



RELATIONSHIPS BETWEEN BASKETBALL AND IMPROVING SOME PHYSICAL AND HEALTH INDICATORS IN YOUNG PEOPLE

I. Peltekova^{1*}, Intesar-Victoria Houech²

¹Department of Sports, Sofia University "St. Kliment Ohridski", Sofia, Bulgaria

²Department of Diagnostic Imaging, UMHAT "Alexandrovska"; Medical Faculty, Medical University
- Sofia, Bulgaria

ABSTRACT

The purpose is to establish the health benefits of practicing basketball and thus positively influence the public health of the population.

Material and methods: Specialized literature. Theoretical analysis and summary.

Results: Basketball improves physical condition, muscle strength, flexibility, endurance, and reaction speed. It increases the function of the cardiovascular system, VO₂max, lean body mass, and bone mineral density. Systolic and diastolic blood pressure, waist circumference, and BMI are reduced. Teamwork skills are improved, and leadership qualities are developed. Attention, memory, and thought processes are developed alongside moral and volitional qualities. Personal qualities are developed: will, perseverance, desire for success, and creativity. Basketball is important for people with disabilities, both for their physical health and for their mental and social health. People with hearing impairments can successfully participate in basketball teams, communicate with teammates and coaches. Athletes with intellectual disabilities can successfully participate in integrated basketball training, where they gradually master basketball skills.

Conclusion: The game of basketball has a transformative impact on the lives of young people and all who practice it. The positive effect on health, the socio-psychological climate and atmosphere in the basketball team, and the standards of behavior in it are related to maintaining good public health.

Keywords: sports, social environment, hearing loss – DIBF, intellectual disabilities

INTRODUCTION

It is an undeniable fact that with the advancement of technology, people's physical activity levels decrease, and sports become a fundamental element in maintaining good physical health and developing the necessary social competencies. Analyses of results from medical and sports medicine research demonstrate that physical inactivity is a significant contributor to many chronic diseases in modern society, and participation in sports activities is consistently recommended as a means of enhancing the health of people of all ages. Our society is changing; we have entered

a new era where technological development has a significant impact on our daily lives and lifestyles. The processes related to the socialization of young people are now interpreted differently; relationships and social experience have other priorities (1). Increased attention to the development of physical qualities is closely related to the care for the all-round development of the personality and its readiness for full life realization (2). Sport has evolved from simply being a physical activity to being an important component of maintaining public health (3).

Basketball was created in the winter of 1891 in the USA and instantly became one of the most widely practiced sports, uniting many people from all over the world. Modern basketball is played in 5 on 5 and 3 on 3 variations, and mini basketball for children up to the age of 12.

***Correspondence to:** Full Prof. Iren Peltekova, PhD, Department of Sport, Sector: Team sports and mountain sports, Sofia University "St. Kliment Ohridski", Bulgaria, 1504 Sofia, bul. "Tsar Osvoboditel" 15, Email: iren.peltekova@gmail.com, Mobile: +359887511468.

Organizing basketball tournaments and competitions for children, schoolchildren, and students contributes to the socialization of young people. Adding to the list of organized and held basketball competitions are those for deaf people and people with intellectual disabilities. Basketball competitions for deaf people are focused on improving the living standards and well-being of deaf basketball players around the world. Deaf competitions are administered by the Deaf International Basketball Federation (DIBF). Special Olympics competitions aim to provide increased social protection and support and to improve the visibility and understanding of people with intellectual and developmental disabilities (IDD). Participation by people with intellectual disabilities in Special Olympics (SO) competitions has shown positive psychosocial outcomes. It is generally known that participation in sport has psychological and social benefits (4).

Analyses of the impact of basketball on the health of practitioners are primarily related to health indicators (5), combined with the effect of basketball load during training and the individual characteristics of each person (6). Only in combination with the listed components can a real assessment of the impact of basketball on the health of the practitioner be made (7). The game can be played both at school and independently in a place where there is a basketball hoop. Basketball is an accessible and useful sport with varying effectiveness for practicing young people of school age (8). Due to the above facts, special attention has recently been paid to the importance of the health and social benefits of practicing basketball. Basketball has become a social institution that has a specific mission, and goals related to values and norms that can satisfy the basic and important needs of children and youth.

Our working hypothesis is that practicing basketball can impact on the physical, mental, and social health of people of different ages and that grassroots basketball can be successfully integrated into the daily lives of schoolchildren and students, thereby contributing to the formation of a healthier society.

MATERIALS AND METHODS

The positive effect on health, the socio-psychological climate and atmosphere in the basketball team, and the standards of behavior

in it are related to the maintenance of public health.

The subject of this study is the game of basketball.

The object of research is the health indicators when practicing basketball and the formation of social competencies.

The purpose of the study is to establish the health benefits of playing basketball and thus positively influence the public health of the population. To achieve our goals, we set the following **tasks**:

1. To select specialized literature to analyze.
2. To establish the health benefits of playing basketball according to the literature sources studied.
3. To determine the benefits of playing basketball for public health.
4. To clarify the social impact of basketball on public health.

The following research methods were used in this study: theoretical analysis and summary of specialized medical, educational, and methodological literature on the relationship between public health and the practice of basketball, and good examples from practical experience. The literature search was carried out in various academic databases around the world and other scientific databases available to the Republic of Bulgaria. The theoretical analysis allowed us to establish the current state of the problem; to systematize and summarize information about the object and subject of the study.

RESULTS AND DISCUSSION

After analyzing the information obtained from the selected literature, we found that basketball is not just a sport that only contributes to the physical activity of its practitioners, but an important component for maintaining public health. In this section of the report, we will outline the results regarding the benefits of participation in basketball activities and competitions for public health in children and youth.

The health benefits of playing basketball for children and youth

Basketball is an intense sport, filled with many varied movements, requiring strategic thinking, quick decision-making, and great cooperation between teammates. The game of basketball solves educational, health, and upbringing tasks. These three components are connected

and complement each other. The positive aspects of practicing basketball and its broad impact on the young person were appreciated very soon after the invention of the game, with the game beginning to be practiced in the school system in the United States in 1913, and in our country in 1958. Basketball was included in the list of mandatory disciplines as early as the first University Games in 1959, where a men's tournament was held; women's basketball teams joined the second Universiade in 1961.

Those who play basketball not only gain better physical fitness, but they also improve their teamwork skills, leadership skills, and emotional resilience. The rapid and unexpected change of game situations affects the development of attention, memory, and thinking, the competitive nature of the game fosters moral, willpower, and leadership skills. (9). Constantly following the movement of the ball trains the angular vision well. It improves attention and reaction speed, qualities that will be needed not only in the game of basketball but are also useful in everyday life. Vision plays a critical role in every aspect of the three-point shot in basketball, from catching the ball, to aiming preparation, and shot execution. It is a key factor in decision-making, spatial awareness, and overall performance in team sport (10). The multitude of tactical options, both defensive and offensive, in the game of basketball successfully contributes to the development of cognitive skills in children and young people. Regular participation in basketball activities improves the health profile of the practitioner, with an increase in cardiovascular function, muscle strength, and flexibility, which in turn leads to improved quality of life (11). An increase in VO₂max is reported, BMI percentages are reduced, and at the same time lean body mass and bone mineral density increase, endurance is significantly improved (12). It is a known fact that bone mineral density values are crucial for bone health, with bone mass gained in youth being directly related to bone health in older adults. In this regard, basketball appears to be a reliable means of improving bone mineral density (BMD) and isokinetic muscle strength (bone mass and isokinetic muscle strength) in both girls and boys (13, 14). Maintaining bone density protects a person from fractures, surgical interventions, which lead to pain, financial losses, bed rest, and loss of independence. The increase in bone mineral

density after regular basketball training was an average of 1.5% in female students who had 16 weeks of programmed exercise (along with calcium supplements), compared to other sports. Participation in basketball activities three times a week for 70 minutes has been shown to reduce both systolic and diastolic blood pressure and significantly reduce waist circumference in young men. Studies of players who participated in 3 on 3 basketball games for three months also observed improvements in their physical condition (15).

Health benefits of playing basketball for people with hearing loss and intellectual and developmental disabilities

Many people, including the hearing-impaired community, love the game of basketball. The accessibility and wide range of positive impacts of basketball on practitioners were one of the reasons the Deaf International Basketball Federation (DIBF) was founded in 2002 in Athens. The term "deaf" is associated with a person who can only perceive sound at 55 dB or more through the better-hearing ear, with players prohibited from wearing hearing aids during play. In basketball practice, there are players with hearing loss who participate in professional and national teams on an equal footing with the "hearing" ones (16, 17). Two of the most famous players are the American Lance Allred, a player for the Cleveland Cavaliers - NBA team, and the Slovenian basketball player Miha Zupan. In women, Tamika Catchings, who was born with hearing loss in both ears and later developed a speech impediment, competed with the US national team and won four consecutive Olympic gold medals with the team (2004, 2008 and 2012, 2016), and in 2011 she was selected as the MVP player in the WNBA and became a member of the Hall of Fame.. Tamara Catchings says, "When I was angry, I was happy, I was sad- whatever emotions I was feeling, I could pick up the ball and go outside. Basketball was the only place where, no matter what happened, I was safe." Off the court, Tamika Catchings is involved with children who have problems with social inclusion (18, 19). The main difference between deaf and able-bodied athletes is communication difficulties (20). Teamwork is what makes a team successful, and to work successfully, you need to have good communication. During a game, deaf basketball players use sign language (sign languages) to communicate, and sometimes, coaches who do

not speak sign language have interpreters. According to some authors, deaf athletes can participate in sports competitions without significant limitations, but it should be borne in mind that problems with muscle control may occur depending on the degree to which the auditory center is affected, which negatively affects motor functions and explosive power (21). When comparing the efficiency of rebound parameters (height, acceleration, and force) between deaf and non-deaf basketball players, the healthy basketball players were found to be better than the deaf ones. (22).

The summary of the above is that basketball is important for people with hearing loss, not only for their physical health, but especially for their mental and social health. Through basketball, personal qualities such as willpower, perseverance, intransigence, desire for success, creativity, and compassion are improved. People with hearing loss can successfully work in a team, a sports team, communicate with teammates, and successfully understand and follow the instructions of coaches. Through the game of basketball, the "different" person is included in a community, which improves their mental and physical health, and this, in turn, improves public health.

People with intellectual disabilities are vulnerable to low self-esteem, leading to additional stress and social exclusion (23). Athletes with ID, regardless of their level of intellectual disability, can successfully engage in integrated basketball training, where they will gradually learn basketball skills. Furthermore, from a locomotor perspective, basketball utilizes basic motor skills such as running, jumping, and throwing. The game of basketball provides opportunities for group learning, simulates social interaction, and provides positive psychological support (24). Basketball has established itself as a favorite sport of the Special Olympics.

Public health implications

The public health benefits of playing basketball are significant. First, basketball is associated with health promotion and developing a positive and motivating attitude towards physical activity, which can lead to a reduction in the burden of chronic diseases, obesity, and heart disease. In the long term, an increase in labor activity and a decrease in treatment costs can be expected.

Aspects of mental health in young people are always relevant. Prolonged stress can lead to behavioral problems, anxiety, and depression in children. It is for this reason that doctors recommend that parents sign up for basketball training. Doctors' guidelines are not only to practice basketball, but to do sports in general, because physical activity releases endorphins, which contribute to improving a person's health and act as a natural remedy for colds and other illnesses. In addition to its direct impact on the development of physical qualities and health, participation in basketball activities can have an overall impact on the quality of life.

The social impact of basketball on public health

In addition to its direct impact on the development of physical qualities and health, participation in basketball activities can have an overall impact on the quality of life. First, basketball is a team sport, so with regular training, the child will automatically develop social skills. In this game, it is impossible to win without interaction between team members. Also, the first-place prize is shared among all winning participants, and this, in turn, teaches other people to rejoice in victory (25). The summary of the above is that basketball is widespread among young people, a sport that provides an accessible means of improving physical and social health. Basketball can be played by people with impairments and people with intellectual disabilities. The holding of competitions and tournaments of various levels contributes to its massification and establishes it as a socially significant sport. Basketball helps with personal growth, develops qualities that make it easier to overcome difficulties. Through the game, personal qualities such as sportsmanship, respect for teammates, opponents, referees, the audience, mutual assistance, and last but not least, sports ethics are developed. Many of these skills are also needed in everyday life. Basketball can help build a more inclusive and supportive society and be a bridge in building strong social bonds between people of different races, religions, ages, and genders.

Challenges and difficulties

Basketball is a contact sport, with many rebounds and landings during the fight for the ball, which is a prerequisite for injuries. A study conducted among basketball players (male and female) participating in amateur leagues in

Greece found that in the age range of 16-42 years for men and 15-36 years for women, sprains were the most common type of injury at 0.27% for men and 0.30% for women per season. The results also revealed that both sexes suffered injuries that occurred during games rather than training. Men had more overuse injuries, while women had more low back injuries. The ankle and knee were the anatomical sites that were injured more frequently in both sexes. (26). Participating in too many competitions and practices can also lead to injuries. There should always be a balance between workload and rest so that players can have a healthy and fun experience practicing basketball. Therefore, it is of particular importance to provide appropriate sports equipment, maintain safe terrain, monitor your current health, allow enough time for warming up, drink plenty of water, and finally, always know where the nearest medical center is located.

The school workload of children and additional study courses limit the opportunities for children to play sports. In large cities, distances are a challenge that not everyone is willing to deal with. In small towns, there is a lack of variety of sports opportunities and children are directed only at the existing sports in their city.

CONCLUSION

Basketball has a transformative impact on the lives of young people. Basketball in all its forms, in addition to being a physical activity, offers an opportunity for communication between people of different races, genders, religions, ages, social and health status. Through the game of basketball, a positive social environment is built that helps people in difficulty survive and gives the healthy the opportunity to help and be empathetic to the problems of those in need, thereby improving the quality of life for everyone.

Basketball has a strong social side and is associated with attracting people with disadvantaged health and social status. Examples of this are the holding of basketball training and competitions for the deaf and people with intellectual disabilities.

Despite the long history of basketball and the millions of young people who play it worldwide (over 450 million), few interventional studies have evaluated the potential for positive effects

of basketball on public health. In the Bulgarian sports-medical literature, published in Bulgarian, no scientific report related to this topic was found; in the Russian literature, scientific studies mainly related to the practice of basketball in school and university environments are found. The most in-depth literature related to basketball and its impact on the health of practitioners is found in English.

REFERENCES

1. Andonova, D. Faktori na socializacia. Godishnik na ShU "Episkop Konstantin Preslavski" Tom Tom XXVII, UI "Episkop Konstantin Preslavski, Shumen, pp 272-278, 2022
2. Ignatow, D. Model za razvivane na fizicheski kachestva v nachalno uchilishte. Godishnik na ShU "Episkop Konstantin Preslavski" Tom Tom XXVII, UI "Episkop Konstantin Preslavski, Shumen, pp 250-258, 2022
3. Abdullah, M. R. The Importance of Sports for Public Health: *International Journal of Health, Medicine and Sports*, 1(4), 25–28, 2023.
<https://doi.org/10.46336/ijhms.v1i4.20>.
4. Crawford, C., J. Burns & B. A. Fernie. Psychosocial impact of involvement in the Special Olympics. *Research in Developmental Disabilities*, Volumes 45–46, pp 93-102, 2015. ISSN 0891-4222, <https://doi.org/10.1016/j.ridd.2015.07.009>.
5. Mou S. Strategy analysis of cultivating students' basketball content in college basketball. *Sports Supplies and Science and Technology*, 14(11):76–78, 2020.
6. Bai J. Cultivation of students' tactical consciousness in college basketball teaching. *Huang Zhong Ren*, 11(9):51–52, 2020.
7. Shao, Xinbo, and Yuwei Sun. "A Study on the Impact of Basketball on the Physical Fitness and Health of Adolescents Based on the Method of Correlation Analysis." *Journal of environmental and public health* vol. 2022, 6520518. 27 Jun. 2022, doi:10.1155/2022/6520518. (Retraction published by J Environ Public Health. 2023 Jul 26;2023:9849257. doi: 10.1155/2023/9849257.).
8. Mocanu, G. D., and G. Murariu. "The Importance of Basketball for High School Students. Part 2 (Utility Dimension Analysis) ". *Revista Romaneasca Pentru Educatie Multidimensionala*, vol. 16, no. 2,

- May 2024, pp. 271-99, doi:10.18662/rrem/16.2/857.
9. Lin, Jiawei. Basketball-Based Physical Education on Students' Physical Fitness in a Selected Technical Vocational College, Fujian, China. *Social Science and Humanities Journal*, 8(10), 5259-5286, 2024. <https://doi.org/10.18535/sshj.v8i10.1387>.
 10. Piras A. The timing of vision in basketball three-point shots. *Front. Psychol.* 15:1458363, 2024. doi: 10.3389/fpsyg.2024.1458363.
 11. Kim, J., Lee, H., & Park, S. The effects of basketball-based physical education on students' physical fitness and cognitive skills. *Journal of Physical Education and Sport*, 21(1), 45-53, 2021.
 12. Randers, M.B., M. Hagman, J. Brix, J. F. Chistensen, M.T. Pedersen, J.J. Nielsen, P. Krstrup. „Effects of 3 months of full-court and half-court street basketball training on health profile in untrained men“. *Journal of Sport and Health Science*. Vol. 7, issue 2, pp. 132-138, 2018. <https://doi.org/10.1016/j.jshs.2017.09.004>.
 13. Castro-Collado C, Llorente-Cantarero FJ, Gil-Campos M, Jurado-Castro JM. Basketball's Improvement in Bone Mineral Density Compared to Other Sports or Free Exercise Practice in Children and Adolescents: A Systematic Review and Meta-Analysis. *Children (Basel)*. 2025 Feb 24;12(3):271. doi: 10.3390/children12030271. PMID: 40150554; PMCID: PMC11941393.
 14. Rebai H, Zarrouk N, Ghroubi S, et al. Long-term basketball playing enhances bone mass and isokinetic muscle strength. *Isokinetics and Exercise Science*. 2012;20(3):221-227. doi: [10.3233/IES-2012-0463](https://doi.org/10.3233/IES-2012-0463)
 15. Rátgéber, L., Betlehem, J., [Calleja-Gonzalez, J.](#), [Sergej M. Ostojic](#). “Basketball for Health: Should We Hop and Shoot for a Remedy?” *Mayo Clinic Proceedings*, Vol 94, Issue 2, 364 – 365.
 16. Jordan, J. M. “CISS and the international paralympic committee,” in CISS 2001: Comité International des Sports des Sourds a Review, eds J. M. Lovett, J. Eickman, and T. Giansanti (Redditch: Red Lizard Ltd), 2001, 54–57.
 17. Schilder, A. G., Chong, L. Y., Ftouh, S., and Burton, M. J. Bilateral versus unilateral hearing aids for bilateral hearing impairment in adults. *Cochrane Database Syst. Rev.* 12, CD012665, 2017. doi: 10.1002/14651858.CD012665.pub2.
 18. Knight, K., 9 *Olympic Athletes Who Beat Hearing Loss*. (July 9, 2022). Retrieved from <https://audicus.com/9-olympic-athletes-who-beat-hearing-loss/>.
 19. Kennedy, L., WNBA Legend Tamika Catchings: An MVP On and Off the Court Catchings led the Indiana Fever to 13 playoffs and a championship during her 15 active seasons, but she's an MVP off the court, September 19, 2023. Available from: <https://www.ncsl.org/state-legislatures-news/details/wnba-legend-tamika-catchings-an-mvp-on-and-off-the-court>,
 20. Kurková, P., Válková, H., and Scheetz, N. Factors impacting participation of European elite deaf athletes in sport. *J. Sports Sci.* 29, 607–618, 2011. doi: 10.1080/02640414.2010.548821
 21. Lieberman, L. J., Volding, L., and Winnick, J. P. Comparing motor development of deaf children of deaf parents and deaf children of hearing parents. *Am. Ann. Deaf* 149, 281–289, 2004. doi: 10.1353/aad.2004.0027.
 22. Soslu R, Özer Ö, Uysal A and Pamuk Ö. Deaf and non-deaf basketball and volleyball players' multi-faceted difference on repeated counter movement jump performances: Height, force and acceleration. *Front. Sports Act. Living* 4:941629, 2022. doi: 10.3389/fspor.2022.94162.
 23. Crawford, Clare et al. “Psychosocial impact of involvement in the Special Olympics.” *Research in developmental disabilities* vol. 45-46: 93-102, 2015. doi:10.1016/j.ridd.2015.07.009.
 24. Gallotta, Maria Chiara et al. Inclusive basketball training for players with intellectual disability. *Journal of Science and Medicine in Sport*, Volume 28, Issue 3, 206 – 213, 2025.
 25. Ashurova, E.P. Basketbal I ego vliane na fizicheskoe i npravstveno vospitanie podrostkov. *Mezdunarodi nauni zurnal "VESTNIK NAUKI"* № 6 (63):1266-1271, 2023. T.3. УДК 796.
 26. Stergioulas, A., Tripolitsioti, A., Kostopoulos, N., Gavriilidis, A., Sotiropoulos, D., Baltopoulos, P. Amateur basketball injuries. A prospective study among male and female athletes. *Biology of exercise-JBE* – Vol. 3, pp 35-45, January 2007. doi: [10.4127/jbe.2007.3.35-46](https://doi.org/10.4127/jbe.2007.3.35-46).