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Eye Problems & Hydrogen Therapy

Molecular hydrogen (H₂) therapy has gained attention for its potential role in promoting eye health, largely due to its antioxidant and anti-inflammatory properties. Here's a summary of the relevant research and mechanisms by which Molecular Hydrogen may benefit individuals dealing with eye conditions such as AMD, cataracts, Dry eye or Retinal issues.

Antioxidant Properties and Reduced Oxidative Damage:

Hydrogen acts as a potent antioxidant, neutralising free radicals that contribute to oxidative stress and cell damage in the eyes. Hydrogen can reduce oxidative damage to the retina, which is crucial for maintaining healthy vision. By protecting retinal cells from oxidative stress, hydrogen therapy could support overall eye health. Oxidative stress (cell damage) is implicated in the development and progression of Macular Degeneration and other eye diseases. Various studies (see below) have demonstrated the effectiveness of Hydrogen inhalation therapy for combatting this.

In a mouse model of Age-related Macular Degeneration (AMD), molecular hydrogen helped protect the retina from damage by reducing oxidative stress and cell death. While this hasn't been fully tested in humans yet, it suggests that hydrogen may have good potential as a therapy to support retinal health in AMD.

Anti-inflammatory Effects:

Hydrogen therapy has demonstrated anti-inflammatory effects, which can help reduce inflammation in the eyes and alleviate symptoms associated with eye conditions.

Neuroprotective Properties:

Studies suggest that Hydrogen may have neuroprotective (nerve-cell supporting) effects on retinal cells, which could help prevent or slow the progression of degenerative eye diseases like macular degeneration.

Improved Blood flow:

Hydrogen therapy has been shown to improve blood flow, which is essential for delivering oxygen and nutrients to the eyes. Better blood flow can support eye health and function, particularly in individuals with vascular-related eye conditions.



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A direct quote from a 2023 research study:

“Accumulating evidence suggest that H₂ is protective against multiple ophthalmic diseases, including cataracts, dry eye disease, diabetic retinopathy (DR) and other fields. In particular, H₂ has been tested in the treatment of dry eye disease and corneal endothelial injury in clinical practice. This medical gas has brought hope to patients suffering from blindness.” (1)

The studies below are particularly relevant to anyone dealing with an eye disease or seeking to improve eye health:

(1) Li SY, Xue RY, Wu H, Pu N, Wei D, Zhao N, Song ZM, Tao Y. Novel Role of Molecular Hydrogen: The End of Ophthalmic Diseases? Pharmaceuticals (Basel). 2023 Nov 7;16(11):1567. doi: 10.3390/ph16111567. PMID: 38004433; PMCID: PMC10674431.

Liu Y, Li R, Xie J, Hu J, Huang X, Ren F, Li L. Protective Effect of Hydrogen on Sodium Iodate-Induced Age-Related Macular Degeneration in Mice. Front Aging Neurosci. 2018 Dec 4;10:389. doi: 10.3389/fnagi.2018.00389. PMID: 30564112; PMCID: PMC6288204.

Liang IC, Ko WC, Hsu YJ, Lin YR, Chang YH, Zong XH, Lai PC, Chang DC, Hung CF. The Anti-Inflammatory Effect of Hydrogen Gas Inhalation and Its Influence on Laser-Induced Choroidal Neovascularization in a Mouse Model of Neovascular Age-Related Macular Degeneration. Int J Mol Sci. 2021 Nov 7;22(21):12049. doi: 10.3390/ijms222112049. PMID: 34769482; PMCID: PMC8584469.

Oharazawa H, Igarashi T, Yokota T, Fujii H, Suzuki H, Machide M, Takahashi H, Ohta S, Ohsawa I. Protection of the retina by rapid diffusion of hydrogen: administration of hydrogen-loaded eye drops in retinal ischemia-reperfusion injury. Invest Ophthalmol Vis Sci. 2010 Jan;51(1):487-92. doi: 10.1167/iovs.09-4089. Epub 2009 Oct 15. PMID: 19834032.