

Rapid Recovery Hyperbarics

9439 Archibald Ave. Suite 104 Rancho Cucamonga CA, 91730

909.477.4545 | www.hbot4u.com



Chronic Osteomyelitis : Infection of the Bone

Osteomyelitis represents an inflammatory process with a bacterial infection involving bone. The disease involves ischemia as well as infection, and it may be acute, sub acute, or chronic. The term "chronic osteomyelitis" refers to failure to heal despite adequate surgical and antibiotic therapy.

Staphylococci (staph) bacteria is a common form of bacteria that is often involved. Staphylococcus Epidermidis and Pseudomonas Aeruginosa are also bacteria that are cultured from the wound site. The germs that cause osteomyelitis can enter the bone during an injury. It is an ever-present hazard following compound fractures and must be guarded against whenever the bone is exposed. Germs can reach the bone from a nearby infection or indirectly through the bloodstream.

HBOT is an adjunctive therapy and should be used with appropriate antibiotics, surgical debridement, and reconstructive surgery. Osteomyelitis can either be acute or chronic. All cases are initially acute. The signs of acute infection are severe pain, swelling, redness at the site of the infection or high fever and general malaise. Chronic osteomyelitis may follow the acute form or may develop over time, when the acute form is not completely cured by treatment. Its symptoms include bone pain, tenderness, local muscle spasm, and fever. Long-term osteomyelitis may go on for years, with periods of worsening or waning symptoms, in spite of treatment.

Osteomyelitis causes a lack of oxygen in the tissues and some bone itself has few blood vessels. HBOT forces oxygenation which helps fight this disease in three ways.

1. Helps to strengthen the bone cells called osteoclasts that reabsorb dead bone, allowing the osteoclasts to remove bony debris more effectively.
2. Enhances the function of the immune system's white blood cells which depend on oxygen. For this reason, HBOT is especially effective when used with antibiotics as it potentiates the action of the antibiotics.
3. Helps the body to create new blood vessels called capillaries

As a result of these three factors, the body is able to get rid of the diseased bone and replace it with healthy bone.

Oxygen is also important in wound healing. When the environment of the fibroblast has an oxygen tension of less than 10mmHg, the cell can divide, but it can no longer synthesize collagen. It also cannot migrate to where it is needed for healing. When the oxygen tension is increased, the fibroblast can again carry out these wound healing functions. The collagen produced by these cells forms a protective fibrous matrix, and new capillaries grow into this matrix. Wound healing is a dynamic process and an adequate oxygen tension is mandatory for this process to proceed to a successful conclusion. HBOT provides oxygen to promote collagen production, angiogenesis and ultimately wound healing in the ischemic or infected wound. Adequate supply of oxygen is vital in the treatment of osteomyelitis. (Reprinted with Permission)