

Hydrogen-rich hydrotherapy for an acute toe injury

A clear summary of a 2021 single-person case report

The short answer: A positive personal outcome, not proof of treatment. One man used four hydrogen-rich foot baths during the week after injuring his little toe. Pain, swelling, movement and weight-bearing improved, but there was no untreated comparison, medical examination or X-ray.

What happened?

1 person A healthy 35-year-old man with 11 years of kickboxing experience	The injury A painful, swollen and bruised fifth toe after kickboxing
Initial symptoms Unable to bend the toe or bear weight; sharp pain when touched	No confirmed diagnosis No doctor assessment or imaging; a fracture could not be confirmed or excluded

What treatment was used?

Sessions	Timing	Hydrogen-rich foot bath
4 sessions	Days 1, 3, 5 and 7 after injury	The entire foot was immersed to the ankle for 25 minutes.
Concentration	Average: 7.86 mg/L H ₂	Measured levels rose and fell as more magnesium-based hydrogen tablets were added every five minutes.
Other care	Hydrotherapy was described as the only treatment	The participant continued walking, household tasks and modified boxing, but avoided running, kickboxing and skiing.

What was reported after seven days?

Pain	Much lower, although pain remained when force was applied to the outside of the toe.
Movement	The participant reported full range of motion.
Function	He reported being able to bear weight and perform limited activities.
Appearance	Photographs and self-observation suggested substantially less swelling and bruising.
Safety	No side effects were reported during the four sessions.

Recovery was observed - causation was not

Why it is interesting

The report gives a detailed description of a high-concentration, repeated hydrogen-rich hydrotherapy protocol and documents the person's experience across one week.

The improvement is worth recording because topical molecular hydrogen remains an emerging area of research. It may help researchers design controlled studies of pain, swelling and function after acute injury.

The natural-healing problem

Bruising, swelling and pain commonly improve during the first week after a toe or soft-tissue injury. Without a control group, it is impossible to separate the effect of the baths from normal recovery, reduced activity, warm-water immersion, expectations or other factors.

Important limitations

- This was one person, and the author was also the patient.
- The report was unblinded and had no control treatment.
- There was no medical examination, X-ray or confirmed diagnosis.
- Outcomes were mainly self-reported and visual; no objective biomarkers were measured.
- Magnesium from the tablets was not controlled for.
- The author disclosed employment and financial interests in hydrogen-product businesses.
- The paper inconsistently reports the injured side and 25- versus 30-minute sessions.

Best interpretation

The man's symptoms and function improved during a week in which he used four hydrogen-rich foot baths. The report cannot show that hydrogen caused the improvement or that the protocol is safe and effective for other injuries. Controlled clinical trials are needed.

Practical safety note

A painful, swollen or bruised toe may be fractured. This report should not be used to diagnose an injury or replace medical assessment, imaging, protection or other appropriate care.

Quick glossary

Case report	A detailed account of one person's experience; useful for generating ideas, but unable to prove cause and effect
Hydrotherapy	The use of water as part of a therapeutic or recovery procedure
Proximal phalanx	A toe bone located closest to the foot
Control group	A comparison group that helps show what might have happened without the tested intervention

Original study

Tarnava A. Supersaturated Hydrogen-Rich Water Hydrotherapy for Recovery of Acute Injury to the Proximal Phalanges on the 5th Toe: A Case Report. *Journal of Science and Medicine*. 2021;3(1). [Read the original study](#) | DOI: [10.37714/josam.v2i4.57](#)

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 one published case report and does not constitute medical advice.