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pH³ Esperer.H²O

The patented “Hydration Machine” model ES 2000

Functional Electrolyzed Water on demand

Single neutral molecule (H²O)

Single neutral ion (Bonded 1acidic to 1basic)

6.45 Ionic Product (IP)

.288 ppm Active Dissolved Hydrogen (aDH)

12.5 ppm Active Dissolved Oxygen (aDO)

Neutral Oxidation Reduction Potential (ORP)

The health benefits of neutral ionic Functional Electrolyzed Water (FEW)

Hydrogen water contains hydrogen molecules that can act as powerful antioxidants. These molecules may help neutralize oxygen free radicals that contribute to disease development, inflammation, and aging. Read more to learn about some exciting research and the potentially miraculous benefits of hydrogen water.

What Is “Hydrogen Water”? Hydrogen (H₂) is the most abundant molecule in the Universe. It’s an odorless, colorless, and tasteless gas. A team in Japan also discovered that inhaled hydrogen gas could act as an antioxidant and protect the brain from free radicals. [R1, R2].

Hydrogen water is loaded with hydrogen molecules. It was formulated as the most practical and easy way to get hydrogen into the whole body. Hydrogen can also be inhaled, injected, or absorbed through a bath [R1].

Since the Japanese discovery, the effects of hydrogen have been researched in 63 diseases [R3]!

Hydrogen is therapeutically used, as an example, it was given to 3 divers to successfully help them overcome the effects of high pressure on the brain in deep-sea diving [R3, R4].

Hydrogen is the smallest existent gas molecule. Because of this unique property, molecular hydrogen could penetrate virtually every organ and cell in the body (including the brain) where it has antioxidant, anti-inflammatory, weight-loss, and anti-allergy activity. Molecular hydrogen seems like the perfect therapeutic — with no known side effects and a wide-ranging action [R3, R4].

Hydrogen Water Pros

- Neuroprotective
- Excellent antioxidant
- Anti-inflammatory
- Protects organs
- Lowers cholesterol and blood sugar
- Improves a wide variety of diseases
- Is not toxic even at high concentrations

Hydrogen Water Cons

- Has no known negative side effects

Health Benefits of Hydrogen Water

1. Hydrogen Water is an Antioxidant and Protects the Brain

It has been shown that molecular hydrogen (H₂) will protect from damage by reducing the most toxic reactive oxygen species (ROS) in cells. Inhaled hydrogen also easily reached the brain to reduce injury in rats with stroke [R5].

In a study of 38 stroke patients, it was found that a hydrogen solution (IV) was safe and had a mild antioxidant effect [R6]

In a study (DB-RCT) of 17 patients with Parkinson's disease, those who drank hydrogen water had improved symptoms. Those who drank regular "placebo" water, however, experienced a worsening. There were also no adverse effects to drinking 1L of hydrogen water daily for almost one year [R7]

No study so far has looked at the effect of hydrogen water alone on Parkinson's Disease, though. In the completed studies, patients drank hydrogen water as an add-on to regular medications (L-Dopa) [R1+].

In rats, hydrogen water reduced oxidative stress and prevented Parkinson's Disease. Hydrogen seems to achieve better results with lower doses. Rats who drank hydrogen water did better than those who constantly received higher amounts of hydrogen intravenously [R8].

Hydrogen water prevented cognitive, learning, and memory problems in mice under stress by acting as an antioxidant. It also protected cells in the brain's memory hub — the hippocampus — from the detrimental effects of stress [R9].

2. Hydrogen Water May Improve Mood Disorders

Hydrogen water restored the natural growth of brain cells in mice. Since this also happens in people who overcome depression (with antidepressants or otherwise), hydrogen water has the potential for improving depression and other mood disorders [R9, R10]

3. Hydrogen Water Suppresses Inflammation

In one study, 20 patients with rheumatoid arthritis drank 0.5 L/day of hydrogen water for 4 weeks. By the end of the study, all patients with early rheumatoid arthritis achieved remission and 20% became symptom-free [R11, R12].

Molecular hydrogen (H₂) also has anti-inflammatory effects in many animal studies [R13, R14].

4. Hydrogen Water Reduces Muscle Fatigue and Weakness

In an experiment with 10 young athletes (DB-CT), drinking hydrogen water reduced lactic acid build-up during heavy exercise and decreased muscle fatigue [R15].

Drinking 2 L of hydrogen water daily helped 8 cyclists' power through sprints with more energy and less exhaustion in one 2-week study [R16].

In a study on mice with a serious muscle-wasting disease (Duchenne muscular dystrophy), hydrogen water prevented abnormal body mass gain and increased the production of the antioxidant glutathione peroxidase. Hydrogen water can improve muscular dystrophy in DMD patients [R17]

5. Hydrogen Water May Prevent Metabolic Syndrome

Hydrogen water reduced fatty liver in mice with type 2 diabetes, obesity, and those fed a high-fat diet. It also boosted energy use and reduced levels of glucose, insulin, and triglycerides [R18].

In rats, hydrogen water could prevent hardening of the arteries, atherosclerosis [R19].

In a study on patients prone to metabolic syndrome, drinking hydrogen water (1.5 – 2 L/day) for 8 weeks increased in HDL-cholesterol and decreased total cholesterol [R20].

6. Hydrogen Water Can Boost Weight Loss

Long-term drinking of hydrogen water helped lose body fat and weight in rats. It boosted burning fats and sugars for energy, without any change in diet. In fact, drinking hydrogen water had similar effects in the body as calorie restriction [R21].

7. Hydrogen Water Enhances Energy Metabolism

Drinking hydrogen water protected the body's energy powerhouse, the mitochondria, in several studies of 41 people with muscle diseases. They drank 0.5-1 L of hydrogen water per day [R22].

Drinking hydrogen water also stimulated energy metabolism in mice [R23]

8. Hydrogen Water Helps Diabetes

Drinking hydrogen water decreased cholesterol, improved glucose tolerance and insulin resistance in a study (DB-RCT) of 36 patients with type 2 diabetes or prediabetes (impaired glucose tolerance). The patients drank 900 mL of hydrogen water daily for 8 weeks. This is a safe and simple way to reduce the risk of type 2 diabetes in those at high risk [R24].

9. Hydrogen Water May Alkalize the Body

Metabolic acidosis is when the blood drops and becomes more acidic, which can happen from intense exercise. Drinking 2 L of neutral pH hydrogen water daily increased the blood pH before and after exercise after 2 weeks with no side effects in a study of 52 healthy, active men (DB-RCT). Hydrogen water was safe and had a balancing effect on the blood neutralizing post-exercise pH dip [R25].

10. Hydrogen Water May Fight Cancer

Cellular studies point to the potential of hydrogen water for fighting cancer. Hydrogen water combined with increased temperature (hyperthermia) had a strong cancer-killing effect in cells [R26].

In human cancer cells, hydrogen water suppressed tumor growth by reducing oxidative stress [R27].

Hydrogen water also blocked the creation of new blood vessels in human lung cancer cells, preventing cancer from spreading and growing [R28].

11. Hydrogen Water Can Reduce the Side Effects of Chemotherapy and Radiation

In one study (RCT) of 49 patients on radiation therapy for liver cancer, drinking hydrogen water (1.5 – 2 L/day) improved the patients' quality of life and appetite. Hydrogen water reduces oxidative stress and damage from radiation without compromising its cancer-killing effects [R29].

In mice, drinking hydrogen water increased survival, reduced kidney damage and weight loss from a chemotherapy drug (cisplatin) [R30].

12. Hydrogen Water Boosts Skin Health

Hydrogen water given through an IV solution safely improved skin health in 4 patients with skin redness and inflammation, and pain. The skin redness went away after a couple of days of treatment and did not come back [R31].

Bathing in hydrogen water for 3 months noticeably reduced skin wrinkles in 6 people. Hydrogen water could also boost collagen production, reduce UV damage and act as an antioxidant in skin cells. Warm hydrogen-infused baths could be a pleasant, safe way to reverse skin aging [R32]

13. Hydrogen Water Enhances Wound Healing

Hydrogen water intake via tube feeding in elderly patients reduced the wound size of pressure ulcers and enhanced recovery [R33]

14. Hydrogen Water May Improve Bladder Health

In rats with a blockage in the bladder, drinking hydrogen water reduced bladder volume by neutralizing oxidative stress. It also improved the responsiveness of bladder muscles. As a strong antioxidant, hydrogen water can potentially help those with a bladder obstruction [R34].

15. Hydrogen Water May Protect The Heart

In diabetic mice, hydrogen water significantly improved heart health and prevented heart disease. It can become a nutritional intervention for preventing heart problems in people with diabetes [R35]

16. Hydrogen Water May Protect the Eyes

Hydrogen-loaded eye drops aided the recovery of eye injuries caused by high eye pressure in rats. It protected the nerves in the eye by its antioxidant action [R36].

A hydrogen solution reduced detrimental blood vessel growth in mice with eye injuries from chemicals. Hydrogen solutions can be used as a first aid eye rinse to prevent blindness from chemical burns [R37].

17. Hydrogen Water May Prevent Hearing Loss

Hearing loss often results from oxidative damage (due to aging, noise, or drugs). Molecular hydrogen protected the cells responsible for hearing from this damage and increased their survival [R38].

In guinea pigs, hydrogen water prevented the death of cells responsible for hearing after noise exposure. Hydrogen water can potentially protect against hearing loss caused by noise or other types of oxidative stress [R39, R40, R41].

18. Hydrogen Water May Combat Allergies

Drinking hydrogen water stopped immediate-type allergic reactions in mice. These occur within a couple of minutes and are more characteristic of Th2 dominance. Hydrogen stopped the allergies not only by its antioxidant action but also by blocking the whole allergic pathway [R41].

Hydrogen water is a potential remedy for people with allergic, inflammatory conditions like eczema as it balances the immune response. In mice with eczema, hydrogen water improved symptoms by suppressing inflammation and balancing both Th1 and Th2 responses [R42].

19. Hydrogen Water May Protect the Kidneys

Hydrogen-rich water protected the kidneys from damage in rats. It can reduce oxidative stress, improve kidney blood flow and function (lowering creatinine and BUN) [R2+].

Hydrogen added to the dialysis solution reduced inflammation and high blood pressure in 21 patients on dialysis because of kidney failure [R43]

20. Hydrogen Water May Protect the Liver

In 60 patients with Hepatitis B (RCT), drinking hydrogen water as an add-on to regular treatment was safe and reduced oxidative stress [R44].

Drinking hydrogen water suppressed liver scarring in mice by protecting liver cells from free-radical damage [R45].

Hydrogen water also significantly improved liver function and reduced oxidative stress in patients with chronic hepatitis B [R46].

21. Hydrogen Water Could Promote Gut Health

Hydrogen-rich water prevented damage to the stomach lining in rats by its antioxidant and anti-inflammatory effects. Hydrogen water can potentially protect healthy individuals from gut damage [R47, R48].

22. Hydrogen Water Could Protect the Lungs

Rats who drank hydrogen water were protected against lung tissue injury. Hydrogen water reduced inflammation and oxidative stress (by reducing NF- κ B) [R49].

23. Hydrogen Water May Protect From Radiation

Molecular hydrogen has the potential to be used as a safe radioprotective remedy. Giving mice hydrogen water before radiation increased their survival rates and protected the heart from damage [R50].

Hydrogen also increased the survival of white blood cells exposed to radiation [R51]

24. Hydrogen Water May Relieve Pain

Hydrogen water in one study (DB-RCT) of 30 patients with painful, inflamed bladder (cystitis) helped reduce pain in 11% of the patients [R52].

Drinking hydrogen water can reduce neuropathic pain in mice due to its well-known anti-inflammatory and antioxidant effects. Hydrogen water holds promise for safely improving otherwise hard-to-treat neuropathic pain [R53].

25. Hydrogen Water May Increase Longevity

The ability of molecular hydrogen to protect the DNA and the mitochondria from oxidative damage has beneficial effects on chronic diseases and cancer, it helps slow down or reverse the aging process itself. A couple of cellular studies give some interesting clues [R54, R55].

Hydrogen can prolong the life of stem cells by reducing oxidative stress [R56].

A hydrogen rich environment reduced both oxidative stress and aging in cells. Scientists believe drinking hydrogen water will increase longevity in humans [R57]

26. Hydrogen Water May Kill Bacteria and Improve Oral Health

Drinking hydrogen water 4-5 X daily improved gum health in 13 patients with inflamed gums after 8 weeks. It also boosted blood antioxidants and enhanced the effects of other gum disease treatments [R58].

Hydrogen water can kill the bacteria that most commonly cause gum disease and cavities. It could be used to improve overall oral health [R59].

27. Hydrogen Preserves Transplant Organs

Hydrogen water can help preserve and reduce damage to transplant organs without any toxic effects. It reduced the inflammation and injury that usually happens when donated organs are stored. [R60]

Mechanism of Action and Genetics

Hydrogen has the unique capability of entering cells and even tiny structures within the cells (organelles), such as the mitochondria and nucleus (where DNA is stored). Other molecules cannot penetrate this deep into cells [R61, R62]

Hydrogen water affects various pathways, such as:

- Decreasing inflammatory cytokines [R63].
- Weakening cancer-causing genes [R64, R65].
- Increasing the activity of cancer-fighting genes
- Reducing the activity of inflammation-related genes [R66].
- Boosting energy metabolism [R67].
- Increasing ghrelin, which will also lower inflammation [R68].
- Activating detox genes [R69].

Where to Get Hydrogen Water: PBSWC Inc.

- [The Patented “Hydration Machine” Esperer.H²O on demand home unit](#)
- True neutral pH just as our bodies require
- Active dissolved hydrogen
- Active dissolved oxygen
- 6.45 Ionic Product means it is virtually 100% absorbable
- Reduced ORP -345 or lower depending on the TDS
- Compatible with pre reverse osmosis treatment

Taking lactulose is another way to naturally increase hydrogen in the body.

Although humans can't produce molecular hydrogen, our gut bacteria can. When we take in lactulose, our gut bacteria create a large amount of hydrogen. Lactulose increased hydrogen in the body similarly to hydrogen water in a study on 65 healthy people and those with Parkinson's Disease [R70]. Although lactulose is another way, most would rather water.

Safety, Dosage, Side effects

Molecular hydrogen (H₂) has no known side effects. It's not toxic even at high concentrations. In fact, it seems that smaller amounts of molecular hydrogen have a stronger, more beneficial effect than very high amounts [R71].

In most clinical studies, people drank 0.5-2 L of hydrogen water daily. After drinking hydrogen water, about 40% of the H₂ is absorbed by the body [R3+]

Information links:

#1

R1= [A review of experimental studies of hydrogen as a new therapeutic agent in emergency and critical care medicine \(nih.gov\)](#)

R2= [The evolution of molecular hydrogen: a noteworthy potential therapy with clinical significance \(nih.gov\)](#)

R3= [Molecular Hydrogen as an Emerging Therapeutic Medical Gas for Neurodegenerative and Other Diseases \(nih.gov\)](#)

R4= [ECG changes during the experimental human dive HYDRA 10 \(71 atm/7,200 kPa\) - PubMed \(nih.gov\)](#)

R5= [Hydrogen acts as a therapeutic antioxidant by selectively reducing cytotoxic oxygen radicals - PubMed \(nih.gov\)](#)

R6= [Safety of intravenous administration of hydrogen-enriched fluid in patients with acute cerebral ischemia: initial clinical studies \(nih.gov\)](#)

R7= [A randomized double-blind multi-center trial of hydrogen water for Parkinson's disease: protocol and baseline characteristics \(nih.gov\)](#)

R1+= [Pilot study of H₂ therapy in Parkinson's disease: a randomized double-blind placebo-controlled trial - PubMed \(nih.gov\)](#)

R8= [Drinking hydrogen water and intermittent hydrogen gas exposure, but not lactulose or continuous hydrogen gas exposure, prevent 6-hydroxydopamine-induced Parkinson's disease in rats \(nih.gov\)](#)

R9= [Consumption of molecular hydrogen prevents the stress-induced impairments in hippocampus-dependent learning tasks during chronic physical restraint in mice - PubMed \(nih.gov\)](#)

#2

R10= [Adult hippocampal neurogenesis in depression: behavioral implications and regulation by the stress system - PubMed \(nih.gov\)](#)

#3

R11= [Consumption of water containing a high concentration of molecular hydrogen reduces oxidative stress and disease activity in patients with rheumatoid arthritis: an open-label pilot study - PubMed \(nih.gov\)](#)

R12= [Molecular hydrogen: new antioxidant and anti-inflammatory therapy for rheumatoid arthritis and related diseases - PubMed \(nih.gov\)](#)

R13= [Anti-inflammatory properties of molecular hydrogen: investigation on parasite-induced liver inflammation - PubMed \(nih.gov\)](#)

R14= [Hydrogen gas improves survival rate and organ damage in zymosan-induced generalized inflammation model - PubMed \(nih.gov\)](#)

#4

R15= [Pilot study: Effects of drinking hydrogen-rich water on muscle fatigue caused by acute exercise in elite athletes \(nih.gov\)](#)

R16= [Effects of hydrogen rich water on prolonged intermittent exercise - PubMed \(nih.gov\)](#)

R17= [Molecular hydrogen alleviates motor deficits and muscle degeneration in mdx mice - PubMed \(nih.gov\)](#)

#5

R18= [Molecular hydrogen improves obesity and diabetes by inducing hepatic FGF21 and stimulating energy metabolism in db/db mice - PubMed \(nih.gov\)](#)

R19= [Consumption of hydrogen water prevents atherosclerosis in apolipoprotein E knockout mice - PubMed \(nih.gov\)](#)

R20= [Effectiveness of Hydrogen Rich Water on Antioxidant Status of Subjects with Potential Metabolic Syndrome—An Open Label Pilot Study \(nih.gov\)](#)

#6

R21= [Molecular hydrogen improves obesity and diabetes by inducing hepatic FGF21 and stimulating energy metabolism in db/db mice - PubMed \(nih.gov\)](#)

#7

R22= [Open-label trial and randomized, double-blind, placebo-controlled, crossover trial of hydrogen-enriched water for mitochondrial and inflammatory myopathies - PubMed \(nih.gov\)](#)

R23= [Molecular Hydrogen Improves Obesity and Diabetes by Inducing Hepatic FGF21 and Stimulating Energy Metabolism in db/db Mice - Kamimura - 2011 - Obesity - Wiley Online Library](#)

#8

R24= [Supplementation of hydrogen-rich water improves lipid and glucose metabolism in patients with type 2 diabetes or impaired glucose tolerance - PubMed \(nih.gov\)](#)

#9

R25= [Hydrogen-rich water affected blood alkalinity in physically active men - PubMed \(nih.gov\)](#)

#10

R26= [Antitumor effects of nano-bubble hydrogen-dissolved water are enhanced by coexistent platinum colloid and the combined hyperthermia with apoptosis-like cell death - PubMed \(nih.gov\)](#)

R27= [Neutral pH hydrogen-enriched electrolyzed water achieves tumor-preferential clonal growth inhibition over normal cells and tumor invasion inhibition concurrently with intracellular oxidant repression - PubMed \(nih.gov\)](#)

R28= [Inhibitory effect of electrolyzed reduced water on tumor angiogenesis - PubMed \(nih.gov\)](#)

#11

R29= [Effects of drinking hydrogen-rich water on the quality of life of patients treated with radiotherapy for liver tumors - PubMed \(nih.gov\)](#)

R30= [Molecular hydrogen alleviates nephrotoxicity induced by an anti-cancer drug cisplatin without compromising anti-tumor activity in mice - PubMed \(nih.gov\)](#)

#12

R31= [Hydrogen\(H2\) treatment for acute erythematous skin diseases. A report of 4 patients with safety data and a non-controlled feasibility study with H2 concentration measurement on two volunteers - PubMed \(nih.gov\)](#)

R32= [Hydrogen-rich electrolyzed warm water represses wrinkle formation against UVA ray together with type-I collagen production and oxidative-stress diminishment in fibroblasts and cell-injury prevention in keratinocytes - PubMed \(nih.gov\)](#)

#13

R33= [Hydrogen water intake via tube-feeding for patients with pressure ulcer and its reconstructive effects on normal human skin cells in vitro - PubMed \(nih.gov\)](#)

#14

R34= [Preventive Effect of Hydrogen Water on the Development of Detrusor Overactivity in a Rat Model of Bladder Outlet Obstruction - PubMed \(nih.gov\)](#)

#15

R35= [Treatment with hydrogen molecule attenuates cardiac dysfunction in streptozotocin-induced diabetic mice - PubMed \(nih.gov\)](#)

#16

R36= [Protection of the retina by rapid diffusion of hydrogen: administration of hydrogen-loaded eye drops in retinal ischemia-reperfusion injury - PubMed \(nih.gov\)](#)

R37= [Hydrogen and N-acetyl-L-cysteine rescue oxidative stress-induced angiogenesis in a mouse corneal alkali-burn model - PubMed \(nih.gov\)](#)

#17

R38= [Hydrogen protects auditory hair cells from free radicals - PubMed \(nih.gov\)](#)

R39= [Hydrogen-rich saline alleviates experimental noise-induced hearing loss in guinea pigs - PubMed \(nih.gov\)](#)

R40= [Hydrogen-saturated saline protects intensive narrow band noise-induced hearing loss in guinea pigs through an antioxidant effect - PubMed \(nih.gov\)](#)

R41= [Hydrogen in drinking water attenuates noise-induced hearing loss in guinea pigs - PubMed \(nih.gov\)](#)

#18

R41= [Molecular hydrogen suppresses FcepsilonRI-mediated signal transduction and prevents degranulation of mast cells - PubMed \(nih.gov\)](#)

R42= [The Drinking Effect of Hydrogen Water on Atopic Dermatitis Induced by Dermatophagoides farinae Allergen in NC/Nga Mice \(nih.gov\)](#)

#19

R2+= [Protective effect of hydrogen-rich water against gentamicin-induced nephrotoxicity in rats using blood oxygenation level-dependent MR imaging - PubMed \(nih.gov\)](#)

R43= [A novel bioactive haemodialysis system using dissolved dihydrogen \(H2\) produced by water electrolysis: a clinical trial - PubMed \(nih.gov\)](#)

#20

R44= [Effect of hydrogen-rich water on oxidative stress, liver function, and viral load in patients with chronic hepatitis B - PubMed \(nih.gov\)](#)

R45= [Effects of oral intake of hydrogen water on liver fibrogenesis in mice - PubMed \(nih.gov\)](#)

R46= [Effect of hydrogen-rich water on oxidative stress, liver function, and viral load in patients with chronic hepatitis B - PubMed \(nih.gov\)](#)

#21

R47= [Dose-dependent inhibition of gastric injury by hydrogen in alkaline electrolyzed drinking water | BMC Complementary Medicine and Therapies | Full Text \(biomedcentral.com\)](#)

R48= [Protective role of hydrogen-rich water on aspirin-induced gastric mucosal damage in rats \(nih.gov\)](#)

#22

R49= [Hydrogen water alleviates lung injury induced by one-lung ventilation - PubMed \(nih.gov\)](#)

#23

R50= [The potential cardioprotective effects of hydrogen in irradiated mice - PubMed \(nih.gov\)](#)

R51= [Radioprotective effect of hydrogen in cultured cells and mice - PubMed \(nih.gov\)](#)

#24

R52= [Effect of supplementation with hydrogen-rich water in patients with interstitial cystitis/painful bladder syndrome - PubMed \(nih.gov\)](#)

R53= [Molecular hydrogen attenuates neuropathic pain in mice - PubMed \(nih.gov\)](#)

#25

R54= [Recent Progress Toward Hydrogen Medicine: Potential of Molecular Hydrogen for Preventive and Therapeutic Applications \(nih.gov\)](#)

R55= [Effects of hydrogen-rich water on aging periodontal tissues in rats - PubMed \(nih.gov\)](#)

R56= [Hydrogen gas treatment prolongs replicative lifespan of bone marrow multipotential stromal cells in vitro while preserving differentiation and paracrine potentials - PubMed \(nih.gov\)](#)

R57= [Molecular Hydrogen Alleviates Cellular Senescence in Endothelial Cells - PubMed \(nih.gov\)](#)

#26

R58= [Drinking Hydrogen-Rich Water Has Additive Effects on Non-Surgical Periodontal Treatment of Improving Periodontitis: A Pilot Study \(nih.gov\)](#)

R59= [KoreaMed.org](#) Antibacterial Activity of Hydrogen-rich Water Against Oral Bacteria

#27

R60= [A novel method of preserving cardiac grafts using a hydrogen-rich water bath - PubMed \(nih.gov\)](#)

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R66= [Recent Progress Toward Hydrogen Medicine: Potential of Molecular Hydrogen for Preventive and Therapeutic Applications \(nih.gov\)](#)

R68= [Oral 'hydrogen water' induces neuroprotective ghrelin secretion in mice \(nih.gov\)](#)

R69= [Beneficial biological effects and the underlying mechanisms of molecular hydrogen - comprehensive review of 321 original articles - \(nih.gov\)](#)

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R70= [Drinking hydrogen water and intermittent hydrogen gas exposure, but not lactulose or continuous hydrogen gas exposure, prevent 6-hydroxydopamine-induced Parkinson's disease in rats \(nih.gov\)](#)

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