BLOOD PRESSURE AND HEART RATE RESPONSES DURING SIMULATED DINGHY HIKING

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The physical demands of dinghy sailing are unique. To counter the forces of the wind on the sail(s) the sailor must lean out over the windward side of the boat. In this activity (hiking) feet are hooked under straps attached to the bottom of the hull, supporting the back of the legs on the deck and suspending the rest of the body over the water. Thus hiking imposes static stresses on sailor’s muscles (Vogiatzis et al., 1996). The purpose of this study was to describe the course of blood pressure and heart rate responses during simulated dinghy hiking in the laboratory. Twelve male (age: 13.09±0.36 yrs; weight: 47.74±2.10 kg; height: 158.57±2.25 cm) national level pre-adolescent dingy sailors participated in this study. An Optimist dinghy (Winner, Mark 5, Class # 55752, Denmark) was used to simulate in the laboratory, the principal physical demands of single-handed dinghy up-wind sailing. Each subject was asked to complete eight successive 2-min hiking bouts, separated by approximately 15-s intervals to simulate tacking. Simulation of tacking involved sitting in from the hiking position. The body position during hiking was kept constant (120°) by means of a laser beam projected to the subject’s torso; while the dinghy was tilted 10° simulating 13 Knots wind speed. Heart rate (Kiss version 1.0, GE Medical Systems, Freiburg, Germany) and blood pressure (Omron M4-I, Mannheim, Germany) were recorded constantly during the sixteen minute hiking protocol. Results showed that systolic arterial pressure significantly (p<0.05) increased during the course of the hiking protocol from (Mean ± SEM) 116.58±3.0 during rest to 129.88±3.25 at the 2nd min, 135.34±3.18 at the 4th min, 142.15±3.4 at the 6th min, 143.7±3.5 at the 8th min, 144.85±3.7 at the 10th min, 140.52±4.9 at the 12th min, 140.4±4.36 at the 14th min and 142.49±5.3 at the 16th min (mmHg). Heart rate followed the same pattern and increased (p<0.05) from 90.41±2.4 during rest to 129.88±3.25 at the 2nd min, 135.34±3.18 at the 4th min, 142.15±3.4 at the 6th min, 143.7±3.5 at the 8th min, 144.85±3.7 at the 10th min, 140.52±4.9 at the 12th min, 140.4±4.36 at the 14th min and 142.49±5.3 at the 16th min (bmin-1). These results indicated relatively large increases in mean arterial blood pressure and heart rate of young sailors during simulated dinghy hiking.

References


Keywords: Sailing, Blood Pressure, Heart Rate Variability

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