

The effect of exercise therapy on motorabilities in children with Cerebral Palsy

Abstract

Introduction: Cerebral palsy (CP) is a term for a range of non-progressive syndromes of posture and motor impairment that results from an insult to the developing central nervous system of embryo and fetus in utero, until the first two years of birth. It means that the disorder or disease process will not worsen with time (Miller, et al., 2006; Goldstein, 2004). The rate of disease occurrence is one or two in a thousand (1000) live births and spasticity is the predominant motor abnormality (Odding, et al., 2006).

Objective: To examine the effect of exercise on motor abilities of cerebral palsy children using the Gross Motor Function Measures - 88 (GMFM). Methodology: A within-subject, single arm pre and post-test research design was employed. Ten spastic cerebral palsy children with age ranging from eight to eighteen years old (mean age \pm SD = 12.7 \pm 3.653, six males) were recruited. Six of the children were diplegic and four were hemiplegic. The children were given 6 weeks of exercise therapy at a frequency of twice a week, and duration of 1 hour each session, under the guidance of a trained instructor. The effect of exercise on motor abilities was assessed using the GMFM-88 administered pre- and post-exercise therapy. Results: Motor abilities of the children as indexed by GMFM scores significantly improved with the exercise intervention 6 weeks after exercise therapy program ends. There was significant difference in the overall GMFM scores between pre and post intervention, $p = 0.005$. When the five dimensions in GMFM were analyzed separately, there was significant improvement in scores for each dimension: Lying and Rolling ($p=0.005$), Sitting ($p=0.005$), Crawling and Kneeling ($p=0.007$), Standing ($p=0.007$) and lastly, Walking, Running and Jumping ($p=0.011$). Conclusion: Exercise therapy improves motor abilities in cerebral palsy children as shown by increased GMFM scores in all dimensions.