Abstract

Title: Assessment of muscle activity by surface electromyography in reflex locomotion according to Vojta

Objectives: The aim of this thesis is to summarize the existing knowledge on the objectification of the effects of Vojta reflex stimulation. It is also aimed to verify whether there is a higher muscle activity in selected muscles (m. rectus abdominis, m. biceps brachii, m. tibialis anterior) during Vojta chest zone stimulation compared to placebo stimulation. Subsequently, the mean muscle activity relating to maximum voluntary contraction (MVC) for all selected muscles during stimulation was compared. Furthermore, muscle activity related to MVC in the first and last minute without stimulation was also recorded with surface electromyography (sEMG) and was later assessed.

Methods: The sample consisted of female university students in the age range of 18-26 years. Muscle activity measurements were performed on a Trigno Delsys instrument with EMGworks Acquisition software. The MVC of selected muscles was measured for each subject, and also the other researchers whose studies were running in parallel with this work were performed. EMG signal measurements were performed not only during placebo stimulation and stimulation according to Vojta, but also in the first and last minute without any stimulation. The order of two different stimulations was non-randomized. There was at least 10 minutes pause between the stimulations where the tasks of other researchers were performed.

Results: The results of this thesis show that there was a higher value of total mean muscle activity relative to MVC during Vojta stimulation. When the average muscle activity relative to MVC of individual muscles was assessed in more detail, only m. rectus abdominis bilaterally reached higher values. For selected limb muscles (m. biceps brachii and m. tibialis anterior), muscle activity values related to MVC were equal or even higher in placebo stimulation. In the poststimulation minute, the value of mean muscle activity relative to MVC of all muscles was higher after placebo stimulation.

Keywords: Vojta method, Vojta reflex locomotion, VRL, reflex stimulation, surface electromyography, EMG, muscle activity