



## H<sub>2</sub> REVIEW ARTICLES

### H<sub>2</sub> REVIEW ARTICLES

© MARCH 2, 2018 | Tyler Le Baron

#### H<sub>2</sub> Review articles

Zhang, Y., et al., [Hydrogen Therapy in Cardiovascular and Metabolic Diseases: from Bench to Bedside](#). Cell Physiol Biochem, 2018. 47(1): p. 1-10.

Sano, M., et al., [Promising novel therapy with hydrogen gas for emergency and critical care medicine](#). Acute Med Surg, 2018. 5(2): p. 113-118.

Yoritaka, A., et al., [Erratum to: A randomized double-blind multi-center trial of hydrogen water for Parkinson's disease: protocol and baseline characteristics](#). BMC Neurol, 2017. 17(1): p. 35.

Ostojic, S.M., [Non-gut microbiota as a source of bioactive hydrogen](#). Postgrad Med J, 2017. 93(1097): p. 170.

Ostojic, S.M., [Does H<sub>2</sub> Alter Mitochondrial Bioenergetics via GHS-R1alpha Activation?](#) Theranostics, 2017. 7(5): p. 1330-1332.

Nakayama, M., et al., [Possible clinical effects of molecular hydrogen \(H<sub>2</sub>\) delivery during hemodialysis in chronic dialysis patients: Interim analysis in a 12 month observation](#). PLoS One, 2017. 12(9): p. e0184535.

Li, Q., et al., [Fundamental Insight into the Methodology of Hydrogen Water in Biological Studies](#). Journal of Nanoscience and Nanotechnology, 2017. 17(7): p. 5134-5138.

Li, H.M., et al., [The transfer of hydrogen from inert gas to therapeutic gas](#). Med Gas Res, 2017. 7(4): p. 265-272.

Li, F., et al., [Potential protective role of hydrogen against cisplatin-induced side effects during chemotherapy: A mini-review of a novel hypothesis for an antagonism of hydrogen](#). Tropical Journal of Pharmaceutical Research, 2017. 16(11): p. 2773-2776.

Iketani, M. and I. Ohsawa, [Molecular Hydrogen as a Neuroprotective Agent](#). Curr Neuropharmacol, 2017. 15(2): p. 324-331.

Ge, L., et al., [Molecular hydrogen: a preventive and therapeutic medical gas for various diseases](#). Oncotarget, 2017. 8(60): p. 102653-102673.

### Recent Articles

SPINE & PANCREAS

SKIN AND RADIATION

SEPSIS, GASTRITIS, INTESTINE

SAFETY

PLANTS



- Dohi, K., et al., [Molecular hydrogen in the treatment of acute and chronic neurological conditions: mechanisms of protection and routes of administration](#). *J Clin Biochem Nutr*, 2017. 61(1): p. 1-5.
- Asfandiarov, N.L., et al., [Dissociative electron attachment to some spinochromes: Fragment anion formation](#). *International Journal of Mass Spectrometry*, 2017. 412: p. 26-37.
- Ara, J., et al., [Potential therapeutic effect of alkaline reduced water in polycystic ovarian syndrome](#). *Med Hypotheses*, 2017. 104: p. 36-39.
- Yuan, L. and J. Shen, [Hydrogen, a potential safeguard for graft-versus-host disease and graft ischemia-reperfusion injury?](#) *Clinics (Sao Paulo)*, 2016. 71(9): p. 544-9.
- Yoritaka, A., et al., [A randomized double-blind multi-center trial of hydrogen water for Parkinson's disease: protocol and baseline characteristics](#). *BMC Neurol*, 2016. 16: p. 66.
- Tao, Y., et al., [The potential utilizations of hydrogen as a promising therapeutic strategy against ocular diseases](#). *Ther Clin Risk Manag*, 2016. 12: p. 799-806.
- Tao, Y., et al., [Use of Hydrogen as a Novel Therapeutic Strategy Against Photoreceptor Degeneration in Retinitis Pigmentosa Patients](#). *Med Sci Monit*, 2016. 22: p. 776-9.
- Slezak, J., et al., [Preventive and therapeutic application of molecular hydrogen in situations with excessive production of free radicals](#). *Physiol Res*, 2016. 65 Suppl 1: p. S11-28.
- Qin, L., et al., [Hydrogen-Rich Saline as an Innovative Therapy for Cataract: A Hypothesis](#). *Med Sci Monit*, 2016. 22: p. 3191-5.
- Ostojic, S.M. and A. Vojvodic-Ostojic, [Is melanin a source of bioactive molecular hydrogen?](#) *Pharmacol Res*, 2016. 103: p. 177-9.
- Nicolson, G.L., et al., [Clinical Effects of Hydrogen Administration: From Animal and Human Diseases to Exercise Medicine](#). *International Journal of Clinical Medicine*, 2016. 7(1).
- Nakayama, M., S. Kabayama, and S. Ito, [The hydrogen molecule as antioxidant therapy: clinical application in hemodialysis and perspectives](#). *Renal Replacement Therapy*, 2016. 2(1): p. 23.
- Liu, C.L., K. Zhang, and G. Chen, [Hydrogen therapy: from mechanism to cerebral diseases](#). *Med Gas Res*, 2016. 6(1): p. 48-54.
- Iida, A., et al., [The Clinical Application of Hydrogen as a Medical Treatment](#). *Acta Med Okayama*, 2016. 70(5): p. 331-337.
- Huang, L., [Molecular hydrogen: a therapeutic antioxidant and beyond](#). *Med Gas Res*, 2016. 6(4): p. 219-222.
- Fan, D.F., et al., [Oral administration of lactulose: a novel therapy for acute carbon monoxide poisoning via increasing intestinal hydrogen production](#). *Undersea Hyperb Med*, 2016. 43(1): p. 45-8.



Chen, O., Z.-h. Y., and C. Li., [Meeting report: Second Hydrogen Molecule Biomedical Symposium in Beijing, China](#). *Medical Gas Research*, 2016. 6(1): p. 57.

Camara, R., L. Huang, and J.H. Zhang, [The production of high dose hydrogen gas by the AMS-H-01 for treatment of disease](#). *Med Gas Res*, 2016. 6(3): p. 164-166.

Zhai, X., A. Nakao, and X. Sun, [Detection Techniques for Hydrogen](#). *Hydrogen Molecular Biology and Medicine*. 2015: Springer Netherlands.

Shi, Q.H., et al., [Hydrogen Therapy Reduces Oxidative Stress-associated Risks Following Acute and Chronic Exposure to High-altitude Environment](#). *Biomed Environ Sci*, 2015. 28(3): p. 239-41.

Qian, L., J. Shen, and X. Sun, [Therapeutic Effects of Hydrogen on Different Diseases](#). *Hydrogen Molecular Biology and Medicine*. 2015: Springer Netherlands. 81-97.

Qian, L., J. Shen, and X. Sun, [Methods of Hydrogen Application](#). *Hydrogen Molecular Biology and Medicine*. 2015: Springer Netherlands.

Pshenichnyuk, S.A. and A.S. Komolov, [Dissociative Electron Attachment to Resveratrol as a Likely Pathway for Generation of the H<sub>2</sub> Antioxidant Species Inside Mitochondria](#). *The Journal of Physical Chemistry Letters*, 2015. 6(7): p. 1104-1110.

Pshenichnyuk, S.A., et al., [Low-energy electron interaction with retusin extracted from \*Maackia amurensis\*: towards a molecular mechanism of the biological activity of flavonoids](#). *Phys Chem Chem Phys*, 2015. 17(26): p. 16805-12.

Ostojic, S.M., [Molecular hydrogen in sports medicine: new therapeutic perspectives](#). *Int J Sports Med*, 2015. 36(4): p. 273-9.

Ostojic, S.M., [Molecular hydrogen: An inert gas turns clinically effective](#). *Ann Med*, 2015: p. 1-4.

Ostojic, S.M., [Eumelanin-driven production of molecular hydrogen: A novel element of skin defense?](#) *Med Hypotheses*, 2015.

Ostojic, S.M., [Targeting molecular hydrogen to mitochondria: Barriers and gateways](#). *Pharmacol Res*, 2015. 94: p. 51-3.

Ohta, S., [Molecular hydrogen as a novel antioxidant: overview of the advantages of hydrogen for medical applications](#). *Methods Enzymol*, 2015. 555: p. 289-317.

McCarty, M.F., [Potential ghrelin-mediated benefits and risks of hydrogen water](#). *Med Hypotheses*, 2015. 84(4): p. 350-5.

Liu, W., X. Sun, and S. Ohta, [Hydrogen Element and Hydrogen Gas](#). *Hydrogen Molecular Biology and Medicine*. 2015: Springer Netherlands.

Kurokawa, R., et al., [Convenient methods for ingestion of molecular hydrogen: drinking, injection, and inhalation](#). *Med Gas Res*, 2015. 5: p. 13.

Ichihara, M., et al., [Beneficial biological effects and the underlying mechanisms of molecular hydrogen – comprehensive review of 321 original arti-](#)



cles. *Med Gas Res*, 2015. 5: p. 12.

Chen, Y., et al., *Hydrogen-rich saline may be an effective and specific novel treatment for osteoradionecrosis of the jaw*. *Ther Clin Risk Manag*, 2015. 11: p. 1581-5.

Chen, X., X. Sun, and S. Ohta, *Future Directions in Hydrogen Studies*. *Hydrogen Molecular Biology and Medicine*. 2015: Springer Netherlands.

Zhai, X., et al., *Review and prospect of the biomedical effects of hydrogen*. *Med Gas Res*, 2014. 4(1): p. 19.

Zeng, J., Z. Ye, and X. Sun, *Progress in the study of biological effects of hydrogen on higher plants and its promising application in agriculture*. *Med Gas Res*, 2014. 4: p. 15.

Yang, F., et al., *Simulation study on the outlet flow dynamics of a hydride-based hydrogen storage canister for medical use*. *International Journal of Hydrogen Energy* 2014. 39(12): p. 6548-6557.

Xie, F. and X. Ma, *Molecular Hydrogen and its Potential Application in Therapy of Brain Disorders*. *Brain Disord Ther*, 2014: p. 2.

Wang, R., *Gasotransmitters: growing pains and joys*. *Trends Biochem Sci*, 2014. 39(5): p. 227-32.

Shen, M., et al., *A review of experimental studies of hydrogen as a new therapeutic agent in emergency and critical care medicine*. *Med Gas Res*, 2014. 4: p. 17.

Ostojic, S.M., *Molecular Hydrogen in Sports Medicine: New Therapeutic Perspectives*. *Int J Sports Med*, 2014.

Ohta, S., *Molecular hydrogen as a preventive and therapeutic medical gas: initiation, development and potential of hydrogen medicine*. *Pharmacol Ther*, 2014.

Gopinath, D., et al., *MOLECULAR HYDROGEN THERAPY: A MAJOR MILESTONE IN MEDICINE*. *World Journal of Pharmacy and Pharmaceutical Sciences*, 2014. 3(8): p. 1201-1205.

Deng, J., et al., *Neuroprotective gases—fantasy or reality for clinical use?* *Prog Neurobiol*, 2014. 115: p. 210-45.

Brenner, S., *Parkinson's disease may be due to failure of melanin in the Substantia Nigra to produce molecular hydrogen from dissociation of water, to protect the brain from oxidative stress*. *Med Hypotheses*, 2014. 82(4): p. 503.

Qu, J. and X. Lu, *Hydrogen: A promising novel treatment for hepatic encephalopathy?* *Free Radic Biol Med*, 2013.

Qian, L., et al., *Hydrogen as a New Class of Radioprotective Agent*. *International journal of biological sciences*, 2013. 9(9): p. 887-894.

Lucas, K. and M. Maes, *Molecular mechanisms underpinning laser printer and photocopier induced symptoms, including chronic fatigue syndrome and respiratory tract hyperresponsiveness: pharmacological treatment with cinnamon and hydrogen*. *Neuro Endocrinol Lett*, 2013. 34(8): p. 723-37.



- Henry, M. and J. Chambron, [Physico-Chemical, Biological and Therapeutic Characteristics of Electrolyzed Reduced Alkaline Water \(ERAW\)](#). *Water* 5(4): p. 2094-2115.
- Ghanizadeh, A. and M. Berk, [Molecular hydrogen: an overview of its neuro-biological effects and therapeutic potential for bipolar disorder and schizophrenia](#). *Med Gas Res*, 2013. 3(1): p. 11.
- Dixon, B.J., J. Tang, and J.H. Zhang, [The evolution of molecular hydrogen: a noteworthy potential therapy with clinical significance](#). *Med Gas Res*, 2013. 3(1): p. 10.
- Chang, W.J. and L.H. Toledo-Pereyra, [The potential benefits of hydrogen-rich saline in ischemia and reperfusion injury](#). *Journal of Surgical Research*, 2013. 180(2): p. 248-9.
- Zhou, J., et al., [Targeting gaseous molecules to protect against cerebral ischaemic injury: mechanisms and prospects](#). *Clinical and Experimental Pharmacology and Physiology*, 2012. 39(6): p. 566-76.
- Zhang, J.Y., et al., [A Review of Hydrogen as a New Medical Therapy](#). *Hepato-Gastroenterology*, 2012. 59(116): p. 1026-1032.
- Zhang, D.Q., J.H. Zhu, and W.C. Chen, [Acarbose: a new option in the treatment of ulcerative colitis by increasing hydrogen production](#). *Afr J Tradit Complement Altern Med*, 2012. 10(1): p. 166-9.
- Simon, A.R., [Hydrogen-supplemented drinking water, just soda or an elixir of life?](#) *Transplant International*, 2012. 25(12): p. 1211-1212.
- Shirahata, S., T. Hamasaki, and K. Teruya, [Advanced research on the health benefit of reduced water](#). *Trends in Food Science & Technology*, 2012. 23(2): p. 124-131.
- Shi, P. and W. Sun, [A hypothesis on chemical mechanism of the effect of hydrogen](#). *Med Gas Res*, 2012. 2(1): p. 17.
- Seo, T., R. Kurokawa, and B. Sato, [A convenient method for determining the concentration of hydrogen in water: use of methylene blue with colloidal platinum](#). *Medical Gas Research*, 2012. 2: p. 1.
- Schoenfeld, M.P., et al., [A hypothesis on biological protection from space radiation through the use of new therapeutic gases as medical counter measures](#). *Medical Gas Research*, 2012. 2: p. 8.
- Rheem, K.E., et al., [Does alkaline-reduced hexagonal water delay the aging process in Drosophila?](#) *Geriatr Gerontol Int*, 2012. 12(1): p. 151-4.
- Ostojic, S.M., [Serum alkalization and hydrogen-rich water in healthy men](#). *Mayo Clin Proc*, 2012. 87(5): p. 501-2.
- Ohta, S., [Molecular hydrogen is a novel antioxidant to efficiently reduce oxidative stress with potential for the improvement of mitochondrial diseases](#). *Biochimica et Biophysica Acta*, 2012. 1820(5): p. 586-94.
- Ohno, K., M. Ito, and M. Ichihara, [Molecular hydrogen as an emerging therapeutic medical gas for neurodegenerative and other diseases](#). *Oxidative Medicine and Cellular Longevity*, 2012. 2012: p. 353152.



- Liu, S., X. Sun, and H. Tao, [Hydrogen from a biologically inert gas to a unique antioxidant](#). Second Military Medical University, www.intechopen., 2012.
- Li, D. and W.C. Wang, [Can hydrogen retard the progression of osteoarthritis?](#) African Journal of Pharmacy and Pharmacology, 2012. 6(5): p. 352-354.
- Hardeland, R., [Hydrogen therapy: a future option in critical care?](#) Crit Care Med, 2012. 40(4): p. 1382-3.
- Ghanizadeh, A., [Physical exercise and intermittent administration of lactulose may improve autism symptoms through hydrogen production](#). Medical Gas Research, 2012. 2(1): p. 19.
- Ghanizadeh, A., [Hydrogen as a novel hypothesized emerging treatment for oxidative stress in autism](#). European Review for Medical and Pharmacological Sciences, 2012. 16(9): p. 1313-4.
- Chuai, Y., et al., [Molecular hydrogen and radiation protection](#). Free Radical Research, 2012. 46(9): p. 1061-7.
- Shen, Y., et al., [Hydrogen gas: a novel antioxidant for chronic obstructive pulmonary disease](#). Journal of Medical Colleges of PLA, 2011. 26(2): p. 94-97.
- Schoenfeld, M.P., et al., [Hydrogen therapy may reduce the risks related to radiation-induced oxidative stress in space flight](#). Medical Hypotheses, 2011. 76(1): p. 117-8.
- Ohta, S., A. Nakao, and K. Ohno, [The 2011 Medical Molecular Hydrogen Symposium: An Inaugural Symposium of the Journal Medical Gas Research](#) Medical Gas Research, 2011. 1: p. 10.
- Ohta, S., [Recent progress toward hydrogen medicine: potential of molecular hydrogen for preventive and therapeutic applications](#). Curr Pharm Des, 2011. 17(22): p. 2241-52.
- Chuai, Y., et al., [A possible prevention strategy of radiation pneumonitis: combine radiotherapy with aerosol inhalation of hydrogen-rich solution](#). Medical Science Monitor, 2011. 17(4): p. HY1-4.
- Chen, J., et al., [Hydrogen therapy may be a promising, safe and effective treatment for diabetic erectile dysfunction: a hypothesis](#). Alternative Medicine Studies, 2011. 1(1): p. 11.
- Qian, L.R., et al., [The Hypothesis of an Effective Safe and Novel Radioprotective Agent Hydrogen-rich Solution](#). West Indian Medical Journal, 2010. 59(2): p. 122-124.
- Qian, L., et al., [The potential cardioprotective effects of hydrogen in irradiated mice](#). J Radiat Res, 2010. 51(6): p. 741-7.
- Liu, C., et al., [Hydrogen therapy may be an effective and specific novel treatment for acute radiation syndrome](#). Medical Hypotheses, 2010. 74(1): p. 145-146.
- Huang, C.S., et al., [Recent advances in hydrogen research as a therapeutic medical gas](#). Free Radical Research, 2010. 44(9): p. 971-982.
- Hong, Y., S. Chen, and J.M. Zhang, [Hydrogen as a selective antioxidant: a review of clinical and experimental studies](#). Journal of International Medical



Research, 2010. 38(6): p. 1893-903.

Goncharuk, V.V., et al., [The use of redox potential in water treatment processes](#). Journal of Water Chemistry and Technology, 2010. 32(1): p. 1-9.

George, J.F. and A. Agarwal, [Hydrogen: another gas with therapeutic potential](#). Kidney International, 2010. 77(2): p. 85-87.

Nakao, A., et al., [Therapeutic Antioxidant Medical Gas](#). Journal of Clinical Biochemistry and Nutrition, 2009. 44(1): p. 1-13.

Milton, S.L., [Hydrogen Saline a Real Gas](#). Journal of Experimental Biology, 2009. 212(15): p. v-vi.

Ohta, S., [\[Hydrogen gas and hydrogen water act as a therapeutic and preventive antioxidant with a novel concept\]](#). Nihon Ronen Igakkai Zasshi, 2008. 45(4): p. 355-62.

Jun, X.S. and H. Zhang, [Hydrogen-an endogenous antioxidant in the body](#). Academic Journal of Second Military Medical University 28(3): p. 233-235.

Wood, K.C. and M.T. Gladwin, [The hydrogen highway to reperfusion therapy](#). Nat Med, 2007. 13(6): p. 673-674.

Ball, J., [Recently published papers: More about EGD, experimental therapies and some inconvenient truths](#). Critical Care, 2007. 11(5).

Shirahata, S.A.N.E.T.A.K.A., [Reduced water for prevention of diseases](#). Animal Cell Technology: Basic and Applied Aspects 2002. 12: p. 25-30.

Okouchi, S., et al., [Water desirable for the human body in terms of oxidation-reduction potential \(ORP\) to pH relationship](#). Journal of Food Science, 2002. 67(5): p. 1594-1598.

Kumon, K., [What Is Functional Water?](#) Artificial Organs, 1997. 21(1): p. 2-4.

Jones, D., Gas Therapy. Nature 1996. 383: p. 676.

Nakamura, D.N., Hydrogen, What a Gas. Hydrocarbon Processing, 1993. 72(11): p. 23-23.

Cavallo, T., [An essay on the medicinal properties of factitious airs: with an appendix on the nature of blood](#). 1798: Printed for the author, and sold by C. Dilly [and 2 others].

---

PREVIOUS POST  
HUMAN STUDIES

---

NEXT POST  
H<sub>2</sub> FROM BACTERIA

---

Sign Up for the **MHI Newsletter**

SUBMIT



