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EFFECT OF METRORHYTHMIC STIMULATION ON MODIFICATIONS OF WALKING WITH POLES

Keywords: walking with poles, metrorhythmic stimulation, gait with metrorhythmic stimulation

The purpose of the study was to determine the effect of metrorhythmic stimulation on walking with poles under natural conditions. The study was conducted on 12 subjects who had knowledge of correct walking technique with poles. Xsens Dot sensors and the RAS4NoW application were used in the study. The research included 4 stages. The first stage of the research was the recording of physiological gait with poles and the determination of step frequency, using the Ras4Now application. In the next 3 stages, registration of gait with sticks and with metrorhythmic beats was performed. The frequency of the beats was successively 100%, then 95% and in the last trial 105% of the gait frequency determined from the first trial.

Each person in stage 2-4 was tasked with walking with poles in an effort to match the rhythm of the metrorhythmic beats. Of the 12 subjects, 7 were selected for analysis (due to loss of some samples).

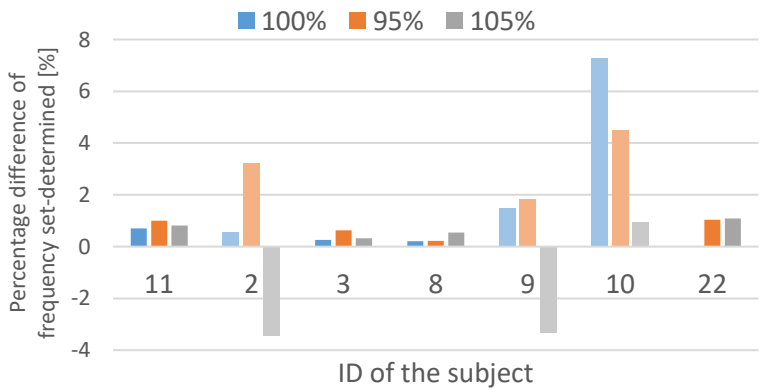

Figure 1. Percentage difference of frequency set-determined [%].

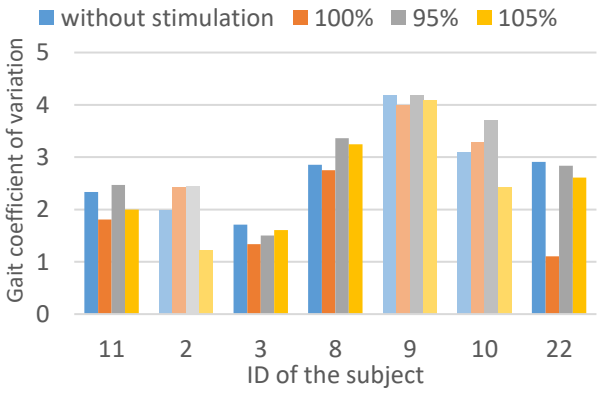

Figure 2. Gait coefficient of variation.

Of the 7 subjects, 4 subjects adjusted for metrorhythmic beats-they are: 3, 8, 11, 22. The smallest frequency differences between the set and determined ones are obtained for beats with the same frequency as the detrended/detected gait frequency. Individuals who matched the excitations have lower values of gait variability (in particular, 100%). Individuals who moved according to the beats get the highest gait variability during a trial with beats at 95% of the free gait frequency.

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