Comparison of Two Taping Techniques on Arch Height as Measured by the Navicular Drop Test: A Randomized Control Trial  
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Context: Research demonstrates that pes planus foot posture and excessive subtalar joint (STJ) pronation during gait are associated with a multitude of lower extremity pathologies. A commonly utilized clinical measure of pes planus is the Navicular Drop (ND) test. Interventions for prevention and treatment of overuse conditions related to excessive STJ pronation include arch taping procedures such as teardrop and low dye taping (LD) and navicular sling taping (NS). Previous research has not investigated the effectiveness of these taping procedures in preventing STJ pronation. Objective: The objective of this study was to compare the effectiveness of two arch taping techniques (LD and NS) in preventing STJ pronation as measured by the ND test. Design: The design of this study was a randomized control trial. Setting: This data was collected in a University research laboratory. Patients or Other Participants: 34 healthy subjects participated in the study (12 males, 22 females, average age 19.91 ± 1.35 years). Subjects were required to be free of current lower extremity pathology, tape allergy and skin sensitivity to tape or adherent. Interventions: Subjects, serving as their own control, were randomized with regard to the order of the three interventions, no tape (NT), NS and LD. Pre and post-intervention measurements were obtained using the ND test to assess the amount of STJ pronation present for each intervention. Main Outcome Measures: Changes in navicular height as measured by the ND test were used to determine the effectiveness of each intervention. Results: Significant treatment-by-time main effect for intervention ($F_{(2,68)}=21.693$, $p<0.001$) with partial $\eta^2$ effect size=0.390 and observed $\beta=1.000$. Pairwise comparisons for treatment-by-time demonstrate no statistically significant differences between groups at pre-intervention ($p>0.05$), a statistically significant difference between NT and both tapings (LD and NS) at post-intervention measures ($p<0.001$) and no statistically significant difference between the post-intervention measures for the two taping groups ($p=0.339$). Conclusion: The findings of this study reveal that both LD and NS taping procedures are superior to NT for controlling STJ pronation as measured by the ND test. Further, the findings demonstrate no difference in effectiveness between the two taping procedures. The clinical relevance of these findings tell practitioners that since both taping procedures appear to be equally effective in controlling STJ pronation, clinician experience and patient-preference should be utilized to determine which procedure to apply in order to control excessive STJ pronation. Word Count: 387