

About Gouty Arthritis

Gout is a form of arthritis. It is characterized by:

- Sudden and severe episodes of joint pain with warmth and swelling.
- Tenderness.
- Stiffness and swelling of affected joints.

A gout flare can be so painful that some patients report it is as severe as a fracture of a long bone like the femur.

Gouty arthritis is most often felt in the large joint of the big toe, but can affect other joints such as:

- Instep
- Achilles tendon
- Heel
- Ankle
- Knee
- Wrist
- Finger joints
- Elbow

The first attack is usually not the last.

Approximately 60 percent of patients suffering from gout will experience a second attack within one year. 78 percent of patients will have another attack within the next two years. The good news is that gouty arthritis is manageable.

Work closely with each patient to develop a treatment plan that comprises appropriate medication and modifications to diet and lifestyle. Through proper monitoring and treatment it is possible to gain control early in the disease and avoid painful episodes and long-term joint damage in the future.

In fact, with adjustments to diet and lifestyle combined with medication, gout often can be adequately controlled.

Treatment with Hyperbaric Oxygen Therapy

Hyperbaric oxygen therapy (HBOT) has been shown to reduce the pain and inflammation associated with arthritis and other chronic pain disorders. Some physicians may prescribe HBOT off-label as an adjunct or alternative to drug treatments and other common arthritis therapies.

Hyperbaric Oxygen Therapy (HBOT) and Rheumatoid Arthritis

by Rashmi Gulati, MD

Rheumatoid arthritis (RA) can be a tremendous, life-changing challenge, as anyone knows who has it or loves someone who suffers from it. RA is a chronic, systemic autoimmune disorder that causes the immune system to attack the joints, where it causes pain and inflammation (arthritis). It can also lead to the destruction of some organs, such as the lungs and skin. When the immune system attacks the body as in RA, it leads to symptoms ranging from joint pain and stiffness to fatigue. Over time, the joints can become permanently damaged and disfigured. Without proper treatment, this kind of damage can lead to disability. New, targeted therapies in RA provide hope for people with this condition.

International studies are finding that hyperbaric oxygen therapy is markedly superior to the routine treatment of RA. In 1995, the *Proceedings of the Eleventh International Congress on Hyperbaric Medicine* published the results of one particular study. These results indicated the following effects of hyperbaric oxygen on the disease.

- Remission: 23.4%
- Obvious effect: 51.4%
- Improvement: 16.2%
- No effect: 8.1%

The total summarized effective rate of hyperbaric oxygen in treating RA was 91.9%. The authors of the study concluded, "In the treatment we find that hyperbaric oxygen is markedly superior to the routine treatment of rheumatoid arthritis."

Hyperbaric oxygen therapy has become a standard of practice for RA in many countries. Clinical practice has proved that hyperbaric oxygen therapy has good effects on analgesia, lowering blood sedimentation rate, stabilizing immunologic function, and strengthening the body's resistance for eliminating pathogenic factors. It is also beneficial for the repair of the diseased joints.

Hyperbaric oxygen therapy has actually been found to inhibit the development of the disease process. HBOT can suppress inflammation due either to immune factors or infection. Moreover, daily hyperbaric oxygen therapy suppresses the inflammatory response even if the disease is fully developed; however, the treatment of RA with hyperbaric oxygen therapy is more effective in the early stages of the disease.

Hyperbaric Oxygen Therapy Reduces Pain & Inflammation

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Approximately 1 in 5 adults in the United States are affected by the pain, disability, and decreased quality of life associated with arthritis. The primary focus of treatment is on reducing joint inflammation and pain through a variety of pharmacotherapies, each of which is associated with various side effects. **Hyperbaric oxygen therapy is an alternative treatment that has been recommended to treat a variety of inflammatory diseases, ranging from chronic brain injury to exercise induced muscle soreness.** The purpose of this set of experiments was to explore the effect of hyperbaric oxygen therapy on joint inflammation and mechanical hyperalgesia in an animal model of arthritis, and compare these effects to treatment with aspirin. Hyperbaric oxygen therapy significantly reduced both joint inflammation and hyperalgesia. As compared with aspirin treatment, hyperbaric treatment was equally as effective in decreasing joint inflammation and hyperalgesia. PERSPECTIVE: This **article reports that hyperbaric oxygen treatment decreases pain and inflammation in an animal model of arthritis. The effect of hyperbaric oxygen treatment is very similar in magnitude to the effect of acetylsalicylic acid treatment. Potentially, hyperbaric oxygen could be used to treat pain and inflammation in patients with arthritis.**

What is Hyperbaric Oxygen Therapy (HBOT)?

Brief History Of Hyperbaric Oxygen Therapy

- In 1662, British Physician and Clergyman Henshaw first used compressed air in an attempt to treat pulmonary disease. His first chamber was called the "Domicilium" Chamber pressure was either raised or lowered with organ bellows.
- Illness from pressure change was first recorded in late 1600's by physicist and chemist, Robert Boyle.
- British chemist, Joseph Priestly studied the "Goodness of Air." He found that plants produced this previously undefined gas which animals consumed. (Oxygen).
- French Surgeon Fontaine. In 1879, over 20 surgical procedures were preformed in his unit. Deep Surgical anesthesia was possible because of its increased effective percentage accompanied by a higher oxygen partial pressure, which rendered it safer.
- In 1845, French mining engineer, Triger, described pressure related limb pain, and paralysis in French caisson laborers.

- In 1878, French Physiologist Paul Bert determined the connection between nitrogen bubbles and decompression sickness. He made several key gas discoveries, including Central Nervous System Oxygen Toxicity from High Pressure.
- By 1878, Paul Bert had determined the connection between bends and nitrogen bubbles and showed that pain could be reversed with recompression.
- In 1908, Haldane published their work along with three sets of tables of time and depth schedules. Most dive tables and computers are currently based on these concepts.
- In 1928, Cummingham built a 64 foot steel hyperbaric ball with five floors in Cleveland. Later it was scraped for metal during World War II.
- In 1934, US Naval Submarine Officer, Dr. Albert Behnke proposed using oxygen plus recompression for Decompression Sickness, DCS, which was ignored until 1967.
- Later in the 1930's, Dr Edgar End noticed that draft horses working for months in the construction tunnels at pressure died when they were decompressed.
- In Amsterdam Holland, in 1955, Dutch thoracic surgeon, Dr. Boerma removed the red blood cells from pigs and found they could survive with oxygen dissolved in plasma by use of hyperbaric Oxygen. Dr Boerma had a large operating room-in-a chamber built at the University of Amsterdam.
- In 1961 Dr. Brummelkamp, University of Amsterdam, Published on the ability of hyperbaric oxygen to inhibit anaerobes- organisms that live where there is low or no oxygen, like gangrene.

What is Hyperbaric Oxygen Therapy?

Hyperbaric Oxygen Therapy is a method of administering pure oxygen at greater than atmospheric pressure to a patient in order to improve or correct conditions. Providing pure oxygen in a pressurized chamber we are able to deliver 10-15 times more oxygen than if delivered at sea level or at normal atmospheric levels.

Why does HBOT help speed the Healing Process?

Nature has dictated that healing cannot take place without appropriate oxygen levels in the body's tissues. In many cases, such as those involving circulatory problems, Strokes, anoxic brain injury, and near drowning just to name a few, adequate oxygen cannot reach the damaged area and therefore the body's natural healing process fails to function properly.

Oxygen given with increased pressure can correct many serious health problems. To provide this increased pressure one must be within a pressurized room, a Hyperbaric Oxygen Chamber. **Oxygen**, given at normal atmospheric pressure is insufficient to raise tissue oxygen levels. The answer is to deliver oxygen with a slight increase in pressure with a chamber to raise the oxygen tension above the normal red blood cell saturation.

Why is Oxygen so Important?

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

- **Oxygen** is one of the body's basic building blocks. All of the body's major components, water, protein, carbohydrate, and fat contain oxygen
- **Oxygen** helps bring about certain chemical reactions within the body that result in **energy production**. Energy is needed for functions such as circulation, respiration, and digestion. Energy is also used to maintain a constant body temperature.

If the body is totally deprived of Oxygen, death results within minutes. A diminished supply of oxygen causes multiple symptoms, some of which are mental disturbances, shortness of breath, and rapid pulse, a fall in blood pressure and cyanosis, a blueness of the skin and mucous membranes. This results in a marked reduction in all bodily functions. This condition is known as hypoxia, or under-oxygenation of the tissues.

How does HBOT force more Oxygen into the bloodstream and tissues?

Blood is made up of three main components: white cells that fight infection, red blood cells that carry oxygen, and plasma, the fluid that carries both kinds of cells throughout the body. Under normal circumstances, only the red blood cells carry oxygen. However, because HBOT forces oxygen into the body under pressure, Oxygen dissolves into all of the body's fluids, including the plasma, the Lymph, the cerebrospinal fluids surrounding the brain and spinal cord. These fluids can carry the extra oxygen even to areas where circulation is poor or blocked, either by trickling past the blockages or by seeping into the affected area.

This extra oxygen helps in the healing process and enhances the white blood cells' ability to fight infection. It can promote the development of New Capillaries, the tiny blood vessels that connect arteries to veins. It also helps the body build new connective tissue. In addition, HBOT helps the organs function in a normal manner.

As we age, we can lose vital lung capacity and the ability to effectively obtain adequate Oxygen. Some disease conditions impair oxygen utilization. In addition, with injuries or conditions where there is swelling or edema, this causes pressure within the tissue, which cuts off circulation flow.

For years, conventional medicine thought of HBOT only as a treatment for decompression sickness...

However, this is about to change the scope of medicine as never before. The Use of HBOT is becoming increasingly common in general practice as more doctors become acquainted with new applications. Doctors now realize that HBOT has other uses, including the treatment of non-healing wounds, Carbon Monoxide poisoning, various infections, damage caused by radiation treatments, near- drowning, near-hanging, brain and nerve disorders, cardiovascular disorders; and some digestive system disorders.

It is important to realize that, in most cases, HBOT is best used when combined with other treatments such as physical therapy and or surgery.

In the USA, the situation stands in marked contrast with many other countries, where HBOT is used for a much wider range of conditions. Multiple Sclerosis patients have banded together in Britain to create their own network of Hyperbaric Chambers. Centers in China treat more than 100,000 patients each year for a multitude of conditions.

Hyperbaric Oxygen is very cost effective.

- HBOT is non-invasive.
- HBOT is safe.
- HBOT works well with other treatments.