

 **What's it about?**

- Tested whether taking hydrogen-rich water (HRW) acutely (the day before + day of exercise) improves performance during a graded treadmill test in healthy individuals
- Specifically looked at submaximal (moderate intensity) exercise responses




 **Who was studied?**

- 19 healthy subjects — 4 female (avg. 23.4 yrs) and 15 male (avg. 30.5 yrs) — a mixed general population, not elite athletes

 **How was it done?**

- Baseline exercise levels were established first using a graded treadmill test to exhaustion, then each subject was tested two more times in a randomized, double-blind, placebo-controlled crossover design
- HRW was delivered using Drink HRW hydrogen-producing tablets (5mg H₂), consumed the day before and the day of testing
- Measured: VO₂ (oxygen consumption), RER (respiratory exchange ratio — fuel usage), HR (heart rate), RR (respiratory/breathing rate)

 **Key Results**

-  HRW significantly decreased average exercising heart rate and respiratory rate during the test
-  Heart rate during minutes 1–9 of the graded exercise test was lower in the HRW group (121 ± 26 bpm) compared to placebo (126 ± 26 bpm) and baseline (124 ± 27 bpm)
-  HRW did not influence maximal or minimal exercise indices — no significant effect on peak VO₂, peak RER, max HR, or max RR
- In plain terms: HRW made submaximal (moderate) exercise feel easier on the heart and lungs, but didn't boost peak athletic capacity

 **Conclusion**

- Acute HRW supplementation may benefit submaximal aerobic exercise by lowering exercising heart rate; further studies are needed on varying intensities, optimal dosing, and chronic use effects

