

Abstract

Title: Relationship between lateral symmetry of the shoulder girdle in modified handstand position and Upper Quarter Y Balance Test

Objectives: The aim of this study is to test the relationship between the lateral symmetry of the shoulder girdle in the modified handstand position and the score in the Upper Quarter Y Balance Test.

Methods: This empirical research investigated the connection between the lateral symmetry of the shoulder girdle in a modified handstand position and the Upper Quarter Y Balance Test (UQYBT) score. Shoulder stability was assessed using the UQYBT score and categorized as shoulder with higher score (P, L, S). The quality of the handstand was evaluated by examining marker displacement relative to the baseline on the y-axis, resulting in higher marker position (P, L, S) and x-axis relative to the line segment, resulting in farther marker position (P, L, S). The relationship between these variables was analyzed using the Goodman-Kruskal λ association test, which measures the strength of association between two categorical variables (UQYBT and higher shoulder (P/L/S), and UQYBT and farther shoulder (P/L/S)). The λ coefficient, ranging from 0 to 1, was used to interpret the relationship.

Results:

The results showed a minimal and statistically insignificant relationship between the different height of the shoulder girdle marker (displacement on the y-axis) in the modified handstand position and the score in the Upper Quarter Y Balance Test ($\lambda = 0.091$, CI [0.00; 0.23]). The relationship between the distance of the shoulder girdle marker (x-axis) and the score in the Upper Quarter Y Balance Test was also minimal and statistically insignificant ($\lambda = 0.030$, CI [0.00; 0.17]). One possible reason for such a relationship could be the inadequate execution of the handstand position by the participants or an inappropriate choice of the test for assessing shoulder joint stability.

Keywords: Gymnastics; Shoulder joint; Stability; Handstand