



Mid Atlantic Regional Chapter of the American College of Sports Medicine

45th Annual Scientific Meeting, November 4th- 5th, 2022
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 11



Acute Changes in Levels of Inflammatory Proteins After a Single Bout of HIIT

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High Intensity Functional Training (HIIT) is a type of high intensity training involving multi-joint movements emphasizing functional outcomes. While studies have shown that high intensity training can elicit a plethora of chronic health benefits, not many studies have evaluated the acute effects of HIIT on circulating inflammatory proteins that might also play a role in early phases of exercise-induced adaptations. **PURPOSE:** To evaluate acute changes in plasma levels of inflammatory proteins in response to a single session of HIIT. **METHODS:** The workout consisted of 4 sets of following body-weight exercises (15 reps of each): two lunge variations, jump squats, and burpees. Plasma samples were collected from recreationally active men (n=7) and women (n=6) (18-45 yrs) – samples were collected before exercise (pre), 15min post- and 24h post-completion of the training session and frozen until analyses. Levels of different inflammatory factors were evaluated by using the Inflammation 20-Plex Human ProcartaPlex™ Panel. **RESULTS:** Of the 20 different inflammatory proteins analyzed, 10 showed an increase from pre vs. 15min post exercise (TNF α : 42%; GM-CSF: 9%; IFN α : 49%; IFN γ : 24%; IL-1 α : 61%; IL-1 β : 62%; IL-6: 17%; IL-8: 19%; IL-13: 20%; IL-17A: 21%; p<0.05 for all), while 3 showed a decrease from pre vs. 15min post exercise (CD62E: 25%; ICAM-1: 27%; IL-12p70: 8%; p<0.05 for all). Additionally, 10 proteins showed a decrease from 15min post vs. 24h post exercise (CD62P: 20%; TNF α : 35%; GM-CSF: 7%; IFN α : 28%; IFN γ : 36%; IL-1 α : 37%; IL-1 β : 32%; IL-6: 18%; IL-8: 14%; IL-13: 23%; IL-17A: 17%; p<0.05 for all), while only 1 protein showed an increase from 15min post vs. 24h post exercise (IP-10: 29%; p<0.05). Two proteins showed a decrease from pre vs. 24h post exercise (CD62E: 18%; IL-12p70: 14%; p<0.05 for all) and 1 protein showed an increase from pre vs. 24h post exercise (IP-10: 19%; p<0.05) - no changes were reported for IL-4, MCP-1, MIP-1 α , MIP-1 β , nor IL-10. **CONCLUSION:** Our results demonstrate that HIIT induces acute changes in in plasma levels of inflammatory proteins, but that their levels seem to return to baseline values within 24h post exercise.

Supported by Towson University Department of Kinesiology (RQL, DAGM), Towson University Faculty Development & Research Committee (DAGM) and Towson University Research Impact Award (DS)