

A Comparative Study of BOSU Ball Training versus Traditional Balance Exercises on Recurrent Ankle Sprain in University-level Basketball Players

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ABSTRACT

Introduction: Ankle sprain is one of the most common injuries among basketball players, frequently leading to recurrent episodes and Chronic Ankle Instability (CAI). These conditions negatively affect balance, proprioception, and functional performance. Although rehabilitation programs commonly include balance training, there is limited evidence comparing the effectiveness of BOSU ball training and traditional balance exercises. Enhancing neuromuscular control and postural stability is essential for preventing recurrence and improving athletic performance.

Aim: To evaluate and compare the effectiveness of BOSU ball training and traditional balance exercises on balance performance, ankle stability, and functional outcomes in university-level basketball players with recurrent ankle sprain.

Materials and Methods: A comparative study was conducted on 42 university-level basketball players aged 18-25 years with recurrent ankle sprain. Participants were randomly allocated into two groups: BOSU ball training group (n=21) and traditional balance exercise group (n=21). Both groups underwent a 6-week intervention program (four sessions per week). Outcome measures

included the Single Leg Stance Test, Y-Balance Test, and functional performance assessments. Statistical analysis was performed using paired and independent t-tests with significance set at $p < 0.05$.

Results: Both groups showed statistically significant improvements in balance and functional performance ($p < 0.001$). Within-group analysis demonstrated the effectiveness of both interventions. However, between-group comparison revealed that traditional balance exercises showed significantly greater improvement in dynamic balance (Y-Balance Test) compared to BOSU ball training ($p < 0.001$).

Conclusion: Both BOSU ball training and traditional balance exercises are effective in improving balance and functional performance in basketball players with recurrent ankle sprain. However, traditional balance exercises were found to be more effective in enhancing dynamic balance and overall functional outcomes. These findings support the inclusion of structured balance training in rehabilitation programs to prevent recurrence and improve performance.

Keywords: Functional balance, Single leg stance test, Traditional balance exercise, Y-balance test.

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