

Molecular Hydrogen Affected Post-Exercise Recovery in Judo Athletes: 3820 Board #259 June 4, 9: 30 AM - 11: 00 AM : Medicine & Science in Sports & Exercise

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G-39 Free Communication/Poster - Recovery Saturday, June 4, 2016, 7: 30 AM - 11: 00 AM Room: Exhibit Hall A/B

Molecular Hydrogen Affected Post-Exercise Recovery in Judo Athletes

3820 Board #259 June 4, 9

30 AM - 11

00 AM

Drid, Patrik; Stojanovic, Marko DM; Trivic, Tatjana; Ostojic, Sergej M.

[Author Information](#)

Faculty of Sport and Physical Education, University of Novi Sad, Novi Sad, Serbia.

Email: patrikdrid@gmail.com

(No relationships reported)

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Metrics

Molecular hydrogen (H₂) 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 H₂ on post-exercise recovery indices.

PURPOSE: To determine the effects of pre-exercise H₂ 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 H₂ 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 H₂ (*p* = 0.111).

CONCLUSION: Hydrogen-rich water appears to be an appropriate strategy to positively affect post-exercise lactates in judo athletes.

Study was partially supported by the Provincial Secretariat for Science and Technological Development (Grant No. 114-451-1301/2014-01), the Serbian Ministry of Education, Science and Technological Development (Grant No. 175037), and the Faculty of Sport and Physical Education, University of Novi Sad (2015 Annual Award).

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Table 1. CMJimpulse, rectus femoris echo intensity (EIRF), and muscle soreness for placebo and PBMT.

Variables	Treatment	Baseline	5 th set	Post	24h	48h
CMJimpulse (N*s)	Placebo	136±20 ^A	121±18 ^B	115±20 ^B	130±24 ^C	126±33 ^C
	PBMT	141±27 ^A	120±20 ^B	117±25 ^B	137±18 ^C	134±28 ^C
EIRF (a.u.)	Placebo	124±11 ^A	-	-	151±19 ^B	149±20 ^B
	PBMT	127±12 ^A	-	-	148±15 ^B	152±16 ^B
Muscle soreness (a.u.)	Placebo	0.0±0.0 ^A	-	2.1±2.3 ^B	4.2±2.4 ^C	3.6±1.6 ^C
	PBMT	0.0±0.0 ^A	-	1.8±1.9 ^B	4.2±2.4 ^C	3.5±1.7 ^C

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Subject characteristics			
Sport	n	Height (cm)	Weight (kg)
Football	18	185.8 ± 5.7	106.8 ± 18.1
Softball	18	167.0 ± 5.3	76.5 ± 10.8
Basketball (W)	6	174.9 ± 9.1	69.5 ± 10.3
Basketball (M)	5	192.5 ± 8.3	88.3 ± 8.0
Track & Field (W)	20	168.2 ± 7.8	63.2 ± 9.8
Track & Field (M)	13	180.8 ± 7.6	81.0 ± 15.6
Volleyball (W)	15	173.8 ± 6.5	69.0 ± 8.1
Golf (W)	8	164.5 ± 8.2	61.1 ± 5.1
Golf (M)	6	177.8 ± 8.2	74.5 ± 9.2

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