

Abstract

Title: Influence of Altitude on Physiological Parameters in Snowboardcross Athletes

Objectives: The aim of the study was to investigate the effect of altitude and working load on selected physiological parameters (blood lactate concentration, mitochondrial respiration, muscle blood flow and heart rate) in elite snowboardcross riders.

Methods: For data collection we used Moxy monitor, Garmin chest belt and EKF Lactate Scout+. The physiological parameters were assessed at two different altitudes and always before and after the sports exercise. The obtained data were then compared and their differences assessed using the statistical method paired t-test, basic statistical and mathematical methods such as mean and standard deviation and percentages were used to express the difference.

Results: We found that altitude does not affect mitochondrial respiration or blood flow in lower limb muscles in snowboardcrossers. Furthermore, we found that altitude has an effect on blood lactate concentration and confirmed the so-called lactate paradox. Heart rate was slightly higher after exercise at higher altitude than at lower altitude.

Keywords: Oxygen saturation, heart rate, lactate concentration, testing, altitude