

Effects of a high-intensity interval training program on body composition and physical fitness in female field hockey players

- Quezada-Muñoz Y.^a,
- Rodríguez-Artigas P.^a,
- Aravena-Sagardia P.^a,
- Barramuño M.^b,
- Herrera-Valenzuela T.^{c, d},
- Guzmán-Muñoz E.^e,
- Branco B.H.M.^f,
- Valdés-Badilla P.A.^{g, h}

Abstract

High-intensity interval training (HIIT) is valued by achieving similar effects to conventional physical and physiological training in a shorter time, allowing its dissemination in the sports field. The present study was aimed to analyze the effects of a HIIT program on body composition and general and specific physical fitness in Chilean female field hockey players. Experimental, repeated measures, simple blind, parallel groups, and a quantitative approach were used. The participants were randomized, and distributed into a control group (CG; n= 10) that maintained regular field hockey training and an experimental group (EG; n= 10) that also received complementary training with HIIT. Body composition (muscle mass and adipose mass), general physical fitness (jump performance with countermovement jump [CMJ] and maximum oxygen consumption [VO₂max] were evaluated with the test Course-Navette), and specific physical fitness (pushing speed, dribbling speed, and shooting accuracy) were assessed with established protocols. Pre-and post-intervention comparisons were made with Student's t and Wilcoxon tests, considering $p < 0.05$. The main results indicate that the EG presented a significant increase in muscle mass ($p = 0.024$; $d = 0.62$), CMJ ($p = 0.005$; $d = 1.10$), VO₂max ($p = 0.001$; $d = 1.58$) and a significant reduction in adipose mass ($p = 0.023$; $d = 0.36$) and time in pushing speed ($p = 0.028$; $d = 0.79$). The CG did not present significant changes in any of the variables analyzed, and no significant differences were reported between the groups. In conclusion, eight weeks of HIIT significantly increases muscle mass, jump performance, and VO₂max and significantly reduces adipose mass and time in pushing speed in Chilean female field hockey players. © 2021, Universidad de la Frontera. All rights reserved.

Author keywords

Anthropometry; Athletic Performance; Exercise; Hockey; Women