The Effect of Orthoses on the Variability of Kinetics in the Lower Limb

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Abstract

Objective: To quantify the effects of foot orthotics on lower extremity kinetics including centre of pressure pathways during walking while varying the orthotic interventions.

Background: several kinematic and kinetic factors have been suggested to vary after orthotic interventions but the exact mechanism of action of the orthoses is still not clear. According to the IOC Sport Medicine Manual (2000), the ability to predict an individual’s change in movement patterns as a consequence of a footwear intervention, such as an orthoses, is an area of biomechanical research that needs to be more clearly defined.

Methods: 10 normal healthy volunteers (7 males and 3 females) with an average age of 28±5.3 years and average weight of 72.6±14.5 kg participated in this study. Kinetic data which mainly included centre of pressure pathways was obtained while walking on AMTI force plate for the conditions of no orthoses (control), Type 1 orthoses and Type 2 orthoses. Repeated measure ANOVA followed by post hoc Bonferroni tests were used to detect significant differences. (I±=0.05).

Results: There were no significant differences between the conditions in the variability of centre of pressure pathways (p> 0.05) i.e.0.3543.

Conclusion: The effects of foot orthotics are not different from each other. It is clear from the study that orthoses have no significant effect in causing variability in the centre of pressure pathways i.e. Kinetics of the lower extremity during walking.

Key Words: Kinetics, Centre of pressure, Foot orthoses, Gait.

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