Article

Clutterbuck, G.L., Auld, M.L., Johnston, L.M. (2020). SPORTS STARS: a practitioner-led, peer-group sports intervention for ambulant children with cerebral palsy. Activity and participation outcomes of a randomised controlled trial. *Disability and rehabilitation*, 1–9. Advance online publication. https://doi.org/10.1080/09638288.2020.1783376.

Adaptive Sports/Recreation Topic Categories

- Participation
- Physical activity competence
- Quality of life

Research Question

- Following a practitioner-led, peer-group sports skills intervention called *Sports Stars*, do children with cerebral palsy at GMFCS Level I–II demonstrate greater improvement in their (1) sports participation, (2) physical activity competence (sports-specific gross motor function), and (3) quality of life compared to a wait-list control group?

Methodology

- Randomised, waitlist-controlled, assessor-blinded trial.
- Participants: Ambulant children with cerebral palsy aged 6–12 years, with a GMFCS Level I or II.
- Recruited from Queensland statewide service and CP register.
- Children were excluded if they had orthopaedic or neurological surgery within 6 months of intervention, botulinum toxin injections within 3 months prior to intervention, could not participate in assessments or the intervention due to physical, medical, behavioural and intellectual reasons, or had medical co-morbidities impacting safe exercise as reported by parents.
- Eight weekly 1-hour sessions focusing on sports-specific gross motor training, sports education, teamwork development, and confidence building for soccer, netball, T-Ball and cricket (2 sessions for each sport) held at community parks.
    - Sports variety provided with the intent of allowing participants the opportunity to develop a broader range of (1) physical sports skills, (2) knowledge/understanding of different sports, (3) confidence in trying new sports, and (4) sports preferences.
- Primary outcomes were assessed in each child's local community therapy centre by the chief investigator, who was blinded to group allocation:
    - Sports participation was measured using self-identified participation goals (modified Canadian Occupational Performance Measure (mCOPM)).
    - Physical competence was measured with mCOPM activity goals and high-level gross motor batteries (Test of Gross Motor Development (TGMD-2); GMFM-Challenge) and walking (Timed-Up and-Go), running (Muscle Power Sprint Test; 10x5m Sprint Test), jumping (Standing Broad Jump; Vertical Jump) and throwing (Seated Throw) items.
    - Participation and quality of life were measured using the Children's Assessment of Participation and Enjoyment (CAPE), Preferences of Activities for Children (PAC) and Cerebral Palsy Quality of Life- Child (CP QOL-Child) respectively
    - Outcomes were measured pre-intervention (0 weeks), immediately post-intervention (8 weeks) and 12-weeks post-intervention (20 weeks).

- Secondary outcomes: Adverse events such as injuries sustained during *Sports Stars* program, modifications to *Sports Stars* program based on participants' needs.
- Data were analysed using linear mixed models.
- Participants in the waitlist-control group received standard care and participated in the programme after their 12 weeks follow up assessment

Results

- 54 children were randomised into *Sports Stars* (n=29; GMFCS I=7, II =22; male =19;8.9 ± 2 years) or waitlist-control groups (n=25; GMFCS I=10, II =15; male =14; 8.6 ± 2 years).
- Participants of the *Sports Stars* group attended a mean of 6 ± 2.5 sessions, (range 1–8).
- The *Sports Stars* group demonstrated improvements in self-identified sports participation, activity competence performance, and satisfaction at post-intervention immediately and at 12-week follow up compared to the waitlist-control as measured by the mCOPM using self-selected goals.
- There was a significant group by time effect for sports-specific gross motor function on the TGMD-2 total, locomotor, object control immediately post-intervention and at 12-week follow up.
- There was no significant group by time effect for the GMFM Challenge, vertical jump, seated throw, standing broad jump, MPST, 10x 5m sprint test, Timed Up-and -Go, CAPE, PAC or CPQoL-Child.
- There was no significant change in the waitlist-control group any time point.

Discussion/Conclusion

- *Sports Stars* improves performance and satisfaction in sports-specific participation and activity goals for ambulant children with CP.
- *Sports Stars* improves sports-specific physical activity competence in locomotor and object control skills measured by TGMD.
- No significant change in participation, quality of life, or other gross motor skills occurred.

Article Strengths

- Intervention could be used for any paediatric population.
- Multiple outcome measures used.
- Pragmatic, feasible, low dose, low cost design.
- Low rate of adverse events.
- Drop outs and assessments not completed were reported.

Article Weaknesses

- Missing data for participation and quality of life measures.
- Participation and quality of life measures too generalised.
- Gross motor measures may not have been specific enough to 4 chosen sports (e.g. jumping only relevant in netball).
- Authors conclude that sport-specific interventions should incorporate sport-specific gross motor activity training as well as sports education, confidence building, and teamwork; however this is not reflected in any data or outcome measures.
    - *Sports Stars* group was permitted to continue participation in other recreational activities such as sport, which may confound data gathered on

Sports Stars outcomesParents were asked to record daily participation activities but poor adherence led to results not being reported which may be an important addition to the results.

- Unable to make conclusions regarding sustained changes from program given it is structured as a short-term program and follow-up was only to 12 weeks post-intervention.
- *Sports Stars* program does not address the issue of integrating children with disabilities into activities with typically developing children. Would be interesting to evaluate a similar program that involves integration and education of coaches/physical education teachers to better incorporate children with disabilities into their programs.
- Difficult to generalize study to other populations of children with disabilities as this study only included children with CP GMFCS I and II.

Take Home Messages

- *Sports Stars* was effective for improving sports-specific participation and physical competence for children with CP GFMCS I and II for their selected goals.
- *Sports Stars* highlights the need for specificity of training to change other specific activity skills.
- Measures chosen may not be sensitive enough to show change in short term programmes.