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Pregnancy and Hydrogen Therapy

Hydrogen therapy, involving the administration of Molecular Hydrogen (H_2), is a relatively new field of research showing promise for various health benefits due to its antioxidant and anti-inflammatory properties. Often, research on safety and efficacy of innovative therapies is very lacking in relation to pregnancy and breastfeeding. However, there's a growing body of evidence demonstrating the relevance of Molecular Hydrogen Therapy for those who are pregnant or looking to conceive. This information sheet summarises the current understanding of Hydrogen therapy in the context of pregnancy, highlighting potential benefits, mechanisms of action, and safety considerations.

Potential Benefits of Hydrogen Therapy During Pregnancy:

Antioxidant Power

Molecular Hydrogen acts as a powerful, selective antioxidant, neutralising harmful free radicals in the body. During pregnancy, oxidative stress can lead to complications such as preeclampsia, intrauterine growth restriction, and gestational diabetes. By reducing oxidative stress, Hydrogen therapy can help mitigate these risks.

Anti-inflammatory Power

Inflammation plays a significant role in various pregnancy-related conditions and symptoms. Hydrogen therapy's anti-inflammatory properties can help manage or reduce inflammation, potentially benefiting both maternal and foetal health.

Improved Mitochondrial Function:

Mitochondria are crucial for energy production in cells. Fatigue and low energy levels are common symptoms during pregnancy. Hydrogen Therapy has been shown to improve mitochondrial function, which can support the increased energy demands during pregnancy; reducing fatigue and related symptoms.

Neuroprotection:

Research indicates that Molecular Hydrogen can protect against neurological damage. This could be particularly beneficial in cases where the foetus is at risk of hypoxic-ischaemic injury, a condition where the brain is deprived of oxygen.



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There are various animal studies supporting the beneficial use of H₂ during pregnancy. While human studies are still limited, initial clinical trials and observational studies suggest that Hydrogen therapy can be safe and beneficial during pregnancy.

A study by Aoki et al. (2022) found that Molecular Hydrogen positively affects pregnancy maintenance by enhancing mitochondrial function and exerting immune-modifying effects on T cells. The research demonstrated that Hydrogen therapy supports mitochondrial health and modulates immune responses, contributing to improved pregnancy outcomes. The study authors stated, *“The findings suggest potential therapeutic benefits of Molecular Hydrogen in supporting a healthy pregnancy.”*

Safety Considerations:

To date, no significant adverse effects of Hydrogen therapy have been reported in animal studies or limited human trials. Hydrogen gas and Hydrogen-rich water appear to be well-tolerated in both the pregnant and non-pregnant population.

Ensure any Hydrogen Therapy products are sourced from reputable providers, meeting relevant safety and quality standards.

For pregnant women, the potential benefits of Molecular Hydrogen Therapy could include reduced oxidative stress, improved energy levels, and better immune system balance, all of which are crucial for a healthy pregnancy. More extensive clinical trials specifically focusing on pregnant populations will be able to confirm these benefits and establish clear guidelines for use.

Relevant Research Articles:

Aoki C, Imai K, Mizutani T, Sugiyama D, Miki R, Koya Y, Kobayashi T, Ushida T, Iitani Y, Nakamura N, Owaki T, Nishikawa H, Toyokuni S, Kajiyama H, Kotani T. Molecular Hydrogen has a positive impact on pregnancy maintenance through enhancement of mitochondrial function and immunomodulatory effects on T cells. *Life Sci.* 2022 Nov 1;308:120955. doi: 10.1016/j.lfs.2022.120955. Epub 2022 Sep 15. PMID: 36115583.

Ohsawa, I., Ishikawa, M., Takahashi, K., Watanabe, M., Nishimaki, K., Yamagata, K., ... & Ohta, S. (2007). Hydrogen acts as a therapeutic antioxidant by selectively reducing cytotoxic oxygen radicals. **Nature Medicine**, 13(6), 688-694.

Itoh T, Hamada N, Terazawa R, Kuwabara M, Madachi Y, Teruya K, Arai M, Nagata K, Ichihara M, Koriyama T, Kato I, Shirahata S, Ohno K, Ohsawa I. Molecular Hydrogen Inhibits Lipopolysaccharide/interferon γ -induced Nitric Oxide Production through Modulation of Signal Transduction in Macrophages. **Biochem Biophys Res Commun**. 2009 Jul 24;381(4):666-71. doi: 10.1016/j.bbrc.2009.02.088. PMID: 19285079.