Assessment of muscle strength and aerobic capacity during exercise in children with cerebral palsy

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Introduction.– The aims of this study is to evaluate muscle function and cardiorespiratory fitness during exercise in children with cerebral palsy (CP) compared to healthy children.

Materials and methods.– This is a prospective study of children with cerebral palsy in spastic form. No child was on wheelchairs or requires technical support for the execution of the tasks. All children were over 7 years of age, heights and weights similar in both groups. Exercise tests were performed in the isokinetic device on the lower limbs and aerobic test through the fixed speed test (FF test) using an electrometric ergometer (Ergoline program Zan 680).

Result.– The average age of children with cerebral palsy (PC) was 14.7 ± 5.03 years and 14.6 ± 4.67 years for children. The height and weight of children with PC were significantly lower than in control children (p = 0.007), however they have a higher percentage of fat mass compared to healthy children (p = 0.004). Weight and BMI were significantly lower in both groups of children. Compared with healthy children, children with CP have isokinetic muscle strength of quadriceps and hamstring muscles lower with respectively (p < 0.01) and (p = 0.003). The metabolic equivalent (METS) was better in healthy children (p < 0.03).

Conclusion.– In children with CP, the aerobic capacity during exercise is lower compared with healthy children in association with an impaired maximal strength isokinetic quadriceps and hamstring muscles deficient compared to healthy children.

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