ABSTRACT

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The aim of this thesis is to monitor the activation of selected muscle groups (musculus deltoideus pars anterior, musculus deltoideus pars posterior, musculus triceps brachii caput laterale and musculus trapezius pars descendus) during double poling ergometry. Nine subjects with different spinal cord lesions volunteered to participate in the study. The surface electromyography is used to detect the musculus activation. The monitoring of four muscle groups is divided into three phases. Firstly, all the participants double-poled for one minute at moderate intensity according to the Borg scale. Each participant underwent a 10-minute intervention to correct the posture. In the last phase the volunteers exercised again for one minute at moderate intensity. The aim of the intervention is to decrease muscle activation of musculus deltoideus pars anterior and musculus trapezius pars descendus (muscles with a tendency to hypertonia during wheelchair propulsion and activity of daily living) and to increase muscle activation of musculus deltoideus pars posterior and musculus triceps brachii caput laterale (muscles with tendency to hypotonia during the wheelchair propulsion and ADL). The intervention did not positively influenced muscle activation of musculus deltoideus pars anterior. On the other hand, a positive influence of the intervention on musculus triceps brachii laterale and musculus deltoideus pars posterior was observed. The biggest changes are seen in the monitoring of two volunteers with a C7 lesion and one with a T10 and L1 lesion.

Key words: spinal cord lesion, surface electromyography, double-poling ergometry