

Multicomponent exercise improves physical functioning in children and young adults with cerebral palsy: Study

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[A new study](#) carried out at the Faculty of Sport and Health Sciences at the University of Jyväskylä, Finland, found that an individually tailored

exercise program improves motor function, muscle strength and joint mobility in children and young adults with cerebral palsy. Positive changes in physical functioning can improve mobility and functioning in everyday life.

"For example, after completing the [exercise program](#), several participants were able to walk up the stairs by stepping on each step with one leg only, when he or she previously had to bring both legs to each step," explains doctoral researcher Pedro Valadao. The results of the program are published in the journal *Medicine & Science in Sports & Exercise*.

CP is the most common motor disability in children and young people that causes movement restrictions. Typical symptoms include, for example, muscle tension, muscle weakness and difficulties in regulating movements. The three-month exercise program in the study therefore included strength, walking and mobility training. Doctoral Researcher Pedro Valadao, who was responsible for the design and implementation of the study, says that the physical activity recommendations for people with CP were taken into account in the design of the exercise program.

"What was new in this study was that [strength training](#) was done with heavy weights. All strength exercises were done under the guidance of a trainer, and the weights were individualized for each participant to allow proper physical exertion. Despite the [high intensity](#), the training program was safe, and there were no adverse effects."

Participants were 18 children and adolescents between the ages of 9 and 24. The physical performance of the participants was measured four times every three months, twice before the three-month exercise intervention and twice after. The training was progressive and individualized. There were guided exercises 2–3 times a week for 1.5 hours each, and in addition, the participants received a manual treadmill

to take home for daily walking training. An additional 17 typically developed age- and gender-matched children and adolescents also participated in the study, but they did not participate in the exercise intervention.

After the exercise intervention, the motor function of the participants was improved as measured by the six-minutes walking distance and the Gross Motor Function Measure (GMFM) test. The GMFM test is commonly used to assess [motor function](#) in people with CP. In addition, the strength of the thigh muscles improved, as did the mobility of the knee and hip joints. However, there were no changes in the strength of ankle extensor and flexor muscles.

The improvement in the six-minute walking distance was maintained during the follow-up period, which lasted three months after the end of the exercise intervention. However, many of the positive training effects regressed towards the baseline level already during the follow-up.

"The results of the study remind us that exercise must be regular and progressive, so that the benefits obtained from it are maintained," postdoctoral researcher Tiina Savikangas says.

More information: Pedro Valadão et al, Effects of the EXECP Intervention on Motor Function, Muscle Strength and Joint Flexibility in Individuals with Cerebral Palsy, *Medicine & Science in Sports & Exercise* (2023). [DOI: 10.1249/MSS.0000000000003273](https://doi.org/10.1249/MSS.0000000000003273)

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