Possibilities of intervention by stretching on the locomotor apparatus in 6-9 - year old children with dysfunctions

Pásztai Zoltán

University of Oradea

Background: The research of motricity efficiency, of the harmonious growth and development of the body, of the motor skills and of the physical qualities in 6-9-year-old children is of major importance in pediatrics. The occurrence of certain distortions, dysfunctions and even disabilities in the statokinetic function in the children of 6-9 years also is a new and constant objective in pediatric research studies. According to these ideas, the hypothesis in this study asks the question of whether the statokinetic function can be positively influenced and achieved in the children with special needs and in those with different dysfunctions and disorders in their neurodevelopment, at an early age (6-9 years of age), by kinetotherapy means and by the Proprioceptive Neuromuscular Facilitation (PNF) procedure of muscular stretching.

Aims: to induce positive influences in 6-9-year-old children with various static and kinetic dysfunctions and with other disabilities such as: hearing, sight, psychic, emotional, neural and motor problems, by using kinetotherapy. To employ the strategy of central axis and the spiral dynamics regarding the pelvis control, by using the PNF procedure of prolonged muscular stretching. To develop the global and analytical motor control of the muscle segments and chains, and to develop the motor skills, by increasing of the range of motion and strength and by implementing physical therapy programs and muscular stretching procedures. To record the assessment and the data analysis with the Ergosim and Biopac systems, and with the "Zoli box procedure" of controlled mobility, which can be useful for an objective and correct determination of the status of the static and kinetic function in the children of the study, by using the proportionality index, the joint mobility data, the muscle strength and the active timing shown in histograms.

Methods: the Biopac system was employed to record electromyographies of the quadriceps muscle in both lower limbs. The Ergosim system was used to record the following parameters: the muscle strength of the abduction and extension muscles as well as the maximal abduction and extension amplitude, the active strength and the active and passive timing. The SPSS (SPSS/ PC + Statistical Product and Service Solutions) were employed for data analysis. The graded rod test on the "Zoli" box was employed in order to determine the synchronic functioning of the major muscle chains of the statokinetic function and of the static and dynamic coordination of the body.

Conclusions: after applying the complex prophylactic and recovery programs the following conclusions were reached: (a) the amelioration of the symptoms regarding the state of hypertonia, of spastic muscle control, and even the decrease in this state in several children of group E (neuromotor) (CP.children); (b) the increase in the neuromotor performances regarding the fine motor and muscle control in group E (CP.children); (c) the articulation angles and the muscle levels augmented in all samples; (d) the muscle strength increased especially in group D (amblyopic children) and in group C (hearing disabilities); (e) the body and pelvis-hip stability was reached, especially in group C (children with hearing disabilities), D (amblyopic children), and E (CP.children).

Keywords: disability, Ergosim system, Biopac system, statokinetic function, stretching.