1. **What is HBOT?**

HBOT is Hyperbaric Oxygen Therapy. Hyper means “high”, and baric, means “pressure”. In a clinical setting, a patient would enter either a monoplace or a multiplace chamber at a higher prescribed atmospheric pressure breathing 100% Oxygen for a prescribed period of time and number of treatments. What occurs is remarkable as injured or damaged cells actually begin to replicate themselves using the DNA to create new non-injured cells! The inspiration of 100% Oxygen under pressure allows it to reach the injured ischemic areas of the body. Ischemia is an absolute or relative shortage of the blood supply (oxygen delivery) to an organ. Ischemia results in more tissue damage because of a lack of oxygen and nutrients.

**Click here for an illustration of how HBOT works**

2. **Why is this different than breathing regular Oxygen in soft chambers, or using an Oxygen concentrator?**
Oxygen is required to live. It is not bad for you and many spas will have “anti aging” devices that will increase Oxygen supply to your body. Normal air has 21% oxygen at sea level and the hemoglobin in the blood is already saturated with oxygen from this source. Once you increase the atmospheric pressure it then saturates the plasma or liquid portion of the blood, increasing O2 in areas where blood supply has been reduced. The pressure must be increased enough for healing to occur that enables fibroblasts (tissue cells), capillaries (circulatory), osteoblasts (bone cells) and stem cells to be stimulated. Hyperbaric Oxygen Therapy (HBOT) is helping many people regain and enjoy improved quality of life when disease or injury takes it away from them.

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3. How long are the treatments?

A course of treatments is required before improvements are noticed. Each person’s condition, injury or disease has its own unique signature and the course involved will vary according to the severity of the injury or disease. A typical course of therapy will be from 20 to 40 treatments of daily HBOT.

Most treatments will be scheduled for 60 minutes at the prescribed atmospheric pressure ranging from 1.4-2.0 ATA. Usually 90 minutes total time to “dive” to and come up from prescribed pressure.

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4. Why do I have to have multiple treatments?

Treatments are cumulative- much like taking antibiotics. The duration is dependent on the pathology.

5. Do I need a prescription for this therapy?

Whenever 100% Oxygen is administered, the FDA considers it a drug, and therefore a prescription from a medical doctor is required. Although this is an FDA approved therapy, there are a few conditions and drugs that are contraindicated with HBOT. Many doctors may not have been informed of the “off-label” indications for this therapy; most of them know of Hyperbarics Oxygen therapy for a case of the divers bends, wound
healing, smoke or Carbon Monoxide poisoning, but new indications and evidence of there efficacy are discovered daily. Our medical director has over 3 decades of experience using HBOT for his patients and has published over 46 times. Our staff will provide your doctor with all the information your doctor may need to make the best decision for therapy for you or your loved one. Most people who can travel easily in a pressurized cabin on an airplane can tolerate HBOT with little to no difficulty.

6. What are the side effects of HBOT?

Pressure changes can cause barotrauma to the ears and sinuses and are the most common side effect during a course of therapy. It can be easily addressed by learning techniques designed to promote adequate clearing of the ears during compression (similar to clearing your ears on an airplane). An extreme side effect has to do with CNS Oxygen Toxicity. In Naval medicine when someone had the “bends” and had to be in a chamber for hours or even days at a time, having 100% O2 could create Oxygen Toxicity and Seizures. CNS Oxygen Toxicity is extremely rare, occurring about 1 in 10,000 treatments.

Another temporary side effect occurs after a large number of treatments when some changes in vision may be noticed since the eye’s lens absorbs oxygen through the air and not in the blood. Any changes usually return to pre-treatment vision levels in a 6 week period. Some patients may experience claustrophobia which can be resolved with relaxation techniques or mild medications. Also HBOT may induce accelerated maturation of cataracts.

In addition, a few patients report a "popping" or "cracking" sensation in their ears between treatments. This sensation can be relieved using the same techniques that patients use to clear their ears while they are in the chamber.

7. How do I begin a course in treatment?

Simply call the office and speak to one of our staff. If you have a prescription already, we
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will schedule you right away. If you do not have a prescription, we will refer you to one of our medical directors and schedule an office visit for the prescription to begin treatments.

8. Does Insurance cover the costs or reimburse for a course in treatments?

Medicare will reimburse ORCCA for 14 different indications. For those same indications, most private insurance PPO policies will reimburse you for the therapy. You should check with your own provider, as all insurance policies will vary. Unfortunately, because this is a new, yet highly effective therapy to many other “off label” indications, insurance companies do not always cover it. (PLEASE SEE info for doctors, APPROVED INDICATIONS AND OFF LABEL INDICATIONS)

9. What can be taken into the chamber?

Using 100% Oxygen makes an environment combustible, nothing other than 100% cotton clothing is allowed inside the chambers. The chambers are completely transparent, and each has its own personal entertainment system where you can watch DVD’s, play CD’s or audio books or simply take a nap while you are inside. (Please see Patient intake and consent for treatment forms)

10. What is a monoplace/multiplace chamber?

A monoplace chamber is designed for one person. The HBOT attendant will monitor you and turn on your personal entertainment options. You share the space with no one. Parents are permitted to enter if a child needs assistance while they are inside.

A multiplace chamber has room for several people and is mostly used in hospitals where
they are more equipped to deal with emergent care, such as the bends or immediately following a stroke, where the injured person may need medical staff while inside the chamber. 100% Oxygen is administered by using a transparent hood on the patients head while the entire chamber is compressed with room air. These large chambers are used for wound care and many patients may be in the chamber at the same time.

11. Who can benefit from HBOT?

Anyone can benefit from a proactive course in HBOT. Celebrities like Madonna and Michael Jackson have made it a regular regimen to their course in anti-aging. Diabetics use HBOT to prevent circulatory problems, which can sometimes lead to amputation. Arthritics use it to defeat painful debilitating inflammation. Professional athletes use it to optimize their body’s ability for peak performance and for rapid recovery from injuries. It is good for most infections as bacteria is usually anaerobic and does not like an oxygenated environment. Most cancerous tumors thrive in a hypoxic environment (without oxygen).

12. Why does it work?

100% Oxygen under pressure takes on a drug-like effect on the DNA and other components of the cells in your body. When you have HBO treatment, breathing oxygen under pressure stimulates the DNA in each cell and acts as a catalyst to promote the growth of new, healthy tissue without the use of compromised blood vessels. The Oxygen eliminates the inflammation, reduces swelling and eliminates the pain.

13. What are the safety rules about getting into the chamber?
a) Patient should be clean showered prior to entering chamber.

b) Patient should avoid drinking large amounts of water, coffee, tea or other forms of diuretics prior to entering the chamber so the urge to urinate won't shorten treatment time.

c) Patient should urinate prior to entering chamber

d) Comfortable 100% Cotton Clothes will be provided for every patient prior to their entry into the chamber. Bras should be 100% cotton if worn in the chamber.

e) Wound dressings should not be dressed with any petroleum or alcohol based products ointments or lotions. The dressings will be taken off prior to being in the chamber, so please be certain to bring another wound dressing with you.

f) No jewelry, watches, electronics, or books inside the chamber

g) No Metal of any kind, money, purses or wallets inside the chamber

h) No Hair Spray or hair oils inside the chamber

i) No petroleum based lotions or moisturizers on skin

j) No Make up as it usually contains petroleum products

k) No Dentures,
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I) No prosthetics

m) No hearing aids,

n) No hard contact lenses in the chamber (soft are allowed)

o) No hand warmers (blankets are provided if needed)

p) IF DIABETIC or Hypoglycemic, must have normal blood glucose levels of 105+ please eat or drink juice before entering chamber.

q) NO GUM OR FOOD in chamber

NO MATCHES, LIGHTERS, CIGARETTES OR ANYTHING FLAMMABLE INSIDE THE CHAMBER- ALL RULES MUST BE STRICTLY ADHERED TO

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Amazingly there are about 280 million molecules of hemoglobin in each red blood cell with the potential ability to carry a billion molecules of oxygen.

Hemoglobin is a complex protein made of four polypeptide chains, each of which has the unique ability to bind oxygen. Each polypeptide chain has a single molecule of heme, which has an iron ion at its center. It is the iron ion that interacts with oxygen.

Once every minute, the heart pumps the body’s entire blood supply through the lungs.

What is Plasma?
Plasma is the liquid part of the blood. It accounts for 46 to 63 percent of total blood volume. It is mostly water with dissolved substances; 92% are plasma proteins.

What is Serum?

Serum is plasma minus clotting proteins. It is the serum part of the blood that is forced to carry oxygen when in a pressurized chamber of oxygen (Hyperbaric Oxygen). The heme of the red blood cell is usually connected to an oxygen molecule when we are at sea level and in an unpolluted atmosphere. High altitudes have less oxygen and airplanes create a Hypoxic (loss of oxygen) situation. Carbon monoxide binds to the iron in hemoglobin in red blood cells about 200 times as readily as does oxygen. Automobiles, space heaters and even cigarettes produce carbon monoxide.

15. How Does HBO Treat Brain Injury?

The first effect of HBO in a very new injury is in preventing what is called Reperfusion Injury. This is a process where blood flow to injured tissue is restored and damage is often worse than the initial injury. White blood cells adhere to the damaged blood vessel walls and they start exploding and releasing many kinds of enzymes that interfere with the healing process. Hyperbaric Oxygen stops a cascade of enzymes and proteins involved in cell death if it is delivered in the first 3 to 4 hours. Usually one treatment of 3 atmospheres is all that is needed to stop this inflammatory response to injury. This is true of all tissues injuries.

What about older injuries to the Brain?

Kenneth P. Stoller, MD in a beautiful paper on HBO, Autism, Aspartame and Mercury states, “the major thing that Hyperbaric Oxygen Therapy can do in a brain injured patient, and I’m including autistic patients in that group, because whether a brain is poisoned by carbon monoxide, whether the neurons are injured by having gone through an episode where they weren’t enough oxygen or whether there is heavy metal poisoning if the neuron is still alive, Hyperbaric Oxygen apparently can go into that cell and open up or revitalize the enzyme and DNA in the mitochondria mitochondrial biogenesis.

The mitochondria are these little energy organelles inside each cell and they supply energy, they take oxygen and sugars and turn that into energy (ATP) that the cell can use and there’s a whole cascade of enzymes within those mitochondria and each mitochondria actually has its own DNA. So Hyperbaric Oxygen is now known to be capable of turning these mitochondria back on and when they turn back on suddenly the neuron or the cell is now functioning at a much higher level. And in the case of the brain, you actually get re-coupling of blood flow back to those now more metabolically
active neurons.”

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