Andrzej Czamara et al., J Nov Physiother 2017, 7:4 (Suppl)
DOI: 10.4172/2165-7025-C1-015

The effect of a 12-week long Nordic walking training on a march on treadmill ergospirometry parameters and heart rate in a patient with a cerebral palsy

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Statement of the Problem: The efficiency of walking is often the focus of therapeutic interventions for patients with cerebral palsy (CP) as its decrease has been shown to be predictive of reduced capacity for activity, participation and social interaction. To date, there are some general findings about the effect of Nordic Walking (NW) training, however none of them advocate to patients with CP. The aim of the study was to assess the effect of NW training on a march on treadmill ergospirometry parameters and heart rate in a patient with CP.

Methodology: The studied patient was a 16 years old male with spastic diplegia, with neurological signs in both lower limbs, but without functional involvement of upper limbs and no mental retardations. Five times a week for 12 weeks, the patient performed 40-minutes long NW training. The training was being monitored using application installed on a smartphone and saved on the user account, to which access was allowed to the researchers. The patient underwent the ergospirometry test using the MetaLyzer 3B-R3 device. The measurement was performed twice: Before (PRE training) and after (POST training) the 12-week long training. The obtained values of walking time, maximal walking speed, maximal oxygen consumption; oxygen consumption normalized to patient's body mass; carbon dioxide production, pulmonary ventilation, and a maximal heart rate were analyzed. The differences in studied parameters between the first and the second measurement were expressed in per centers (%).

Findings: The intra-measurement comparison revealed an improvement of studied parameters.

Conclusions: The applied 12-week long NW training improved ergospirometry parameters with HR max remaining on the same level as an effect of positive adaptation to an exercise with higher load. The increase of walking efficiency after application of NW training in CP patients should be studied on a larger sample.

Biography

Andrzej Czamara is an author and co-author of 59 scientific articles. Since 2012, he has been an Associate Professor at College of Physiotherapy in Wroclaw, Poland. He is a Specialist in Physiotherapy and runs his private practice as a Physiotherapist. Since 1997, he has been managing the Rehabilitation Centre in Wroclaw. He has founded the College of Physiotherapy in Wroclaw where he has been an Academic Teacher since 1999. Since 2010, he has been the President of College of Physiotherapy located in Wroclaw.

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