

Hydrogen and post-exercise recovery in judo athletes

A clear summary of a small 2016 conference study

The short answer: An interesting early finding. Five male judo athletes had lower blood lactate during recovery after taking a hydrogen formulation before an intense judo fitness test. Heart rate was not significantly different. The study is far too small to prove faster or better recovery.

What did the researchers do?

5 athletes Male judo athletes; average age 24.4	Crossover design Each athlete received hydrogen and placebo on separate occasions
Before exercise Hydrogen formulation or placebo about 30 minutes beforehand	Exercise test A repeated Special Judo Fitness Test

Blood lactate was checked at 3, 5 and 15 minutes after exercise. Heart rate was recorded repeatedly from 10 seconds to 15 minutes into recovery. The study was described as randomised, double-blind and placebo-controlled.

Dose-reporting caution

The conference abstract reports a formulation containing '6.4 g of H₂'. That unit is unusual for dissolved molecular hydrogen and the full methods are not publicly available for verification. It should not be used as dosing guidance.

What did the study find?

Measure	Reported result	What that means
Blood lactate	Average recovery values were lower with hydrogen than placebo: 7.23 ± 1.95 vs 9.22 ± 1.51 mmol/L ($P=0.011$).	The athletes had less lactate in their blood during the short recovery period after the hydrogen condition.
Heart rate	Heart rate showed a downward trend with hydrogen, but the difference was not statistically significant ($P=0.111$).	The study did not demonstrate a reliable hydrogen effect on heart-rate recovery.
Performance and symptoms	The available abstract does not report a clear treatment effect on performance, fatigue, soreness or readiness for the next training session.	Lower lactate alone cannot establish that the athletes recovered faster or performed better.

Lower lactate - but recovery was not proven

Why the finding is interesting

Judo involves repeated bursts of very intense activity. Blood lactate rises when energy demand is high, so researchers often track it during the first minutes after exercise.

The crossover design reduces some person-to-person variation because each athlete experiences both conditions. The significant lactate result is therefore a useful signal for larger trials.

A common misunderstanding

Lactate is not simply a harmful waste product or 'lactic acid'. It is also an important fuel and signalling molecule. A lower reading may reflect altered production, use, distribution or clearance; this abstract cannot tell us which.

Important limitations

- Only five athletes participated.
- The publication is a conference abstract, not a full research paper.
- Complete methods, raw data and adverse-event reporting are unavailable.
- The hydrogen dose/unit is unclear.
- Only male judo athletes were studied.
- Recovery was followed for only 15 minutes.
- No demonstrated improvement in performance or heart-rate recovery was reported.

Best interpretation

Pre-exercise molecular hydrogen was associated with lower post-exercise blood lactate in five male judo athletes. This is hypothesis-generating evidence only. A larger, fully reported trial is needed before claiming that hydrogen accelerates recovery or improves combat-sport performance.

Quick glossary

Blood lactate	A substance produced and used during energy metabolism; its level often rises during intense exercise
Placebo	A comparison product designed to resemble the tested product but without the active intervention
Crossover	A study in which the same participants receive both interventions on separate occasions
P value	A statistical measure; it does not show how large, useful or certain a real-world benefit may be

Original record

Drid P, Stojanovic MDM, Trivic T, Ostojic SM. Molecular Hydrogen Affected Post-Exercise Recovery in Judo Athletes. *Medicine & Science in Sports & Exercise*. 2016;48(5S):1071. Conference abstract. DOI: [10.1249/01.mss.0000488223.41775.bc](https://doi.org/10.1249/01.mss.0000488223.41775.bc)

Educational summary only. Molecular hydrogen is still being researched and should not be presented as a treatment, cure or substitute for medical care. This summary explains the available abstract and does not constitute medical advice.