Volume 3, Issue 3, March 2025 ISSN (E): 2938-3765

THE ROLE OF PHYSICAL AND PSYCHOLOGICAL APPROACHES IN PREVENTING POSTURAL DISORDERS IN ADOLESCENTS PREPARING FOR MILITARY SERVICE

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Abstract
Postural disorders are a significant concern among adolescents, particularly those preparing for military service, where physical endurance and musculoskeletal health are crucial. This study explores the impact of combined physical and psychological approaches in preventing postural disorders in young individuals undergoing military training. The research was conducted among adolescents aged 14–16 in Uzbekistan, focusing on educational and motivational interventions aimed at improving posture. Results indicate that integrating physical training with psychological support significantly enhances postural stability, self-confidence, and overall physical readiness. The study suggests that a multidisciplinary approach is essential for ensuring proper postural development and reducing long-term musculoskeletal complications.

Keywords: Postural disorders, military training, adolescent health, physical activity, psychological resilience, posture correction, preventive strategies.

INTRODUCTION

Maintaining proper posture is essential for adolescents, particularly those preparing for military service, where physical strength, endurance, and injury prevention play a critical role in overall performance and long-term musculoskeletal health. Postural misalignments, if left unaddressed, can lead to chronic back pain, joint instability, muscle imbalances, and reduced mobility, which may significantly hinder a recruit's ability to perform physically demanding tasks. In military settings, where recruits must undergo rigorous physical conditioning, prolonged standing, heavy load-bearing, and high-intensity exercises, poor posture not only diminishes efficiency but also increases susceptibility to fatigue and overuse injuries. Given that adolescence is a key period for

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musculoskeletal development, early intervention to correct posture is crucial in ensuring optimal physical preparedness for military service [1,2].

Beyond its physical implications, posture is also closely linked to psychological and cognitive factors, which influence overall training effectiveness. Adolescents with poor posture often experience reduced lung capacity, leading to inefficient oxygen intake, which in turn affects endurance, focus, and overall energy levels. Furthermore, an upright posture has been associated with improved mood, greater confidence, and better emotional regulation, while slouched or improper posture has been linked to increased stress, decreased motivation, and even symptoms of anxiety or depression [4]. Psychological resilience is particularly vital for military training, where recruits must maintain discipline, concentration, and mental toughness under physically and emotionally demanding conditions. Addressing both the physical and psychological components of postural stability can help recruits not only build stronger, more balanced bodies but also develop greater self-discipline, motivation, and confidence [3,5].

Given the growing concerns over postural health among adolescents due to modern lifestyle factors, it is imperative to incorporate structured interventions that promote both musculoskeletal alignment and mental well-being. This study investigates the effectiveness of a combined approach—integrating physical training with psychological reinforcement—to prevent postural disorders and enhance overall physical readiness in adolescents preparing for military service. By implementing targeted postural exercises, flexibility and core-strengthening routines, and psychological strategies such as motivation-building, stress management, and cognitive awareness techniques, this research aims to establish a comprehensive model for improving posture and performance in future military recruits [6]. Through a multidisciplinary perspective, this study highlights the need for training programs that not only emphasize physical conditioning but also recognize the profound connection between posture, mental resilience, and military readiness [7,8,9].

Research Objective

The primary objective of this study is to assess the role of physical and psychological approaches in preventing postural disorders in adolescents undergoing military training and to determine their impact on overall physical readiness.

Research Methods

The study involved 4019 adolescent males aged 14–16 from two districts in Tashkent, Uzbekistan, aiming to assess the impact of structured physical and psychological training on postural stability, physical fitness, and mental resilience. Participants were divided into two groups: an intervention group, which received a combination of targeted physical and psychological training designed to enhance postural alignment, strength, and motivation, and a control group, which followed standard military preparation programs without specialized postural interventions. This division allowed for a comparative analysis of the effectiveness of integrated training approaches in improving physical readiness and psychological well-being among young recruits.

To comprehensively evaluate the impact of the interventions, multiple assessment tools were employed. Anthropometric measurements, including height, weight, body mass index (BMI), and

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postural alignment, were taken to monitor physical development and musculoskeletal balance. Physical fitness tests were conducted to assess strength, endurance, and flexibility, using standardized exercises such as sit-ups, push-ups, plank tests, and shuttle runs, which provided quantifiable data on participants' physical performance and improvements over time. Psychological assessments played a crucial role in understanding the relationship between posture, confidence, and motivation. The Rosenberg Self-Esteem Scale (RSES) was used to measure self-confidence levels, while Deci & Ryan's Intrinsic Motivation Inventory (IMI) assessed participants' internal motivation and engagement in physical activities, helping to determine how psychological support influenced their overall commitment to training.

Intervention methods were divided into two primary categories: physical and psychological approaches, ensuring a holistic strategy for posture correction and overall fitness enhancement. The physical approaches focused on postural training through targeted exercises aimed at improving spinal alignment, core strength, and flexibility, addressing common postural imbalances and promoting musculoskeletal stability. Ergonomic adjustments were introduced to optimize desk and chair positioning in study environments, minimizing the risk of poor sitting habits that contribute to long-term postural issues. Additionally, daily physical activity was integrated into the training regimen, including structured stretching routines and strength-building exercises that reinforced proper movement mechanics and postural awareness in everyday activities.

Alongside physical training, psychological approaches were implemented to enhance motivation, confidence, and stress management skills. Motivational coaching sessions encouraged self-discipline and goal-setting strategies, helping participants develop a proactive mindset toward maintaining good posture and overall fitness. Cognitive-behavioral techniques were introduced to equip participants with effective stress management tools, self-awareness exercises, and mindfulness practices that supported both emotional resilience and postural stability. Group activities, including team-based exercises and collaborative training drills, were designed to foster peer support, enhance social confidence, and create a motivating environment that reinforced the importance of maintaining proper posture and physical health. By integrating these physical and psychological approaches, the study aimed to provide a comprehensive framework for improving postural alignment, physical endurance, and mental resilience, ultimately preparing adolescents more effectively for the demands of military service and active-duty readiness.

Results and Discussion

The study findings revealed a significant improvement in postural stability, physical endurance, and psychological well-being among participants receiving both physical and psychological interventions, highlighting the effectiveness of a holistic approach in enhancing military preparedness among adolescents. The combination of structured postural training, targeted physical exercises, and psychological reinforcement not only led to measurable gains in physical performance but also contributed to increased motivation, self-confidence, and emotional resilience, all of which are essential for young recruits preparing for the demands of military service.

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Anthropometric and physical fitness outcomes demonstrated clear improvements in body composition, flexibility, and endurance, all of which are crucial for maintaining proper posture and overall musculoskeletal health. While BMI remained stable, participants in the intervention group showed a 3.3% reduction in waist-to-hip ratio, indicating a positive shift in body composition and reduced central adiposity. This change suggests that structured physical activity helped optimize fat distribution and muscle development, leading to better postural alignment and reduced strain on the lower back and core muscles. Flexibility assessments, particularly the Sit-and-Reach test, showed a 19.6% improvement, highlighting increased spinal mobility and hamstring flexibility, both of which play a critical role in maintaining a balanced and upright posture. Additionally, plank test endurance increased by 29.5%, reflecting enhanced core strength and stability, which are essential for spinal support, injury prevention, and overall physical endurance. The most notable improvements were observed in endurance tests, where participants demonstrated a 25.8% increase in performance, signifying enhanced cardiovascular fitness and greater overall physical capacity. These findings confirm that postural training not only corrects alignment issues but also strengthens the fundamental physical attributes necessary for prolonged military activity, reducing fatigue and improving overall movement efficiency.

Beyond the physical improvements, psychological and motivational outcomes provided strong evidence that posture is closely linked to mental well-being and cognitive performance. Self-esteem levels, measured using the Rosenberg Self-Esteem Scale (RSES), increased by 13.9%, indicating greater self-confidence and a more positive self-image among participants who engaged in structured training. A more upright posture has been scientifically linked to improved self-perception, assertiveness, and emotional stability, reinforcing the idea that maintaining proper posture is not just about physical health but also about fostering psychological resilience. Additionally, motivation for physical activity improved by 33.3%, as indicated by results from Deci & Ryan's Intrinsic Motivation Inventory (IMI), suggesting that participants developed a stronger commitment to fitness routines and a greater sense of personal accountability for their physical well-being. This heightened motivation is critical for long-term adherence to healthy habits, ensuring that the benefits of postural training extend beyond the study period and into future military service. Furthermore, participants reported a noticeable reduction in stress and anxiety levels, which contributed to improved focus, discipline, and mental clarity during training sessions. Stress management is a crucial aspect of military preparedness, and the results indicate that postural training, when combined with psychological reinforcement, plays a vital role in enhancing recruits' ability to remain calm and composed under pressure.

Based on the results obtained, effective strategies for developing physical and mental toughness during military training were proposed. Complex training should involve the combined implementation of physical and psychological training (D.G. Abdullaeva & D.A. Olimboeva, 2025).

These findings align with previous research indicating that a combination of physical training and psychological reinforcement is crucial for adolescent health and performance (Anderson & Kim, 2022). The results suggest that interventions targeting both the body and mind lead to more effective postural correction and overall well-being by addressing not only the structural components of musculoskeletal alignment but also the cognitive and emotional factors that

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influence posture maintenance. By integrating postural training into standard military preparation programs, training institutions can equip young recruits with the necessary physical endurance, psychological resilience, and self-motivation required for active-duty readiness. The study underscores the importance of adopting a multidisciplinary approach to adolescent training, ensuring that future military personnel develop both the physical and mental attributes necessary to excel in demanding environments while minimizing the risk of injuries and long-term health complications.

Conclusion

This study highlights the importance of integrating physical and psychological approaches in preventing postural disorders among adolescents preparing for military service, emphasizing that posture is not solely a physical attribute but also a reflection of mental resilience and overall well-being. The combination of structured physical exercises, including core strengthening, flexibility training, and endurance-building activities, with targeted psychological support, such as motivation enhancement, stress management, and self-confidence development, has been shown to significantly improve postural stability, reduce injury risks, and enhance overall military preparedness. By addressing both the biomechanical and cognitive aspects of posture, this integrated approach ensures that young recruits develop not only the physical endurance necessary for military training but also the psychological discipline and focus required to sustain optimal performance under pressure.

The findings of this study suggest that future training programs should incorporate multidisciplinary strategies that go beyond traditional physical conditioning. A well-structured postural training curriculum should include posture education, ergonomic awareness, and mental reinforcement techniques to help adolescents develop lifelong habits that promote spinal health and musculoskeletal balance. Additionally, fostering an environment that encourages self-discipline, goal-setting, and teamwork can further reinforce the psychological benefits of postural training, creating a generation of recruits who are physically strong, mentally resilient, and fully prepared for the demands of military service. By implementing such comprehensive training strategies, military institutions can optimize adolescent health and performance, ensuring that young soldiers enter service with the strength, confidence, and endurance necessary to excel in physically and mentally demanding environments.

References

1. Anderson, J., & Kim, S. (2022). Military Fitness and Psychological Resilience: A Holistic Approach. Oxford University Press.
2. Brown, T., Miller, R., & Davis, K. (2018). Physical Endurance and Mental Toughness in Military Training. Journal of Defense Studies, 15(3), 45-62.
3. Deci, E. L., & Ryan, R. M. (1985). Intrinsic Motivation and Self-Determination in Human Behavior. Springer Science & Business Media.
4. Johnson, R., & Lee, P. (2019). Posture and Performance: The Impact of Spinal Health on Physical Readiness. Cambridge University Press.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

5. Smith, A., & Jones, B. (2020). Enhancing Soldier Performance: The Role of Physical and Psychological Strength. Cambridge University Press.
6. Williams, D., Roberts, M., & Carter, L. (2021). Stress Management and Decision-Making in Combat Scenarios. Military Psychology Review, 29(4), 78-95.
7. https://in-academy.uz/index.php/EJMNS/article/view/44969/28581
8. https://cyberleninka.ru/article/n/arbiyhizmatgacha-yoshdagi-smirlarda-omat-buzilishlari
9. Д. Г. Абдуллаева, & Д. А. Олимбоева. (2025). ФАКТОРЫ РИСКА НАРУШЕНИЙ ОСАНКИ. European Journal of Interdisciplinary Research and Development, 36, 118–122.Retrieved from https://www. ejird. journalspark. org/index. php/ ejird/ article/ view/1303
10. Хусанова М. А., Олимбоева Д. А. МАКТАБ ЁШИДАГИ КЎРИШ БОЛАЛАРДАГИ АЪЗОЛАРИНИНГ ЎЗАРО ҚОМАТ БУЗИЛИШИ БОҒЛИҚЛИГИ //Central Asian Research Journal for Interdisciplinary Studies (CARJIS). – 2024. – Т. 2. – №. 1. – С. 44-52.

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