

Abstract

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Title: Changes in pulmonary function and cardiac activity during reflex rolling stimulation according to Vojta

Objectives: The aim of this study is to evaluate accompanying non-locomotive manifestations within the comprehensive response to stimulation of trigger zones from the concept of reflex locomotion according to Professor Vojta, which are a reflection of the function of the autonomic nervous system. Changes in respiratory parameters and changes in cardiac activity have been selected from these manifestations.

Methods: The research was conducted on 26 healthy adult women aged 19-25 years. Reflex rolling according to Vojta from the supine position (RO - 1st phase) was chosen. Pressure stimulation was applied from the left chest trigger zone between the 6th and 7th rib for 10 minutes. Each subject also underwent apparent (sham) stimulation in the same position (RO - 1st phase), lasting 10 minutes, but on the right side of the chest between the 2nd and 3rd rib. Due to the possible lingering effect of pressure stimulation during VRL, sham stimulation was always preceded by experimental stimulation. A 10-minute break was taken between the two cycles. Data for the analysis of changes in lung function were obtained by spirometric measurements of FVC, FEV1, and PEF before apparent (sham) stimulation, after sham stimulation, and after experimental stimulation. For statistical analysis (repeated measures ANOVA), values expressed as percentages of predicted values were used. Data for the analysis of changes in cardiac activity were obtained from continuous ECG recordings during sham and experimental VRL stimulation. Parameters of time domain HRV analysis: R-R interval, SDNN, and rMSSD were determined in each minute of the recordings. Their average values in each minute were compared using paired t-tests.

Results: The forced vital capacity (FVC) significantly increased after sham stimulation, and further increase occurred after VRL stimulation, although this increase did not reach statistical significance. Peak expiratory flow (PEF), on the other hand, continued to decline after both sham and experimental stimulation, but these declines were not statistically significant. Forced expiratory volume in one second (FEV1) practically remained unchanged after sham stimulation and slightly decreased after experimental stimulation (without statistical significance). During the ECG recording, none of the time-domain HRV variables significantly changed during VRL stimulation compared to sham stimulation. The average heart rate was

statistically significantly higher only in the first resting minute before sham stimulation. Throughout the entire VRL stimulation, SDNN and rMSSD values were higher compared to sham stimulation, but the increase did not reach statistical significance.

Conclusion: The results indicate changes in functional respiratory parameters during both sham and experimental VRL stimulation, but without a significant difference between them. HRV analysis revealed some changes during VRL stimulation.

Keywords: Vojta's reflex locomotion, reflex rolling, spirometry, lung function, ECG, heart rate variability (HRV), autonomic nervous system