



Six Minute Walk Test in Children with Cerebral Palsy

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BACKGROUND & OBJECTIVES

The 6MWT captures submaximal walking endurance over a six minute epoch, is reliable in children with CP, (Thompson 2008, Maher 2008) and is clinically used as a "capacity-based" measure (what child can do in an optimized clinical environment) of walking activity.

The goal of this project is to describe the walking activity of young and school aged children with CP by functional level, gender, and age. We hypothesize that walking activity levels will decrease with increased functional limitations, not differ by gender, and increases with age.

STUDY DESIGN

Prospective, observational, cross sectional, cohort study

SAMPLE

N = 344 children with cerebral palsy OR delay in gross motor development and impairments in: muscle tone, righting and equilibrium reactions, anticipatory postural movements of the head, trunk, or legs during movement, and active range of motion during movements

Ages 3-11 years of age (mean 83.6 ± 27.0 months)

54.7% boys

Gross Motor Function Classification System (GMFCS) Levels I (n=166), II (n=126), and III (n=52)



METHODS

All participants completed the 6-Minute Walk Test (6MWT) with a research therapist at Time 1 within the multi-site longitudinal ON TRACK Study. Distance walked was recorded in total number of feet using a distance wheel and with pre-established minimum verbal encouragements. Use of orthoses and assistive devices were documented. Walking terrain varied by location of the assessment (i.e. home, community, or center).

For comparison, children were placed into one of 3 age groupings: 3 years up to 6 years, 6 years up to 9 years, and 9 to 11 years. One-way ANOVA with post hoc Tukey test was used to compare 6-minute walk distance across GMFCS levels and age groupings. Independent t-tests were used to examine differences between boys and girls.

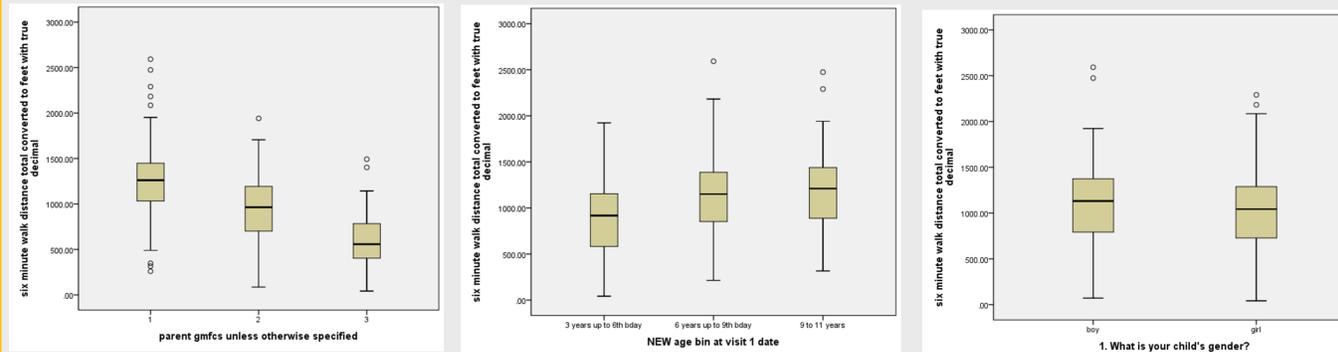
RESULTS

Children in GMFCS levels I, II, and III on average walked 1262.6, 941.5, and 552.7 feet respectively.

Children in GMFCS Level I walked significantly farther distances than children in level II (p<.001) and children in level III (p<.001). Children in level II walked significantly farther distances than children in level III (p<.001).

Differences in walking distance were noted across some of the age groupings (p <.001). Children 3-6 years walked significantly less than children 6-9 years (p<.001) and 9-11 years (p<.001). No differences were noted in walking distance between children 6-9 and 9-11 years (p=.58).

Distance walked did not differ between girls and boys (p=0.19).



CONCLUSIONS

6MWT distances are consistent with published data distance ranges for levels I, II and III (Wilson, 2014), but are slightly lower than the reported averages.

Walking endurance, as measured by the 6MWT, decreased with increasing functional limitations with children in level I walking significantly more than children in levels II and III, and children in level II walking significantly more than children in level III.

This is the first reported 6MWT levels in younger children with CP and differences were noted between the younger children (ages 3-6 years) and older children.

As hypothesized, there was no difference by gender with distance walked increasing with age.

CLINICAL RELEVANCE

Therapists should consider the influence of GMFCS level and age on the walking endurance of children with CP and should tailor intervention programs to specifically address endurance.

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On-Track
<https://canchild.ca/en/research-in-practice/current-studies/on-track>

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