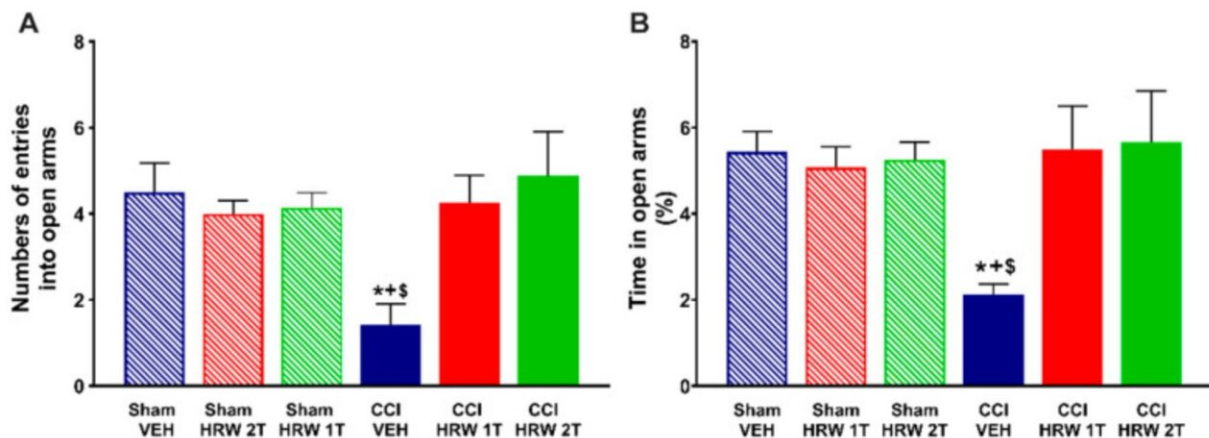


# Molecular hydrogen as a new strategy for the treatment of chronic pain

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Treatment with HRW at 1T or 2T inhibited the anxiety-like behaviors associated with neuropathic pain. At day 28 after surgery, the number of entries into the open arms (A) and the percentage (%) of time spent in them (B) after 4 or 7 consecutive days of treatment with VEH, HRW 2T or 1T are represented. Sham-operated mice treated with VEH, HRW 2T or 1T are also displayed. For each test, \* indicates significant differences vs. sham-operated mice treated with VEH or HRW at 1T or 2T, + vs. CCI-HRW 1T treated mice and \$ vs. CCI-HRW 2T treated mice (p Antioxidants (2022). DOI: 10.3390/antiox11091826

Twenty percent of the Spanish population suffers from chronic pain, and between 7 and 10% from neuropathic pain. This condition, mostly caused by nerve damage, causes people to feel intense and constant pain. Treatments are scarce and often involve a large number of adverse

effects that affect the patients' quality of life.

For this reason, the Molecular Neuropharmacology research group, coordinated by Olga Pol at the Sant Pau Biomedical Research Institute and the UAB Institute of Neurosciences, is looking for new therapeutic possibilities that can help people who suffer from it.

Now in a study published in the journal *Antioxidants*, they have analyzed the effects of administering to mice models of [neuropathic pain](#) water enriched with [hydrogen molecules](#), a treatment that had already shown positive effects in neurological disorders, such as Alzheimer's disease and depression. The results point to this strategy as a very promising candidate for the treatment of neuropathic [pain](#) and associated emotional disorders, due to its analgesic and anti-inflammatory effects, as well as its anxiolytic and antidepressant properties.

"This treatment can alleviate not only the pain caused by a nerve injury, but also the states of anxiety and depression that accompany it, which would substantially improve the patients' quality of life. This is important because it can allow a more effective and global treatment of neuropathic pain with fewer side effects," explains Olga Pol.

In the study, the treatment was administered to mice by injection, but in the future other routes will be tested, such as oral administration. The next steps will be to investigate how the treatment works in animal models of pain associated with chemotherapy, because many times cancer patients present neuropathic pain as a side effect of the treatment, as well as evaluating its effects on the memory and emotional deficits that these same patients can also suffer.

**More information:** Maria Martínez-Serrat et al, Hydrogen-Rich Water as a Novel Therapeutic Strategy for the Affective Disorders Linked with Chronic Neuropathic Pain in Mice, *Antioxidants* (2022). [DOI:](#)

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