**Hydrogen-Rich Water Positively Affects Homeostasis Model Assessment (HOMA2) Variables in Steatosis**

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Supplemental molecular hydrogen improves biomarkes of cardiometabolic health yet no human studies evaluated its effects on steady state beta cell function and insulin sensitivity in non-alcoholic fatty liver disease. **PURPOSE:** To evaluate the effects of 28-day intake of hydrogen-rich water (HRW) on HOMA2 outcomes and body composition in a cohort of men and women with fatty liver. **METHODS**: Twelve volunteers (7 women and 5 men; age 56.2 ± 10.0 years; BMI 37.7 ± 5.3 kg/m2) participated in this randomized, double-blind, placebo-controlled, crossover trial. Participants were allocated to receive either HRW (1 L/day) or placebo (tap water) for 28 days. HRW was produced by dissolving an effervescent magnesium tablet (HRW Natural Health Products Inc., New Westminster, Canada) into a cup of water (500 mL). **RESULTS:** Drinking HRW was superior to placebo to increase insulin sensitivity (for up to 11.1%; *P* < 0.05), and tended to reduce body fat at 28-day follow-up more as compared to placebo (- 4.2% *vs.* 0.6%; *P* = 0.09). **CONCLUSION:** The results of this trial nominate HRW as a possible adjuvant treatment for fatty liver. Registered at ClinicalTrials.gov (NCT03625362). Supported by the Serbian Ministry of Education, Science and Technological Development (175037), the Provincial Secretariat for Higher Education and Scientific Research (114-451-710), the Faculty of Sport and Physical Education, and HRW Natural Health Products Inc.