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Randomized Controlled Trial [Postgrad Med.](#) 2014 Sep;126(5):187-95.

doi: 10.3810/pgm.2014.09.2813.

Effectiveness of oral and topical hydrogen for sports-related soft tissue injuries

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PMID: 25295663 DOI: [10.3810/pgm.2014.09.2813](#)

Abstract

Background: Because hydrogen therapy has been found beneficial for the treatment of inflammation, ischemia-reperfusion injury, and oxidative stress in humans, it seems useful to evaluate the effects of exogenously administered hydrogen as an element in the immediate management of sports-related soft tissue injuries. The main aim of this pilot study was to examine the effects of 2-week administration of hydrogen on the biochemical markers of inflammation and functional recovery in male professional athletes after acute soft tissue injury.

Method: During the 2013 season (from March to May), 36 professional athletes were recruited as participants and examined by a certified sports medicine specialist in the first 24 hours after an injury was sustained. Subjects were allocated to 3 randomly assigned trials in a single-blind design. Those in the control group received a traditional treatment protocol for soft tissue injury. Subjects in the first experimental group followed the same procedures as the control group but with additional administration throughout the study of oral hydrogen-rich tablets (2 g per day). Subjects in the second experimental group also followed the procedures of the control group, with additional administration throughout the study of both oral hydrogen-rich tablets (2 g per day) and topical hydrogen-rich packs (6 times per day for 20 minutes). Participants were evaluated at the time of the injury report and at 7 and 14 days after baseline testing.

Results: Oral and topical hydrogen intervention was found to augment plasma viscosity decrease as compared with the control group ($P = 0.04$). Differences were found for range-of-motion recovery between the 3 groups; oral and topical hydrogen intervention resulted in a faster return to normal joint range of motion for both flexion and extension of the injured limb as compared with the control intervention ($P < 0.05$).

Conclusion: These preliminary results support the hypothesis that the addition of hydrogen to traditional treatment protocols is potentially effective in the treatment of soft tissue injuries in male professional athletes. Trial identification: [Clinicaltrials.gov](#) number [NCT01759498](#).

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