

# Pilot study suggests migraine can be treated without medicine

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By slightly changing the body's own molecules using a small inhaler, certain migraine patients can either cut down on medication or do without it completely. This is shown by a pilot study published in the scientific journal *Cephalalgia*.

The study examined patients who suffer from migraine with [aura](#), in which they experience either sensory or visual disturbances before the painful headaches begin. Eleven patients participated in the pilot study, which will now be followed by a large clinical trial. One of the authors is MSc in Engineering and Ph.D. Troels Johansen, who carried out the study as part of his Ph.D. at the Department of Clinical Medicine at Aarhus University and the Headache Clinic at Aarhus University Hospital, Denmark.

He explains that migraines occur as part of a chain reaction during which the veins in the brain contract and the blood cannot therefore supply the brain with sufficient oxygen. "We utilise CO<sub>2</sub> and oxygen, which are the body's natural molecules for mobilising its own defence against migraine attacks. The [inhaler](#) expands the blood vessels that supply the brain with oxygen by up to 70 percent, and thereby stops the destructive [chain reaction](#)," says Johansen, adding that the effect of the treatment starts after a few seconds.

The [pilot study](#) was carried out from 2016-2017 with 11 patients who experience migraine with aura. One of the results was that the effect of the pain relief increased significantly with each use of the inhaler. Forty-five percent experienced an effect the first time, and that number rose to 78 percent the second time.

"The study shows some very significant physiological effects in the body," says Johansen, who currently teaches at the Aarhus University School of Engineering. Together with a team of employees, he has put the inhaler into production through the company BalancAir. Since the pilot project is limited to migraine with aura and only comprised 11 patients, Johansen is now planning to conduct a large clinical trial that will also include migraine without aura and chronic [migraine](#).

**More information:** Cecilia H Fuglsang et al. Treatment of acute

migraine by a partial rebreathing device: A randomized controlled pilot study, *Cephalalgia* (2018). [DOI: 10.1177/0333102418797285](https://doi.org/10.1177/0333102418797285)

Provided by Aarhus University

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