

Care You Can Count On

HYPERBARIC OXYGEN THERAPY & WOUND CARE: A PATIENT'S GUIDE:

Hyperbaric oxygen therapy (HBOT) has taken wound healing to new, unsurpassed levels. Due to a number of different causes, many patients suffer from slow or non-healing wounds.



In such cases, typical treatments, including ointments, medications, and bandages, may not be enough. This is when HBOT proves to be especially useful.

WHAT IS HYPERBARIC OXYGEN THERAPY?

HBOT is a treatment option which involves the delivery of 100% pure oxygen in a controlled chamber. Typically, oxygen is delivered throughout the body by only our red blood cells. With HBOT, oxygen reaches all of the body's fluids, allowing it to be circulated to anywhere in the body, including damaged tissue where normal blood circulation may be lessened or blocked. This increase in oxygen throughout the body promotes the ability of white blood cells to eliminate bacteria. The process is completely painless and non-invasive.

The Hyperbaric Oxygen Therapy Process

Hyperbaric oxygen therapy is an outpatient treatment that requires multiple sessions. In the case of wound care, treatments are given on a daily basis for 6-8 weeks. This equates to 30-40 sessions for the average patient.

Before Treatment:

Prior to HBOT treatment, detailed instructions are given to patients and any questions answered to ensure complete safety and comfort. Basic safety precautions may include:

- Refraining from drinking carbonated beverages for at least two hours prior to treatment. The carbonation can cause stomach or intestinal pain during the depressurization of the chamber.
- Eliminating the use of tobacco products for the entire course of treatment. Nicotine and carbon monoxide in tobacco products diminish the process of healing and reduce the effectiveness of hyperbaric oxygen therapy treatment.

During Treatment:

HBOT is administered in a clear, pressurized, total body chamber. Patients can see everything around them from inside the chamber, including staff members who will remain nearby. For those patients still feeling anxious about their treatment, prescription medication may be used to lessen anxiety and increase relaxation. Each HBOT session lasts about two hours. During this time, patients can watch TV, listen to music, read, or simply rest.

During the treatment, patients will experience pressurization during the beginning of the treatment. The slowly increasing pressure will push on the eardrum, producing a sensation similar to landing in an airplane or diving to the bottom of a swimming pool. This pressure is often quickly eased and for most is the only discomfort experienced.

TYPES OF WOUNDS TREATABLE WITH HBOT

While many different types of wounds respond well to HBOT, there are some for which it is more commonly used than others. Here are a few that are frequently seen:

Diabetes-Related Wounds

What may be a harmless wound to an otherwise healthy patient can be far more complicated for one with diabetes. Being diabetic comes with a host of other potential complications, some of which make wound healing more difficult. For instance, narrow arteries may make circulation of blood to the wound more difficult, or a weakened immune system may hamper healing. Any wound for a diabetic patient should be treated carefully and watchfully.

Foot wounds are particularly bothersome for those with diabetes. These injuries are more prone to swelling and cannot be immobilized to allow for healing in the same way that other areas can. Furthermore, issues that are common among diabetics such as nerve damage and calluses make the feet even more prone to injury than those of an average patient. When these wounds present a serious problem and are slow or non-healing, hyperbaric oxygen therapy can be a viable choice.

Wounds from Radiation

About half of all patients diagnosed with cancer will have radiation therapy included in their course of treatment. However, while radiation is used in an attempt to shrink or eradicate cancerous cells, the surrounding skin and tissue can be damaged. In fact, up to 95 percent of all radiation therapy recipients will develop a skin reaction, known as radiation dermatitis, to some degree. Based on the dose of radiation, beam used, and amount of time the skin is exposed, these injuries can involve the skin, underlying tissues, and even structures as deep as bone.

Treatment protocol for wounds resulting from radiation is based on a multitude of factors regarding the patient, their health, and the severity of the wound. In some cases, prescription ointments or special wound dressings may be enough to allow the skin to fully recover. However, in the case of more severe or non-healing wounds, hyperbaric oxygen therapy may be needed.



Skin Grafts & Flaps

Skin grafts and flaps are sections of healthy skin tissue that are transplanted from a healthy area of the body to one where damage has occurred. Common causes for skin grafts include treatment of skin infections, skin ulcers, skin cancer removal sites, and severe burns.

By using HBOT before and/or after the graft, physicians can help promote speedy and proper healing of the newly transplanted tissue. Additionally, HBOT has been shown to be particularly useful in salvaging compromised grafts. Initially, these treatments may be needed as frequently as twice per day until the tissue shows signs of viability.

Thermal Burns

Burns can be suffered due to causes such as contact with electrical currents or certain types of chemicals. However, the most common cause of burns are heat sources such as fire, boiling water, and steam. These are known as thermal burns and they injure about 2 million Americans each year. Location and the severity of the burn will determine the most appropriate course of treatment.

Second- and third-degree burns are the most severe and require the most intense treatment protocols. The earlier intervention occurs with these wounds, the better patient outlook will be. By giving HBOT within the first 48 to 72 hours of injury, physicians can help minimize the amount of tissue that will be lost as a result of the injury. Beyond 72 hours, the treatment can still be beneficial in promoting the growth of new, healthy tissue.

Infections of Skin and Bone

Infections that invade the skin or bones can pose a serious threat if not quickly treated and controlled and may even lead to loss of the affected bone or tissue. In severe cases, routine treatment protocol may not be sufficient, resulting in a chronic or nonhealing infection which requires more advanced intervention.

Skin infections and osteomyelitis (infection of bone) can be bacterial, fungal, or viral in nature and can impact patients of any age. They are most commonly seen in those who may already have weakened immune systems due to age, diabetes, hemodialysis, sickle cell anemia, or drug abuse. Symptoms can include pain, redness, swelling, fever, and drainage at the infection site. HBOT can treat these infections by providing high concentrations of oxygen needed to support infection-fighting white blood cells known as polymorphonuclear leukocytes (PMNs).

Non-healing Wounds

Any type of wound or infection that has been classified as "non-healing" may benefit from treatment with hyperbaric oxygen therapy. In most cases, this classification is reached when a wound has shown no improvement for four weeks. Regardless of the cause, these wounds should be evaluated by a wound care and HBOT specialist.





When it comes to wound healing, hyperbaric oxygen therapy can make a significant difference in successful treatment and the prevention of complications. To learn more about HBOT, wound care, and if it may be useful for you or a loved one, contact our center.

Lane Wound Care & Hyperbaric Oxygen Therapy Center

4917 West Park Drive

Zachary, LA 70791

(225) 658-4110

LaneRMC.org



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