

Physiological and psychological markers of recovery after high-intensity anaerobic exercise: Preliminary evidence from a multi-country study

Saturday, September 13, 2025 2:10 PM (20 minutes)

Building on restorative theories (Stress Reduction Theory and Attention Restoration Theory), we investigated whether exposure to digital restorative natural environments influences recovery from anaerobic exercise, focusing on the association between physiological stress markers and self-reported psychological restoration. Italian and Spanish participants (N=35) performed a Wingate anaerobic test, followed by a 3-minute video exposure to a natural/urban environment. Core affect, blood lactate, vertical jump height were assessed across experimental phases (pre, post-Wingate, and post video exposure). Perceived restorativeness (PRS) and psychological restoration (ROS) were collected post-video.

We found significant effects of time on lactate ($p < .001$, $\eta^2 = .843$) and jump height ($p < .001$, $\eta^2 = .402$), but no significant effects of video condition ($ps > .45$). However, small non-significant trends favored the green condition in post-video jump height. Restoration measures showed a significant effect of video: participants who watched the green video reported higher levels of ROS at the end of the procedure ($p = .001$, $d = 1.24$), and rated the environment as having greater PRS ($p < .001$, $d = 1.76$) compared to those who watched the urban video. No significant effects of video were found for core affect, post-video recalled discomfort or enjoyment of the test.

These preliminary findings suggest a divergence between objective physiological recovery and subjective psychological restoration, emphasizing the complexity of recovery processes. After completing data collection, individual differences (e.g., athleticism, nature connectedness, test performance) and contextual factors (e.g., country) will be explored as potential moderators of these effects.

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