

Intensive gross motor camp for youth with cerebral palsy (SportFIT and Recreation)

Project Summary

Centre for Leadership in Child Development

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SHARING OUR WORK

In addition to sharing our findings at Centre for Leadership events and Child Development Program Forum at Holland Bloorview, we presented our work at the 2015 Ontario Association of Children's Rehabilitation Services (OACRS) Conference.

The results of the research focused on the Liberi Exergames during the camp has been submitted for publication in the Journal of Developmental Rehabilitation and will be presented as a poster at the International CP Conference in Stockholm in June 2016 and the American Academy of CP & Developmental Medicine (AAPDM) in September 2016.

The results from the Challenge-III pilot testing were shared (poster) at the annual Bloorview Research Institute Symposium in November 2015, and will be presented (paper) at the AAPDM in September 2016.

WHAT WAS THIS STUDY ABOUT?

Maximizing participation is a main goal of interventions for children and youth with cerebral palsy (CP). Intensity of practice is an important factor in motor learning, and activity-based interventions can enhance gross motor skills. This project created a partnership between physiotherapy (PT) and therapeutic recreation (TR) to increase engagement, enjoyment, and carry-over of skills for clients into the community setting. This project aimed to research the use of the Liberi exergame bikes as part of therapy as well as to develop an objective clinical tool to measure advanced gross motor skills in this population.

WHAT DID WE DO?

We developed and ran a full day 2-week intensive gross motor summer camp for 10 youth with CP, classified as level II and III on the Gross Motor Classification System, to improve motor skills and fitness while also increasing enjoyment, confidence and participation in recreational activities. The camp program included gross motor exercises and strengthening in a circuit training fashion, leisure education, and adapted sport skill development. The Liberi Exergame system was added to the camp as daily cardiovascular exercise. Campers pedaled on bicycles to power their avatar as they played together. Community outings (rock climbing, dragon boating, etc), as well as guest coaches (yoga, dance, and ParaSport athletes) were integrated into the program. Physiotherapists and therapeutic recreation specialists worked with campers to set individual gross motor and physical recreation goals.

Standard clinical measurement tools were used to evaluate campers' gross motor skills, cardiovascular fitness, strength, confidence and participation in recreational activities before and after the camp. We also looked at whether they had maintained any improvements 6-months after the camp. A clinical measure that evaluates advanced gross motor skills in children and youth with CP who use assistive walking devices does not currently exist. As part of this project, we developed a 12-item Challenge-III assessment to address this critical measurement gap. Campers' balance, coordination, and speed were put to the test while they walked quickly with varying demands, and performed ball activities involving kicking, catching and throwing. Seven iterations of the Challenge-III evolved with substantial response option modifications resulting in a prototype version of the Challenge-III.

IMPACT FOR CLIENTS, FAMILIES AND CLINICAL PRACTICE

In addition to a rapid improvement in gross motor ability, clients built their knowledge of community resources allowing them to participate in new recreational activities throughout the year. The refinement of the Liberi Exergames will help us make the games more inclusive to enable clients with different abilities to play together. Although further research is necessary for evaluating its psychometric properties, the Challenge-III addresses a critical measurement gap and it is hoped that it will support goal setting and treatment planning with children who use walking devices.

WHAT DID WE LEARN?

- Based on camper satisfaction results, all participants found the camp fun and enjoyable.
- Campers' and/or their parents' perception of performance and satisfaction with respect to individual TR and PT goals demonstrated a change that would be important to clinicians.
- Expected change for PT Goal Attainment Scale (GAS) goals did not occur. This suggests a need to revise practice intensity related to these goals, with increased time to work on individual goals within the PT circuit training sessions.
- Compared to a traditional therapy block, benefits of intensive camp include greater total hours, social environment, and education/resources to support sport and recreation participation after the camp
- By adding the Liberi Exergame as a cardiovascular activity to the camp, we discovered some essential motivating factors necessary to facilitate gameplay between people with different abilities. These discoveries will be crucial to further refining the Liberi Exergames to facilitate making them available to families in their home and/or developing successful group exercise programs.
- While the Challenge-III skill performance was quite demanding for the youth, overall the campers had a positive experience with the testing.

NEXT STEPS?

- We are planning to run SportFIT and Recreation Camp again in July 2016 with 8-14 year olds.
- We will be implementing our lessons learned within the newest version of the Liberi Exergame to facilitate cardiovascular exercise and fun group play for people of all abilities.
- Additional testing of children and youth who use gait aids is required to confirm the final wording of the Challenge-III items and response sets followed by testing of the rater reliability will be done (separate funding will be sought) before it is rolled out for clinical use.

TO LEARN MORE ABOUT THIS STUDY, PLEASE CONTACT:

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WHO ARE WE?

Our team is made up of: physiotherapists, physiotherapy assistants, therapeutic recreation specialists, therapeutic recreation assistants, students, and researchers in the SPARK Lab and CP Discovery Lab.

THANK YOU!

We want to thank the campers and their families, all of the volunteers who assisted to help run a successful camp program, and Dr. Nicholas Graham's EQUIS Lab at Queen's University as Liberi Exergame collaborators.

THIS PROJECT WAS FUNDED BY:

Centers for Leadership in Child Development and Participation and Inclusion