainable. The results further highlight the potential of collaborative teaching models to enrich the learning experience for both students and educators. Future research could explore the long-term impact of such programs on student health and academic achievement, as well as investigate the potential for scaling similar initiatives across a broader range of educational settings.

Key words: Physical Education, tandem teaching, general teachers, sports coaches

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Using fitness, spa and wellness services for better customer health! The intersection between health and profit

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This paper is part of a wider research in the Community fitness & spa club Sky Wellness Skopje. The intention of this research is to show the social role between the client as the end user of the services with the aim of better physical, mental and social health on the one hand and the profitability of this new sports industry that is rising and is part of the new modern age on the other. side. Fitness, wellness and spa clubs are one of the largest exercise arenas worldwide. Today's management is still based on intuitive and traditional experiences, with continuous application of scientific knowledge, as well as information mode - manager intended for sports management. Sports facility management is a process that deals with various aspects of ownership, management of sports facility models, issues of their design, construction and business. Long in the past, the sports facilities of the royal families served to hold traditional parties, but over the years they gradually became a kind of harbinger of today's sports complexes that fully encompass all layers of society. Increased knowledge in this area can provide valuable information leading to more effective exercise promotion strategies and better retention rates, important for long-term center success and physical, mental, and social health. The modern sports system in the world continuously faces many qualitative and structural transformations, which result from social, economic - political and technological conditions for social development. Based on this situation, a specific need is created on the basis of which the management of the sports center is obliged to make a balance between the needs of the clients (especially health) and the profitability of their own business, which is very rare, but at the same time necessary. for mankind. Therefore, in this study, a certain number of clients (more than 100 respondents) of different age, social, gender and age group will be surveyed, in order to show that possibility of using fitness and spa services to clients for better physical, mental and physical health as a social component on the one hand and the profitability of the Community fitness & spa club Sky Wellness sports center on the other**.**

Keywords: Fitness, wellness, spa, social, mental, physical health, clients.

Assessment of Acute Chronic Workload Ratio (SMA vs EWMA) in Predicting Training Overload and Injury Risk in Football: A Data-driven Analysis

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Introduction
The Acute Chronic Workload Ratio (ACWR) has been utilized to predict training and match overload, monitored by GPS, incorporating metrics such as Total Distance (TD), Distance in Sped zones 3+4+5 (D345), High Metabolic Load Distance (HMLD), Accelerations, and Decelerations. Data collected encompassing 82 days and 69 training sessions, with 8 days featuring two training sessions, was analysed.

Methods
Two ACWR methods, Simple Moving Averages (SMA) and Exponential Weighted Moving Averages (EWMA), were employed to forecast training/match overload, with calculations and visualizations performed in Power BI. Dynamic EWMA calculations were facilitated using R-script within Power BI. By April 2nd, five players had sustained non-contact muscle injuries: two players with hamstring injuries, two players with adductor injuries, and one player with a quadriceps injury. ACWR was systematically used to anticipate potential overload, categorizing zones as < 0.80 (undertraining/higher relative injury risk), 0.80 – 1.30 (optimal workload and lowest relative injury risk), and > 1.5 (danger zone and highest injury risk).
Statistical analysis was conducted using Python code in Anaconda's Jupyter Notebook, utilizing libraries/ functions including Pandas, NumPy, Matplotlib, SciPy, Scikit-Learn, Statsmodels, OpenPyXL, Dcor and IPython.display.

Results and Discussion
None of the players exceeded a training/match load above >1.5 (according ACWR), and data revealed that the five injured players exhibited similar percentage trends compared to other players. The Kruskal-Wallis test, conducted on selected metrics, yielded a significant p-value of 0.00 across all variables, indicating differences between player groups. Dunn's post hoc test, with Bonferroni correction, conducted between injured and non-injured players (in total 22 individual tests / 253 test in matrix, for each player, with other players, for each metric), revealed significant differences ($p < 0.05$) as follows (unique count): player no.1 (1 significant) in HMLD[x1]; player no.2 (8 significants) in D345[x2], Accelerations[x3], and Decelerations[x3]; player no.3 has (16 significants) in D345[x1], HMLD[x1], Accelerations[x12], and Decelerations[x2]; player no.4 (6 significants) in D345[x2], Accelerations[x2], and Decelerations[x2]; and player no.5 (2 significant) in HMLD[x1] and Accelerations[x1]. Most significant differences are observed between injured and non-injured players, with only 2 significant differences (for Acceleration) found between two injured players. Total Distance (as a volume dimension) did not show any significant between players. Percentages of players (above/below averages for selected metrics from start date to injury date) were calculated and followed to gain insights into individual player responses to training/match stimuli compared to average load of the entire team.

Conclusion
ACWR (with a help of data for: percentage above/ below mean metrics, and retrospective non-parametric statistical comparation between players) did not successfully forecast potential injuries. However, it is inconclusive whether ACWR was ineffective in forecasting, as the injuries may have arisen from various factors such as chronic muscle DOMS conditions (for which no additional information is available), changes in artificial surface, or lack of injury prevention as strength training.

Key Words: Football training load, injury prediction, ACWR, SMA, EWMA

Comparison of body components between boxers and wrestlers

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Introduction
Knowledge of body composition components is important information for athletes, especially those competing in weight-restricted sports such as boxing and wrestling.

Objective
Comparison of body composition parameters obtained with biolectrical impedance analysis (BIA) between boxers and wrestlers.

Material and methods
Twenty (20) athletes, 10 boxers and 10 wrestlers participated in this research. Body composition was analyzed by the bioelectrical impedance method using an InBody 720 device.
Results: The average age of boxers and wrestlers was 20.8± 4.8 and 22.3± 4.3 years. Height was 183.3± 6.5 cm for boxers and 175.5± 7.0 cm and was significantly higher in boxers, as was weight in boxers 84.37±12 kg versus 74.61±6.01kg in wrestlers. Lean component, skeletal muscle mass, total water, protein and mineral content were significantly higher in boxers. Fat component, percentage of fat tissue, degree of obesity was insignificantly higher in boxers. BF% in boxers was 14.11 ±3.2% vs. 13.27 ± 3.0% in wrestlers (p=0.568). Boxers had a higher basal metabolic rate (BMR) 1918±166.4 versus 1767.33±126.9 kilocalories.

Conclusion
BIA parameters showed that all lean parameters (fat-free component) were higher in boxers. All of the obesities parameters were insignificantly lower in wrestlers.

Key words: boxers, wrestlers, body composition, biolectrical impedance

New Systematic Changes and Approaches to Physical Education in Compulsory Education in Croatia – National reform "Primary School as Whole-Day School: A Balanced, Fair, Efficient and Sustainable Education System"

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Introduction

In the primary education system in the Republic of Croatia in the period of 2023-2024 is carried out comprehensive and substantial educational reform "Primary School as Whole-Day School: A Balanced, Fair, Efficient and Sustainable Education System" which should lead to improving the effectiveness and quality of education.

Method

Physical education in the school is conceptually and operationally improved in several ways - more instruction time for physical education lessons, new approaches for teaching staff where teaching is provided by kinesiology teachers, new conceptualization of breaks in student's daily school time, new methodical approaches in combining in-class teaching which implies using student's physical activity in all school subjects and domains, new approaches and allocation of time for extracurricular activates and many another changes and improvements.
Include the primary findings and their implication for practice, limitations, and future research direction.
The new framework and model of primary school as a whole-day school (WDS) is composed of four education programmes (A1, A2, B1, B2), of which two (A programmes) are compulsory for all students, and two (B programmes) are elective and offered to those students and parents who wish to participate.

Conclusion

After 150 years since the introduction of physical education as a mandatory subject in schools in this region, this is the first significant reform in the curriculum of physical education, especially in the quantity and quality of physical education lessons.
In this reform, very important role have also: new regulations for school sports facilities, secured funds for the construction of new school sports facilities, improvement of school meals, and introduction of national digital monitoring of children's anthropological characteristics. Many of these reforms were directly related with public policies in the Republic of Croatia.
In this way, the WHO recommendation for children to engage in moderate to vigorous intensity activities for at least 60 minutes per day would be met.

Key words: Whole-Day School, physical education, reform

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The contribution of smart devices in maintaining an active lifestyle by practicing swimming as a free time activity

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Diversifying access to information and the individual's desire to acquire new skills is a challenge in today's society. More and more people want to spend their free time in a variety of ways, regardless of the season. There are, however, free time activities which, due to its characteristics, after a prior qualified information about how the activities can be carried out. It is very important for the adult to understand the value of sports activities carried out in her free time, why have the effect of removing the accumulated stress and fatigue. We will highlight the contribution of smart devices in the formation of the habit of practicing swimming as an activity in free time and the importance of awareness of obtaining a healthy lifestyle by practicing it. More than that, through the effort made during the swimming sessions, you can maintain a good effort capacity and a quality night's sleep, as well as the possibility to continue practicing such a sports activity in the long term.

Key Words: free time activity; swimming; active lifestyle.

Sustainability and Competitiveness of Sport Related Organizations in Europe in the 21st Century

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Introduction

The dynamically increasing uncertainty of the uncertainty of the organizational environment, the new challenges of adapting sustainability principles, and the obligatory ESG standard in Europe require a careful assessment of existing environmental, social, and governance systems and the feasibility of projects leading to the certification of ESG in the near future for organizations with at least 250 employees and turnovers over 40 million EUR by January 2025 to be able to remain competitive along the total supply chain. This requires the fast creation of a sound sustainability strategy, in particular for the social and governance dimensions, which seem to be the most neglected.

Method

Literature review and sport sector industry corporate document analysis, together with classical strategic analysis tools for macro-micro analysis, strategic and stakeholder mapping, and TOWS analysis, will be used to demonstrate the approach for handling such challenges and human capital and governance aspects.

Results and discussion

A comparative overview of the most common errors in the usage of such tools, together with a comparative overview of the state of the art of ESG (S and G) and sustainability in Visegrad region countries (Hungary, Poland, the Czech and the Slovak Republic),

Conclusion

The state of the art in sustainability and ESG for sport-related organizations is very far from complying with new requirements, and immediate urgent steps should be taken to preserve the competitiveness of the players in the players in the sport sector.

Key words: sustainability, competitiveness, sport-related organizations, Europe.

QPE across teaching styles. What training for physical education teachers?

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Introduction
The training of physical education teachers requires the analysis of the intervention areas in physical education, the organizational methods and the ways of proposing motor tasks to promote the learning of motor competencies. Quality physical education teaching demands, among various factors, the selection and variation of teaching styles (Mosston & Ashworth, 2008) to promote the learning of motor competencies and the development of related factors.
The model of teaching styles guides the goals, methods, and selection of motor tasks in the educational process (Pill et al., 2023).
The aim of the study is to share and analyze teacher behaviors corresponding to each teaching style and to define educational scenarios.

Method
An action research was conducted for the training of physical education teachers and students of the Master's degree course in Sciences and Techniques of Preventive and Adapted Physical Activities (Puglia region), involving 20 Tutor-Teachers and 20 Students.
The participants a) identified and shared the teacher behaviors corresponding to each teaching style (4 behaviors for 4 reproduction styles and 4 behaviours for two production styles); b) practically created educational scenarios through microteaching (Cagol, 2022) to verify the coherence between objectives, teaching style, and predefined behaviours.

Results and discussion
Regarding the relationships between teachers and students, the choice to use and vary teaching styles assumes particular significance for the learning processes, allowing communication between the teacher and the group, as well as the experimentation, execution, variation, and adaptation of the motor task. Through the detailing of teacher behaviors and practical implementation, it was possible to analyze the choice of motor task and the methods of its proposal. Microteaching allowed the promotion of teacher reflection on the subject of teaching and the methods of proposing the task in relation to motor learning.

Conclusion
The variation of teaching styles, both reproduction and production, promotes the reciprocal relationships among different factors—psychological-motivational, organic-metabolic, perceptual-coordinative, and behavioral—and fosters different learning modalities for individuals.
Teaching styles, therefore, play a mediating role in the cognitive, motor, emotional, and social development of students, transforming teaching content into subjective, or personalized, teaching content. Each teaching style connects the disciplinary content with the student's learning modalities, developing a personalized teaching approach.

Key words: Teaching Styles; Motor Competencies; Microteaching; Motor Learning.

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The structure and functionality of professional services in correlation with contemporary needs in primary schools

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Introduction
The professional services in primary schools are increasingly taking the primacy of the professional basis which should and must be in function of securing a stimulating school environment for holistic growth of every student and for building a modern school. In conditions of constant change in teaching, introduction of innovations, new ways of learning and teaching, implementation of "rapid" and sometimes "radical" reforms, the occurrence of widespread fluctuations in teaching staff, insufficient education of newly hired teachers, introduction of total inclusion of students with special educational needs and a number of other circumstances in a great degree complicate the job of the professional services, but at the same time they raise the need of them to be put in the focus as a very important unifying professional element between students, teachers, parents and the wider societal community. With our research we want to find out if and to what degree can the professional services in elementary schools in our country answer these very serious challenges. The primary goal of the overall research effort is to perform a complex "scanning" of the normative and professional documents which address this problem, as well as the existing equipment of the professional services in primary schools in our country. Through analysis of the most important indicators we will need to agree whether and if so to what extent, depending on the structure of the professional services in primary schools, the existing professional services can realize the defined scope of work and thus fulfill their function in creating an encouraging environment which will enable holistic growth of the student, but also a supportive environment for a more efficient and functional implementation of innovations to improve the quality of teaching in primary schools. According to the exploratory nature of this research, the research hypotheses are of a differential form, consequently based on the structure of the measuring instrument, a questionnaire for the professional services in elementary schools, administrated within the framework of the research project and the planned crossings of the acquired data. The research is intended to cover 10%, i.e. 34 elementary schools in the territory of the country, while still maintaining representation of schools where teaching is carried out in different teaching languages and schools in urban or rural environment.

Results and discussion
The results of the research confirm that: there is an adequate legal framework for adequate staffing of professional services in elementary schools, but no standards have been set for the ratio of professional staff to the number of students; there are relevant professional documents for defining the professional standards for professional associates; there are accredited study programs that profile appropriate profiles of professional associates; there is no balanced representation of individual professional associates in the structure of professional services in primary schools, which entails challenges in terms of the comprehensive realization of the professional goals of professional services.

Conclusion
It is necessary to standardize the number and structure of employees in the professional services according to the number of students in the primary school. We appreciate that the principle of categorizing schools according to size (number of students, number of classes) should also be applied in the dimensioning of professional services.From the structure of employees in the professional services, we concluded that there is no balance in the majority of schools, which again points to the need for standardization.

Keywords: research, structure of professional services in primary schools, lstudy programs for professional associates.

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Factor structure of specific temporal and notational variables for evaluating kayak paddling technique in whitewater

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Introduction

This research represents the first of its kind in Macedonia. From a literature review perspective, a study by Hunter (2009) investigated the path taken, or trajectory, by kayakers and canoeists in negotiating upstream gates, showing a strong correlation between the time taken and the distance to the inside pole during the exit from the gate.

The research seeks to uncover time differences between the two kayakers in negotiating upstream gates, aiming to determine if Popovski could have achieved a better result and to motivate other kayakers and their coaching teams to apply similar analyses in their training and post-competition evaluations.

Method

In this study, the analysis focused on two elite slalom kayakers who participated in the Athens 2004 Olympics: Lazar Popovski, the top Macedonian kayaker, attending his fourth Olympics, and Michael Kurt, a distinguished Swiss slalom kayaker.

The software used for video playback of the paddling was Kinovea (Kinovea 0.9.1.). The analysis was conducted by an individual with several years of experience in this sport.

To achieve the subject and aim of the research, component factor analysis was applied to compare the kayakers Lazar Popovski and Michael Kurt. To determine the significance of the principal components, the Kaiser-Guttman criterion was applied, where all components with an eigenvalue of 1 (one) are considered significant. In the subsequent step, the non-rotated factor matrix was rotated with an orthogonal solution using Varimax orthogonal rotation. When defining the factors, only those with an absolute value greater than 0.300 were taken into account. The SPSS 20 software was used for data

Results and discussion

Three latent factors were extracted from the two kayakers in the second run. Kurt isolated five latent variables in the first common factor and two variables each in the second and third factors. Popovski's first common factor contains six latent variables and one each in the second and third factors. The characteristic variables refer to the duration of paddle in the water, the frequency of strokes, and the number of strokes between the gates.

The values obtained from the research should help the kayakers and their coaches identify where and why they are losing time in overcoming the opposing gates. These parameters provide data for planning the training process and analyzing the races.

The research has several limitations due to the small sample size of elite athletes, a limited number of variables including temporal and notational variables instead of kinematic and kinetic variables, and variables of other nature. Additionally, video analysis was performed by one person, which may affect the objectivity of the results, among other factors.

Conclusion

Applying principal component factor analysis to the initial paddling of Kurt and Popovski, three main components were extracted. However, due to the different variables defining the principal components, it can be observed that the technique (coordination) concerning the environment for these two kayakers is different.

This approach to analyzing slalom kayak races can also be used to examine technique in subsequent paddling on the same course, revealing changes in interaction with the environment over time. Furthermore, comparisons can be made between kayakers with different performances, ages, genders, etc.

Key words: principal components, interaction, technique, temporal variables, notational variables, factor analysis, latent factors, latent variable

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MOBAK 1-2: Gender-Based Evaluation of Motor Competence in 6-8 Year-Old N. Macedonian Primary school children

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Introduction
Basic motor competencies (BMC) are crucial for enabling children to engage in physical activities and participate in sports, which are important for developing a healthy and active lifestyle. Motor competences are extremely dependent on the specific situational requirements of movement, play and sport. (Herrmann et al, 2015). The purpose of this research is to analyze motor competence in children aged 6 to 8 years from first and second grade between gender.

Method
The cross-sectional study was conducted in one primary school from N. Macedonia. In this research, the MOBAK 1-2 instrument was used and adapted for testing and evaluating the basic motor competencies of first and second grade children. Basic motor competencies were assessed with the MOBAK 1-2 (Herrmann, 2018) for 6- to 8-year-old children with standardized equipment. MOBAK 1-2 covers two motor competence areas, object movement (OM) and self-movement (SM), each consisting of 4 motor qualifications. The sample is composed of a total of 110 respondents (boys n = 49, girls n = 61) from first and second grade (age: 6-8 years) during physical education classes.

Results and discussion
The Mann-Whitney Test was conducted, which examined differences between boys and girls in first and second grade in terms of BMC. Based on the obtained results, it can be concluded that, boys performed significantly better in OM while girls performed better in SM motor competence area. Both, OM and SM qualifications, showed differences between age, indicating that older children achieved higher levels of BMC compared to younger ones. This is consistent with previous research on BMC (Herrmann, 2018) as well as studies on general motor competence, aligning with our expectations.

Conclusion
This research among children aged 6-8 has theoretical and practical significance and contributes to the understanding of motor competence and regular physical activity in children and the creation of strategies to promote a healthy and active lifestyle from an early age.The results of the same will make a significant contribution to a broader understanding of the influence of children's lifestyle on their motor development in the key years of childhood.

Key words: Basic motor competencies, primary school children, MOBAK 1-2, object movement, self-movement.

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Sensory rooms and motor development at children with special needs

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Schools are usually busy and noisy places. For some children that environment can be disturbing and stressful. Implementation a school sensory room is effective way of provide safe and calm place, especially for children with special needs.
Sensory room include equipment that promotes physical activity and help children with special needs to develop gross and fine motor skills. Sensory room can be an entire room or as special defined place or corner in a room depending on space and the material costs that we have at our disposal. Sensory rooms can support children with autism, developmental delays, ADHD and other special needs. They can promote motor development, social – emotional wellness, behavioral support and self – regulation skill.
This case study has an aim to research and investigate effectiveness of use of sensory room for motor development at children with special needs, which includes observation of equipment and training staff. Are sensory room meets the standards for performing interventions and motor development at children with special needs or is it intended only for relaxation and play? Are the staff and parents trained for interventions? Are their previous measurements which prove motor development at children who experience the sensory rooms? For this purpose, observation and interviews with several teachers and parents will be used. Motor development is the starting point for further cognitive development.

Key words: sensory room, children with special needs, motor development.

Correlation between children's sedentary and physical activity with their BMI and BMI, physical activity and demographic characteristics of their parents

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The aim of this research was to determine whether there is a correlation between children's sedentary and physical activity and the body mass index of children and parents, the parents' physical activity, and demographic characteristics. The research included 115 pupils aged 9 to 11 and their parents (mothers or fathers). Body mass index (BMI) was calculated based on children's and parents' height and weight. Parents' physical activity was determined according to whether they met the WHO guidelines for adults, and the sociodemographic characteristics included gender, age, and place of residence. Children's physical and sedentary activity was tested with C-PAQ (Children's Physical Activity Questionnaire). Children's physical activity (PA) was operationalized through four types of activity (organized PA, school-related PA, free-time PA, and total PA). Intercorrelations were calculated using Spearman's correlation coefficient. The results showed that girls spend significantly fewer minutes per week in organized and total PA. In the context of age, younger pupils spend significantly more min/week in organized and total PA. Parents' gender, age, and BMI were not statistically significantly related to any form of children's physical and sedentary activity. Furthermore, pupils with a higher BMI spend significantly fewer min/week in free PA, and pupils whose parents meet the WHO guidelines on PA spend significantly more min/week in free activity and significantly fewer in sedentary activities. Pupils who live in a house spend significantly more time per week in free and total PA.

Key words: physical exercise, guidelines, body mass index, pupils, gender.

Creating an Educational Package for Physical Education Teachers Through International Collaborative Approach: P.E.rfect project

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Introduction

Successfully supporting students with autism in mainstream schools requires specialized strategies. With the emphasis on inclusion, many educators work to meet the needs of the growing number of students on the spectrum. Although some teachers have received specific training, further education is still necessary. This is especially important for physical and health education teachers, who face challenges in effectively including neurodiverse students in inclusive classrooms within mainstream schools.

Method

The Perfect project was developed in partnership with the Erasmus + program, involving seven countries: Macedonia, Cyprus, Poland, Ireland, Czech Republic, Bulgaria, and Spain. It aimed to create an educational package comprising appropriate teaching and learning support materials for physical educators working in inclusive settings with children with autism. The educational package was not just a product of research but a testament to the power of collaboration. A diverse group of participants, all with a shared vision and goals, came together to develop this package. They communicated openly, exchanged ideas, and demonstrated mutual respect, equality, and resource sharing. This collaborative approach helped us achieve our goals and fostered a sense of belonging and shared responsibility.

Results and discussion

The collaborative approach, which leveraged the strengths of diverse project participants, fostered the creation of an innovative educational package that consists of a toolkit, Lesson Plans, a Guidebook, an Assessment Tool, and a Goal Bank. Educational materials will be available on an e-learning platform at the end of the project. Additionally, training for trainers will be held in Spain with further disseminated trainings for physical education teachers in each partner country.

Conclusion

The international cooperation between different stakeholders, schools, universities, companies, and non-governmental organizations is a good example of intersectoral collaboration in developing a novel educational training package for supporting practitioners working with students with autism spectrum disorders from mainstream schools.

Keywords: autism, physical education, training

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University students' perceptions and understanding of physical literacy: an exploratory study in Cyprus

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Introduction
Physical literacy, defined as an individual's relationship with physical activity, has significantly permeated policy and practice discussions across diverse global contexts (Bailey, 2022; IPLA, 2017; Spengler & Cohen, 2015). Despite its significance, a gap exists in understanding how university students perceive the potential application of physical literacy in educational settings. In line with the increasing global emphasis on physical literacy, our study aimed to examine the perceptions and understanding of pre-service Physical Education teachers regarding this concept.

Method
A qualitative approach was employed, involving five focus groups with 21 university students enrolled in Sports and Exercise Science programs. Prior to participation, all students provided informed consent, ensuring they were fully aware of the study's purpose and procedures. The focus groups were guided by a semi-structured interview protocol, including questions that covered various aspects of physical literacy, including its definition, perceived importance, and practical application in educational settings. Each session was facilitated by experienced researchers who followed the semi-structured interview guide to ensure consistency across all groups. The discussions were audio-recorded with the consent of the participants; the audio recordings were transcribed verbatim. A thematic analysis approach was employed to analyse the data, identifying key themes and patterns related to the students' perceptions and suggestions regarding physical literacy.

Results and Discussion
The analysis revealed that students perceive physical literacy as a multifaceted concept involving skill-building, knowledge acquisition, practical implementation, and lifelong engagement with physical activity. Participants emphasised the cognitive and physical dimensions of physical literacy, highlighting its importance in educational and cultural contexts. The analysis identified key themes: the cognitive aspect of physical literacy (7 interviewees), its role in education (5 interviewees), lifelong physical activity (4 interviewees), practical implementation (4 interviewees), skill building (2 interviewees), and cultural influence (1 interviewee). These findings suggest a broad and varied understanding of physical literacy, reflecting its diverse applicability and the significant role of educational and cultural environments in shaping this understanding. The implications for practice include the need for a holistic approach to physical literacy in educational settings, integrating cognitive, behavioural, and practical aspects to cultivate lifelong engagement in physical activity. However, challenges in integrating physical literacy into curricula and the need for clearer policy guidance were also identified.

Conclusion
The findings suggest a satisfactory understanding of physical literacy among university students, with notable gaps in practical application. Addressing these gaps through targeted educational strategies and professional development can enhance the effective incorporation of physical literacy principles in educational settings. Future research should focus on developing targeted educational strategies and professional development to enhance the effective incorporation of physical literacy principles.

Keywords: Physical literacy, university students, focus groups, qualitative analysis, education.

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The influence of copper on the health of athletes

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Copper plays an important role in maintaining health at the cellular level, as it is necessary for the production of energy in the process of cellular respiration. In addition, copper plays a key role in the formation of red blood cells and hemoglobin, enzymes that depend on copper to transport iron that is incorporated into hemoglobin, the protein that carries oxygen through the blood. Copper has the ability to act as an antioxidant and has a protective role in oxidative stress, which can damage nerve cells. In addition, copper-dependent enzymes produce collagen, deactivate histamine and break down dopamine into a neurotransmitter allowing cells to communicate with each other. Also, copper plays a key role in the production of myelin, which is important for the function of the nervous system.
An adult's body contains between 100 and 150 mg of copper, and the largest amounts of this mineral can be found in the brain, muscles and bones. It is believed that copper is also important for proper growth in children who play sports, brain development and strong bones, and it is very important for the immune system.
Lack of copper can cause certain symptoms such as anemia, arrhythmia, problems with the thyroid gland and low concentration of leukocytes, and it can also be the cause of more frequent bone fractures and osteoporosis. This mineral participates in the processes of energy production and tissue protection in the athlete's body from injury.

Key words: copper, athletes

Psychological skills in different sports

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High-demand sports require extraordinary physiological capacities and outstanding motor control, perception, and cognitive functioning abilities. Cognitive skills refer to identifying, acquiring, and integrating environmental information with existing knowledge. The combination of motor and essential psychological (i.e., cognitive functions) has not yet been examined or has been poorly examined. Therefore, the present study is unique as it connects essential psychological (cognitive functions) with motor aspects of football players. Current research mainly studies elite youth athletes, especially football players, on the one hand, the physical or physiological prerequisites of elite youth football players or, on the other hand, the psychological prerequisites, that is, the cognitive functions of elite youth football players in isolation. On most tests applied in this research, there was obtained a statistically significant difference, which confirms our initial premise that the individual sport, in this case, tennis, and collective sport, in this case, football, will show significant differences when one takes into consideration their influence on the formation of one's personality and the precision.

Keywords: cognitive abilities, tennis, and football players.

Injuries and psychological effects in sports across various competition levels

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The increased demands of the training process and competition in the direction of volume and intensity of movement demand higher technical-tactical, physical, and psychological abilities from the football game participants. Such demands often lead to various injuries of football players in the training process and competition, such as contusions, ruptures, distortions, pain in the groin, meniscus injuries, etc. This research aimed to register the number of injuries during training and competition activities among football players at different levels of competition. After conducting research and a survey questionnaire, we came to know that the number of injuries in the mentioned competition ranks does not depend only on the competition rank but also on the level of expertise of the coaches, the level of technical-tactical and physical preparedness of football players, the expertise of doctors and referees at matches.

Keywords: competition rank, contusion, rupture, dislocation, distortion, fracture, groin, and meniscus injuries.

Some properties of the intra-individual power- and stepping frequency-measures time series in students from the Faculty of Physical Education, Sport and Health in Skopje. A pilot study

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Introduction
In this pilot study our aim was to test the possibility of existence of contemporaneous as well as lagged relations among time series representing the rate of change of power- and frequency- measures in students from the Faculty of Physical Education, Sport and Health in Skopje.

Method
To achieve this goal, we used a sample of 5 volunteers (N=5; 4 male and 1 female, average aged 24.6 years). Measurements were conducted twice each day with length of 30 days. The sample of measures consisted of 4 power variables: 1. Counter-movement jump (CMJ); 2. Counter-movement jump with free arms (CMJFA); 3. Squat Jump (SJ); 4. Squat Jump with free arms (SJFA); and 5. Stepping frequency (SF). All were measured using MicroGate Opto-Jump RX10. The daily measurements were separated at least 3 hours. The collected time series with length of n = 61 data points contained indications of non-stationarity such as local trends (Molenaar, 2004). In order to obtain stationarity, we applied order 1 differencing of time series with lag 1. With aim to check for the existence of statistically significant contemporaneous as well as lagged bi-variate relations among the collected intra-individual time series we applied a cross-correlation analysis. 50 within-person cross-correlations were estimated.

Results and discussion
The most consistently present statistically significant contemporaneous relation was the lag 0 correlation between the (CMJ) and (CMJFA) variables r = 0.48±0.02. It was present in all participants. Somewhat less consistently present and with smaller although significant correlation values were the contemporaneous (i.e. lag 0) cross-correlations among the pair of variables (SJ) and (SJFA); r = 0.31±0.08; $p < 0.04$. Lagged correlations with lags 1-4 were also present with even less consistency and they were individual-specific.
Discussion: From methodological point of view, this study revealed the existence of contemporaneous as well as lagged relations among the time series representing the rate of change power- and frequency-measures in students. This result is promising with respect to application of more informationally rich statistical methods such as the Group-Iterative-Multiple-Model-Estimation (GIMME)(Beltz et al. 2017). From the prospective of the intra-individual co-variability of motor-ability- measures the results showed that some contemporaneous relations may be persistent across all individuals and some contemporaneous as well as lagged relations are individual-specific. These results point to the possibility of existence of more general and individual-specific, time-distributed, relations among specific neuro-musculo-tendinous-skeletal mechanisms responsible for generating the power performance.

Conclusion
The pilot study showed promising results with respect to the future modeling of intra-individual co- variability in the space of motor abilities in humans.

Key words: intensive longitudinal analysis, human performance, motor abilities, cross-correlation, power, coordination.

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Basic and specific motor abilities of national wheelchair basketball team

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Introduction

Sports for people with disabilities are becoming increasingly widespread around the world and their popularity is growing (Lena Grams G. G., 2016). Due to its attractiveness, this sport is considered one of the most popular Paralympic sports (Aitor Iturricastillo, 2015)

According to the IWBF data from 2020 were more than 100 000 wheelchair basketball players around the world (IWBF, 2020). Beside the main player classification, there are few important abilities that are categorized as important for this sport and tested such as agility, passing, pick-up, shooting, speed, force, dribbling in order to provide more information about their physical status (Carlos Mariano Aguiar Ferreira da Silva 1 2, 2022).

The primary goal of this research is for the first time in Macedonia to evaluate the basic and specific motor abilities of the national team. Add up as secondary goal is to compare the results with other teams.

Method

The sample sonsisted of 12 male representatives from Macedonian A selection in wheelchairs, with average age of (37.75±11.42). To assess motor abilities, the following tests were conducted: handgrip dynamometry [kg], 3kg medicine ball throw [m], 20 sprint without ball [s], 20m sprint with ball [s], T-test [s].

The statistical data analysis was performed using the statistical software package SPSS 22 to determine statistically significant differences, a one simple t-test and Wilcoxon signed rank test with significant level $p<0.05$.

Results and discussion

One simple t-test and Wilcoxon signed rank test reviled statistically less significant means and medians (handgrip strength 47.92±16.73 ; 3kg medicine ball throw. 5.47±0.93 ; 20m sprint without ball 7.29±0.93 ; 20m sprint with ball 9.18±2.61 ; t-test 22.10±3.24). The obtained results are expected given the characteristics of the participants, considering their eight month sports experience.

Conclusion

The assessment of motor abilities of wheelchair basketball players can be utilized from multiple aspects. Firstly, such results represent a foundational basis for planing and programming the training process, which will be based on scientifically verified results. Additionaly, these results can be used for controlling and monitoring the effect of training content, further in the selection process, as well as forming normative values for this category of athletes, considering that this research is being conducted for the first time on this group of athletes in Macedonia.

Key words :wheelchair basketball, motor abilities, testing.

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Comparisons and Correlations of Electrocardiographic Changes with Regard to Certain Echocardiographic Characteristics in Athletes

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Electrocardiography (ECG) changes, especially abnormal ones, are not in actual fact functional cardiac remodeling that occurs as a result of physical training, but rather they are most likely a reflection of a structural and/or functional cardiac disorder that can lead to SDD (Sudden Cardiac Death). To achieve the objectives of the study two non-invasive diagnostic methods for cardiovascular evaluation were utilized: electrocardiography (ECG) and 2D transthoracic echocardiography in 54 patients with ECG changes.
The comparison of left ventricle (LV) end-diastolic and end-systolic volumes indexed for the body surface area showed that the largest mean volumes, which were simultaneously above the reference values, were registered in male athletes who had an abnormal ECG, which was also confirmed by obtaining significant positive correlation between increased end-systolic volume and the presence of an abnormal ECG ($r = 0.303$; $p = 0.026$). An increased trabeculation was observed in 5 athletes, 3 of whom (10.7%) had a physiologically altered ECG, and in 1(7.1%) a borderline, whereas in another an abnormal(1/14.3%) altered ECG, with no statistically significant difference in their comparison observed ($p = 0.865$). These results have emphasized the need for further research in order to determine the etiology of changes, i.e. to determine the potential existence of structural cardiac disease.

Key words: athletes, electrocardiography, echocardiography, athlete's heart.

Test-Retest Reliability of the Wrist Dynamometry Test in Macedonian Adolescents

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The strength of hand grip can be non-invasively measured easily and quickly using portable hand dynamometers. The wrist dynamometry fitness test is widely applicable in many areas of medicine and sports science to assess isometric muscle strength of the wrist and forearm. The aim of this study was to determine the test-retest reliability of the wrist dynamometry test in Macedonian adolescents. The study included a sample of 20 male participants aged 14 years. Each participant performed three maximal voluntary contractions for each hand, always starting with the dominant hand. The measurement of hand grip strength was repeated the following week under the same conditions and at the same time of day and location. The intraclass correlation coefficient (ICC), standard error of measurement (SEM), and 95% limits of agreement (LOA) were calculated. The relative reliability between the first and second (test-retest) measurements is very high, ranging from 0.98 to 0.998 (ICC) for dominant hand wrist dynamometry, from 0.928 to 0.991 (ICC) for non-dominant hand wrist dynamometry, and from 0.971 to 0.996 (ICC) for wrist dynamometry averaged across the right and left hands. The current results indicate that maximum hand grip strength can be reliably measured using the Camry hand dynamometer in Macedonian adolescents.

Key Words: Test-Retest, Isometric Strength, Handedness, Adolescents.

Enhancing Adolescent Physical Fitness with a 16-Week High-Intensity Interval Training Program: A Cluster Randomized Trial in Physical Education Classes

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Introduction

Declining physical fitness (PF) among adolescents is a growing problem worldwide, posing significant health risks later in life. Current literature suggests that high-intensity interval training (HIIT) could counteract these trends by significantly improving cardiovascular and metabolic health. This study aims to test the hypothesis that a 16-week HIIT program integrated into school physical education (PE) classes will improve PF and body composition of adolescents aged 10 to 15 years more effectively than traditional PE activities.

Method

This cluster-randomized controlled trial involved 215 participants aged 10 to 15 years who were divided into an experimental group (EG) of 111 students and a control group (CG) of 103 students. The EG participated in a structured 16-week HIIT program that was integrated into regular PE classes and aimed to improve various fitness components such as cardiorespiratory fitness, flexibility, speed and anaerobic power. The CG continued to participate in their usual PE activities. Fitness levels were assessed at the beginning and end of the study using the Eurofit test battery. Participants' anthropometric data and body composition were measured according to standardized protocols, including body mass and impedance-based fat percentage analysis. The fitness assessment primarily included the 20-meter shuttle run, in addition to other Eurofit tests.

Baseline demographics and fitness characteristics were analyzed using independent-samples t-tests to determine initial differences between groups. Changes in fitness outcomes due to the HIIT program were evaluated using mixed-effects models that accounted for the nested structure of the data and adjusted for covariates such as age, gender, initial fitness level, and body composition. Primary outcomes were analyzed as both per-protocol and intention-to-treat (ITT) analyzes, with the latter including all randomized participants in the analysis to mitigate the effects of dropouts and ensure comprehensive data integrity. This approach reflects a robust handling of potential data bias and noncompliance. Effect sizes were calculated to quantify the significance and practical relevance of the observed changes, with statistical significance set at a threshold of $p < 0.05$.

Results and discussion

The results showed significant improvements in the EG compared to the CG. Specifically, the EG showed an average increase of 230 meters in the 20-meter shuttle run test ($\beta = 70.0$, SE = 21.5, $p = 0.001$), indicating a significant improvement in cardiorespiratory fitness. In addition, there were significant improvements in flexibility (+1.4 cm, $\beta = 0.35$, SE = 0.12, $p = 0.026$), speed (decrease of 0.4 seconds, $\beta = 0.12$, SE = 0.06, $p = 0.039$) and anaerobic power (+12 cm, $\beta = 2.7$, SE = 1.2, $p = 0.021$). A modest reduction in body fat percentage was also observed in the EG (-0.9%, $\beta = 0.35$, SE = 0.14, $p = 0.029$). These results suggest that HIIT may be an effective method for improving PF, which is critical for adolescent health. Limitations of the study include the short duration of the intervention and the possibility of maturation effects given the age range of the adolescents. The study has important implications for the development of PE curricula and

offers a practical approach to improving adolescent fitness. Future research should investigate the long-term retention of HIIT and the psychological effects on adolescents.

Conclusion

This study confirms that a structured 16-week HIIT program significantly improves key components of PF and body composition in adolescents. The effectiveness of the program suggests that integrating HIIT into PE in schools could be a strategic measure to reverse the declining fitness trend observed in this population.

Key words: High-Intensity Interval Training (HIIT), Physical Education, Physical Fitness, Adolescent Health, Randomized Controlled Trial (3-5)

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Physical activity among students 6 to 8 years old

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Introduction

The transition from kindergarten to school is associated with various adverse changes. After entering primary school, the level of physical activity decreases. Furthermore, during the past few decades, children's levels of physical fitness have drastically declined. Children are spending more and more time in settings where sitting is always required.
The main goal of this study was to determine if boys and girls in the first educational period differ in various forms of physical activity.

Method

The study had a total of 519 participants, randomly selected from multiple primary schools in the Skopje region, who were between the ages of 6 and 8 years (mean age 7.15 ± 0.79). The sample was divided into two subsamples, 260 male subjects and 259 female subjects. The guardians of the children filled out a systematic survey form, which was used to evaluate physical activity. Data analysis was performed using contiguous tables based on the values of the χ^2 square test.

Results and discussion

From the values of the χ^2 ($\chi^2 = 6.04$, $p = .049$) test, it can be seen that there are statistically significant differences between boys and girls, in the context of time spent in physical activity, during their free time. The percentage numbers show that, compared to girls, boys spend a higher percentage of their leisure time engaging in organized physical activity (sports) and time in total physical activity.

Conclusion

Based on the data collected, it can be concluded that when creating physical activity programs, gender differences should be considered in terms of physical activity intensity and variety.

Keywords: children, physical activity, sports activity

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Standing long jump as an indicator of lower muscular strength among students in higher education.

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Background
Continuous monitoring of future generations' physical development, health, and well-being is the basis for a healthy and prosperous nation. It is essential to monitor the conditions and develop suitable norms.
The standing broad jump (SBJ) is a valid, reliable, and feasible field-based test that can evaluate the lower limbs' explosive strength and general physical fitness. The purpose of this study was to identify variations in performance across age groups and genders and to offer normative data for the SBJ for male and female students in higher education.

Method
A total number of 270 university students from Macedonia have been included for analysis. The sample was split into five age groups, according to chronological age, and each age group was further divided into two subgroups based on gender criteria. To estimate the morphologic characteristics, the following anthropometric measures have been applied: body height in standing position (cm), and body weight (kg), , as well as the body mass index (BMI).

Results and discussion
The results demonstrate a linear increase in the jumping distance for both male and female university students. The SBJ was performed to derive percentile values for gender and each age group. In general, males have greater jumping performance compared to females. The study has provided percentile values useful for monitoring the physical fitness status of university students.

Conclusion
The results of this study will help with appropriate assessment and analysis of the muscular strength of Macedonian university students according to age and gender, as well as accurate observation of their growth and the implementation of preventative actions and assistance programs.

Keywords: Fitness Testing, Lower Muscular Strength; Standing Long Jump; Gender; University Students.

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The influence of body mass on certain motor dimensions in 1st grade students from Skopje

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Physical activity and maintenance of optimal body weight in children from an early chronological age is the foundation for further healthy living, prevention of chronological diseases and maintenance of optimal metabolic function. The population from which the sample was derived is defined as a stratified random sample, which consists of 1st grade students from the territory of the city of Skopje (100 respondents - 50 male and 50 female). The subject of this research is the determination of the influence of body mass on certain motor dimensions among students from 1st grade from Skopje. The objectives of this research are: determination of the body mass of students from the 1st grade, determination of correlations of the applied variables, determination of BMI (body mass index), determination of the height of the students, examination of biomotor abilities: 1. strength (static on upper extremity, explosive leg strength and abdominal repetitive strength), 2. speed (general and repetitive on upper extremity). In this research we used the following variables: morphological variables: body mass weight (TT), body height (TV), average abdominal circumference (OSTO), upper arm circumference – extended (NADL), thigh circumference (NATK), mean chest girth (OGRA), biomotor variables: raising the upper body from the floor (PODI), tapping with the preferred hand (TAPI), standing long jump (SKOK), hang with straight elbows (ZGIB), running 5x10m. (T5x10) (TRC). .For each applied variable, the following central and dispersion statistical parameters will be calculated: arithmetic mean (AS), standard deviation (SD), estimation of the distribution of the results is tested with skewness (Sk), homogeneity of the results is tested with kurtosis (Ku), minimal score (Min), maximal score (Max), BMI determination, personal correlation analysis. All statistical procedures are calculated with modern statistical packages.

Key words: Physical activity, body mass index, skewness, kurtosis.

Prospective Golf Turizam in Macedonia

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The increase in the importance and popularity of sports tourism has led to both sectoral development and an increase in academic studies. Golf tourism is only one of the branches in the sports tourism category. The purpose of the survey is to investigate and evaluate the potential growth areas for golf tourism in Macedonia. In addition to golfers, this industry also draws their friends and family, who might participate in other tourist activities. With its breathtaking scenery, perfect temperature, and rich cultural heritage, Macedonia has the potential to become an important golf tourist destination. Golf tourism is still relatively new in Macedonia, there aren't many golf courses in the region - the majority are relatively small in size and not meeting international standards. The Mediterranean climate, natural landscapes, and cultural and historical attractions are only a few favorable indications. Despite its constraints, Macedonia has enormous potential to develop the golf tourist industry.
Important factors are government support, investment opportunities, and strategic location. A strategic development plan is necessary if Macedonia is going to achieve its potential as a golf tourism destination. Infrastructure development, marketing and promotion, training and education, and sustainable practices should all be important parts of this strategy. To build a prosperous golf tourist sector in Macedonia, many issues including knowledge, concurrence, and investment barriers must be resolved. Conclusion: With the correct investments and careful planning, golf tourism in Macedonia has the potential to give a major boost to both the travel and tourism sector as well as the nation's economy. By taking advantage of its scenic landscapes, pleasant weather, and rich cultural heritage, Macedonia may establish itself as a unique and appealing location for golfers worldwide.
To make the most of this potential, it will be essential to address the challenges at their root and focus on long-term development.

Keywords: sport, golf, tourism, development

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Relations of morphological characteristics, basic and specific motor skills of young handball players from the territory of Novi Sad

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Introducatiom
Morphological characteristics, basic and specific motor abilities are the main predictors of selection in sports. Depending on the type of sport, their participation also depends. The aim of this paper is to use the obtained relations to improve the work in handball clubs, to achieve a higher selection quality in monitoring of young handball players in their further development.

Material and Methods
The research was carried out on a sample of 65 handball players from the area of Novi Sad, with the average age 15.45±0.15 years, from different handball clubs. The average height of the players was 174.48±8.19 cm, weight 63.90±11.15 kg and average nutritional value BMI=19.44±3.15 kg/m2. Body height, body mass, arm span, and hand length were measured. As for the motor abilities, the explosive power of the leg muscles, the repetitive power of the trunk muscles, the flexibility of the back of the thighs, and the lower back, general strength, and specific motor abilities (specific agility, curvilinear motion with a ball and shooting accuracy) were assessed using standardized tests.

Result and discussion
Using the regression analysis, it was determined that the system of predictor variables has a statistically significant impact on the criterion variables, Standing long jump (P=0.02) and Dominant-hand dynamometry (P=0.02). Common variability ranged from 39% in the Dominant-hand dynamometry criterion to only 2% in the 30 s Trunk Raise criterion. The values of the standardized regression coefficient Beta indicate a single negative and statistically significant influence of the variable Body mass (pbete=0.02) on the Standing long jump criterion, and a positive statistically significant influence (pbete=0.01) of the same variable on the Dominant-hand dynamometry criterion.

Conclusion
The results of the research indicate the assumption that there is an interrelationship between morphological variables for assessing the longitudinality of the skeleton and body mass, and basic motor skills in handball players, and that training must be approached with great care and control of body composition and further reduction of the mass of young handball players.

Key words: handball, relations, basic, specific motor skills.

Psychological and motor skills among athletes and non-athletes

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A competitive mindset is advantageous for competing in sports successfully. Research has already supported an association between psychological skills and sports performance in general. Attention is given to psychological skills relevant to competition in an attempt to differentiate between successful and unsuccessful competitors to distinguish between skill position or gender, to ascertain the effects of training, or to develop a model of the psychological profile necessary for optimal performance. Existing literature has widely highlighted the value of mental training in assisting participants in sports in developing and maintaining practical mental skills, which are essential to reaching peak performance and enjoying, and possibly succeeding in, the competitive experience of sports. Mental toughness, decision-making, and motor skill execution were measured. Findings suggest that higher mental toughness may contribute to maintaining performance across the increased pressure challenge within small-scale games. This research aimed to unravel the intricate relationships between personality dimensions, motor skills, and anthropometric measurements among non-athletes, encompassing both athletes and non-athletes.

Keywords: psychological and motor skills, athletes, non-athletes.

12 weeks effect of plyometric training on anthropometric measures and physical fitness performance in 14-year-old boys

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The aim
The aim of this study was to prove the effect of 12 weeks of plyometric training on anthropometric measurements and physical fitness performance.

Methods
The research was carried out on a sample of 170 male entities aged 14 years ± 6 months, primary school students in the city of Kumanovo, North Macedonia. The sample of 170 subjects was divided into 2 groups: Group A: Experimental (EG, n=90, height 167.5, weight 59.40, BMI 21.096) and Group B: Control (CG, n=80, height 166.86 , weight 58.180, BMI 20.80). Subjects from the experimental group underwent a 12-week plyometric program, while the control group did not follow any adequate program, except for 2 regular hours during the week in the subject of physical education. For the anthropometric parameters assessment we tested body height, body mass, body mass index, quadriceps circumference and calf circumference, while for the physical fitness performance assessment we used the sit and reach tests, vertical jump, standing long jump, 30 meter sprint, 10x5 shuttle run and agility T-test. The study had a longitudinal character and lasted 12 weeks, with 36 hours of training or 3 hours during the week and 2 hours from the subject of physical education.

Results
The results of the study after the application of the experimental model, in the final measurements, show that all the variables of physical fitness and 2 of the 5 variables of the anthropometric parameters have statistically significant differences (p=0.05), between the control group and the experimental one. According to the data from the univariate analysis of variance (ANOVA), in the initial measurements, no significant differences appeared in most of the tests used in this study, except in the 30 m sprint (p=0.02) and 10x5 shuttle run tests (p= 0.00). While according to the data from the univariate analysis of covariance (ANCOVA), in the final measurements, we find that the data system in the physical fitness space has statistically significant differences in the tests vertical jump (VJ) (p=0.00), standing long jump (SLJ) (P=0.00), 30m sprint (R30m) (p=0.00), 10x5 Shuttle run (10X5Sh) (p=0.00), T-test agility (ATT) (P=0.00), sit and reach (SR) (P=0.04), while among the anthropometric parameters statistically significant differences were shown by the variables quadriceps circumference (QC) (p=0.01) and body height (BH) (p=0.04).

Conclusion
All the tests are in favor of the experimental group, which can prove that this model of plyometric training, with 3 additional hours per week, in a period of 12 weeks, has a positive effect on the development of the explosive strength performance of the lower extremities, speed, agility and flexibility of the lower back and hamstrings, as well as marked improvements in anthropometry. Practical application: These findings show further evidence for the improvement of anthropometric parameters and the increase of physical fitness performance through the implementation of the plyometric training program model in the children who attended this experiment.

Keywords: plyometric training model, anthropometric parameters, physical fitness, student, anova, ancova.

Relationships and influence of anthropometric characteristics and physical fitness parameters in 100 m sprint running in adolescents

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In this paper, we have searched the relationships and influence of anthropometric characteristics and physical fitness parameters in 100 meters sprint running in teenagers. The purpose of this paper is to prove the relationship between anthropometric characteristics and physical fitness parameters as a predictor system in the 100 meter sprint running as a criterion system. The research was carried out in 170 male subjects aged 14 years ± 6 months, in the primary schools "Bajram Shabani" and "Naim Frashëri" - Kumanovo, Rep. of North Macedonia. A total of 12 variables were used in the research, of which 7 variables were used for the assessment of anthropometric characteristics, including: body height, body mass, body mass index, chest circumference, thigh circumference, thigh fat and abdominal fatty tissue, 4 variables for evaluating physical fitness parameters, including: 10x5 Shuttle run, agility T-test, standing long jump and standing high jump, and 1 variable for evaluating speed, also: 100 meter sprint running. Based on the results obtained and the analysis carried out, we can conclude that: the variables of anthropometric characteristics and the parameters of physical fitness (as a predictor system) have a statistically significant impact on the in 100 meters running criteria variable, at the level of reliability q=.000. It's also worth noting that from the entire predictor system, the greatest individual impact on the 100 meter run criterion variable, have variables: standing long jump (MKGJV) with a negative beta coefficient value of -.330 and a reliability level of .000, T - agility test (MTT) with a positive beta coefficient value of .187 and a reliability level of .003 and 10x5 Shuttle run (10x5Sh) with a beta coefficient value of .150 and a reliability level of .032. From these results, we can conclude that adolescents of this age who have developed physical fitness parameters such as explosive strength of the lower limbs and speed with a change of direction – agility, achieve better results in 100 meters sprint running and also we recommend that the same tests be applied by athletics trainers to identify sprint running talent.

Keywords: anthropometric characteristics, physical fitness parameters, 100m sprint running, adolescents, regression.

About Motor Skills Of Solo Dancers In Latin American Dances

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Introduction

The fluidity of movements and precision required in these dances underscore the significance of motor skills in their execution. This article explores the nuances of motor skills crucial for solo dancers in Latin American dances, shedding light on their classification, development methodologies, and significance as perceived by coaches and specialists in the field.

Methods

To delve into the intricacies of motor skills in Latin American solo dancing, a survey was conducted among experienced coaches and specialists in dance education. The survey sought to elicit their insights on the primary motor abilities essential for solo dancers, focusing on individuals aged 7-9-year- old. Coaches were queried about the classification of these motor skills, methods employed for their development, and any pertinent issues surrounding the physical fitness of solo dancers in this age group.

Results and discussion

Through the survey, an attempt was made to find out the opinion of the coaches regarding the leading Motor skills of 7-9 year-old sports dancers, their classification, development methodology and other issues. The results of the survey have shown that experts single out the accuracy of movement, coordination and flexibility as the main motor abilities of solo dancers of various dance styles.
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Conclusion

Findings from the survey underscore the pivotal role of motor skills such as accuracy of movement, coordination, and flexibility in the realm of Latin American solo dancing. Coaches and specialists unanimously recognize these motor abilities as fundamental for the proficient execution of various dance styles within the Latin American repertoire. Consequently, the insights garnered from this research advocate for the integration of targeted training protocols aimed at enhancing the physical fitness and technical proficiency of young solo dancers in Latin American dances.

Keywords: Physical fitness, sports dancing, specialists, coaches, dance styles, leading motor skills.

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The Acculturation Process of Human Movement and Its Dance with Our Brain: A Holistic Perspective

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Introducton

The aim of this presentation is to examine mental functions and academic achievement in the context of the acculturation process of human movement and its dance with our brain. The main rationale for this is that the growing brain in the evolutionary process has enabled the fingers to perform more precise functions. Moreover, thanks to the development of the cerebellum and motor cortex, the hands were able to move independently and asymmetrically, and leg lengths increased, enabling large strides and bipedal upright walking. These physiological changes indirectly promote increased attention, better processing, storage and retrieval of information, increased positive behaviour and coping with challenges, and reduced feelings of stress, pain, anxiety and depression. Therefore, regular physical activity, exercise and sport lead to positive changes in mental functioning and academic achievement. Research results provide important clues in this regard. Based on these explanations, this presentation will share the findings of research based on two different perspectives.

Study I: The effect of physical activity-based mind breaks used in academic courses in secondary school on achievement scores.

Study II: Relationships between physical activity level, health-related fitness, academic achievement, and academic self-concept

Methodology

Study I: In this study, a single group pretest-posttest model was applied. The sample of the study consisted of a total of 129 secondary school students (65 girls and 64 boys) from the 5th, 6th, 7th and 8th grades. In the study, Demographic Information Form (DIF), which includes the demographic information of the students, and Objective Comprehension Tests prepared by the Ministry of National Education were used to measure academic scores. Frequency, Percentage, Independent Groups T-Test, One-Way Analysis of Variance (ANOVA) and Post-Hoc Tests (Tamhane's T2) were used to analyse the data.

Study II: In this research, the descriptive research method and purposeful sampling were used to determine the direction and level of change between the variables involved in the study. The relationship between variables was analyzed by Pearson correlation analysis. The socioeconomic level that could affect physical activity and academic achievement variable were equalized. After the equalization process, seventy-six girls (51,7 %), seventy-one boys (48,3%) totally 147 eighth grade student have participated in the study. The personal information form, physical activity questionnaire for adolescents, Fitnessgram Test Battery, national standardized academic achievement test and the academic self-concept subdomain of self-concept inventory which was used for data gathering tools. Kolmogorov-Smirnov and Pearson Correlation Coefficient tests were used to analysis the data.

Results and Discusson

Study I: According to the findings obtained from the analyses, it was seen that physical activity-based mind breaks were effective on the gain score obtained in Mathematics and Religious Culture and Moral Knowledge courses. No significant effect was found in Turkish, Science and English courses.

Study II: As a result of the study, a weak positive relationship was found between students' physical activity level and both academic achievement score and academic self-concept. In addition, a positive correlation was observed between health-related physical fitness parameters and academic achievement scores in both

girls and boys, while no significant correlation was found between health-related physical fitness parameters and academic self-concept scores in both girls and boys.

Concluson

Study I: It can be said that physical activity breaks do not decrease academic achievement in Turkish, Science and English courses, but increase academic achievement in Mathematics and Religious Culture and Moral Knowledge courses.

Study II: As a result, it can be said that children need physical activity for their cognitive, affective and physical development so directing children to physical activity, creating physical activity opportunities in the school environment and allocating more time to physical activities will not affect children academic achievement adversely.

Referances

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Increasing the Effectiveness of Physical Education by Introducing Additional Dancesport Classes, By Applying An Experimental Procedure With 12 To 13 Aged Girls.

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The basic subject of the research is the classes of physical education, in their fullness, but with particularly emphasized attention to those components that primarily express its efficacy, quality and expediency.
The purpose of the research is to examine the possibility of improving the efficiency of the physical education classes by using an experimental model which determines the efficiency in the space of physical dimensions with the impact of experimental treatment: an additional 2 DanceSport classes per week.
The sample consists of n = 80 respondents divided in two groups (control and experimental one) of 40 girls aged 12 to 13 years old. Balance assessment, flexibility, and segmentary speed tests have been applied (one leg balance with closed eyes, a deep pretend on a bench, number of kneeling in 30 seconds and tapping with hand and foot).
From the received results It can be concluded that the reason for the progress of physical abilities is the additional 2 DanceSport classes that have greatly contributed to the significant differences in certain tests. It is therefore recommended to make a correction in the curriculum and to increase the DanceSport classes in physical education, to increase the motivation for physical activity outside of teaching activities, to monitor motor skills, to apply tests, and according to the results, to build a national strategy for the development and maintenance of motor skills of the young female population.

Increasing the Effectiveness of Physical Education by Introducing Additional Dancesport Classes, by Applying an Experimental Procedure With 12 to 13 Aged Boys.

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The sample consists of n = 100 respondents divided in two groups (control and experimental one) of 50 boys aged 12 to 13 years old. Estimated tests have been applied: repetitive, explosive, and segmental speed (body lifting – lying on the back, body lifting – lying on the stomach, distance jumping from place and tapping with hand and foot).
From the received results It can be concluded that the reason for the progress of physical abilities is the additional 2 DanceSport classes that have greatly contributed to the significant differences in certain tests. It is therefore recommended to make a correction in the curriculum and to increase the DanceSport classes in physical education, to increase the motivation for physical activity outside of teaching activities, to monitor motor skills, to apply tests, and according to the results, to build a national strategy for the development and maintenance of motor skills of the young male population.