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The Acute Effect of Self-Myofascial Release on Lower Limb Muscle Flexibility and Performance Compared with Dynamic Stretching

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Introduction

Foam roll is a foam-made cylinder commonly utilized in Self-Myofascial Release (SMR). Literatures suggested SMR could improve muscle flexibility while not hindering muscle performance. However, the studies on SMR were inconclusive.

Objectives

This study aimed to study the acute effect of SMR on lower limb muscle flexibility and performance, compare with Dynamic Stretching (DS).

Methodology

A crossover study had been conducted with twenty-three participants aged from 18 to 40, recruited from soccer teams in Hong Kong with regular training. For SMR group, foam roller was applied to quadriceps and calves unilaterally. Participants were instructed to apply twenty to thirty percent of their body weight during foam rolling. For DS group, butt kicking and knee flexion and extension in downward facing dog were used for stretching quadriceps and calves respectively. Initial assessment and intervention evaluation consisted of five tests. Knee range, ankle range in knee extended position and weight bearing lunge test were used for testing lower limb muscle flexibility, while vertical jump height and 20 meter sprint test were conducted for testing lower limb muscle performance. The data collection was performed with at least 48 hours apart between groups to wash out the effect from previous intervention. As the data was not normally distributed, Wilcoxon signed-rank test was performed to detect the effect of different interventions with the significance level set at alpha?

Result

Both SMR group and DS group were effective and showed a significant increase in muscle flexibility after interventions ($p < 0.05$). Also, no significant difference was found between SMR group and DS group in muscle flexibility and performance tests ($p > 0.05$).

In conclusion, two sets of 30 seconds of SMR with twenty to thirty percent of

participant's body weight applied would be effective in improving lower limb muscle flexibility while not affecting lower limb muscle performance.