

Satisfaction and adherence to treatment with ankle foot orthoses in children with cerebral palsy

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Introduction

Ankle-Foot Orthoses (AFOs) are commonly prescribed in children with cerebral palsy (CP) to improve gait. Varying AFO stiffness can optimize treatment efficacy [1], but to be effective, good adherence is essential. We hypothesized that patient satisfaction of AFO use is partly dependent on AFO stiffness, and that adherence is associated with satisfaction.

Objective

To investigate patient satisfaction and treatment adherence to AFOs with varying ankle stiffness, and mutual associations, in children with spastic CP.

Methods

- Fifteen children with spastic CP (6-14yrs old) walking with excessive knee flexion in (mid)stance, Gross Motor Function Classification System level I-III.
- Participants were prescribed with a hinged AFO (NeuroSwing®, Fior&Gentz), while stiffness was varied into a flexible, stiff and rigid configuration using different springs [2].
- Effects on knee angle and net energy cost was evaluated for each stiffness, aiming to identify optimal stiffness individually [3]
- User satisfaction was assessed for each AFO stiffness (10-point scale).
- Wearing time (adherence) [hours/day] was measured both objectively (temperature sensor integrated in the AFO's ventral shell) and subjectively (diary).

Results

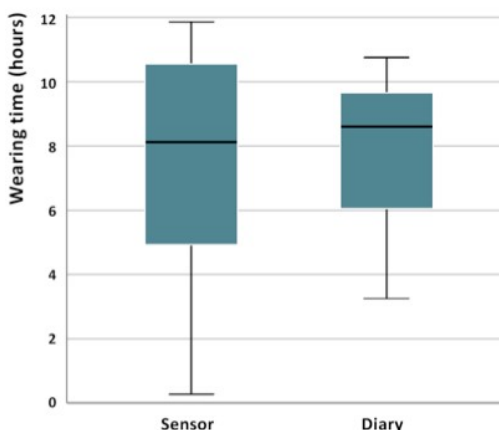


Figure 1. Wearing time sensor vs diary ($p=0.906$ $p<0.001$)

- Overall a nearly significant, poor association was found between wearing time and patient satisfaction ($r=0.292$, $p=0.055$).
- For the optimal AFO stiffness a moderate association was found between wearing time and patient satisfaction ($r=0.612$, $p=0.026$).

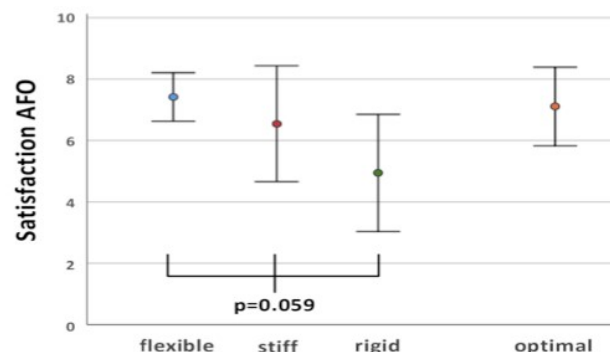


Figure 2. Satisfaction AFO per stiffness

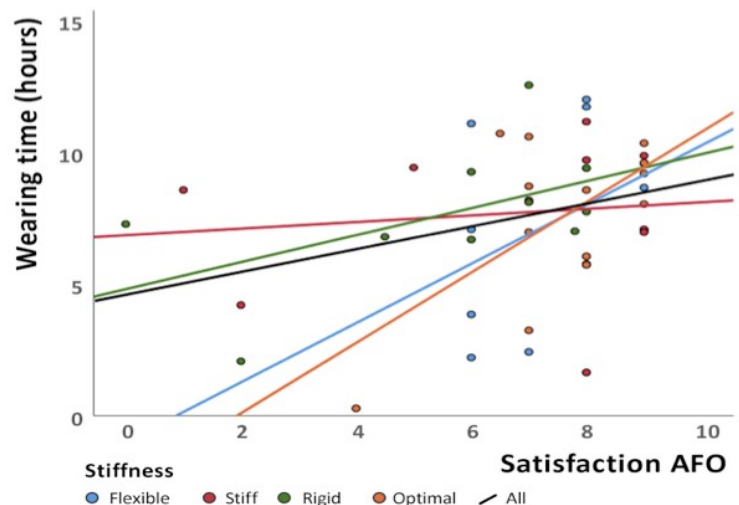


Figure 3. Satisfaction and wearing time per stiffness

Discussion

User satisfaction varied with AFO stiffness, both between and within subjects. In this study population, subjective measures of AFO adherence corresponded well with objective measures. AFO adherence tended to be associated with patient satisfaction, which was most pronounced for the optimal AFO stiffness.

Conclusion

In children with spastic CP, optimizing AFO stiffness might not only improve treatment efficacy in terms of gait efficiency and biomechanics, but may also be beneficial for treatment adherence.