Effects of Prophylactic Ankle Taping and Bracing on Selected Kinetic Parameters during the Vertical Jump

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PURPOSE: The purpose was to examine the effects of prophylactic ankle taping (PAT) and bracing (PAB) on selected lower extremity kinetics during vertical jump (VJ) performance. **METHODS:** Eighteen volunteers (M±SD = age: 21.4±0.9, height 170.9±10.1 cm, mass 73.2±14.5 kg, body fat 17.3±6.7%) completed the VJ under three conditions: standard PAT, lightweight lace-up PAB, and no treatment (CON). Each testing session was separated by a min of 24 hrs in a randomized and counter-balanced order. Prior to testing, the prophylactic ankle condition was applied to both ankles. The subject completed a 5-min warm-up on a Monark 824E cycle ergometer (0.5 kp) in a range of 50-60 rev/min and then performed three VJ. For each VJ, subjects were instructed to takeoff and land on a force plate. VJ displacement was measured using a Vertec. Peak force (PF) and relative impulse (I_R) were calculated during the force-producing phase of the VJ from force plate data. Net Impulse was approximated using Composite Simpson's Rule. The trial with the highest VJ was used for data analysis. A repeated measure ANOVA and a pair-wise comparison were used to assess for statistically significant differences among the conditions ($p < .05$). **RESULTS:** There was a statistically significant difference among the conditions for VJ height ($p = .02$). The CON was significantly higher than the PAT or PAB conditions. There was not a difference in VJ height between the PAT and PAB. There was not a significant difference in PF ($p = .33$) or I_R ($p = .87$) during the force-producing phase of the VJ.

Selected Kinetic Variables (M±SD)

Condition	Vertical Jump Height (m)	Peak Force (N)	Relative Impulse (N·s)
Tape	0.51 ± 0.11	1822.62 ± 551.71	8.05 ± 1.56
Brace	0.52 ± 0.11	1872.58 ± 471.85	8.05 ± 1.55
Control	0.54 ± 0.12*	1833.78 ± 478.99	7.98 ± 1.52

Note: * significant difference ($p < .05$)

CONCLUSION: The study indicated VJ performance decreased when the ankles were taped or braced. However, PF and I_R development, during the force-producing phase, were not influenced by ankle taping or bracing.