

Dynamic Splinting for Toe Walking: a Randomized, Controlled Trial of Gait Analysis

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Abstract

“Toe Walking” or hypertonicity in plantar flexion frequently occur secondary to cerebral palsy (CP) or as an idiopathic (ITW) condition, which limits the activities of daily living and restricts ambulation of children with this pathology. The Standard of Care (SOC) for this pathology includes serial casting and physical therapy. **The purpose** of this study is to examine the effect that Ankle Dorsiflexion Dynasplint (ADFD) on the gait patterns of children diagnosed with toe walking.

This experiment will recruit of **100 patients** and the study will measure changes in the kinematic and kinetic patterns (showing ankle plantar flexion) in the lower extremities while ambulating. All patients will receive weekly, standardized manual therapy and the Experimental patients will also receive the ADFD within one week of enrolment. Sub categorization will be made of CP vs. ITW. Subjects will be 3-9 years of age, both genders, and all ethnicities.

The **duration** of this study will be twelve weeks, and the gait pattern will be measured upon enrolment and at twelve weeks. Weekly tracking of daily ADFD wear and therapy will be taken for all patients.

Statistical analysis, will be calculated upon change in ankle plantar flexion while ambulating as the dependent variable, and the independent variables will be include categories (control vs. experimental), condition (CP vs. ITW) and, gender. A repeated measures ANOVA will be used for this data analysis. The purpose of this study is to examine the effect that Ankle Dorsiflexion Dynasplint (ADFD) on the gait patterns of children diagnosed with toe walking.

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