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THE IMPACT OF POSTURAL TRAINING ON PHYSICAL AND MENTAL READINESS IN MILITARY RECRUITS

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Abstract
Postural health plays a crucial role in military training, influencing both physical performance and mental resilience. This study examines the impact of structured postural training on the physical and psychological readiness of military recruits. The research was conducted among young recruits in Uzbekistan, analyzing the effects of postural exercises, ergonomic adjustments, and psychological interventions on military fitness. Results demonstrate that postural training significantly enhances endurance, flexibility, and self-confidence, reducing musculoskeletal strain and improving overall military preparedness. These findings suggest that integrating postural education into military training programs can optimize physical performance and mental resilience.

Keyword: Postural training, military fitness, physical endurance, mental resilience, musculoskeletal health, psychological readiness, posture correction.

INTRODUCTION

Postural alignment is a critical component of military training, as it directly influences a soldier's physical endurance, injury prevention, and overall combat effectiveness. Proper posture ensures optimal musculoskeletal function, reducing strain on the spine, joints, and muscles during intense physical activities such as marching, running, load-bearing exercises, and combat maneuvers (Johnson & Lee, 2019). Conversely, poor posture can lead to chronic musculoskeletal disorders, including lower back pain, shoulder instability, and knee strain, all of which negatively impact mobility and performance.

Beyond the physical consequences, posture plays a significant role in psychological well-being. Studies have demonstrated a strong connection between upright posture and cognitive function, confidence, and emotional resilience (Williams et al., 2021). An aligned and stable posture improves breathing efficiency, enhancing oxygen intake, which is crucial for endurance and sustained focus in combat situations. Furthermore, soldiers with better postural control exhibit

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greater stress tolerance, improved reaction times, and enhanced decision-making abilities under high-pressure conditions.

Despite its importance, traditional military training programs tend to prioritize endurance, strength, and tactical skills, often neglecting postural education. This oversight can result in long-term health issues, affecting soldiers' longevity and operational efficiency. Recruits with postural imbalances are more susceptible to injuries, leading to increased medical costs, extended recovery times, and reduced combat readiness.

To address these challenges, this study investigates the role of targeted postural training in enhancing both physical and mental preparedness in military recruits. By integrating postural correction techniques, ergonomic adjustments, and neuromuscular training into standard military conditioning, this research aims to demonstrate how a structured postural program can optimize performance, reduce injury risks, and improve psychological resilience.

Findings from this study will support the implementation of evidence-based postural training strategies in military curricula, ensuring that future soldiers develop stronger, healthier, and more resilient bodies, ultimately improving overall military effectiveness and operational sustainability.

The primary goal of this study is to evaluate the effects of structured postural training on the physical and psychological readiness of military recruits and to determine its role in enhancing overall military performance.

Research Methods

This study utilized a controlled experimental design to assess the impact of targeted postural training on military recruits. The research was conducted over 12 months in military training centers in Tashkent, Uzbekistan, where participants underwent physical and psychological evaluations before and after the intervention. The study involved 4019 military recruits aged 16–18, who were randomly assigned to one of two groups: the intervention group, which received postural training alongside standard military conditioning incorporating targeted physical and psychological interventions aimed at improving postural alignment, and the control group, which followed traditional military training programs focusing on standard endurance and strength-building exercises without specific postural correction techniques. To measure the effectiveness of the intervention, a combination of anthropometric, physical fitness, and psychological assessments was conducted before and after the training period.

The assessment tools included physical evaluations such as anthropometric measurements of height, weight, body mass index (BMI), and postural assessments to evaluate physical development and musculoskeletal alignment. Standardized physical fitness tests were used to assess recruits' endurance, strength, flexibility, and balance, including the 3 km run time for endurance, push-ups and sit-ups for strength, the sit-and-reach test for flexibility, and the single-leg stance test for balance. Psychological evaluations included the measurement of self-confidence and stress levels using the Rosenberg Self-Esteem Scale (RSES) and Beck Depression Inventory (BDI) to assess recruits' psychological well-being, as well as cognitive function assessments through attention and reaction speed tests to determine the impact of postural training on cognitive alertness and decision-making efficiency.

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The intervention group received a comprehensive postural training program designed to enhance core stability, flexibility, and neuromuscular control while also incorporating psychological techniques to improve body awareness and resilience. The physical postural training component included core strengthening exercises such as plank variations, stability drills, and controlled spinal movements to improve postural endurance, flexibility routines focusing on spinal alignment, hip mobility, and shoulder stability to correct muscular imbalances, and ergonomic posture corrections training on proper load-bearing techniques to prevent injury while carrying military equipment and performing physical tasks. The psychological support component consisted of motivational workshops educating recruits on the importance of posture in military performance, injury prevention, and combat readiness, stress management techniques including mindfulness training, breathing exercises, and progressive muscle relaxation to reduce tension-related postural issues, and biofeedback training using real-time postural monitoring and corrective feedback to enhance postural awareness and improve muscle coordination. By integrating physical and psychological interventions, this study aimed to demonstrate the holistic benefits of postural training in enhancing both physical endurance and mental resilience among military recruits.

Results and Discussion

The findings indicate that structured postural training significantly improved recruits' physical endurance, flexibility, and mental well-being (Table 1).

Table 1.

Physical Fitness Improvements

Test	Control Group (M ± SD)	Intervention Group (M ± SD)	Improvement (%)
3 km run time (min)	14.8 ± 1.2	13.5 ± 1.0	+8.8%
Push-ups (reps in 1 min)	35.6 ± 4.5	42.8 ± 4.3	+20.2%
Sit-ups (reps in 1 min)	32.1 ± 3.8	38.5 ± 3.6	+19.9%
Plank hold (sec)	42.7 ± 5.6	55.3 ± 4.9	+29.5%
Sit-and-reach flexibility (cm)	21.4 ± 2.7	25.6 ± 2.4	+19.6%
Single-leg stance balance (sec)	8.3 ± 1.5	9.8 ± 1.2	+18.1%

The intervention group demonstrated faster running times, increased strength, and better flexibility compared to the control group, highlighting the impact of postural training on overall military fitness (Table 2).

Table 2. Psychological and Cognitive Improvements

Psychological Test	Control Group (M ± SD)	Intervention Group (M ± SD)	Improvement (%)
Self-esteem (RSES score)	18.7 ± 3.2	21.3 ± 2.8	+13.9%
Stress reduction (BDI score)	12.4 ± 3.6	8.2 ± 3.1	-33.9%
Reaction time (ms)	310 ± 15	285 ± 12	+8.1%

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Recruits in the intervention group reported higher self-confidence, lower stress levels, and improved reaction times, demonstrating the mental benefits of postural training. The findings align with previous research suggesting that an upright posture enhances self-esteem and cognitive performance (Anderson & Kim, 2022).

Postural training not only improved physical fitness but also played a key role in psychological resilience and cognitive efficiency. Soldiers with better posture exhibited enhanced endurance and strength, which significantly reduced fatigue during prolonged military tasks such as long-distance marches, heavy load carrying, and sustained combat training. Proper postural alignment allowed for more efficient muscular engagement and reduced unnecessary strain on the body, leading to better energy conservation and overall physical performance. Additionally, improved core stability and flexibility minimized the risk of musculoskeletal injuries, particularly in the lower back, knees, and shoulders, which are common areas of strain in military personnel. By reducing the incidence of postural imbalances and chronic discomfort, recruits were able to maintain optimal physical health and sustain high performance over extended periods.

Beyond physical improvements, postural training had a profound effect on psychological well-being. Soldiers with better posture demonstrated higher self-confidence, as standing and moving with an upright and balanced posture has been linked to positive self-perception and assertiveness. This psychological boost translated into improved performance in high-stress situations, as recruits with enhanced postural control exhibited greater stress tolerance and emotional regulation. Stress management is a crucial factor in military effectiveness, as soldiers frequently encounter mentally demanding and high-pressure scenarios that require quick decision-making and focus. Proper posture contributes to better respiratory function and oxygen intake, which directly supports cognitive processes, alertness, and reaction speed. As a result, soldiers who underwent postural training displayed improved cognitive efficiency, allowing them to process information more effectively and make strategic decisions with greater clarity under challenging conditions.

Integrating postural education into military training programs can therefore optimize both physical and mental readiness, ensuring that recruits are better prepared for the demands of service. A structured approach to postural correction and maintenance should be incorporated into standard conditioning programs, emphasizing the importance of core strength, flexibility, and ergonomic awareness. By reinforcing proper movement patterns and addressing postural deficiencies early in training, military institutions can significantly enhance the overall health, endurance, and operational efficiency of their personnel. Moreover, by combining postural education with psychological resilience training, recruits can develop a stronger mind-body connection that supports long-term performance, reduces injury risks, and fosters a disciplined and confident military force capable of handling the physical and mental challenges of active duty.

Conclusion

This study confirms that structured postural training significantly enhances physical endurance, flexibility, and mental resilience in military recruits. The combination of core stability exercises, ergonomic awareness, and psychological support improves overall military fitness and reduces injury risk. Future training programs should incorporate comprehensive postural education to enhance both physical performance and psychological readiness.

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