

# STROKE & HYPERBARICS

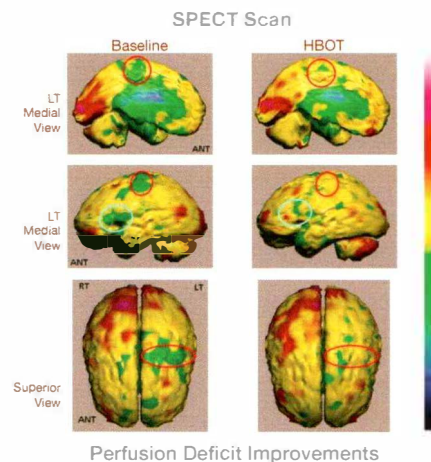
Stroke is the fourth leading cause of death in the U.S. and has remained a leading cause of adult disability with 800,000 cases reported every year. Hyperbaric oxygen therapy (**HBOT**) has been shown to help prevent and treat stroke through a number of different mechanisms. HBOT can be used to precondition the brain by stimulating angiogenesis, thus producing more circulatory pathways throughout the brain and potentially decreasing the chance of stroke. Also, this has been shown to benefit post-stroke patients, as compromised blood flow to the affected brain tissue (penumbra) and its functionality are recoverable by introducing increased levels of oxygen. Studies have demonstrated the benefits of HBOT for stroke with the following:

## STROKE PREVENTION WITH HBOT

- Stimulates Angiogenesis
- Ameliorates Atherosclerosis
- Decreases Oxidative Stress in the Brain
- Preconditions the Brain to Enable Neuroprotective Properties

## STROKE RECOVERY WITH HBOT

- Faster Overall Recovery
- Improves Vision and Speech
- Reduces Paralysis
- Accelerates Gross/Fine Motor Skills
- Increases Penumbra Tissue Recovery
- Stimulates Angiogenesis for Faster Reclamation
- Promotes Neurogenesis
- Enhances Stem Cell Proliferation & Mobilization
- Escalates Neuroplasticity
- Alleviates Spasticity



## Study: Neurological Function Improved in Post-Stroke Patients with HBOT

In 2013, a prospective, randomized, controlled trial focused on the introduction of HBOT to post-stroke patients. A total of 59 participants, who had suffered a stroke 6 to 36 months prior to inclusion and had at least one motor dysfunction, were randomly assigned to treated and cross-over groups. The treated group received two months of 40, one hour HBOT sessions. Whereas the cross-over group was evaluated after one month with no HBOT and again after one month following HBOT, utilizing the same treatment protocol. The evaluating physicians found that neurological function, brain activity and quality of life of all treated patients improved after HBOT. Results of SPECT imaging directly correlated with clinical improvements and indicated that HBOT can lead to significant neurological improvements in post-stroke patients, even at chronic late stages. The observed clinical improvements indicated that neuroplasticity can be activated long after damage onset.

Efrati S, Fishlev G, Bechor Y, Volkov O, Bergan J, et al. (2013) Hyperbaric Oxygen Induces Late Neuroplasticity in Post Stroke Patients - Randomized, Prospective Trial. PLoS ONE 8(1): e53716

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