Approaches related to the fundamentals in the application of walking rehabilitation procedures by functional electrical therapy in multiple sclerosis

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Abstract

Multiple sclerosis is an inflammatory, demyelinating disease of the central nervous system. Every year, approximately 10,000 persons are newly diagnosed with multiple sclerosis and worldwide the number of affected person is rising to over 2.5 million. Involvement of the central nervous system leads to important physical disability; rehabilitation is difficult and limited, with severe deterioration of life quality and significant increases in the number of disabled persons with low or severe disability degree.

Unpredictability and variability of symptoms caused by multiple sclerosis have led to different alternative approaches on the disease management. Different treatments and support methods have been developed – physiotherapy, occupational therapy/ergotherapy, counseling and psychological therapy, special counseling – all of these being of great use in the improvement of patient life quality. In some countries the patients are treated by functional electric stimulation. In different scientific papers, functional electric stimulation is described as a common treatment for patients that have suffered from a stroke attack, but data about application of this procedure in multiple sclerosis are sporadic because of the lack of clinical documentation. For this reason, the present paper aims to create the theoretical background in the application of functional electric stimulation in multiple sclerosis, together with the application of a complex system of data acquisition in human motion analysis, contributing to the lowering of health costs and the social integration of patients (social and economical effects).

Key words: multiple sclerosis, functional electrical stimulation, computational walking analysis, life quality.