# ATHLETES / PERFORMANCE



Emerging scientific research has illuminated the multifaceted benefits of hydrogen-rich water (HRW) for athletes. Studies suggest HRW may enhance both aerobic and anaerobic performance, support effective hydration, support the body's natural recovery process after exercise, and support recovery from exercise-induced muscle fatigue. It has also shown promise in supporting recovery, supporting the inflammatory process, optimizing cellular function and ATP production, offering a potential alternative to caffeine for mental alertness, and helping to maintain cognitive function under stress.

KEY RESEARCH FINDINGS

## IMPROVED PERFORMANCE & ENDURANCE

### 01 REDUCED LACTATE & IMPROVED MUSCLE FUNCTION

A pilot study tested the effects of hydrogen-rich water on muscle fatigue caused by acute exercise in elite athletes and concluded that "adequate hydration with hydrogen-rich water pre-exercise **reduced blood lactate levels and improved exercise-induced decline of muscle function".**

*Aoki et al. • Med Gas Res. 2012 • PMCID: PMC3395574*

### 02 REDUCED FATIGUE IN REPEATED SPRINTS

The consumption of hydrogen-rich water before exercise is associated with an increased ability to **reduce fatigue**, especially during the later stages of repeated sprint exercise.

*Botek et al. • Nutrients 2022 • DOI: 10.3390/nu14030508*

### 03 IMPROVED LACTATE RESPONSE, PERCEIVED EXERTION & VENTILATORY EFFICIENCY

It has also been demonstrated that acute pre-exercise supplementation with hydrogen-rich water **supported the body's natural recovery process after exercise** at higher exercise intensities, **improved exercise-induced perception of effort**, and **ventilatory efficiency**.

*Botek et al. • Int J Sports Med. 2019*

### 04 LOWER EXERCISING HEART RATE & ERGOGENIC POTENTIAL

A study involving healthy subjects using a graded treadmill exercise test to exhaustion found that acute supplementation with molecular hydrogen **"significantly reduces exercising heart rate** at submaximal intensities." And suggested that *"hydrogen rich water could be a viable* **option as an ergogenic aid for athletes seeking to improve aerobic exercise performance,"** highlighting its high safety profile.

*LeBaron et al. • J Clin Med. 2019*

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From elite competition to everyday training, research continues to reveal how molecular hydrogen can support sustained performance, reduce fatigue and help the body work smarter under physical stress. The following studies highlight additional ways hydrogen-rich water may contribute to endurance and exercise efficiency.

KEY RESEARCH FINDINGS

## MORE ENDURANCE. REAL ADVANTAGE.

### 01 MAINTAINED POWER OUTPUT IN REPEATED SPRINTS

Research involving cyclists showed that those who consumed hydrogen-rich water maintained peak power output during repetitive sprints, also suggesting **improved endurance**.

*Botek et al. • Int J Sports Med. 2019*

### 02 REDUCED OXIDATIVE STRESS IN MUSCLE CELLS

Intensive training increases the production of reactive oxygen species (ROS) in skeletal muscle – leading to tissue damage and fatigue. Molecular hydrogen can **help support the body's response to oxidative stress in muscle cells**, contributing to **reduced muscle fatigue and improved endurance**. These findings come from research in mice and have not been shown in human athletes.

*Mizuno et al. • Front Nutr. 2026 • DOI: 10.3389/fnut.2026.1722091*

### 03 MAINTAINED REDOX STATUS DURING STRENUOUS EXERCISE

The findings of another study illustrated that drinking hydrogen water contributed to the maintenance of the redox status during consecutive days of strenuous exercise and might **help prevent accumulative muscular fatigue**.

*Dobashi et al. • Med Gas Res. 2020 • PMID: 32189665*

### 04 SUPPORTS AEROBIC & ANAEROBIC PERFORMANCE

Scientific research has confirmed that the continuous supplementation of hydrogen water has the potential to **improve both aerobic and anaerobic performance**, proving to be an effective hydration strategy.

*Botek et al. • Nutrients 2022 • DOI: 10.3390/nu14030508*

### 05 ENHANCES ENERGY METABOLISM & ENDURANCE

An additional method through which H2 could potentially enhance endurance is by activating energy metabolism, supplying steady energy prior to, following, or amid exercise – it has the potential to boost the cell's capacity to **sustain or generate additional energy**.

*LeBaron et al. • J Clin Med. 2019*

