

Hydrogen-Rich Water and Healthy Aging

A simple, balanced summary of a 6-month study in adults aged 70 and over

What did the researchers ask?

Could drinking high-concentration hydrogen-rich water every day influence molecular and physical markers associated with aging? Researchers assessed a wide range of measures, including telomeres, brain metabolites, cognition, physical function, sleep, blood pressure, skin, inflammation and quality of life.

40

participants enrolled
20 women

76

years
average age

6

months of
intervention

34

completed
follow-up

HOW THE STUDY WORKED

Hydrogen-water group

500 mL per day, divided into two servings. Each serving was prepared from a tablet; reported hydrogen concentration was **15 ppm**.

Control group

A matched control drink containing **0 ppm hydrogen**. Both drinks were similar in appearance and taste and were matched for magnesium.

Study design at a glance

Randomized, placebo-controlled, parallel-group pilot trial. Adherence was high: **96.2%** in the hydrogen group and **97.8%** in the control group. Six participants withdrew for reasons reported as unrelated to the study.

The headline result

Telomere length rose by about 4% in the hydrogen group and fell by about 11% in the control group. The group-by-time comparison was just statistically significant ($P = 0.049$).

Telomeres are protective structures at the ends of chromosomes. This result is interesting, but it does not prove that participants aged more slowly or lived longer.

WHAT THE STUDY FOUND

Promising signals - with important limits

Telomeres

Telomere length changed more favourably with hydrogen-rich water than with control water ($P = 0.049$).

DNA-related marker

TET2 expression increased in both groups, with a significantly greater rise in the hydrogen group ($P = 0.040$).

Brain metabolites

Several metabolites changed significantly in selected frontal and parietal brain regions, including choline, NAA and creatine.

Chair-stand performance

Lower-body functional performance improved compared with control ($P = 0.01$).

Most other outcomes did not show a significant difference

The researchers tested many measures. Apart from the findings above, **no significant between-group differences** were found for the other outcomes. That included most markers of metabolism, inflammation, body composition, physical fitness, blood pressure and the remaining assessed measures.

How strong is the evidence?

STRENGTHS	LIMITATIONS
• Randomized, placebo-controlled design • Six-month intervention • Matched magnesium in both drinks • High reported adherence • Broad set of biological and functional measures	• Small pilot study; only 34 completed follow-up • Healthy older adults only • Many outcomes were tested, increasing the chance of isolated positive findings • No weight-based dosing • No longer-term follow-up • Cannot show longer life or clinical disease prevention

Bottom line

This study offers **encouraging early evidence** that six months of high-concentration hydrogen-rich water may influence selected biomarkers and lower-body function in healthy older adults. It does **not** establish hydrogen water as an anti-aging treatment, prove longer life, or show prevention of age-related disease. Larger, independent trials are needed.

Safety and transparency

No major side effects prevented participation. The authors declared no conflicts of interest. Funding came from Serbian public and university sources and **HRW Natural Health Products Inc.**, the company whose product was used in the trial.

ORIGINAL RESEARCH

Zanini D, et al. *Experimental Gerontology*. 2021;155:111574.

[Read the full study via DOI](#) | [View PubMed record](#) | [Trial registration](#)