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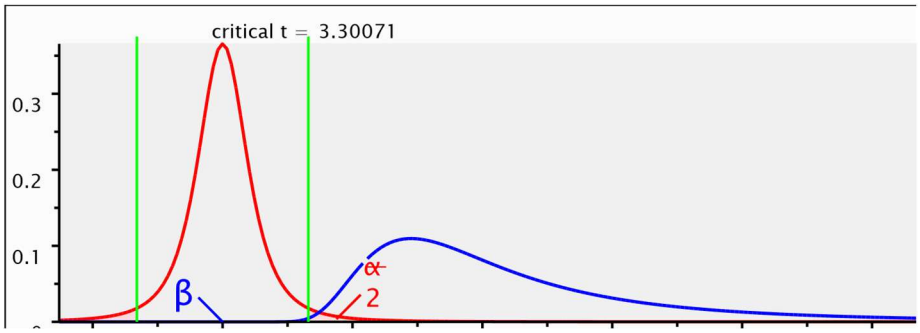
Statistical Analysis Protocol

Stand-on Ride-on Power Mobility Devices for Children With Cerebral Palsy

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Statistical Design and Power

Available data is scarce regarding changes in biomechanical variables after PMD use. Based on the previous NIH funded work (PI: Aceros and Lundy; Awards 1R25HD087971 and 1R25HD094335), the changes in functional score regarding mobility with two children that fall within the inclusion criteria of this study rendered an effect size of 4.349; utilizing a design of Wilcoxson signed-rank test for matched pairs (given the means and standard deviations were collected from the same participants at pre-post intervention), a two-tail distribution (with α set at 0.05 and β at 0.95) rendered the critical t-teste of 3.30 (DF 2.82) with total sample size of 4 and Power of 0.9987.



However, the current study will investigate biomechanical variables that have not been explored previously. Thus, we will target a sample size of 10 participants to generate sufficient pilot data for the calculation of effect sizes to support the subsequent R21 application.

Given the pre-post intervention research design, the primary statistical treatment implemented for all three Aims will involve within-subjects comparisons. Paired-samples t-test will be used for each group (intervention and control, separately) and, if normality assumptions are not met, the non-parametric Wilcoxon signed-rank test will be used to compare pre-post data. An exploratory evaluation will also take place with Pearson correlations (or Spearman correlations if non-parametric analyses are needed) to detect whether changes in biomechanical variables are associated with changes in functional balance and walking performance.