

Peer Reviewed Studies: Parkinson's & Alkaline Antioxidant Water

- 1) <http://www.ncbi.nlm.nih.gov/pubmed?term=Molecular%20hydrogen%20is%20protective%20against%206-hydroxydopamine-induced%20nigrostriatal%20degeneration%20in%20a%20rat%20model%20of%20Parkinson's%20disease%20>

[Neurosci Lett](#). 2009 Apr 3;453(2):81-5. Epub 2009 Feb 12.

Molecular hydrogen is protective against 6-hydroxydopamine-induced nigrostriatal degeneration in a rat model of Parkinson's disease.

[Fu Y](#), [Ito M](#), [Fujita Y](#), [Ito M](#), [Ichihara M](#), [Masuda A](#), [Suzuki Y](#), [Maesawa S](#), [Kajita Y](#), [Hirayama M](#), [Ohsawa I](#), [Ohta S](#), [Ohno K](#).

Source

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Abstract

Molecular hydrogen serves as an antioxidant that reduces hydroxyl radicals, but not the other reactive oxygen and nitrogen species. In the past year, molecular hydrogen has been reported to prevent or ameliorate eight diseases in rodents and one in human associated with oxidative stress. **In Parkinson's disease, mitochondrial dysfunction and the associated oxidative stress are major causes of dopaminergic cell loss in the substantia nigra. We examined effects of approximately 50%-saturated molecular hydrogen in drinking water before or after the stereotactic surgery on 6-hydroxydopamine-induced nigrostriatal degeneration in a rat model of Parkinson's disease. Methamphetamine-induced behavioral analysis showed that molecular hydrogen prevented both the development and progression of the nigrostriatal degeneration. Tyrosine hydroxylase staining of the substantia nigra and striatum also demonstrated that pre- and post-treatment with hydrogen prevented the dopaminergic cell loss. Our studies suggest that hydrogen water is likely able to retard the development and progression of Parkinson's disease.**

PMID: 19356598 [PubMed - indexed for MEDLINE]

- 2) <http://www.ncbi.nlm.nih.gov/pubmed/19789628>

Hydrogen in drinking water reduces dopaminergic neuronal loss in the 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine mouse model of Parkinson's disease.

[Fujita K](#), [Seike T](#), [Yutsudo N](#), [Ohno M](#), [Yamada H](#), [Yamaguchi H](#), [Sakumi K](#), [Yamakawa Y](#), [Kido MA](#), [Takaki A](#), [Katafuchi T](#), [Tanaka Y](#), [Nakabeppu Y](#), [Noda M](#).

Source

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Abstract

It has been shown that **molecular hydrogen (H₂) acts as a therapeutic antioxidant and suppresses brain injury by buffering the effects of oxidative stress.** Chronic oxidative stress causes neurodegenerative diseases such as Parkinson's disease (PD). Here, **we show that drinking H₂-containing water significantly reduced the loss of dopaminergic neurons in PD model mice using both acute and chronic administration of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP).** The concentration-dependency of H₂ showed that H₂ as low as 0.08 ppm had almost the same effect as saturated H₂ water (1.5 ppm). MPTP-induced accumulation of cellular 8-oxoguanine (8-oxoG), a marker of DNA damage, and 4-hydroxynonenal (4-HNE), a marker of lipid peroxidation were significantly decreased in the nigro-striatal dopaminergic pathway in mice drinking H₂-containing water, whereas production of superoxide (O₂^{•-}) detected by intravascular injection of dihydroethidium (DHE) was not reduced significantly. **Our results indicated that low concentration of H₂ in drinking water can reduce oxidative stress in the brain. Thus, drinking H₂-containing water may be useful in daily life to prevent or minimize the risk of life style-related oxidative stress and neurodegeneration.**