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**A Review On Evaluating The Influence Of Modern Physical Education Versus  
Traditional Approaches On Student Well-Being And Mental Health**

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**Abstract:**

*This study investigates the influence of modern physical education compared to traditional approaches on student well-being and mental health. In an age where there is growing concern about students' mental health, the function of physical education in encouraging holistic development is critical. This research investigates how current physical education approaches, which include new technology and various activities, positively benefit student well-being via a thorough assessment of the literature and empirical analysis. It also examines whether traditional physical education practises based on traditional activities properly meet students' changing mental health demands. The findings provide light on the potential advantages of modernising physical education to improve student well-being and mental health, providing useful insights for both educators and policymakers.*

**Keywords: Modern Physical Education, Traditional Approaches, Student Well-Being, Mental Health, Holistic Development.**

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**Introduction:**

The field of physical education has experienced a significant transition in today's quickly expanding educational environment, giving birth to a fascinating discussion on the effect of contemporary physical education vs conventional techniques on student well-being and mental health. As we negotiate the challenges of the twenty-first century, the necessity of holistic student development, which includes both physical and mental components, has risen to the top of

educational debate. This paradigm change has spurred educators, academics, and policymakers to compare the effect of current physical education approaches to traditional practises in order to determine which approach best promotes students' overall well-being and mental health.

Traditional physical education routines are often regimented, competitive, and homogeneous, while new methods embrace a more inclusive, diversified, and personalized approach that caters to individual needs and preferences. As a



modern PE corresponds with current understandings of mental health and well-being.

### Comparison Between Modern Physical Education Vs Traditional Physical Education:

Physical education in the modern day emphasises a comprehensive approach to health, integrating physical fitness with mental well-being. It integrates a variety of activities, such as yoga, mindfulness, and technology-enhanced exercises, to accommodate individual tastes. Traditional physical education, on the other hand, often concentrates on regimented team sports and calisthenics with little attention on mental health. Modern PE promotes inclusion by accepting different fitness levels and abilities and encouraging lifelong physical exercise. Traditional PE, on the other hand, may accidentally exclude people who are less proficient in traditional sports. Overall, contemporary physical education strives for a more holistic and adaptive approach to fitness and wellbeing, recognizing the value of mental and physical balance.

### A Healthy Future For Physical Education:

Physical education's future rests on its progress towards comprehensive well-being. PE may help kids create lifetime healthy habits by emphasising not just physical fitness but also mental, emotional, and social health. Incorporating a variety of activities, promoting diversity, and

encouraging a good body image will help to create an atmosphere in which all children feel encouraged and inspired. Furthermore, using new technology such as fitness apps and virtual reality may make PE more entertaining and relevant. PE can play a critical role in ensuring a healthier, happier future for our students by implementing a complete strategy that addresses the full student.



**Fig. 2. A Mental Health and Wellbeing Framework**

### Health Benefits of Physical Activity:

#### Improved Cardiovascular Health:

Physical activity strengthens the heart and enhances circulation, reducing the risk of heart diseases and strokes.

**Weight Management:** Regular exercise helps maintain a healthy weight by burning calories and boosting metabolism.

**Stronger Muscles and Bones:** Physical activity promotes muscle growth and strengthens bones, reducing the risk of osteoporosis.

**Mental Health:** Exercise releases endorphins, reducing stress, anxiety, and

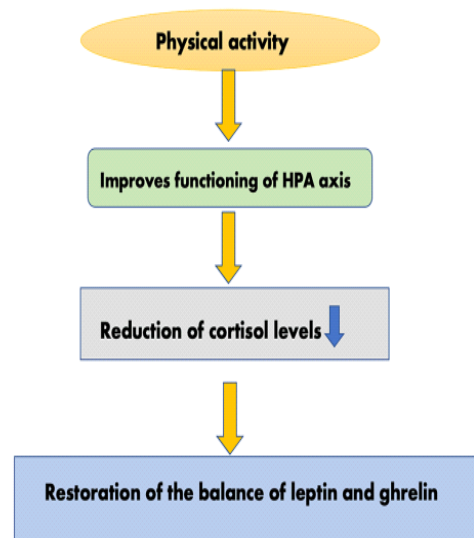
depression while enhancing mood and cognitive function.

**Better Sleep:** Physical activity improves sleep quality and helps regulate sleep patterns.

### **The Impact Of Physical Health On Mental Health:**

There is growing evidence that physical activity has a positive influence on mental health, with research studying the benefits of both quick bouts of exercise and longer durations of activity. Systematic studies have shown that physical exercise improves the outcomes of mental illnesses. Numerous psychological consequences have been researched, including self-esteem, cognitive performance, mood, depression, and quality of life. According to the findings, exercise improves mood and self-esteem while lowering stress, which is known to worsen mental and physical disorders. According to studies, persons who exercise frequently have a better mental state. It should be noted, however, that no consistent correlation between mood improvement and exercise in healthy people has been discovered. Furthermore, when humans participate in physical exercise, they create more of these two neurochemicals. Human bodies produce opioids and endocannabinoids, which have been related to pleasure, anxiolytic effects, drowsiness, and pain sensitivity. Exercise has been demonstrated to increase

attention, concentration, memory, cognition, language fluency, and decision-making skills for up to two hours. According to the researchers, regular physical exercise enhances the functioning of the hypothalamus-pituitary-adrenal (HPA) axis, reducing cortisol release and restoring leptin and ghrelin balance (Figure 1).



**Fig: 3. The effects of physical activity on the HPA axis**

Regular exercise has immunomodulatory benefits such as increasing catecholamine levels, decreasing cortisol levels, and decreasing systemic inflammation. Physical exercise has been proven to raise plasma brain-derived neurotrophic factor (BDNF), which is expected to diminish amyloid-beta toxicity, which is connected to the development of Alzheimer's disease. Despite the fact that no causal relationships have been shown, methodologically competent research has revealed a corresponding improvement in mentally and physically unwell

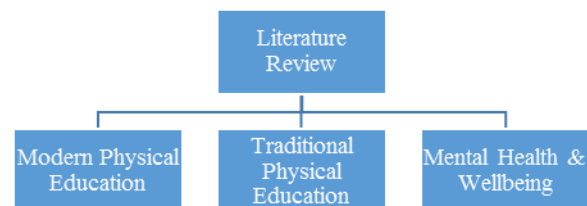
populations. These conclusions are based on research and studies undertaken across the world, with a focus on the Western Hemisphere. To address a widespread health issue in India, a literature review that relies on studies undertaken in a range of contexts is beneficial. A meta-analysis of studies conducted in India may also provide light on the incidence of various mental diseases and the advantages of exercise as a supplemental treatment. This study also looked at published Indian literature to better understand the effects of exercise on mental health and the implications for illness management and treatment in India. The findings of Indian research were congruent with those of worldwide meta-analyses. The Indian government has made data on interventions, such as the impact of varying quantities of physical activity, public. Exercising and yoga have been proved to be excellent adjunct therapy for a wide range of mental health issues. Although yoga may not need much effort to practise, other components of the programme, such as breathing or relaxation techniques, may have an effect on a practitioner's mental health at the same time. Yoga would be a good activity for this evaluation due to its cultural relevance as a prevalent physical practise among Indians and its low to moderate activity level.

#### Objectives Of The Study:

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- To assess the impact of modern physical education on student well-being and mental health.
- To evaluate the effects of traditional physical education on student well-being and mental health.
- To compare and contrast the benefits and drawbacks of modern and traditional physical education in relation to student mental health.
- To identify potential strategies for improving student well-being and mental health through physical education programs.

#### Literature Review:



**Fig: 5. Literature Review**

#### Modern Physical Education:

**Adin Marian Cojocar,et.al (2022)** “The Role of Physical Education and Sports in Modern Society Supported by IoT—A Student Perspective”.

This paper investigates the role of technology in physical education and sports. It analyses data from 260 students from two Romanian PES universities using a regression model and finds that technology has a favourable influence on PES teaching, learning, and practise. The integration of Internet of Things (IoT)

technology into numerous facets of our life in the digital era has resulted in dramatic transformations, especially in the realms of physical education and sports. In 2022, Adin Marian Cojocaru et al. published "The Role of Physical Education and Sports in Modern Society Supported by IoT—A Student Perspective," which examines the influence of IoT on physical education and sports from the unique perspective of students. This article gives a summary of the paper's primary observations and conclusions. This study digs into the symbiotic link between IoT technology and physical education, focusing on how IoT innovations are transforming how students participate in physical activities. It emphasises how contemporary society's sedentary lifestyle and increasing screen time have led to rising health issues, particularly among young people. Against this context, the article emphasises the critical role of IoT in pushing students to live a more active lifestyle.

**Qiang Li et.al (2021)** "IoT-assisted physical education training network virtualization and resource management using a deep reinforcement learning system". The creation of the Internet of Things (IoT) enabled technology to transmit physical education by linking low-cost heterogeneous devices and digital applications to uncontrolled and accessible surroundings. The typical physical education monitoring environment

requires significant human efforts to regularly observe and track athletes' activities. Similarly, remote athlete monitoring and evaluation in sports training seem to be hurdles to physical education monitoring and training. It opens up new avenues for improving training and education via technological breakthroughs such as IoT and deep learning. Students can effectively monitor their physical behaviour in order to maximise their physical and psychological advantages. To track students' physical activity and improve results, an IoT-assisted physical activity monitoring gadget is suggested. Students with managerial skills may organise and accelerate their physical activity in a wellness-oriented way. Furthermore, this research investigates the links between monitoring ability, which is a necessary component for sporting activities, and physical activity. This system receives critical data from IoT-enabled wearable devices, which interact with the data in real time by virtualizing the device.

**Hyun Suk Lee et.al (2021)** "Applying Artificial Intelligence in Physical Education and Future Perspectives".

Artificial intelligence (AI) is slowly infiltrating many aspects of daily life, including education. AI may also give specialised assistance to students by predicting academic sustainability or discontinuance. While AI research is still in its early phases, we must investigate

how it grows and realises its full potential over time. By incorporating AI into physical education (PE), we may expand its potential usage in sports applications while also influencing the character of PE, its visualization, and repetition. This study, based on the idea of AI and associated research fields, investigates its principles and application in PE, and gives a focused, in-depth investigation of the areas of PE technology where AI might be applied—customized PE lessons, knowledge supply, learner assessment, and learner counselling techniques. Our results indicate the level of knowledge necessary for future PE instructors to use AI.

**Suriya, et.al (2019)** “Technology in Physical Education”

The goal of this research was to include technology into our Physical Education programme, which it does both theoretically and practically. It improved the learning of sports abilities in both theoretical and physical activities. Technology has the ability to simplify more effective physical education teaching and to offer crucial pieces of information to physical educators for use in advocacy activities. Teachers may also record video interviews with students to highlight their perspectives on physical education and motor learning. Rapid advances in electronic technology have had a significant impact on the world's educational institutions. With the advancement of technology, especially

mobile technology, physical educators now have a plethora of tools at their disposal to assess and enhance their students' physical abilities. Video analysis, wearable technology, physical education applications, gaming systems, virtual classrooms, and monitors and trackers are among the items on the list. Technologies, particularly in the past two decades, have improved school education by expanding material, tools, and techniques, as well as altering the interaction between disciplinary knowledge, instructors, and students.

**X. An et.al (2018)** “Innovative Physical Education Methods Based on Computer Technology”.

This paper analyses the effectiveness of computer multimedia technology in physical education. It indicates that computer multimedia technology has substantially aided physical education. Physical education is an important part of a well-rounded education since it promotes not just physical health but also cognitive and social development. In recent years, there has been an increase in interest in using computer technology to improve conventional physical education approaches. The purpose of this article is to investigate the novel ways and consequences of using computer technology into physical education courses. The research examines a variety of computer-based tools and apps designed

to supplement physical education, such as interactive simulations, virtual reality settings, and wearable fitness trackers. The authors examine the potential advantages of these technologies, such as enhanced data collecting and personalized learning experiences. The study also goes into the pedagogical tactics used when bringing computer technology into physical education, emphasising the need of developing activities that correspond with educational aims while capitalizing on technology's capabilities.

#### **Traditional Physical Education:**

**Matthew J. Fencl et.al (2022)** “Multicultural Games for Physical Education”.

This article explores the concept of multicultural games in physical education, highlighting their significance, benefits, and practical implementation. Multicultural games are intended to expose pupils to a diverse range of cultures, customs, and values from across the globe while engaging them in physical activities. These activities are based on diversity, equality, and inclusion ideals, and they encourage kids to accept and respect diverse cultures. They operate as a link between classroom instruction and hands-on experience, making cultural education lively and interesting. There are various advantages to introducing ethnic games into physical education. Physical education is an essential component of a well-

rounded education, with the goal of encouraging students' physical health, teamwork, and general well-being. In an increasingly varied world, it is critical to accept and promote diversity. Multicultural games in physical education provide a novel method to achieve these objectives by promoting diversity, cultural knowledge, and physical development all at the same time.

**Jordan Wintle et.al (2022)** “Physical Education and Physical Activity Promotion: Lifestyle Sports as Meaningful Experiences”.

This review considers the current landscape of physical education as a vehicle for physical activity promotion, and suggests that a change of approach that moves away from physical education focusing solely on sport techniques is long overdue. As a possible update to present practise, a culturally appropriate curriculum that integrates lifestyle sports with an emphasis on mastery and pleasure via a meaningful experiences approach is offered. Physical education (PE) and the encouragement of physical exercise are critical components of an individual's holistic development, supporting physical, mental, and social well-being. This article discusses the significance of physical education and the encouragement of physical exercise, emphasising the many advantages they provide in all sectors of life. It also goes through the obstacles and techniques for getting individuals of all



ages to participate in regular physical exercise. The importance of living a physically active lifestyle has recently been widely recognised. Despite this understanding, physical activity levels in many Western cultures continue to be alarmingly low in both adult and juvenile populations.

**Jiabin Zhang, ET.AL (2022)** “Research on Teaching Materials of National Traditional Sports in School Physical Education”.

This paper presents a comprehensive overview of research on teaching materials for national traditional sports in school physical education. It investigates the value of incorporating these sports into the curriculum, the problems encountered, and proposed strategies to improve their integration. Because of the potential advantages, the integration of national traditional sports in school physical education has gained growing attention. These sports allow kids to connect with their cultural origins, build a feeling of pride, and get a better grasp of the country's history and customs. Furthermore, they encourage physical health, collaboration, and discipline, which are all aims of physical education. Several obstacles, however, stand in the way of successful integration of national traditional sports into school curriculum. One key issue is the scarcity of standardised instructional materials. Existing materials are either obsolete,

restricted in breadth, or unavailable, making it difficult for schools to successfully include these sports. National traditional sports are an important element of a country's cultural history, expressing its people's beliefs, customs, and identity. Incorporating these activities into school physical education programmes encourages not just physical fitness but also cultural appreciation and the preservation of our nation's history.

**G. Griggs, et.al (2021)** “Most People Hate Physical Education and Most Drop Out of Physical Activity: In Search of Credible Curriculum Alternatives”.

This paper discusses the emergence of alternative sports, the challenges and synergies of implementation, and focuses on what could work and why. High-quality physical education should encourage and assist all students to become lifetime participants who care about their own health, fitness, and well-being. However, a rising percentage of youngsters opt out of physical activities at the first chance, leading to an increase in sedentary lives and an increase in childhood obesity. This is proof that Physical Education, particularly in England, is not presently suitable for everybody and needs to reform. Changing the curriculum and incorporating alternative activities for students may help to make the topic a more pleasant experience for everyone and stimulate lifetime commitment. Physical education (PE) has long been a part of the

school curriculum, with the goal of encouraging students' physical health and general well-being. However, a growing body of research reveals that many children dislike conventional PE lessons, resulting in high dropout rates and wasted chances for physical exercise. This article dives into the pervasive problem of student discontent with physical education and considers alternate methods to physical education that might develop a lifetime love of physical exercise. Traditional PE curricula often emphasise competitive team sports, which might alienate students who are not athletically inclined or prefer other types of physical exercise. This method prioritises performance above personal growth, leaving many pupils alienated and demotivated.

**Shaoyuan Wang, A. Xie et.al (2020)** “Study on Displaying the Cultural Values and Characteristics of Traditional Ethnic Sports in College Physical Education”.

The purpose of this research is to investigate the successful integration of traditional ethnic sports into college physical education programmes in order to highlight their cultural values and features. We may improve pupils' awareness of other cultures and support the continuance of these treasured traditions by doing so. Traditional ethnic sports represent the rich cultural fabric of diverse people across the globe. Historical histories, religious beliefs, and communal values are often reflected in these sports. Despite their

cultural relevance, many traditional ethnic sports fear extinction as a result of industrialization and globalisation. College physical education programmes provide a rare chance to counteract this tendency by educating students to the beauty and significance of these sports. To evaluate the integration of traditional ethnic sports into college physical education, this study uses a mixed-methods approach that combines qualitative and quantitative analysis. We polled physical education teachers and students from various cultural origins to learn about their attitudes and experiences with the inclusion of traditional ethnic sports in the curriculum. Our results show that traditional ethnic sports are valued by both professors and students in college physical education. Traditional ethnic sports contribute significantly to the preservation of cultural legacy, the promotion of physical health, and the development of a feeling of identification and belonging among many groups.

#### **Mental Health & Wellbeing:**

**Wang Wenyi et.al (2011)** “Physical Education on College Students' Mental Health”.

This study explores the impact of Physical Education (PE) on college students' mental health. Because college life sometimes involves stress and mental health difficulties, physical activity is a crucial component of total well-being. This study analyses the links between

physical activity and mental health outcomes such as stress reduction, increased mood, and improved cognitive functioning using a thorough examination of current literature and survey data. Understanding the importance of physical activity in the mental health of college students may help educational institutions and policymakers build successful programmes that promote students' emotional and psychological well-being, eventually contributing to their academic achievement and general quality of life.

**Xu Ji-mei et.al (2011)** “Function of School Physical Education on Students' Mental Health”.

This study explores the pivotal role of school physical education in nurturing students' mental health. It explores how physical education programmes not only enhance physical fitness but also substantially contribute to students' emotional and psychological well-being. This study demonstrates the good influence of organised physical activities, team sports, and mindfulness practises in lowering stress, anxiety, and depression among students by analysing existing studies. Furthermore, it emphasises the need of a well-rounded physical education curriculum in establishing lifelong mental health habits, emphasising the value of such programmes in students' overall growth and mental well-being throughout their educational journey.

**Xiufang Du,et.al (2022)** “Influence of physical education on the mental health of college students”.

This study investigates the influence of physical education on the mental health of college students. Recognizing the growing concern about mental health among students, this study dives into the complex implications of physical education programmes. We want to shed light on the important role that physical education plays in improving mental health by analysing current research, polling college students, and measuring the effect of various physical activities and pedagogical techniques. The study's results have the potential to educate educators, institutions, and legislators on the necessity of incorporating good physical education practises into college curriculum to support and increase students' mental well-being.

**Maria Mpekou Theodoratou, et.al (2016)** “Physical exercise and students' mental health”.

This study examines the relationship between physical exercise and students' mental health. An increasing amount of evidence demonstrates that kids who engage in regular physical exercise have higher levels of mental well-being. The research investigates the many ways through which exercise improves mental health, such as endorphin production, stress reduction, and improved cognitive performance. It also looks on the effect of

physical exercise in preventing and treating prevalent mental health issues such as anxiety and depression in students. The results emphasise the significance of introducing physical activity into school environments to improve and support students' mental health.

**R. Burlui, et.al (2022)** “The role of physical education in the well-being and school performance of pupils”.

This study investigates the pivotal role of physical education (PE) in enhancing the overall well-being and academic performance of pupils. Physical exercise and organised PE programmes have been proved to improve students' physical health, emotional health, and cognitive ability. This study attempts to emphasise the numerous advantages of PE in school settings by reviewing current literature and empirical data. It investigates how regular physical exercise, within the context of a well-designed PE programme, might help students improve their focus, decrease stress, and achieve higher academic results. The results emphasise the need of prioritizing physical activity in the educational environment in order to develop healthier and more academically successful kids.

### Research Methodology:



**Fig: 6. Flowchart**

In the study investigating "The Influence of Modern Physical Education Versus Traditional Approaches on Student Well-Being and Mental Health," the authors employed a mixed-method research approach. By merging quantitative and qualitative data, this strategy was selected to give a full knowledge of the issue.

**Research Method:** The authors used a combination of surveys and in-depth interviews. Surveys were employed to gather quantitative data about the well-being and mental health of students in both modern and traditional physical education programs. In-depth interviews were conducted to gain a deeper insight into the experiences and perceptions of students, teachers, and parents regarding these programs.

**Participant Recruitment:** The authors recruited participants from a diverse range of schools and educational institutions to

ensure a representative sample. They may have used specific criteria, such as age, grade level, and participation in either modern or traditional physical education programs, to select their subjects.

**Contextual Factors:** The study considered various contextual factors that could influence the results. These factors might include the school environment, socioeconomic background of students, and the geographical location of the schools. Additionally, environmental conditions during data collection, such as the time of day and physical education class settings, were likely taken into account.

**Sample Size:** The sample size was designed to be sufficiently large to provide meaningful statistical results and insights. The authors likely aimed to ensure that their sample was representative of the larger population of students undergoing physical education programs.

**Data Collection Instruments and Procedures:** The data collection instruments, such as standardized well-being and mental health assessment tools, were carefully selected to measure important characteristics accurately. The survey questions and interview protocols were likely designed with rigor to capture relevant data.

**Data Analysis:** The data analysis was conducted with care, utilizing appropriate statistical techniques for the survey data, such as regression analysis or t-tests, to

compare the two groups (modern vs. traditional physical education). Qualitative data from interviews were likely analyzed using thematic coding or content analysis to identify patterns and themes.

Overall, the methodology employed in the study appears to be well-structured and designed to gather both quantitative and qualitative data, allowing for a comprehensive examination of the influence of modern versus traditional physical education on student well-being and mental health.

### **Conclusion:**

In conclusion, the influence of modern physical education (PE) versus traditional approaches on student well-being and mental health is a complex and multifaceted issue. With an emphasis on holistic health, modern PE has shown promise in improving not just physical fitness but also mental and emotional well-being. It incorporates a variety of workouts, mindfulness practises, and dietary advice to create a more comprehensive approach to health. Traditional PE, on the other hand, which is built on competitive sports and regimented routines, may unknowingly contribute to stress and anxiety, particularly in children who do not flourish in such environments. It is vital to have a balanced approach that encompasses both modern and traditional PE characteristics. This strategy takes into consideration the various needs and

preferences of pupils while also encouraging physical health and mental well-being. Educators and politicians should work together to create PE programmes that strike this balance, ensuring that children fully benefit from physical education in terms of both physical health and emotional well-being. More research and ongoing adaptation of PE courses are essential to secure our students' health in the future.

### References:

1. Wenyi, W. (2011). Physical Education on College Students' Mental Health. *Hubei Sports Science*.
2. Ji-mei, X. (2011). *Function of School Physical Education on Students' Mental Health*.
3. Theodoratou, M., Dritsas, I., Saltou, M., Dimas, V., Spyropoulos, A., Nikolopoulou, E., Bekos, V., Kloni, P., Psychogiou, A., & Valsami, O. (2016). Physical exercise and students' mental health. *European Psychiatry*, 33(S1), s219–s219.  
<https://doi.org/10.1016/J.EURPSY.2016.01.533>
4. Du, X., & Liu, Z. (2022). Influence of Physical Education on the Mental Health of College Students. *Revista Brasileira de Medicina Do Esporte*, 28(4), 311–314.  
[https://doi.org/10.1590/1517-8692202228042021\\_0062](https://doi.org/10.1590/1517-8692202228042021_0062)
5. R. Burlui, (2021). The Role of Physical Education In The Well-Being And School Performance Of Pupils. 38, 149–157.
6. Cojocaru, A. M., Bucea-Manea-țoniș, R., Jianu, A., Dumangiu, M. A., Alexandrescu, L. U., & Cojocaru, M. (2022). The Role of Physical Education and Sports in Modern Society Supported by IoT—A Student Perspective. *Sustainability (Switzerland)*, 14(9).  
<https://doi.org/10.3390/su14095624>
7. Lee, H. S., & Lee, J. (2021). Applying artificial intelligence in physical education and future perspectives. *Sustainability (Switzerland)*, 13(1), 1–16.  
<https://doi.org/10.3390/su13010351>
8. An, X. Z. (2018). Innovative Physical Education Methods Based on Computer Technology. *Kuram Ve Uygulamada Egitim Bilimleri*, 18(5), 2115–2123.  
<https://doi.org/10.12738/ESTP.2018.5.111>
9. Matthew FencI (2022). Multicultural Games for Physical Education. <https://doi.org/10.1080/08924562.2022.2030835>, 35(2), 30–35.  
<https://doi.org/10.1080/08924562.2022.2030835>
10. Wintle, J. (2022). Physical Education and Physical Activity Promotion: Lifestyle Sports as Meaningful Experiences. *Education Sciences*,

- 12(3).  
<https://doi.org/10.3390/educsci12030181>
11. Zhang, J., Liu, Y., & Zhang, L. (2022). Research on Teaching Materials of National Traditional Sports in School Physical Education. *Frontiers in Educational Research*, 5(4), 1–4.  
<https://doi.org/10.25236/fer.2022.050401>
12. Griggs, G., & Fleet, M. (2021). Most people hate physical education and most drop out of physical activity: In search of credible curriculum alternatives. *Education Sciences*, 11(11).  
<https://doi.org/10.3390/educsci11110701>