

Abstract

Title: Heart rate variability during walking in a forest environment and in a laboratory.

Objectives: The aim of this study is to compare the variability of heart rate during walking in a forest and laboratory environment.

Methods: In this study, heart rate was monitored using the Garmin HRM Dual chest strap during a 40minute walk in both natural and laboratory environments. The data were processed using Kubios software, enabling detailed analysis of heart rate variability (HRV). The research included HRV indicators such as RMSSD, SNS, and PNS indices, SD1 and SD2 indices, and a stress index, providing information on sympathetic and parasympathetic nervous system activity and overall stress levels. This methodology allows for the assessment of organism responses to various stimuli and stressful situations.

Results: The average values were as follows: heart rate was 92.5 bpm in the forest and 79 bpm in the laboratory; RMSSD was 21.5 ms in the forest and 34 ms in the laboratory; SD1 was 29 % in the forest and 30 % in the laboratory; SD2 was 71 % in both environments; the stress index was 16.5 in the forest and 10 in the laboratory; the PNS index was -1.835 in the forest and -0.95 in the laboratory; the SNS index was 2.63 in the forest and 0.965 in the laboratory.

Conclusion: Sympathetic nervous system activity, measured by heart rate variability, was higher in the forest environment, while parasympathetic nervous system activity was higher in the laboratory environment.

Key words: walking; natural environment; physical activity; stress; heart rate variability