

COMPARISON OF PHYSIOLOGICAL, PHYSICAL AND PSYCHOLOGICAL DEMANDS OF 3X3 BASKETBALL AND HIIT IN SEDENTARY FEMALE ADULTS

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Sedentary behavior (SB) which is defined as the lowest level of physical activity has recently become a topic of increased research interest in the fields of physical, physiological and psychological aspects due to its effect on human wellness. High-Intensity Interval Training (HIIT) is one of the training methods that has been used for sedentary people due to its short duration. However, according to previous research, between 30 and 50 percent of sedentary people quit exercising (Antoniewicz and Brand et al., 2016). Therefore, there is a need for appropriate physical exercise for adults to encourage their participation and to have a positive impact on their overall health. In this regard, team sports activities have been proposed as an alternative way to HIIT for people due to their contribution to health-related aspects (Conte, D. et al., 2023; Castagna C et al., 2018). However, there is no research on basketball games' impact on sedentary female adults. Therefore, the aim of the present study was assessing and comparing the physiological [(percentage of maximal heart rate (%HRmax), blood lactate (BLa), creatine kinase (CK)], enjoyment, [rating of perceived exertion (RPE)] and physical [percentage of moderate-to-vigorous physical activity (%MVPA) and vigorous activity (%VA)] responses to recreational 3x3 basketball (3x3BB) and high-intensity interval training (HIIT) in sedentary female adults. Twelve apparently healthy, adult sedentary women, (age: 37 ± 14 y; body mass: 66 ± 19kg; stature: 162 ± 13 cm; fat mass: 27.5 ± 12.5 %) executed a 3x3BB match and HIIT with comparable duration. While BLa was assessed both before and after each session, %HRmax, %MVPA, and %VA were measured during the protocols. RPE and enjoyment were evaluated at the conclusion of each experiment, whereas CK was measured prior to protocols and after 48 hours. 3x3BB elicited higher %HRmax ($p < 0.001$; $d = -1.64$, Large), %MVPA ($p < 0.001$; $d = 7.17$, Very Large), %VA ($p = 0.001$; $d = 2.91$, very large), while no difference was found in enjoyment ($p = 0.233$; r – value = 0.250, small), and RPE ($p = 1$; r value = -0.000 , no effect) compared to HIIT condition. In addition, greater BLa values were observed in the HIIT post-condition when compared to the 3x3BB post-condition ($p = 0.018$; r -value = -0.624 , Large) (P value adjusted by Bonferroni), whereas CK analysis revealed no significant difference in general ($p = 0.216$; r -value = -0.449 , Medium) (P value adjusted by Bonferroni). In comparison to HIIT, 3x3BB causes greater %HRmax, physical activity intensities, similar enjoyment, RPE, CK and lower BLa in sedentary female adults, suggesting that it may be a beneficial activity to improve participants' health.

Keywords: sedentary behavior, 3x3 basketball, High-intensity interval training.

References

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