

Abstract

Objectives: The aim of this thesis is to assess the effect of natural contrary to laboratory environment on heart rate variability during walking.

Methods: Seven students from the Faculty of Physical Education and Sport of Charles University completed one visit in a natural and laboratory setting. Participants completed the Stroop test for 10 minutes. This was followed by walking for 40 minutes with active monitoring of heart rate variability using a sports watch and chest belt. Seven indicators of variability were assessed: heart rate, RMSSD (Root Mean Square of Successive Differences), Standard Deviation - SD1 and SD2, stress index, PNS index, SNS index. Data were analyzed in Kubios HRV software, processed, recorded in Excel and plotted in bar graphs.

Results: Participant 1's average heart rate was 71 t/min in the laboratory, 87 t/min in the natural environment; Participant 2's was 87 t/min in the laboratory, 92 t/min in the natural environment. Participant 1's mean RMSSD was 53 milliseconds(ms) in the laboratory, 30 ms in the natural environment; Participant 2's was 15 ms in the laboratory, 11 ms in the natural environment. Participant 1's mean SD1 was 34 % in the lab, 31 % in the natural environment; Participant 2's was 25 % in the lab, 36 % in the natural environment. Participant 1's SD2 average was 66 % in the lab, 69 % in the natural environment; Participant 2's was 75 % in the lab, 64 % in the natural environment. Participant 1's mean stress index was 6 in the laboratory environment, 10 in the natural environment; Participant 2's mean was 14 in the laboratory, 26 in the natural environment. Participant 1's mean PNS index value was -0.02 in the laboratory, -1.4 in the natural environment; Participant 2's was -1.88 in the laboratory, -2 in the natural environment. Participant 1's mean SNS index value was -0.24 in the laboratory, 1.9 in the natural environment; Participant 2's was 2.17 in the laboratory, 4.8 in the natural environment.

Conclusion: Walking in a natural environment near a watercourse induced greater activation of the sympathetic nervous system than the parasympathetic nervous system. However, the influencing factors of the measurements, such as walking speed, weather, and time of day, were not thoroughly conditioned.

Keywords: Parasympathetic nervous system, sympathetic nervous system, natural environment, laboratory environment, walk, heart rate variability.