

Peak Power Changes During a Countermovement Jump Following Treadmill and Cycling High-Intensity Interval Training

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ABSTRACT

Within activities involving jumping, peak power can be a significant factor to consider when assessing an athlete's overall physical performance. By investigating different modalities of exercise, it is possible to discover potential benefits or flaws in certain workout regimens that may influence jump performance. In turn, this could influence how physical trainers, athletes, and recreationally active people approach their exercise routine to maximize performance. **PURPOSE:** The purpose of this study was to investigate the changes in peak jump power during a countermovement jump (CMJ) immediately following and 1-hour post high-intensity interval training (HIIT) using high-impact (running) and low-impact (cycling) exercise modalities. **METHODS:** Eleven young, recreationally active volunteers (5 female, 6 males; 27.20 ± 3.42 years) completed a 4x4 HIIT protocol (4-minute 85-95% HR_{max} active; 3-minute 60-70% HR_{max} recovery) on a treadmill (TM) and a stationary cycle (CE) in a randomized order 1 week apart. Peak power during the concentric portion of a countermovement jump (CMJ) was measured using VALD ForceDecks platforms. Data are presented as percent change. **RESULTS:** The TM peak power increased by 7.3% immediately following the HIIT protocol and decreased by 8.5% 1 hour following to below baseline values. The CE peak power increased by 5.7% immediately following and decreased by 7.5% 1 hour following to below baseline values. **CONCLUSION:** Based on these findings, the modalities had similar responses for peak power, with both revealing a notable increase immediately post-exercise. This suggests that the exercises may have primed the muscles for CMJ performance. Yet, after recovering for 1 hour, the peak power decreased in both modalities to below baseline values. These patterns in peak power during different periods post-exercise can inform coaches and trainers on how to approach warm-up routines before engaging in physical activity or competition.