

Fibromyalgia and Hyperbaric Oxygen

Hyperbaric oxygen therapy can diminish fibromyalgia syndrome--prospective clinical trial.

PLoS One. 2015 May 26;10(5):e0127012. doi: 10.1371/journal.pone.0127012. eCollection 2015.

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Fibromyalgia Syndrome (FMS) is a persistent and debilitating disorder estimated to impair the quality of life of 2-4% of the population, with 9:1 female-to-male incidence ratio. FMS is an important representative example of central nervous system sensitization and is associated with abnormal brain activity. Key symptoms include chronic widespread pain, allodynia and diffuse tenderness, along with fatigue and sleep disturbance. The syndrome is still elusive and refractory. The goal of this study was to evaluate the effect of hyperbaric oxygen therapy (HBOT) on symptoms and brain activity in FMS.

A prospective, active control, crossover clinical trial. Patients were randomly assigned to treated and crossover groups: The treated group patients were evaluated at baseline and after HBOT. Patients in the crossover-control group were evaluated three times: baseline, after a control period of no treatment, and after HBOT. Evaluations consisted of physical examination, including tender point count and pain threshold, extensive evaluation of quality of life, and single photon emission computed tomography (SPECT) imaging for evaluation of brain activity. The HBOT protocol comprised 40 sessions, 5 days/week, 90 minutes, 100% oxygen at 2ATA. Sixty female patients were included, aged 21-67 years and diagnosed with FMS at least 2 years earlier. HBOT in both groups led to significant amelioration of all FMS symptoms, with significant improvement in life quality. Analysis of SPECT imaging revealed rectification of the abnormal brain activity: decrease of the hyperactivity mainly in the posterior region and elevation of the reduced activity mainly in frontal areas. No improvement in any of the parameters was observed following the control period.

CONCLUSIONS: The study provides evidence that HBOT can improve the symptoms and life quality of FMS patients. Moreover, it shows that HBOT can induce neuroplasticity and significantly rectify abnormal brain activity in pain related areas of FMS patients.

Hyperbaric Oxygen Therapy: A New Treatment for Chronic Pain?

Pain Pract. 2015 May 19. doi: 10.1111/papr.12312. [Epub ahead of print]

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Hyperbaric oxygen therapy (HBOT) is a treatment providing 100% oxygen at a pressure greater than that at sea level. HBOT is becoming increasingly recognized as a potential treatment modality for a broad range of ailments, including chronic pain. In this narrative review, we discuss the current understanding of pathophysiology of nociceptive, inflammatory and neuropathic pain, and the body of animal studies addressing mechanisms by which HBOT may ameliorate these different types of pain. Finally, we review clinical studies suggesting that HBOT may be useful in treating chronic pain syndromes, including chronic headache, fibromyalgia, complex regional pain syndrome, and trigeminal neuralgia.

A comprehensive search through MEDLINE, EMBASE, Scopus, and Web of Science for studies relating to HBOT and pain was performed using the following keywords: hyperbaric oxygen therapy or hyperbaric oxygen treatment (HBOT), nociceptive pain, inflammatory pain, neuropathic pain, HBOT AND pain, HBOT AND headache, HBOT AND fibromyalgia, HBOT AND complex regional pain syndrome, and HBOT AND trigeminal neuralgia.

Twenty-five studies examining the role of HBOT in animal models of pain and human clinical trials were found and reviewed for this narrative review.

HBOT has been shown to reduce pain using animal models. Early clinical research indicates HBOT may also be useful in modulating human pain; however, further studies are required to determine whether HBOT is a safe and efficacious treatment modality for chronic pain conditions.

A new treatment modality for fibromyalgia syndrome: hyperbaric oxygen therapy.

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Fibromyalgia syndrome (FMS) is characterized by longstanding multifocal pain with generalized allodynia/hyperalgesia. There are several treatment methods but none has been specifically approved for this application. We conducted a randomized controlled study to evaluate the effect of hyperbaric oxygen (HBO) therapy in FMS (HBO group: n = 26; control group: n = 24). Tender points and pain threshold were assessed before, and after the first and fifteenth sessions of therapy. Pain was also scored on a visual analogue scale (VAS). There was a significant reduction in tender points and VAS scores and a significant increase in pain threshold of the HBO group after the first and fifteenth therapy sessions. There was also a significant difference between the HBO and control groups for all parameters except the VAS scores after the first session. We conclude that HBO therapy has an important role in managing FMS.

Hyperbaric oxygen treatment decreases inflammation and mechanical hypersensitivity in an animal model of inflammatory pain.

Wilson HD, Wilson JR, Fuchs PN.

Brain Res. 2006 Jul 7;1098(1):126-8. Epub 2006 Jun 5.

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Hyperbaric oxygen therapy has been used to treat a variety of ailments from carbon monoxide poisoning to fibromyalgia. The purpose of this experiment was to explore the effect of hyperbaric oxygen treatment on carrageenan-induced inflammation and pain in rats. Hyperbaric oxygen treatment significantly decreased inflammation and pain following carrageenan injection. Clinically hyperbaric oxygen may be used in situations where NSAIDS are contraindicated or in persistent cases of inflammation.

Hyperbaric oxygen therapy in chronic pain management.

Yildiz S, Uzun G, Kiralp MZ.

Curr Pain Headache Rep. 2006 Apr;10(2):95-100.

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Chronic pain is one of the frequently encountered clinical problems that is difficult to cure. Hyperbaric oxygen (HBO) therapy has been reported in chronic pain syndromes with promising results. In this review, we focus on the effectiveness of HBO in fibromyalgia syndrome, complex regional pain syndrome, myofascial pain syndrome, migraine, and cluster headaches. HBO may be beneficial if appropriate patients are selected. HBO is a reliable method of treatment. However, physicians performing HBO must be aware of oxygen toxicity. Another problem regarding HBO is the scarcity of centers administering it. Further research is required focusing on the optimal treatment protocol, the cost/benefit ratio, and the safety of HBO in chronic pain management.