

The Chronic Effects of Ballistic Stretching on Hamstring Flexibility and Vertical Jump Performance in D3 Male Basketball Athletes

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ABSTRACT

Ballistic stretching may have an effect on both hamstring flexibility and vertical jump performance. **PURPOSE:** This study focuses on the effects of a 4-week ballistic stretching program on hamstring flexibility and vertical jump performance in Division III male basketball athletes. **METHODS:** Eighteen Division III male basketball athletes from TLU participated in this study. The athletes had an average height of 6'3" and an average weight of 195 lbs. In order to be included in the study, they had to meet the following criteria: (1) 18-26 years old, (2) Free from injury, and (3) Free from performance enhancing drugs. The subjects' hamstring flexibility and vertical jump height was recorded before and after the completion of the program using the Sit-and-Reach test and the Vertec Vertical Jump test respectively. The program lasted 4 weeks (4 days per week) & consisted of 3 stretches in addition to their normal basketball practice: Sit-and-Reach, Right Elevated Leg Extension, and Left Elevated Leg Extension. Only the experimental group (consisting of 9 subjects) participated in this program. The control group (consisting of 9 subjects) only participated in normal basketball practice. **RESULTS:** Overall, both groups decreased in vertical jump height & increased in hamstring flexibility. However, no statistical significance was found between groups or within groups ($p > 0.05$). On average, the experimental group decreased their vertical jump height by 1.06 in. & increased their hamstring flexibility by 0.44 in. Additionally, the control group decreased their vertical jump height by 0.67 in. & increased their hamstring flexibility by 0.33 in. Data was considered significant if $p \leq 0.05$. Comparing initial vs final vertical jumps (in the experimental group) using a two-tailed t-test revealed a p-value of 0.054. Comparing the average change in vertical jump among the 2 groups using the same test revealed a p-value of 0.393. Comparing initial vs final hamstring flexibilities (in the experimental group) using a one-tailed t-test revealed a p-value of 0.091. Comparing the average change in hamstring flexibility among the 2 groups using a two-tailed t-test revealed a p-value of 0.853. None of the results were statistically significant. **CONCLUSION:** This study failed to reject the null hypothesis. It is inconclusive whether or not ballistic stretching in addition to a basketball conditioning program has an effect on hamstring flexibility or vertical jump height.