

# Interview with Dr. Dan A. Rossignol: Hyperbaric Oxygen Therapy improves symptoms in autistic children

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## Abstract

Multiple studies have found that autism is characterized by cerebral hypoperfusion which correlates with many core features including repetitive, self-stimulatory, and stereotypical behaviors, and impairments in communication, sensory perception, and social interaction. Hyperbaric oxygen therapy (HBOT) can help overcome cerebral hypoperfusion by providing more oxygen to the brain. Recent studies have shown that children with autism have neuroinflammation and gastrointestinal inflammation, and HBOT is strongly anti-inflammatory. Autistic children also have increased oxidative stress and HBOT can decrease oxidative stress through up-regulation of antioxidant enzymes and increased antioxidant production. Children with autism have a relative mitochondrial dysfunction and HBOT can increase the production of mitochondria. Autistic children appear to have impaired production of porphyrins, which are involved in heme synthesis. Impaired production of porphyrins reduces the ability to deliver oxygen and HBOT may help overcome this. Autism is considered to be a neurodegenerative disease. HBOT has been shown to increase the production of stem cells, which may aid in reversing “irreversible” brain disorders, including autism. In our recent prospective, open label study, we found that HBOT ameliorates some symptoms in autistic children. Significant improvements were noted by parents in lethargy, communication, motivation, mannerisms, speech, sensory and cognitive awareness, and overall health. Markers of inflammation decreased, and there was no statistically significant change in oxidized glutathione levels. Further evaluation with a double-blind placebo-controlled study to verify these findings is indicated.

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