



HYPERBARIC OXYGEN THERAPY CLIENT MANUAL

WHAT IS HYPERBARIC OXYGEN THERAPY (HBOT)?

Hyperbaric oxygen therapy is the breathing of 100% oxygen while inside a chamber that is pressurized to greater than normal or atmospheric pressure.

Hemoglobin, the oxygen-carrying capacity in the blood, is almost completely saturated in normal day-to-day life. Instead of binding more oxygen to the hemoglobin, HBOT increases the free oxygen in body fluids, enabling better perfusion of tissues. This extra oxygen generates a cascade of events that helps reduce inflammation, promote healing, reduce swelling and improve the blood supply through angiogenesis. (Richmond Hyperbaric Health Center)

HBOT is an integrative treatment; it is used in conjunction with other forms of therapeutic, medical and/or surgical care.

WHAT CONDITIONS ARE TREATED WITH HBOT?

HBOT is an internationally recognized treatment. The following is a summary of **international** indications for HBOT:

1. **Decompression sickness**
2. **Air embolism** (cerebral & peripheral)
3. **Poisoning** (carbon monoxide, cyanide, hydrogen sulfide, carbon tetrachloride)
4. **Infection** (soft tissue, gas gangrene, acute necrotizing fasciitis, refractory mycoses, leprosy, osteomyelitis, fungal infection)
5. **Plastic & reconstructive surgery/dermatology** (non-healing wounds, skin flaps with marginal circulation, burns)
6. **Traumatology** (crush injury, compartment syndrome, soft tissue sports injury)
7. **Orthopedics** (non-union of fractures, bone grafts, osteoradionecrosis)
8. **Peripheral vascular disease** (shock, myocardial ischemia, aid to cardiac surgery, angina pectoris, ischemic gangrene, ischemic leg pain)
9. **Neurological disorders/ neurosurgery** (stroke, cerebral palsy, multiple sclerosis, migraine, cerebral edema, multi-infarct dementia, spinal cord injury and vascular diseases of the spinal cord, brain abscess, peripheral neuropathy, radiation myelitis, vegetative coma, anoxia, global ischemia)
10. **Hematology/immunology** (sickle cell crises, severe blood loss anemia)
11. **Ophthalmology** (occlusion of central artery of retina, glaucoma)
12. **Gastrointestinal** (gastric ulcer, necrotizing enterocolitis, paralytic ileus, pneumotoides cystoids intestinalis, hepatitis, Crohn's disease)
13. **Enhancement of radiosensitivity of malignant tumors**
14. **Otorhinolaryngology** (sudden deafness, acute acoustic trauma, labyrinthitis, Meniere's disease, malignant otitis externa, chronic infection)
15. **Lung diseases** (lung abscess, pulmonary embolism- adjunct to surgery)
16. **Endocrine** (complications of diabetes)



17. **Obstetrics/neonatology** (complicated pregnancy-diabetes, eclampsia, heart disease, placental hypoxia, fetal hypoxia, congenital heart disease of neonate)
18. **Geriatrics** (brain functions, general hypoxia)
19. **Asphyxiation/pulmonary disorders** (drowning, smoke inhalation)
20. **Aid to rehabilitation and sports medicine** (spastic hemiplegia of stroke, paraplegia, chronic myocardial insufficiency, peripheral vascular disease)

The following is a list is a list of secondary indications for HBOT:

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| 1. Traumatic brain injury/coma | 14. Glaucoma |
| 2. Autism/epilepsy | 15. Complex regional pain syndrome |
| 3. Plastic surgery | 16. Near drowning |
| 4. Migraines | 17. Frostbite |
| 5. Fungal infections | 18. Crohn's disease/colitis |
| 6. Post polio syndrome | 19. Cerebral palsy |
| 7. Chronic fatigue | 20. Alzheimer's disease |
| 8. Sports injury | 21. Lyme disease |
| 9. Lymphedema | 22. Back problems |
| 10. Stroke | 23. Multiple sclerosis |
| 11. Age related macular degeneration | 24. Immune balance |
| 12. Heart disease | 25. Peripheral neuropathy |
| 13. Substance abuse/chemical detox | 26. Reflex Sympathetic Dystrophy |

WHAT PRECAUTIONS SHOULD BE TAKEN PRIOR TO TREATMENT?

1. Smoking, alcohol and chronic caffeine consumption decrease the amount of oxygen that can be transported by the circulatory system. It is strongly recommended that clients refrain from smoking during the course of treatments. If termination of smoking is not possible, a period of two hours prior and two hours after treatment must be tobacco free.
2. Nutrition is pertinent to effective treatment. Please eat prior to treatment and minimize the intake of processed foods. Increasing levels of vitamins E & C may be helpful.
3. Please discuss your medications with your family physician and/or our staff. Some medications are contra-indicated for HBOT, including, but not limited to:

Blemycin	Doxorubicin (Andriamycin)
Cis-Platinum (Platinol)	Mafenide Acetate
Difulfuram (Antabuse)	

There is no need to interrupt your medication routine due to HBOT. It is helpful to bring a list of medications.

4. Diabetics should perform a blood glucose check prior to HBOT. Something sweet may be necessary to maintain blood sugar levels during and/or after treatment.
5. HBOT may reduce the need for anticoagulants.
6. If you present for treatment with the flu, cold, sinus or ear problems, the ability to clear ears and sinuses may be inhibited. This will create a corresponding pain with pressure changes in the chamber. Please call Sara's Garden (419) 335-SARA (7272) and discuss with us whether treatments should be canceled until the condition is resolved.



WHAT ARE THE RISKS AND SIDE EFFECTS OF HBO?

As with any treatment, side effects are possible. They are, however, minimal. HBOT has been proven to be extremely safe, and the actual number of side effects is very small. The most common problem is trauma to the ears and sinuses due to pressure changes. Changes in pressure are usually accomplished at a slow rate in order to avoid these problems. If there is difficulty with pressure and clearing of ears, please notify the chamber operator. The treatment will be stopped until the pressure is equalized in the ears. (The staff at Sara's Garden will teach techniques to promote adequate clearing of the ears during treatment.) The temperature will increase slightly during the pressurization. Temperature will normalize during treatment and fall at a return to atmospheric pressure. It is important to breathe normally, without holding your breath.

A few clients may notice improvement in vision; others may have worsening of their vision over the course of treatments. Save your glasses, because vision changes are temporary and vision will usually return to pre-treatment condition within 3-4 months.

Confinement anxiety (claustrophobia) is managed by maintaining communication, use of relaxation techniques, etc. (The staff at Sara's Garden will teach techniques to lessen anxiety.)

Clients with cataracts may experience accelerated maturation of the cataract, but HBOT does not cause cataract formation.

Oxygen toxicity can affect the brain. Seizures occur rarely during HBOT and are self-limiting. Seizures due to oxygen toxicity will cease when the client is removed from breathing pure oxygen. If you notice any unusual behavior during treatment, notify the staff.

Pulmonary toxicity may occur in patients who receive excess oxygen. This is very rarely seen with the protocols currently used. Please let us know if you are using oxygen between HBOT treatments.

ARE SOME PEOPLE AT GREATER RISK DURING HBOT?

If you have any of the following conditions, you may not be eligible for HBOT. Please contact Sara's Garden for further evaluation.

1. **Asthma** (*Small airway hyperactivity may result in air trapping and damage to the lungs on ascent. There is some evidence that the administration of some bronchodilators may increase the incidence of gas embolism to the brain through pulmonary vasodilation. Treatment will be postponed if you are experiencing an exacerbation.*)
2. **Congenital spherocytosis** (*this is a condition in which the person has fragile blood cells. HBOT may result in massive hemolysis or cell destruction.*)
3. **Emphysema with CO₂ retention** (*Caution must be exercised in giving high pressures and high concentrations of oxygen to clients who may be existing on the hypoxic drive in order to continue breathing. Clients with emphysema may develop difficulty breathing in the chamber and require emergency care. In addition, gas trapping and subsequent lung rupture can occur. This is also true for any condition that is associated with bullous formation in the lungs.*)
4. **High fever** (*High fevers tend to lower the seizure threshold due to oxygen toxicity and may result in the delay of relative routine therapy.*)
5. **History of middle ear surgery or disorders** (*Please notify us of any current or past ear problems. There is a risk of further injury with inability to clear ears.*)



6. **History of seizures** (HBOT may lower the seizure threshold. Initially, seizure activity will usually increase, but after about 20 treatments, the seizures will start to decrease. Typically, they stop completely or decrease significantly.)
7. **Optic neuritis** (There have been reports in patients with a history of optic neuritis of failing sight and even blindness following HBOT. This complaint would seem to be extremely rare but of tragic consequence.)
8. **Pneumothorax** (A pocket of trapped gas in the lungs will decrease in volume on compression and re-expand on surfacing during a cycle of HBOT. These changes may result in further lung damage and or arterial gas embolization. If there is a communication between the lung and pneumothorax with a tension component, then a potentially dangerous situation exists as the pressure is lowered. For this reason, it is mandatory to have a chest tube in place to relieve a pneumothorax before contemplating HBOT. Please let us know if you have a history of chest trauma or surgery.)
9. **Pregnancy** (The fears that either retrolental fibroplasias or closure of the ductus arteriosus may result in fetus whose mother undergoes HBOT appear to be groundless from considerable Russian experience. However, we continue to exercise caution in treatment of pregnant women. HBOT will not be considered if you are pregnant.)
10. **Upper respiratory tract infection** (These are relative contra-indications due to the difficulty such clients may have in clearing ears and sinuses. Treatment may best be postponed until condition is resolved.)

Please let us know if any of the following occur during the course of treatment: diarrhea, cold, flu, nausea, vomiting, ear or sinus infection, a change in medications, not eating prior to HBOT and/or diabetic who has not taken prescribed insulin.

HOW OFTEN ARE TREATMENTS GIVEN?

Clients are usually treated one to two times per day. Treatment lasts approximately 60-90minutes. Treatment days will normally be Monday through Saturday. Please arrive half an hour prior to each scheduled treatment time. This allows time for the staff to assess each client prior to each treatment and for treatments to remain timely and on schedule.

HOW MANY TREATMENTS ARE GIVEN?

Usually treatments are grouped in sessions of 20-40 to provide the greatest chance for therapeutic effect. *An initial foundation of 40 is recommended.*

HOW WILL OXYGEN BE ADMINISTERED?

Sara's Garden administers oxygen in a multi-place chamber. At sea level the atmosphere exerts 14.7 PSI (760mmhg) of pressure on your body. This normal atmospheric pressure is referred to as 1 atmosphere absolute (ASA). Most conditions are treated at less than 2.5 ATA. Each client will wear a clear plastic hood which is attached to flexible hosing. The hoses allow oxygen to be supplied to and exhausted from the hood. The hood is made to allow clear vision in all directions.



AM I ALONE IN THE CHAMBER?

Specially trained personnel will accompany clients and/or caregivers in the chamber. The chamber is operated by a trained chamber operator.

WHAT ARE THE SAFETY CONCERNS?

Special precautions are taken to ensure your safety while in the chamber.

1. **100% cotton clothing and footwear (socks) must be worn during treatment. These articles of clothing will be made available if needed. No shoes in the chamber. (Underwear need not be 100% cotton; those not toilet trained or incontinent are encouraged/welcome to wear disposable diapers or attends.)**
2. **Please do not wear or take the following to treatment:**
 - a. **Lipstick/make-up/Vaseline/oil based products**
 - b. **Alcohol based products/deodorant**
 - c. **Hair spray/oil/gel/topical hair products**
 - d. **Skin oil/ointment/lotions/sprays/topical products**
 - e. **Nail polish**
 - f. **Watches**
 - g. **Jewelry**
 - h. **Nylons/panty hose/nylon knee hi**
 - i. **Synthetic clothing/silk clothing/wool clothing**
 - j. **Hard contact lenses**
 - k. **Toys**

Please allow staff to examine any/all items that you may wish to take into the chamber.
3. **For safety reasons, the following items are strictly PROHIBITED in the chamber:**
 - a. **Hearing aids/battery operated items/ electronic devices**
 - b. **Newspaper/loose leaf paper**
 - c. **Cigarettes/lighters/warming objects/matches**
 - d. **Knitting**
 - e. **Food**

WHAT MAY BE TAKEN INTO THE CHAMBER?

A 100% cotton blanket will be provided for each client while in the chamber. A pillow will be provided upon request. A bottle of water will be provided for each client while in the chamber. Children may take a bottle or sippy cup into the chamber; please allow a staff member to inspect prior to entering the chamber. Pacifiers may be taken into the chamber. One book per client may be taken into the chamber; please allow a staff member to inspect prior to entering the chamber.

IS HBOT COVERED BY INSURANCE, MEDICARE OR MEDICAID?

Sara's Garden became a Medicaid provider in February 2006. We are currently seeking provider status with a number of insurance companies. We are **not** a Medicare provider. Although Medicaid and some insurance companies have reimbursed for this treatment, we do not guarantee reimbursement. We will, however, attempt to file the claim on your behalf.



IS FINANCIAL ASSISTANCE AVAILABLE?

Sara's Garden has partnered with a local church, The First Christian Church-Disciples of Christ, which will provide scholarship monies for those who wish to apply. If we fail to include an application in this packet, please ask us to send one to you.

Sara's Garden has also partnered with a financial agency named MedDirect, which offers interest free and low interest loans for medical procedures. If we fail to include this information in this packet, please ask us to send one to you.

Sara's Garden has made application to become a Medicaid provider and our approval is currently pending. Please inquire about our current status and let us know if you are a Medicaid recipient.

Sara's Garden also offers suggestions for individual fundraising and seeking grants.

A small number of clients have successfully received reimbursement for HBOT services through their insurance companies. We will assist you in filling out insurance forms for you to file with your insurance company should you choose to attempt reimbursement.

We are continually seeking means for clients to afford services. We welcome suggestions and assistance.

We realize this information may seem overwhelming. Please feel free to call Sara's Garden with your concerns and we will do our best to help you.