

Animal Assisted Adapted Physical Activity for Children with Cerebral Palsy

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Introduction

Cerebral Palsy is a muscle movement disorder caused by an insult to the immature developing brain before birth. Children with Cerebral Palsy generally have impaired movement, exaggerated joints, floppiness or rigidity of limbs and torso, abnormal posture, involuntary movement, and unsteady walking. This study was designed to test whether working with dogs on physical activity improved the motor functions of children with varying levels of Cerebral Palsy.

The purpose of this exploratory study is to examine whether or not an 8 week intervention would improve object control motor skill.

The participants in this study were evaluated with their dogs to measure their baseline motor function. Then the participants were given an intervention (weekly exercises with their dogs, as well as at home exercises with a sheet to record what they accomplished). After the eight week intervention, participants were given the same motor function test as the first week to test motor skill improvements. I am specifically looking at the underhand and overhand throwing exercises during both the at home and in lab interventions, in hopes to find a positive correlation between the amount of times a ball was thrown during the intervention and improved object control motor function.

Experiment Designs

Participants:

- 4 participants; 3 girls, 1 boys
- Age range 5 through 14 years
- Mean age = 12.6
- All clinically diagnosed with Cerebral Palsy

Methods:

- Original baseline measurement of motor skills with the Test of Gross Motor Development, 2nd Ed. (TGMD-2),
- Intervention
 - Participants came to OSU to work on throwing motors skills with their dog and researcher once a week for 8 weeks
 - Using an at home physical activity log, participants tracked total time with dog, as well as number of times per day they threw the ball, for 8 weeks
- TGMD-2 re-assessed

Results

Descriptive Statistics

N	4
Age	Range 5-14 years, mean 12.6
Gender	Male 1, Female 3
Ball Play	Range 558-1258, mean 846.33 (SD 365.93)

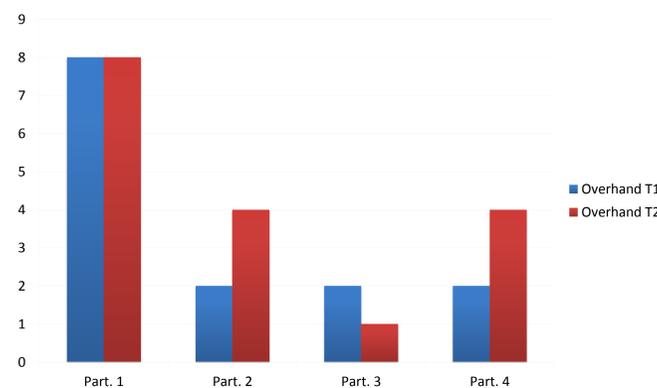


Participant practicing their overhand throwing exercises with their dog at the in lab intervention

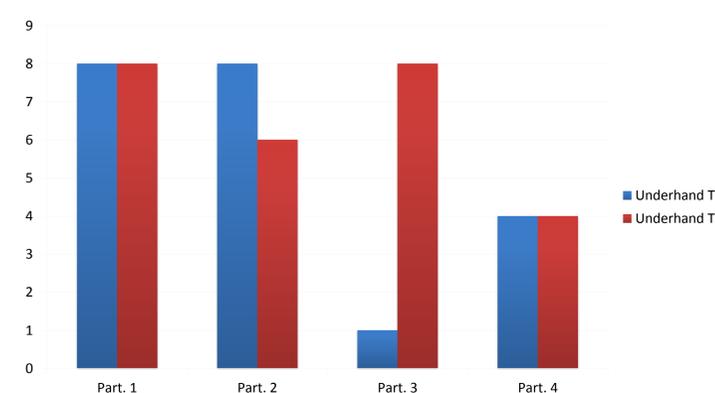
Pre and Post TGMD-2 and At Home Ball Play

	Pre-intervention			Post-intervention		
	N	Mean	SD	N	Mean	SD
Object Control Total Raw Score	4	29.5	16.29	4	28.75	12.34
Times Ball Thrown	4	101.5	33.64	4	73	77.89

Pre and Post TGMD-2 Overhand Throw Raw Scores



Pre and Post TGMD-2 Underhand Roll Raw Scores



Conclusion

- We found that while the over all object control total motor score did not improve between time 1 test and time 2 test with the overhand and underhand throwing intervention, the specific overhand throw score and the underhand throw score did improve from time 1 to time 2 testing.
- We did not find a positive correlation between the number of times the ball was thrown in the at home intervention and the overall object control motor score. One participant did not record how many times they threw the ball per week except for the first week, skewing our results for at home ball throwing totals at the end.
- Overall, while the overhand and underhand throw means did slightly increase, we did not have enough evidence as to say for certain what caused the increase in the throwing scores, or what caused the overall drop in object control raw scores.

References

1. Ulrich, D. (2000). Test of Gross Motor Development 2nd Ed., (TGMD). Austin: Pro-Ed.
2. Mayo Staff Clinic. (16, Aug. 2013). *Diseases and Conditions Cerebral Palsy*. Retrieved from <<http://www.mayoclinic.org>>

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