

Blood Lactate Levels and the Effects of Recovery Methods on Repeated Sprint Performance

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A drop in muscle pH associated with lactate accumulation during short-term, high-intensity exercise may be a cause for local muscle fatigue. Lactate removal occurs naturally within the body; however, it is unclear if certain recovery modalities might be used to enhance lactate clearance and subsequent performance. **PURPOSE:** To examine the difference in effects of cold water immersion (CWI), active recovery (AR), and passive recovery (CON) on blood lactate levels after successive bouts of sprinting. **METHODS:** Eight active healthy male university students participated in this study. The subjects had a mean age of 21.5 ± 1.31 years, mean mass of 81.25 ± 15.39 kg, and mean height of 181.45 ± 9.68 cm. Resting measurements for blood lactate and heart rate (HR) were taken after 10 minutes of seated rest. Subjects then performed a 400m sprint at maximal effort. HR and blood lactate were then recorded again. Each subject was required to test three different days, each day consisting of a random recovery modality. HR was taken every five minutes during each 20 minute recovery period. Blood lactate was taken within three minutes after the recovery period and after a 35 minute rest period for all three conditions. Subjects completed a 200 m sprint and HR and lactate were taken upon completion. A two-way ANOVA with repeated measures was used to determine any significant differences in blood lactate or HR between the three recovery modalities. A one-way ANOVA with repeated measures was used to determine any significant difference in sprint performance times after each recovery method. **RESULTS:** There was no significant difference shown between the recovery modalities on all 3 variables: lactate ($p = .21$), HR ($p = .70$), and 200 m performance time (CON: 32.13 ± 1.34 s; AR: 33.56 ± 1.95 s; and CWI: 32.91 ± 1.75 s) ($p = .30$). **CONCLUSION:** The results of this study do not support an advantage for blood lactate clearance or an impact on 200 m sprint performance time between the three recovery modalities.

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