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Title: Society and Environment: Health-Enhancing Physical Activity for Children with Cerebral Palsy

Background: Children with Cerebral Palsy (CP) can have limited mobility reducing participation in society. Considerable innovation and engagement is required from experienced professionals to increase participation. Increasing mobility in society enhances participation, aiding children and young people to achieve optimal potential.

Aim: Access to buildings and outdoors has improved for individuals with limited mobility, but risk concerns still limit children to wheelchairs. Adapted cycling offers opportunities within the community where children can increase mobility and participate in physical activity, experiencing periods of “uprightness” with correct support. This study explored effects of participation in outdoor cycling, for children with CP, in a non-clinical public setting.

Method: This mixed methods study received ethical approval from Cardiff University. The study explored children and families’ experiences of adapted cycling and effects on muscle strength. Bilateral lower limb strength was measured using a Hand-held dynamometer, before and after 6 cycling sessions, increasing distance and time as able. Children and families kept diaries and were interviewed adapting mosaic methods. A control group did not participate in cycling and underwent identical methods.

Results: 17 children participated in cycling sessions, 18 in the control group. Qualitative data was analysed using a thematic template. Emergent themes included: learning a new skill, impact on family, cycling set-up and fun participation. Strength changes demonstrated children who cycled increased muscle strength up to 28% while control group strength decreased.

Conclusion: Children enjoyed cycling with an improved sense of well-being. Cycling provided physical health-enhancing opportunities for increasing strength. Society, including policy makers, must work to ensure specialist community-based expertise is available to make participation in society more accessible for children with CP.