


# Hyperbaric Oxygen Therapy Benefits Fibromyalgia Patients with History of Childhood Sexual Abuse, Study Shows

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Childhood sexual abuse produces post-traumatic physical and psychological distress that can alter brain connectivity and lead to fibromyalgia, researchers say. Their study found that supplying the brain with oxygen through hyperbaric oxygen therapy improved brain connectivity and quality of life among survivors diagnosed with fibromyalgia.



Traumatic experiences such as childhood sexual abuse can alter the brain's signalling pathways, culminating in reduced blood supply and oxygen levels, and "induce chronic brain injury," professor Shai Efrati of [Tel Aviv University's Sackler School of Medicine](#) and [Sagol School of Neuroscience](#), and the study lead author said in a [press release](#).

"These non-healing brain wounds may explain certain unremitting long-term physical and psychological disorders like fibromyalgia," Efrati said. "We also now know that fibromyalgia takes root in the part of the brain responsible for pain interpretation. Using novel brain imaging technologies, we have now, for the first time, identified the ... areas of the brain injured by traumatic abuse."

The researchers assessed whether hyperbaric oxygen treatment could reverse the effects of childhood sexual abuse, following a previous study that suggested the benefits of the treatment and psychotherapy for childhood sexual abuse survivors. [Hyperbaric oxygen treatment](#) is a medical treatment commonly used for decompression problems seen in scuba divers. Patients are placed in a total body chamber with controlled atmospheric pressure, and inhale 100% oxygen in order to enhance the body's natural healing process.

Thirty women diagnosed with fibromyalgia and with a history of childhood sexual abuse were randomized to 60 sessions of hyperbaric oxygen therapy and psychotherapy for more than two years. A control group received

psychotherapy and later underwent hyperbaric oxygen therapy.

Researchers evaluated the patients' experiences of dealing with their fibromyalgia and post-traumatic stress disorder (PTSD). They also looked at the patients' answers to quality of life questionnaires and assessed their brain function through imaging.

Following hyperbaric oxygen therapy sessions, participants reported significant improvements in all measures of quality of life, including symptoms of fibromyalgia and PTSD. The same significant improvements after hyperbaric oxygen therapy were seen in the control group.

"Despite the fact that the control/crossover group received psychotherapy when serving as controls, their mental and physical well-being did not improve during that phase (some even deteriorated)," the researchers noted.

Using brain nuclear imaging and novel MRI scans, researchers also saw a significant increase in brain activity across multiple areas, suggesting that the hyperbaric oxygen therapy recovered the brain connectivity the patients had lost after their childhood trauma.

These results show "that when these brain wounds are treated with hyperbaric oxygen therapy, neuroplasticity can be induced and the related clinical symptoms significantly improved," Efrati said.

Amir Hadanny, an author of the study, stated that "even though some of the areas of the brain have previously been associated with fibromyalgia and PTSD, the correlation we found also added new knowledge on brain function. In the future, we hope to be able to diagnose the so-called 'psychological' disorders through objective brain imaging."

Moreover, the findings may help explain why survivors of childhood sexual abuse are often unable to recall their sexual abuse.

"Lately, we have witnessed women in the #MeToo movement who knew they were sexually harassed and abused but could not recall the details of the attack," said Rachel Lev-Wiesel of the University of Haifa, the study's co-lead author. "Our new approach demonstrates that not being able to remember traumatic events is a biological rather than an emotional limitation."

"Repeated exposure to traumatic events creates the need to suppress these events," she added. "Biologically, that means that the areas of the brain responsible for those memories are actually being shut down in order to cope with reality. This may be the key for the reason why survivors are unable to recall the details or the traumatic event itself."

