

Hydrogen - Its History

1520

- **Hydrogen Discovered**

Hydrogen was accidentally discovered by Philippus Aureolus Paracelsus. He was doing an experiment involving acid and metal and observed a mysterious flammable gas as a by product.

1766

- **Flammable Air**

Henry Cavendish, a British philosopher, and scientist, officially distinguished hydrogen as a flammable air that forms water upon combustion.

1783

- **Water-Forming**

Antoine Lavoisier, father of modern chemistry, first used the word "hydrogene" to describe the gas, derives from the Greek word for "hydro" meaning water, and "gene" meaning forming. Essentially, hydrogen means "water-forming".

1798

- **In the News**

First publication mentioning hydrogen gas having medical properties.

Hydrogen - Its History Continued.....

1888

- **Hydrogen as Medicine**

- The Annals of Surgery recorded one of the very first publications that linked hydrogen to medicine. It referenced Dr. Nicolas Senn, who at the time was using H₂ for intestinal applications.

1943

- **Diving Deep**

- Swedish engineer, Arne Zetterstrom, used hydrogen gas for the first time for deep sea diving.

1960s

- **Safety First**

- The U.S. Navy used a hydrogen gas mixture called hydroleo, as it helped to ameliorate decompression sickness & enabled dive deeper while breathing it (At concentrations, as high as 98.87% H₂, with 1.26% O₂ at 19.1 ATM), all with no cytotoxic effects, proving that the safety profile of H₂ is extremely high.

1975

- **Just A Glimpse**

- The University of Baylor and Texas A&M departments of chemistry and biology published a formidable study in the Journal of Science on the potential of molecular hydrogen in medicine.

Hydrogen - Its History Continued.....

2007

- **Nature Medicine Fame**
- Article published in the prestigious journal, Nature Medicine, about how H₂ works to selectively neutralize the hydroxyl radical. Up until this time there were only about 50 publications on Hydrogen gas.

2010

- **Hydrogen Rich Water as an Antioxidant**
- In February 2010 the Journal of Clinical Biochemistry and Nutrition, published the result of a study through an article- Effectiveness of Hydrogen Rich Water on Antioxidant Status of Subjects with Potential Metabolic Syndrome—An Open Label Pilot Study

2023

- **Growing Industry**
- There is currently over 1300 studies and reviews over H₂ and its medical use, including applications for over 170 disease models, and it is growing rapidly. At the rate at which the research is being done, with over 1600 researchers and more emphasis being on clinical studies, molecular hydrogen has a high probability of being a formidable medical gas in the future.