Effects of Cold Bath Post-Exercise

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1 Article

Xiao et al.[1] (2023) Effects of cold water immersion after exercise on fatigue recovery and exercise performance–meta analysis[1]

2 Question

3 Study Construct

- Systematic review (SR)

- 20 study SR
- Subjective indicators:
  - Delayed onset muscle soreness (DOMS)
  - Rate of perceived exertion (RPE)
- Objective measures:
  - Countermovement jump (CMJ)
  - Blood plasma markers
    * Creatine kinase (CK)
    * Lactate/lactate dehydrogenase (LDH)
    * C reactive protein
    * IL-6

3.1 Methods

Methods of the studies included

- Independent variable
  - studies included
    * CWI immersion to the iliac crest/umbilicus
    * Temperatures from 5-15°C.
  - Other studies included CWI submerged to mid sternal level and shoulder level at 6-15°C.

4 Results

4.1 DOMS/VAS Results

Muscle soreness and fatigue recovery status was characterized by this study as "Delayed-onset muscle soreness (DOMS)" and was quantified using a VAS scale.

The experimental (CWI) group demonstrated a decline in DOMS (VAS scale) significantly lower VAS at 0 h and 24 hr, but showed no difference at 48 h[1].

4.2 RPE Results

Ratings of perceived exertion (RPE) scale is a subjective measure of muscle soreness and fatigue recovery status[1].

Decline in RPE immediately (0/1-10 scales) at 0 hours (none at 24 or 48 h) Reduced CMJ immediately (at 0 hr)

4.3 Creatine Kinase Results

- Creatine kinase (CK) lowered at 24 hr, (no difference at 0 or 48 h)

4.4 Lactate results

- Lactate lowered at 24 and 48 h.

4.5 IL-6 Results

IL-6 was used as a marker of post-exercise inflammation[1]

No evidence that CWI impacts IL6 during 48 hours[1]

4.6 C Reactive protein results

C-reactive protein (CRP) is an indicator of infectious or inflammatory condition[1]

No evidence that CWI impacts CRP during 48 hours[1]

4.7 Fatigue Recovery Results

They found that water temp and CWI sites have no effect on fatigue recovery

1. Xiao F, Kabachkova AV, Jiao L, Zhao H, Kapilevich LV. Effects of cold water immersion after exercise on fatigue recovery and exercise performance–meta analysis. *Frontiers in Physiology*. 2023;14:1006512. doi:10.3389/fphys.2023.1006512