Hematological and running performance modification of trained athletes after reverse vs. block training periodization

Autores

Juan Pablo Gómez Martín, Vicente Javier Clemente-Suárez, Domingo Jesús Ramos-Campo

Abstract

The aim of the present study was to analyze the effect of block (BP) and a reverse training periodization (RP) in the hematological and running performance of amateur trained athletes. Modifications in hematological, aerobic, and anaerobic running performance and countermovement jump before and after twelve weeks of BP vs. RP training programs were analyzed in 16 trained athletes (eight males: 40.0 ± 6.2 years; 179.2 ± 12.8 cm; 73.8 ± 12.2 kg; and eight females: 34.2 ± 4.1 years; 163.4 ± 9.6 cm; 57.0 ± 11.0 kg). A significant decrease in heart rate (HR) at ventilatory threshold (VT1) ($p = 0.031$; ES = 1.40) was observed in RP without changes in BP. In addition, RP increased significantly VO2max ($p = 0.004$; ES = 0.47), speed at VO2max ($p = 0.001$; ES = 1.07), HR at VT2 ($p < 0.001$; ES = 1.32) and VT1 ($p = 0.046$; ES = 0.57), while BP improved VO2max ($p = 0.004$; ES = 0.51), speed at VO 2 max ($p = 0.016$; ES = 0.92), and HR at VT2 ($p = 0.023$; ES = 0.78). In addition, only RP increased anaerobic performance in a running-based anaerobic sprint test (RAST) (mean sprint: $p = 0.009$; ES = 0.40, best sprint: $p = 0.019$; ES = 0.30 and total time: $p = 0.009$; ES = 0.40). Moreover, both types of training periodization proposed in this study maintained hematological values and efficiently improved jump performance ($p = 0.044$; ES = 0.6) in RP and $p = 0.001$; ES = 0.75 in BP). Therefore, twelve weeks of either RP or BP is an effective strategy to increase jump and aerobic running performance maintaining hematological values, but only RP increases anaerobic running performance.

Palabras clave
Endurance, heart rate, runners, triglycerides, VO_2 max.