

The Center for Therapeutic Learning and Communication, PLLC



Hyperbaric Oxygen Treatment

What is Hyperbaric Oxygen Treatment (HBOT) and why is TLC offering it to their patients?

TLC conducted a small study last summer to test the effectiveness of mild hyperbaric oxygen therapy, also known as mHBOT. The current research on HBOT for Autism claimed that mild hyperbaric oxygen yielded the same results as hard shell without the dangerous side effects of oxidative stress and oxygen toxicity. It also claimed to help with inflammation and low blood oxygen levels in the brains of our kids with autism. The spect scans done before and after HBOT proved that rich oxygenated blood was able to saturate more areas of the brain and one year later those areas of the brain were still improved. The study claimed to increase digestive and immune function and DAN(defeat autism now) doctors are now including HBOT as part of their treatment protocol. That was enough to convince us to try it.

TLC completed the study(2) with two families, each completing 2 sessions a day, 5-6 days per week for 3 months. Each child completed over 100 hours in the chamber. Each child completed The Autism Evaluation Checklist (ATEC) before beginning treatment and every 20 visits thereafter. The ATEC measures how severely an individual is affected by Autism. Both children decreased their ATEC scores by 20% (the lower the score, the less impaired). We were so happy with the results that we bought a chamber and are now offering it to our patients as a part of their therapy. (see attached TLC study)

Research studies report that HBOT is helpful for a variety of children with neurodevelopmental impairments. The children realize improvements in eye contact, cognitive ability, socialization, sleep, calmness, language, and decreased stereotypical behaviors(stimming). Hyperbaric treatments are completely compatible with all other DAN! based treatments, and may even enhance the effectiveness of these other treatments.

What is Hyperbaric Oxygen Therapy?

The definition of *Hyper* is increased and *baric* is pressure =increased pressure. HBOT is the use of oxygen under higher than normal atmospheric pressures as a treatment. It is a method used to increase the amount of oxygen supplied to the body by increasing both the atmospheric pressure and the concentration of oxygen. Hyperbaric oxygen therapy has been in practice for almost 400 years, but many doctors are still not familiar with it. Previously, HBOT chambers were only available in large hospitals and medical centers, and were used for only a few conditions. With ad-

vancements in chamber design and manufacturing, HBOT has become available to clinics and homes, greatly expanding its use in treating many medical conditions.

What does Hyperbaric Oxygen Therapy do?

Increasing the atmospheric pressure creates an environment where oxygen gas dissolves more easily into the surrounding liquids, such as the blood plasma and cerebrospinal fluids. This increased oxygenation allows for many health benefits, such as cell growth and regeneration, detoxification, immune support, new capillary growth, and improved neurological functioning.

HBOT is beneficial to so many different kinds of problems, because oxygen is at the very center of every biochemical process in our bodies. We can only live without oxygen for a few minutes, and enhancing oxygenation turns out to be beneficial to the entire body. Greater oxygen supply will enhance the recovery of damaged tissues, brain cells, wounds, etc. The brain uses more oxygen than any other organ in the body, so it makes sense that the brain is particularly sensitive to disruptions in the supply of oxygen that can occur for many reasons including: toxic exposure, inflammation from infections or autoimmunity, interruptions in blood supply such as from a stroke or head injury, or clogged vessels with age.

“When the oxygenated plasma circulates near dormant or injured tissue such as an encephalopathic brain, a bruised muscle, a sprained tendon, or a surgical wound, the oxygen in the plasma can and does dissolve further into the damaged area than the oxygen that’s attached to the red blood cell in that “traditional” delivery system. (Buckley, 2005).” (3)

What are the different types of Hyperbaric Oxygen Therapy?

Hyperbaric medicine is separated into two types of Hyperbaric Oxygen Therapy - high pressure and low pressure. High pressure is generally referred to as high pressure HBOT,(hard shell) hospital grade HBOT, or just HBOT, and is designated as above 2 absolute atmospheres. Low pressure hyperbarics refers to pressures below 2 absolute atmospheres. There is also a very low pressure hyperbaric oxygen therapy referred to as mild hyperbarics or mHBOT. This is hyperbaric oxygen administered at 1.3 absolute atmospheres. Each type of hyperbaric oxygen therapy has its advantages and disadvantages. The higher pressures are very useful in acute illnesses, and the lower pressures are safer, generally without major side-effects, and better for chronic illnesses.

When considering the difference between hospital grade, low pressure and mild HBOT for the treatment of neurological disorders, the Quebec/McGill study is at the forefront of comparisons. This study was performed to test the use of low pressure HBOT(1.75 ATA) in the treatment of cerebral palsy. The experiment was intended to be a double blind study with mild HBOT at 1.3 ATA serving as the placebo. What they found is that the results for patients at 1.3 ATA and 1.75

were almost identical in improvement, and the patients at 1.3 ATA experienced better results with fewer side-effects in many cases (Stroller, 2004)(4). One of the great advantages of mHBOT is the low number of contraindications, risks and side effects. “This is one of the lowest risk procedures in all of medicine,” says Paul Harch, M.D., a leading hyperbaric medicine expert, about mHBOT. (5)

HBOT is FDA approved for 13 conditions , and is therefore covered by insurance for these following indications.

The 13 FDA approved conditions are:

Diabetic Foot Ulcer
Chronic Non-Healing Wounds
Refractory Osteomyelitis
Burns
Air Embolism
Decompression Sickness
Intracranial Abscess
Gas Gangrene
Carbon Monoxide Poisoning
Crush Injury
Severe Anemia
Compromised Skin Grafts

Necrotizing Soft Tissue Infections

For many other medical and neurological problems beyond the relatively rare 13 approved conditions, extensive published research and professional clinical experience has shown benefit from hyperbaric oxygen treatment. For these other medical and neurological issues, HBOT is not yet FDA approved, and is therefore usually not covered by insurance. The use of HBOT to treat these conditions is considered “off-label”. Off-label treatments are common in medicine. Read for yourself some of the articles that have been published showing benefit from HBOT in conditions that are often considered largely untreatable by conventional means. Conditions like autism, traumatic brain injury, stroke, multiple sclerosis (MS), seizures, and headaches are a few examples. For a great overview of the many conditions that can be improved with Hyperbaric Oxygen Therapy, please see the newly published book, *The Oxygen Revolution* by Dr. Paul Harch, one of the pioneers in the field of HBOT. (8) Dr. Harch explains that HBOT works not by curing a disease, but instead by lessening the body’s inflammatory response and restarting idling cells. It is not only effective on traumatic brain injuries, but also on problems such as stroke, birth injury, cerebral palsy, MS, and autism. However, HBOT is not recognized by the FDA for the treatment of neurological conditions; most doctors will never refer a person for the treatment unless they ask for it...strenuously. Hyperbaric treatment of these conditions is “off label” and the cost of treatment usually has to be paid entirely by the patient. Some hospitals have chambers, but will not put a patient in them for a neurological problem.(8) Despite the controversy over HBOT’s effectiveness on neurological conditions, the [FDA has approved treatment of 13 different conditions](#) and these are completely accepted procedures, reimbursable by insurance companies and Medicare. When reading this, one wonders why doctors think that HBOT will grow blood vessels in a diabetic foot wound, but not inside of a damaged brain.(8)

Dr. Harch also explores why there is still widespread opposition to HBOT. The reasons include tabloid stories, a patriarchal medical system still believing old information, and uneducated doctors. The sad result is that people are not told about HBOT's startling possibilities and never get the chance to decide for themselves if it might be helpful.(8) Harch

Although hyperbaric oxygen therapy is very safe for most people, there are a few medical conditions for which treatment with extra oxygen under pressure is contraindicated (not recommended). If a patient does not have any of these conditions, then HBOT is generally considered safe for that patient.

CONTRAINDICATIONS:

The following is a list of the conditions in which HBOT treatment is **not recommended**:

- Acute asthma attack
- High Fever
- Uncontrolled seizure disorder
- Optic Neuritis
- Pneumothorax
- Known ear infection or blocked ear canals
- Known sinus infection or upper respiratory infection
- Aneurism
- Glaucoma
- Pregnancy
- Severe heart or lung disease
- Congenital spherocytosis
- Currently taking any of these medications: Cisplatinum, Disulphiram, or Doxorubicin

Prior to your first treatment, you must bring a prescription from your doctor for mild hyperbaric treatment with oxygen.

Although most people do not experience any negative side-effects from hyperbaric oxygen treatments (other than "ear-popping" sensations during pressurization), some temporary side-effects are possible. Most of the time, patients report a wonderful increase in energy, mental clarity, and sense of well-being from HBOT. If a patient is very toxic, or infected with lots of bad gastrointestinal or systemic organisms, then they may experience a detox reaction, and/or a "die-off" reaction early on in the treatment course. As HBOT helps in the detoxification of a patient, metals and other toxins may be stirred up from storage sites in the body on their way out through urine and stool. Under these circumstances, it is not unusual to experience irritability or hyperactivity for a day or two after a treatment. Treating with glutathione, vitamin C and other antioxidants is helpful with this. Die-off of toxic organisms can also cause temporary nausea or fatigue. Both of these reactions are temporary, and are usually followed by signs of clinical improvement in the patient. Unusual reactions that are not listed here are possible. Please report any side-effects to the hy-

perbaric technician, and/or your doctor. The following is a list of the most common side-effects from HBOT:

Common:

- Ear and sinus discomfort – due to the changes in pressure within the chamber. (Can be minimized by techniques to “EQUALIZE THE PRESSURE” of the ears, or by inflating more slowly.)
- Temporary blurry vision.

Rare:

- Temporary headache or nausea - Can be caused by die-off of pathogenic organisms and/or enhanced detoxification.
- Temporary drowsiness
- Temporary hyperactivity
- Temporary neurological regression – from die-off, or enhanced detoxification and mobilization of toxins.
- Temporary dizziness
- Temporary claustrophobia – this can be reduced by relaxation techniques and maintaining communication with the HBOT technician.

Our goal at TLC is to make your hyperbaric oxygen treatment experience safe, comfortable, and beneficial to your health.

What does Hyperbaric Oxygen do for Autism?

The methodology for using HBOT to treat autism comes from research on other neurological disorders. Increasing research shows that in autism and other neurological disorders there are areas of the brain with low blood flow and oxygen, and that after treatment with HBOT the blood flow and level of activity in these portions of the brain returns to normal. Children with autism who have done mHBOT treatments have almost universally benefited to some degree from the treatment.

“In addition to impacting cerebral brain flow in injured brains, lower pressure hyperbaric therapy has been shown to positively impact natural killer cell function and thus, immune function. It has also been found to be of benefit in inflammatory conditions and has facilitated improvement in gut disease such as Crohn’s and ulcerative colitis. HBOT has been shown to increase glutathione levels by 15% for at least 24 hours after therapy in previous studies. These areas are all of interest for parents of children with Autism Spectrum Disorders (ASD) as they are often impaired in their children.” (Buckley, 2005).(6)

Children on the autistic spectrum experience improvement in a wide range of their symptoms with mHBOT treatments, including increased language ability, better socialization, less aggression, improved bowel function, and better cognition, to name a few. “HBOT reduces cerebral edema and improves the function of neurons rendered inactive by ischemia/hypoxia.” - Textbook of Hyperbaric Medicine, K.K. Jain(7)

What Protocol is used at TLC?

TLC follows the most commonly recommended protocol beginning with 40 one hour sessions of HBOT at 1.3 ATA once or twice a day 5 days a week. Parents are given printed information about HBOT, and sign an informed consent document that includes statements that acknowledge that this treatment is not FDA approved for this indication. A parent always accompanies the child into the chamber and reaps the benefits as well. This is the same protocol used in other studies supporting mild HBOT for improved neurological functioning, such as that of Gunnar Heuser, M.D.(7) There are many studies all showing the safety and efficacy of mild HBOT as a useful adjunctive treatment for the brain injury found in children with autism.

References

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