Hyperbaric Oxygen chambers come in all sizes and shapes, ranging from small monoplace (one space for one person) chambers to larger multiplace (more than one place for more than one person) chambers. Our current chamber is a monoplace chamber that accommodates one person at a time. The chamber is a cylindrical tube that you lie down in while enjoying your experience. This is an excellent time to simply rest or to meditate or listen to soothing sounds through headsets. It is a hard chamber and therefore has limitless “dives” and solid, consistent, expected pressure and no face masks are required.

There are no locks on the chamber door, but it is sealed closed during treatment due to the pressure created in the chamber. There is constant, direct communication between the operator and the chamber occupant via an intercom system.

After the participants are seated at their station, the operator will close the chamber door and begin communicating to you through the intercom system. You will be instructed to start swallowing hard or yawning to clear your ears as the pressure begins to fill the chamber. Once the chamber is properly pressurized, you will be asked to put your facemask or hood on and make sure it fits tightly to prevent leakage of oxygen. Once pressurized, the pressure remains constant and you can breathe normally and simply relax.

Once the treatment time is concluded (typically one hour), you will be notified that you will be decompressing and you can begin clearing your ears again. The pressure felt in the ears while compressing and decompressing is similar to an airplane. If you begin clearing your ears prior to the pressure changes, you will more effectively keep your ears open. If the pressure is at all painful, tell the operator and the pressure will be adjusted. It is important to communicate to the operator at any time you feel necessary.

When the treatment is concluded and the chamber door is opened, you will be assisted out of the chamber.
What to expect from Hyperbaric Oxygen Therapy

There are a multitude of reasons a person would consider Hyperbaric Oxygen Therapy (HBOT). What makes HBOT so exciting is the fact that every single cell of the body depends on optimal oxygen concentration to do its job effectively and efficiently. As you increase and improve basic cellular function in your body, many things begin to happen. Each experience will be unique based on the person’s health status at the beginning of receiving therapy.

With optimal oxygen, cellular metabolism increases, which means that each cell in your body begins assimilating more nutrition and eliminating more waste. At the same time, oxidative enzymes in the liver are stimulated to work. This may allow some people to feel like they are detoxifying and they may feel slightly worse after the treatment initially. In most people, this detoxifying effect lasts only a few hours. When it wears off, a greater level of health can be appreciated, usually within the same day. The turnaround time most people share with us is two hours. Within these first two hours, you may feel like sleeping or relaxing and then you begin to feel a shift. Some people will find themselves eliminating more abundantly - both urination and feces. This is the body’s attempt to eliminate all the excess waste that is being generated.

If you are looking for resolution of acute symptoms like a cold, pneumonia, sports injury, etc., they can start to reverse after the second treatment. If the acute pathology is extremely draining on the system, the body first has to generate its resources in order to appropriately handle the task at hand. This may require a few more treatments. The sooner you begin therapy after the onset of symptoms, the quicker the resolution will be.

If the symptoms you suffer are more chronic - like fatigue, fibromyalgia, multiple sclerosis, or gangrene, the body has been operating under fire for a long time and will need to regenerate many systems before your recognizable symptoms begin to shift. Therefore, chronic conditions usually require a series of HBOT treatments before symptoms disappear. The goal is to provide enough oxygen over time so the tissues of the body can maintain an optimal oxygen level. Once this occurs, then symptoms can resolve, usually permanently.
Hyperbaric Oxygen Therapy

Physiology of Hyperbaric Oxygen Therapy

Hyperbaric Oxygen Therapy (HBOT) is a 300 year old medical treatment that consists of administering 100% oxygen at greater than atmospheric (sea level) pressure in order to improve and correct certain medical conditions. The underlying principle of hyperbaric oxygen therapy is quite simple: HBOT saturates the body and its tissues with oxygen so they can function properly.

Oxygen is a colorless, odorless gas that makes up about 21% of the atmosphere. It is essential for life for two main reasons:

1. **Oxygen is one of the body’s basic building blocks.** All of the body’s major components – water, protein, carbohydrate, and fat – contain oxygen.

2. **Oxygen helps promote certain chemical reactions within the body that result in energy production.** Energy is needed for proper circulation, respiration, digestion, temperature control, and many other important functions.

Blood is made up of three main components: White blood cells that help fight infection; red blood cells that carry oxygen; and plasma, which is the fluid that carries both kinds of cells throughout the body. Normally, only the red blood cells deliver oxygen, via a protein called hemoglobin, to the body’s tissues and cells. A healthy person’s hemoglobin is 97% saturated with oxygen when exposed in our lungs to normal air, or 100% saturated when breathing pure oxygen. Whether breathing air or pure oxygen, the limited number of red blood cells can only deliver a certain level of oxygen to the body’s tissues. However, when HBOT is used, you are breathing 10 times the regular amount of oxygen under increased pressure. These increased oxygen molecules are not only dissolved in the red blood cells, but also forced into the blood plasma, which makes up the bulk of the blood. Plasma parts with oxygen much easier than hemoglobin does, and plasma is in contact with every cell of the body. This allows oxygen to be delivered to tissues and cells that may be deprived of oxygen &/or a normal blood supply.

Many serious health problems stem from or are complicated by tissues having low oxygen levels or hypoxia. **Nature has proven that healing cannot take place without appropriate oxygen levels in the body’s tissues.** In many cases, such as those involving injuries, infections, strokes, and various other neurological, cardiovascular, and chronic degenerative conditions, adequate oxygen cannot reach the damaged areas and in some cases the oxygen level drops down to almost zero! Without adequate oxygen in these tissues, the body’s natural healing process fails to function properly, and we begin to see damaged tissues, decreased tissue function, slow healing, and a variety of other symptoms of disease.

Oxygen given under normal atmospheric pressure is not enough to raise tissue oxygen levels to reverse this lack of oxygen because red blood cells cannot carry and release enough extra oxygen. In order to overcome the oxygen starvation and raise tissue oxygen levels high enough for optimal healing to occur, the oxygen must be delivered under slightly increased atmospheric pressure.
Hyperbaric Oxygen Therapy and Strokes

Hyperbaric Oxygen Therapy (HBOT) works by saturating a person’s blood and plasma with oxygen resulting in increased oxygen delivery to tissues. In fact, because HBOT forces oxygen into the body under pressure, oxygen dissolves into all of the body’s fluids including the blood plasma, the lymph, and the cerebrospinal fluid surrounding the brain and spinal cord. All of these fluids carry the extra oxygen to the tissues and cells of the body, even where circulation is poor or blocked.

The extra oxygen in the tissues helps the healing process in many ways, including: Enhancing the white blood cells’ activity at wound sites and ability to fight infection; promoting the development of new blood vessels for increased circulation to hypoxic areas; assisting the body to build new connective tissue in damaged areas; reducing edema by vasoconstriction; and blocking cytotoxic effects of many harmful gases/poisons.

Stroke is the 3rd leading cause of death in the US and the most common cause of neurological disability. Stroke, also called cerebrovascular accident (CVA), refers to the loss of functioning brain tissue caused by circulation problems in the brain. These circulation problems decrease the brain’s supply of blood, and therefore its supply of oxygen. Without oxygen, brain cells called neurons begin to die. Depending upon the location of neuron death, a person may experience paralysis, spasticity or rigid muscles, reduced mobility, speech &/or swallowing difficulties, mental changes, decreased memory, and personality changes.

The decreased blood supply to the brain can occur for three reasons:

1. Ischemia – lack of blood flow caused by narrowing or blockage of an artery
2. Embolism – blood clot that sometimes blocks an artery & cuts off blood flow
3. Hemorrhage – bleeding within the brain

No matter what causes a stroke, the result is a localized area of damage in the brain called an infarct. The injured area has a central core of damaged tissue that cannot be repaired, surrounded by an area that is not as heavily damaged. Between the damaged tissue and the unaffected, normal brain tissue is a zone called the penumbra. The penumbra contains dormant/idling neurons that are intact but nonfunctioning. HBOT, by providing extra oxygen under pressure, helps wake up these idling cells so they can recover their function. Once these neurons begin working again, many of the symptoms of stroke disappear.

HBOT also has many other benefits for the treatment of strokes, which include:

- Relief of oxygen starvation or hypoxia
- Increased microcirculation or capillary development to increase blood flow
- Decreased brain swelling or edema by constricting nearby blood vessels
- Relief of muscle spasticity
- Reduction of free radicals that continue to cause tissue damage
- Stimulation of nerve impulses through the brain and spinal cord
- Protection of the integrity of cell membranes so they can function properly
Hyperbaric Oxygen Therapy and Multiple Sclerosis

Multiple Sclerosis (MS) is a debilitating condition of the nervous system. There are more than 500,000 people in the United States currently living with MS and another 10,000 Americans newly diagnosed each year. In MS, nerve fibers in the brain and spinal cord gradually lose their protective covering, called myelin. When this occurs, the electrical nerve impulses do not travel through the nerve correctly, and therefore, the signals are slowed.

There are two patterns that Multiple Sclerosis typically follows:

1. Relapsing/Remitting – most common type in which there are times of relapses and remissions. During a relapse, the disease is active and the nerves are damaged causing new symptoms or worsening of existing symptoms. During a remission, the disease process is quiet, yet there still may be symptoms from previous damage &/or progression of the nerve damage without new symptoms.
2. Chronic and Progressive – less common type in which there is gradual worsening of nerve damage and symptoms over many years, without relapses or remissions.

The exact cause of Multiple Sclerosis is still unknown; however, there have been many theories developed over the years. The following is a partial list of those theories:

1. Viral infection – the body reacts to inflammation caused by a virus
2. Autoimmune dysfunction – the body attacks its own nerves, causing a loss of myelin sheaths around the nerves
3. Fat emboli – fat particles become lodged in blood vessels within the brain, resulting in blockage of circulation and swelling of tissues
4. Environmental toxicity – high levels of toxins, especially zinc and mercury, build up and cause damage in the nervous system
5. Hypoxia – MS is a wound in the central nervous system that arises when chronic high blood pressure within the brain and spinal cord damages blood vessels and leads to changes in the nerve tissue resulting in decreased oxygen, or hypoxia. This hypoxia then leads to destruction of the myelin sheaths

Many recent studies have supported the theory that hypoxia is the cause of MS and that hyperbaric oxygen therapy (HBOT) is one of the best treatments for it. Since HBOT decreases viral loads, modulates the immune system, decreases toxicity by supporting liver detoxification, and dramatically increases the level of oxygen in all of the body’s tissues, HBOT is an effective treatment for MS, no matter what the cause.

HBOT is not a cure for MS, but it does provide a significant opportunity to control and stabilize the disease process and slow the progression by altering the natural course of the disease. Thousands of people with MS have been treated with HBOT and have experienced great benefit without any serious side effects. Some of the documented benefits of treating MS with HBOT include improvements in: Fatigue, balance, vision, bladder control, bowel control, coordination, speech, sensory perception and limb mobility.
Hyperbaric Oxygen Therapy and Acute Conditions

Hyperbaric Oxygen Therapy (HBOT) is a 300-year-old medical treatment that consists of administering 100% oxygen under pressure in order to saturate the body and its tissues with oxygen so they can function properly. Normally, oxygen is almost exclusively carried by the red blood cells in your body. With hyperbaric oxygen therapy, there is a substantial increase in the amount of oxygen carried in all body fluids including blood, plasma, lymph, cerebrospinal fluid, and intracellular fluids. This allows the level of oxygen to be increased in all body tissues, including areas with poor or compromised blood supply and in areas of tissue damage.

Using HBOT to increase the oxygen level in body tissues produces several long-term therapeutic effects and facilitates healing through a number of mechanisms, such as:

- Growth of new blood vessels and capillaries to increase blood flow
- Relief of oxygen starvation (hypoxia)
- Enhancement of the immune system
- Reduction of free radicals that may continue to cause tissue damage
- Constriction of blood vessels (vasoconstriction) to decrease swelling & edema
- Protection of the integrity of cell membranes so they can function properly
- Stimulation of fibroblasts (cells involved in wound/tissue healing)
- Increasing collagen synthesis
- Increasing ability of white blood cells to destroy bacteria and remove toxins
- Decreasing the number if viruses in the blood
- Detoxification of the liver, which is continuously burdened with toxins

Acute conditions treated by HBOT

- Wounds or soft tissue injuries (traumatic or surgical)
- Muscle, tendon and ligament injuries (sprains, strains)
- Pneumonia
- Upper respiratory infections (a cold, the flu)
- Migraine headaches
- Vertigo (dizziness)
- Tinnitus (ringing in the ears) &/or hearing loss
- Poisonings (carbon monoxide, cyanide, hydrogen sulfide, carbon tetrachloride, and many other common chemicals)
- Smoke inhalation
- Burns
- Brown recluse spider bites
- Lyme Disease
- Tissue infections (gangrene, staphylococcus, streptococcus, fungal)
- Stroke
- Brain and spinal cord injuries
- Myocardial infarction (heart attack)
- Bell’s Palsy
Hyperbaric Oxygen Therapy and Chronic Conditions

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- Stimulation of fibroblasts (cells involved in wound/tissue healing)
- Increasing ability of white blood cells to destroy bacteria and remove toxins
- Decreasing the number of viruses in the blood
- Detoxification of the liver, which is continuously burdened with toxins
- Decreasing levels of lactic acid, pyruvate, and ammonia in tissues

Chronic Conditions Treated with HBOT

- Chronic Fatigue Syndrome
- Fibromyalgia
- HIV/AIDS
- Diabetes
- Crohn’s Disease
- Cosmetic surgery recovery
- Peripheral neuropathy
- Reflex Sympathetic Dystrophy (RSD)
- Macular Degeneration
- Circulatory conditions (peripheral vascular disease, Raynaud’s)
- Radionecrosis (skin, bone, soft tissue damage from radiation)
- Osteomyelitis
- Decubitus or soft tissue ulcers
- Delayed wound healing
- Non-healing fractures
- Neurological conditions (stroke, coma, cerebral palsy, MS, brain and spinal cord injuries, etc)
Hyperbaric Oxygen Therapy and HIV/AIDS

Approximately 34 million people have been infected with HIV worldwide. There have been more than 750,000 reported cases of HIV/AIDS in the US and nearly 450,000 deaths. There are approximately 15,000 new HIV infections every single day. HIV/AIDS is a worldwide plague!

Health care practitioners have been using Hyperbaric Oxygen Therapy (HBOT) as a part of an overall HIV/AIDS treatment program for many years. There is well-documented evidence supporting HBOT’s use in HIV/AIDS and the many systemic complications and opportunistic infections associated with HIV/AIDS. People with HIV/AIDS often have dangerously low blood oxygen levels, which leads to a variety of symptoms and complications. Using HBOT and providing 100% oxygen under pressure, allows these oxygen levels to increase throughout the body and helps relieve many of the HIV/AIDS related symptoms.

Some of the actions that HBOT has when treating HIV/AIDS and its related complications are listed below:

- Decreases viral loads in the blood and tissues
- Decreases blood vessel damage that normally occurs as the initial infection progresses throughout the body
- Relieves debilitating fatigue
- Resolves oral yeast infections (thruhsh)
- Relieves peripheral vascular insufficiency (reduced blood supply to the extremities) thereby warming the hands & feet
- Maintains high-energy phosphate bonds in the body, which increases stamina and the ability to exercise
- Decreases pain and neuropathy in the legs and feet
- Stimulates the appetite
- Increases the number of T lymphocytes (T cells)
- Increases the flow of blood and oxygen to the brain and heart, which decreases the risk of heart attacks, strokes, and transient ischemic attacks (TIA’s)
- Decreases the severity of and the damage caused by Herpes
- Relieves severe dermatitis that often accompanies AIDS
- Decreases severity of Kaposi’s sarcoma
- Helps prevent and treat Pneumocystis carinii pneumonia (PCP)
- Decreases the organ damage caused by Mycobacterium avium complex (MAC)
- Helps detoxify the liver and decrease its toxic burden, which enables patients to remain on conventional drugs longer with more safety and fewer negative side effects

HBOT, when administered as an ongoing adjunctive treatment, prolongs the quantity and quality of life of people with HIV/AIDS, alleviates the blood vessel problems directly associated with HIV and Herpes infections, enhances effectiveness of drug therapies, reduces adverse side effects of the many medications taken, and shortens the length of life-threatening opportunistic infections.
Hyperbaric Oxygen Therapy

Hyperbaric Oxygen Therapy and Burns

Burns, whether caused by chemicals, electricity, or fire, can be a serious medical condition. They can also be among the most painful of injuries and among the most difficult to treat. Over 80,000 people each year require medical treatment for burns. Hyperbaric Oxygen Therapy (HBOT) helps burn victims heal faster and with fewer complications.

There are different types of burns depending on the severity:

- **First degree** – only the top layer of skin is involved. The skin is red but unbroken. No medical assistance usually required
- **Second degree** – deeper skin layers involved. Skin is red and blistered. Often massive fluid loss is present and medical assistance required
- **Third degree** – entire thickness of skin is involved. Skin is charred and may be little pain initially due to damage of nerve endings. Fluid loss, shock, and dehydration present. Medical assistance necessary

In order for a burn to heal promptly and properly, it is very important for the burned area to develop new healthy skin rapidly and cleanly. HBOT speeds the healing of burns while reducing the risk of infection by the following mechanisms:

- Constricting blood vessels (vasoconstriction) to limit the amount of fluid loss so wounded cells do not dry out and die
- Preventing shock or circulatory failure produced by massive fluid loss
- Reducing the amount of replenishing fluids required
- Establishing a new network of capillaries and blood vessels to help nourish the damaged tissue and remove extra waste
- Providing extra oxygen to stimulate the reproduction/growth of healthy cells
- Encouraging cells from healthy tissue to migrate to the wounded area to help with healing
- Inhibiting wound infection, both by increasing the number and function of white blood cells and by increasing the effectiveness of antibiotics given
- Reducing the rate of complications
- Aiding in the survival of skin grafts and flaps
- Increasing the growth of new skin
- Helping to treat and reduce other complications that often accompany burns, such as smoke inhalation and carbon monoxide poisoning

All of these factors help to speed the healing and increase the survival rate among burn patients. Studies have shown that hospitalization and mortality rates among severely burned patients who receive HBOT were reduced by one third. HBOT-treated patients also often require one-third less fluid replacement and heal 30% faster than those who do not receive HBOT.
Hyperbaric Oxygen Therapy and Neurological Conditions

Many neurological conditions are simply due to a lack of or a decrease of oxygen. Whether it is stroke, brain injuries, spinal cord injuries, or migraines, one of the fundamental causes is lack of oxygen.

Tissues can begin to swell after any injury, which cuts off the normal blood supply. When this happens, cellular waste begins to accumulate and cause even more swelling, lower levels of oxygen, and increased tissue damage. One of the ways to stop this cycle is by administering 100% oxygen at higher than atmospheric pressure using Hyperbaric Oxygen Therapy (HBOT).

HBOT treats and relieves many associated symptoms of neurological conditions by encouraging the following changes within the body:

- Constricts blood vessels (vasoconstriction) which leads to decreased swelling and edema
- Delivers increased amounts of oxygen by dissolving the oxygen in blood plasma, lymph, and cerebrospinal fluid
- Establishes a new network of capillaries and blood vessels to increase circulation, help nourish the damaged tissue and remove extra waste
- Stabilizes and repairs the blood brain barrier, which is often disrupted in neurological injuries
- Revives “idling” neurons in the brain, spinal cord, and nervous tissues
- Stimulates nerve impulses through the brain and spinal cord
- Reduces muscle spasticity
- Reduces free radicals that continue to cause tissue damage

Neurological Conditions Treated with HBOT

- Strokes
- Coma
- Closed head injuries
- Brain injuries
- Spinal cord injuries
- Organic Brain Syndrome
- Brain damage caused by near-hanging, near-drowning, near-choking, cyanide or carbon monoxide poisonings
- Multiple Sclerosis
- Cerebral Palsy
- Peripheral neuropathies
- Reflex Sympathetic Dystrophy
- Bell’s Palsy
- Ear conditions (Meniere’s Disease, tinnitus, sudden deafness)
- Macular Degeneration
- Migraine headaches
- Parkinson’s Disease
Contraindications of Hyperbaric Oxygen Therapy & Release of Liability

My initials in the spaces below indicate that I have read and understand the contra-indications of Hyperbaric Oxygen Therapy, hereafter referred to as HBOT. I further acknowledge that I have informed my Physician and received consultation prior to HBOT, should any of these situations apply to me.

Claustrophobia
__________ If you suffer at all from fear of enclosed spaces, HBOT should not be considered. Taking an anti-anxiety medication may assist you; however, historically these medications have little success in preventing this condition. I acknowledge and understand that this condition (Claustrophobia) in conjunction with HBOT is not advised.

Untreated pneumothorax
__________ Pneumothorax is a condition where gas has accumulated in the pleural cavity. Symptoms of pneumothorax may include: chest pain; shortness of breath; hyperventilation; and/or asymmetrical chest wall movement with each breath. Diagnosis is made by chest x-ray, CT scan, or ultrasound. I acknowledge and understand that this condition (Untreated pneumothorax) in conjunction with HBOT is not advised.

AdrimycinR (Doxorubicin) – antineoplastic agent (chemotherapy)
__________ AdrimycinR is known to cause tissue damage if it leaks outside of the vein during administration. HBOT effectively treats damaged tissue; however, you should avoid the hyperbaric chamber while taking this drug. AdrimycinR must be discontinued for seven days prior to receiving HBOT. I acknowledge and understand that this condition (use of AdrimycinR or any antineoplastic agent for chemotherapy) in conjunction with HBOT is not advised.

AntabuseR (Disulfiram) – antialcoholic agent
__________ Antabuse decreases the body’s production of superoxide dismutase, an enzyme that protects against oxygen overload. AntabuseR should be discontinued for one week before receiving HBOT. I acknowledge and understand that this condition (use of AntabuseR or any antialcoholic agent) in conjunction with HBOT is not advised.

Cis-Platinum – antineoplastic agent
__________ Cis-Platinum breaks down cells as it affects the cancer cells. HBOT prevents cellular breakdown and therefore renders this drug less effective. After stopping the drug for one week, HBOT can be used. I acknowledge and understand that this condition (use of Cis-Platinum or any antineoplastic agent) in conjunction with HBOT is not advised.

SulfamylonR (Mafenide Acetate) – antibacterial
__________ SulfamylonR is an antibacterial cream used predominantly in burn victims. This drug also causes vasodilation, which is enhanced by HBOT. Therefore, the cream should be removed before entering the chamber. Flamazine (Silver Sulfadiazene) is compatible with HBOT as a replacement consideration. I acknowledge and understand that this condition (use of SulfamylonR or any form of Mafenide Acetate - antibacterial) in conjunction with HBOT is not advised.

It is understood and agreed that this release discharges all liability between the undersigned and the Center for Natural Healing.

Patient Signature __________________________ Date __________________________

__________________________ __________________________

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