METHOD: Ten male basketball players (age: 14 ± 0.4 years, weight: 65.4 ± 9.1 kg, height: 175 ± 7.3 cm, body fat: 10.3 ± 4%.) were involved in a "cross-over" experimental design. After three 90 minute basketball training sessions (average heart rate 158 ± 12, 156 ± 7 and 151 ± 10 bpm), participant were randomized into three groups, G1: CnCWI (12 min water temperature 12 ± 0.4C°), G2: InCWI (4 x 2 min water temperature 12 ± 0.4C° + 1min out of water) and G3: control group CG (passive recovery). Visual analog scale (VAS-Pain), countermovement jump (CMJ) test, sleep hours, quality of sleep, thigh volume were measured pre, post, 24h post and 48h post training + recovery protocol. Repeated measure ANOVA was used. Significance was accepted at $P < 0.05$.
RESULTS: VAS-Pain scores were higher in CG comparing experimental groups were post-immersion: CnCWI vs. CG (2.20 ± 0.40 vs. 5.70 ± 0.56, $P < 0.001$) and InCWI vs. CG (3.14 ± 0.05 vs. 5.70 ± 0.56, $P = 0.02$). Post 24h CnCWI vs. CG (2.40 ± 0.57 vs. 4.92 ± 0.44, $P = 0.006$) and InCWI vs. CG (2.71 ± 0.52 vs. 4.92 ± 0.44, $P = 0.019$). Post 48h CnCWI vs. CG (2.35 ± 0.60 vs. 4.71 ± 0.35, $P = 0.014$) and InCWI vs. CG (2.50 ± 0.60 vs. 4.71 ± 0.35, $P = 0.019$). With regards to the CMJ % change, comparison of groups revealed the following: 24h post CnCWI vs. CG (-1.57 ± -0.93 vs. -7.23 ± -3.96, $P = 0.006$) and InCWI vs. CG (-1.91 ± -1.03 vs. -7.23 ± -3.96, $P = 0.029$). In post 48h CnCWI vs. CG (-0.49 ± -0.47 vs. -6.89 ± -3.26, $P < 0.001$) and InCWI vs. CG (-1.15 ± -1.04 vs. -6.89 ± -3.26, $P = 0.017$).
CONCLUSION: Continuous and intermittent CWI protocols were equally effective in improving recovery in basketball players. Either protocol could be included after training to help recovery according to individual preferences.
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3820 Board #259 June 4, 9:30 AM - 11:00 AM

Molecular Hydrogen Affected Post-Exercise Recovery in Judo Athletes

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Molecular hydrogen (H_2) recently appeared as a novel and safe ergogenic agent that might have beneficial effects in athletes. However, no information is available concerning the impact of H_2 on post-exercise recovery indices.
PURPOSE: To determine the effects of pre-exercise H_2 administration on post-exercise heart rate and blood lactate responses in judo athletes.
METHODS: Five athletes (24.4 ± 3.4 yrs, 74.8 ± 2.3 kg, 177.8 ± 2.5 cm) were recruited for this randomized, placebo-controlled, double-blind crossover pilot study. Participants were instructed to ingest formulation containing 6.4 g of H_2 or placebo ~ 30 minutes before repeated Special Judo Fitness Test (RSJFT). Blood lactates and heart rates were recorded during recovery period at 3 min, 5 min and 15 min, and 10 s, 20 s, 30 s, 60 s, 3 min and 15 min, respectively.
RESULTS: Molecular hydrogen significantly blunted lactate response during recovery period as compared to the placebo (7.23 ± 1.95 vs 9.22 ± 1.51 mmol/L; $p = 0.011$). Furthermore, a trend has been found for decreased post-exercise heart rate in group supplemented with H_2 ($p = 0.111$).
CONCLUSION: Hydrogen-rich water appears to be an appropriate strategy to positively affect post-exercise lactates in judo athletes.
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The Impact Of Coached Breathing On The Acute Recovery Of Anaerobic Performance In Collegiate Female Athletes

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PURPOSE: The purpose of the study was to determine if a coached breathing intervention, via visual and auditory cuing, was effective at attenuating decreases in mean (MP) and peak power (PP) outputs between several bouts of high intensity, anaerobic sprint cycling intervals.
METHODS: Nine healthy, anaerobically trained female athletes performed 5 bouts of 20-second maximal effort sprints, pedaling on a cycle ergometer with 60 seconds of active-recovery between sets. MP and PP, as well as minute ventilation (VE) were recording during each sprint interval. All participants performed the sprint interval trials on two separate test days. During the second day, the participants were randomly separated into intervention (n = 5) and control groups (n = 4). Coached breathing was introduced only to the intervention group during the recovery intervals. The coached breathing technique consisted of cues, emphasizing greater and more precise exhalation, as well as encouragement to reinforce the benefits of more pronounced expiration.
RESULTS: There were no group differences in MP ($p = 0.09$) PP ($p = 0.69$), or VE ($p = 0.69$) during the recovery periods.
CONCLUSION: No significant improvements in the recovery of anaerobic power between sprint cycling intervals were observed with the coached breathing intervention compared to the control. Future research is warranted, perhaps utilizing a more pronounced modification of breathing during recovery and a larger sample size, to determine if coached breathing is useful for enhancing athletic recovery and performance.

Mean and Peak Power Outputs					
		Control		Intervention	
		MP (W/kg)	PP (W/kg)	MP (W/kg)	PP (W/Kg)
Day 1	Sprint 1	7.54 ±1.40	9.53 ± 2.12	7.22 ± 0.74	8.60 ± 1.01
	Sprint 3	5.86 ± 1.42	7.78 ± 1.83	5.27 ± 0.71	6.96 ± 0.56
	Sprint 5	5.10 ± 1.06	6.68 ± 1.50	4.92 ± 0.78	6.86 ± 0.64
Day 2	Sprint 1	7.38 ± 1.31	8.95 ± 1.43	7.10 ± 0.79	8.77 ± 1.21
	Sprint 3	5.84 ± 1.07	7.37 ± 1.05	5.37 ± 0.56	7.27 ± 0.51
	Sprint 5	5.20 ± 1.17	6.83 ± 1.54	5.07 ± 0.60	7.15 ± 0.69