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**Introduction:** Children and young people (C&YP) with cerebral palsy (CP) have limited opportunities for movement. Physiotherapists can adapt cycling and this may reduce muscle weakness present in C&YP with CP. This mixed method study explored cycling participation in C&YP.

## Participants and Methods:

Cardiff University School of Healthcare Studies Ethics Committee provided ethical approval. Thirty five C&YP (2-17y) participated: non-cycling control group (n=18) and cycling group (n=17). The cycle group participated in six outdoor cycling sessions, using individually adapted trikes. Families and C&YP were interviewed and cycling diaries kept and thematically analysed with Nvivo. Bilateral quadriceps and hamstrings strength measures were taken before and after the intervention period for both groups using the Hand-Held Dynamometer. Results were analysed using analysis of covariance.

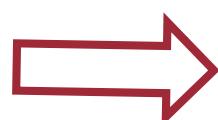
## Results

Thematic analysis revealed perceived improvements in participation, pedalling skills, cycling speed and steering. Strength analysis revealed no statistically significant difference between groups, although increased strength trends were observed for the cycling group: (Quadriceps increased by : Right:12.14 Newton N)  $\pm 6.5$ ; Left:15.56  $\pm 13.87$ N; Hamstrings by Right:5.19  $\pm 3.5$ N; Left:4.23  $\pm 5.94$ N). Trends of decreased strength were observed in the control group.

## Conclusion

Adapted cycling has potential social and physical health benefits. Observed improvements in cycling skills and strength trends deserve further investigation with larger sample sizes over longer terms. C&YP without freedom to move lack access to outdoor activities. Physiotherapists can advocate cycling transition, as it reduces dependency on physiotherapy provision and is perceived to improve quality of life. They can become stakeholders and influence NICE guidance such as "Walking and cycling 2012: local measures to promote walking and cycling as forms of travel or recreation."

### Transporting issues



1. Joining the Gower Cycle Festival ride, Swansea
2. Cycling to the Gruffalo Storytelling Picnic in Bute Park
3. Family and friends cycling accompanied on the Llanelli Millennium Cycle Path
4. Cosmeston Lakes, Sully, near Cardiff

"Shows a barrier layout that conforms to Department for Transport Inclusive Mobility Guidance. Note that cyclists are instructed to dismount. (NCC Cycling Design Guide 2006)"



### Access issues



Cardiff 20m pilot scheme 2013



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