

POSSIBLE BENEFITS AND COMPLICATIONS OF HYPERBARIC OXYGEN THERAPY

CONTRAINDICATIONS OF HYPERBARIC OXYGEN THERAPY

DEFINITION AND BENEFITS OF HBOT:

Hyperbaric oxygen therapy is a method of safely delivering 100% oxygen while under increased atmospheric pressure. The direct effect is a drastically increased amount of oxygen in the blood. This enables the blood to carry oxygen to tissues it could not under normobaric conditions. Normally, oxygen is carried to all parts of the body by the hemoglobin in the blood. Once the hemoglobin is saturated (as it is in the hyperbaric chamber), oxygen is also dissolved into the blood plasma, thus delivering even more oxygen to all parts of the body. In addition, the increased oxygen has an anti-inflammatory effect, which greatly reduces swelling. Simply put, hyperbaric oxygen therapy causes a huge increase of oxygen in the body and reduces swelling.

POSSIBLE COMPLICATIONS:

Normally, hyperbaric oxygen is delivered at 1.0 ATA (Atmospheres Absolute) to 2.0 ATA. We most commonly treat people at 1 to 1.5 ATA. The risks of these "mild" hyperbaric treatments are minimal; however, they cannot be ignored:

- **Ear Pain:** under hyperbaric conditions, is called "barotraumas." This is probably the most common complication of hyperbaric oxygen therapy. It is caused by an inability to clear one's ears. The sensation while beginning and ending a hyperbaric oxygen treatment is much like the sensation one feels when flying. Any discomfort is usually temporary and is relieved by equalizing pressure in the ears. This can be accomplished by swallowing, yawning, chewing gum or by blowing pressure into the nose while pinching it off. Occasionally, it will be necessary to premedicate with decongestants or nasal spray. Less commonly, it is necessary to have ventilation tubes placed into the ear drum by an Ear, Nose and Throat physician.
- **Sinus Pain:** This is, probably, the second most common complication of hyperbaric oxygen therapy. It usually occurs in patients with upper-respiratory infection or Allergic Rhinitis. Usually a program of decongestant nasal spray, antihistamines and/or steroids before treatment will allow the patient to continue therapy.
- **Claustrophobia (Confinement Anxiety):** The fear of being confined affects approximately 12% of the population. It can be helped by using diversion techniques, self-hypnosis or medication. Rarely are patients unable to have hyperbaric oxygen therapy due to claustrophobia.
- **Myopia (Nearsightedness):** Vision changes may occur with hyperbaric oxygen therapy, especially after several treatments. It is temporary and will resolve after treatment is stopped. Do not get new prescription glasses or contacts while receiving therapy.
- **Oxygen Toxicity:** Pulmonary and neurologic problems caused by hyperbaric oxygen therapy usually happen at higher pressures and longer treatment times.
 - **Pulmonary toxicity** is generally seen in patients with obstructive airway disease.
 - **Spontaneous Pneumothorax** in the chamber is rare at higher pressures and even rarer during mild hyperbaric-oxygen therapy. This can be caused by patients holding their breath during decompression or recompression or by a "bleb" on the lung, which ruptures and allows air to leak between the lung and the lung lining or the chest wall, making it difficult to expand the lung and breathe. A pretreatment chest x-ray will help determine who is at risk.

(COMPLICATIONS AND CONTRAINDICATIONS, CONT.)

- Patients with **seizure disorders** are at risk for seizures in the chamber. It is imperative that these patients are under treatment for their seizures and that they continue to take their medications while receiving hyperbaric oxygen therapy.
- Occasionally, **a drop in blood sugar** can cause a seizure in the chamber. Make sure the patient eats a well-balanced meal prior to HBOT and, if the patient is diabetic, that his/her blood sugars are well-controlled.
- **Fire in the chamber:** Oxygen is not flammable, but it supports combustion. The risk of fire is greatly reduced by eliminating any source of combustion in the chamber. No pocket or hand warmers, electronics, lighters, or items that could cause static-electricity are allowed in the chamber. Paper is not allowed. Only 100% cotton clothing and linens are used for hyperbaric oxygen therapy. *No exceptions can be tolerated here!*

CONTRAINDICATIONS to HYPERBARIC OXYGEN THERAPY

Please discuss with Dr. Villines if you have or have ever had any of the Absolute Contraindications. Relative Contraindications need to be addressed but normally will not exclude anyone from treatment.

ABSOLUTE CONTRAINDICATIONS:

- Previous treatment with Adriamycin (Doxorubicin).
- Previous treatment with Bleomycin.
- Previous treatment with Cis-platinum.
- Untreated Pneumothorax

RELATIVE CONTRAINDICATIONS:

- High fevers (greater than 101°F)
- Untreated ear barotrauma
- Uncontrolled, Insulin dependent Diabetes
- Upper-respiratory infection or viral illness
- History of spontaneous Pneumothorax
- History of thoracic surgery
- History of chest trauma
- Uncontrolled-seizure disorder
- Claustrophobia
- Untreated dental problems
- Flying or diving within 24 hours of treatment
- Existing cataracts