

Abstract

Title: Influence of the interventional exercise program on the flexibility development muscles in the hip joint area in football players of early and middle school age.

Objectives: The aim of this work is to investigate the effect of an intervention containing typical gymnastic exercises on hip joint muscles flexibility in football players of early and middle school age.

Methods: This study is a quasi-experimental, quantitative work. It involved twenty-nine soccer players from different age categories ($\mu = 9.9$, $SD = 1.6$). The players underwent baseline measurements before participating in a 3-month interventional exercise program, which focused on gymnastic exercises to improve hip joint muscle flexibility through static and dynamic exercises. After 3 months, the players completed outcome measures, which included exercises: side leg lift, extend leg forward, and extend leg backward. The measurement data was obtained using Kinovea. Data analysis methods included paired t-tests, Wilcoxon paired tests, and sensitivity analysis.

Results: The paired t-test and Wilcoxon paired test showed us a low p-value of $p < 0.001$ for all measurements, confirming that the differences in pre-test and post-test for side leg lift, extend leg forward, and extend leg backward are statistically significant. From the paired test calculations, we found an effect size (effect size) between pre-test and post-test for all measurements of Cohen's $d \geq 1.54$. The result of the sensitivity analysis showed power = 1.00 ($N = 29$, $\alpha = 0.05$) with Cohen's $d > 0.63$.

Keywords: mobility; agility; gymnastics; young school-age; intervention; soccer