

Maximum Oxygen Consumption Changes in Recreationally Trained Men Individuals: Comparison of Three Distinct Protocols of “Concurrent” Training

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The cardiorespiratory adaptation relies on the features and efficacy of the training regimen; practitioners benefit more from a time-efficient training routine. Thus, this study aimed to compare the effect of three different concurrent training: Traditional Concurrent Training (TCT), Sprint Interval Training (SIT), and High Intensity Resistance Circuit-Based Training (HRC) protocols over 08 weeks on cardiorespiratory adaptation in young recreationally trained male athletes. Thirty-four young males were recruited (24 ± 5.8 years, 174.9 ± 5.9 cm height, and 73.4 ± 7.9 kg) and randomly assigned to three groups (HRC: 13, SIT: 10, and TCT: 11). All subjects were exercised twice a week for 8 weeks. VO₂ max, maximum heart rate (MHR), Max VO₂ R, Maximum time and maximum velocity at VO₂ max were assessed. Standard descriptive statistics were used to characterize the study population. A mixed analysis of variance with repeated measures and Bonferroni post hoc tests were used to investigate the interaction effect and significant differences. The main results show that significant interaction on maximum velocity at VO₂ max, while non-significant between group main effect were detected on any measured variables, but through the post hoc comparison were observed significant differences ($P < 0.05$) on VO₂ max following HRC vs TCT and SIT vs TCT. Interestingly, there were significant main time effects were detected on all variables except MHR. TCT induced significant difference ($P < 0.05$) within group on maximum velocity ($4.01 \Delta\%$), VO₂ max ($4.75 \Delta\%$), Max VO₂ R ($4.82 \Delta\%$), and maximum time ($7.75 \Delta\%$), whereas following SIT encourage significant difference ($P < 0.05$) on maximum velocity ($4.29 \Delta\%$) and maximum time ($5.15 \Delta\%$). Remarkably, it suggests that all three training protocols are induced increases of VO₂ max but TCT ($4.75\Delta\%$) is better than other training protocols (HRC: $1.81 \Delta\%$ and SIT: $2.58 \Delta\%$). However, in consideration of time factor HRC and SIT are very time efficient training protocols than TCT protocol.

Keywords: VO₂ max, Max VO₂ R, TCT, HRC, SIT