



Welcome to the world of hyperbaric oxygen therapy- Helping AIDS, Cancer and MS with Oxygen

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Oxygen can heal, especially when you put the patient in an environment filled with 15 times more breathable oxygen than normal air.

THEY CALL IT DIVING, you get into a cylindrical chamber that resembles a miniature one-person submarine, and the door is sealed shut. Slowly the inside air pressure increases to the equivalent of being almost 50 feet under water. Now the medicine is introduced 'into the chamber-after all, the reason you're inside this strange capsule in the first place is for healing.

That medicine is pure oxygen, pumped in under pressure for the purposes of maximum, therapeutic absorption by your system. You lie there for up to an hour awash in life-restoring oxygen, from 10 to 15 times higher concentration than in the outside air.

The chamber's pressure, stronger than the normal atmosphere, forces oxygen into your body fluids and tissues; this oxygen begins to restore circulation where blood flow was reduced or blocked, leaving tissue diseased or nearly dead. Many physicians now contend that the under-oxygenation of tissue may be a prime cause of a great many health problems.

It's called hyperbaric oxygen therapy (HBOT). The method and its technology was originally developed in the 1930's by the military for diving operations, decompression sickness, and air embolism, but it has been used in hospitals since then for the treatment of burns and wounds and carbon monoxide poisoning. However, there is documentation that the therapy of breathing pressurized air, in however crude a manner, was experimented with as early as the 1660's. Long used in Europe for broader applications, HBO therapy has met with political and financial opposition by conventional medicine. Despite this opposition, pioneering alternative physicians have extended its use in recent years to include regeneration of stroke damaged brain tissue, relief from head and spinal cord injuries, migraine headaches and tinnitus (ringing in the ears), improvement of cerebral blood flow, and restoration of speech and mobility for multiple sclerosis patients.

Somewhat less well-known new applications of HBOT, discussed below, include treatment of secondary infections associated with AIDS, cleaning up toxic side effects caused by radiation therapy and skin and plastic surgery in cancer patients, and sparking improvement in multiple sclerosis patients.

"Diving" for AIDS Relief Since 1990, Michelle Reillo, B.S.N., R.N., has been treating AIDS patients with HBOT at Life-force Hyperbaric Oxygen Institute in Baltimore, Maryland. Reillo and her colleagues concentrate on providing relief and reversing many of the complications associated with HIV infection or AIDS.

While there are about 300 hyperbaric oxygen chambers in the U.S., almost all exist as part of hospitals or other institutions. Life-force is one of the few freestanding, private HBOT clinics where the therapy is the sole feature and where they offer treatment to patients with a broader 'spectrum of diseases, her new book, *Aids Under Pressure* (Hogrefe & Huber, 1997), the earlier you can apply hyperbaric oxygen to an AIDS patient, the better. "Hyperbaric medicine has well-documented evidence supporting its use in many AIDS-defining DIVING FOR HEALTH-The hyperbaric chamber delivers pure oxygen under pressure for maximum therapeutic absorption. The patient lies comfortably inside for up to an hour, breathing air with 10-15 times more oxygen than outside complications and infections, regardless of the underlying disorder," Reillo says. "HBOT would be an ideal intervention in the individual recently infected with HIV because it decreases viremia [viruses in the blood], is not toxic to the individual, and decreases the microvascular and neurovascular [small blood vessels] damage occurring as the initial infection progresses throughout the body.

"Reillo cites the recent example of Eduardo, 31, suffering from debilitating, AIDS-related fatigue and oral yeast infection (candidiasis). After two months of HBOT treatment (typically 2-3 times weekly), his viral load had dropped from 30,000 to 15,000 copies/ml of blood; after another two months, that number had dropped to zero. Eduardo's fatigue had resolved, his yeast infection had cleared up, he had gained ten pounds, and was capable of normal physical activity again, reports Reillo.

HBOT has demonstrated its effectiveness in relieving peripheral vascular insufficiency. This means a reduced supply of blood to the feet and hands, leaving them cold and frequently painful. Reillo reports that over a three-year period at Life-force, 100 AIDS patients with this problem have received considerable benefit after receiving only two weeks of HBOT (three treatments per week).

First among the symptoms to improve was fatigue, then an increase in the ability to exercise and tolerate activity, followed by a warming of the extremities, an increase in energy, and less pain in the legs and feet following activity. The level of oxygen in the tissues climbed from a low 79% to a healthy, even vigorous 98%, adds Reillo.

These high levels are not permanent and require continuing HBOT to maintain, Reillo notes. AIDS patients can often have dangerously low blood oxygenation levels in the area of 50%-600/o. While 98% oxygenation has been achieved, AIDS patients more typically see their oxygen levels climb to the 80%-90% range following HBOT, says Reillo.

Hyperbaric oxygen treatment performs well as an adjunct to conventional antibiotic regimens for AIDS patients, Reillo explains. This is especially so in the area of opportunistic infections such as Mycobacterium avium complex (MAC), a deadly form of tuberculosis that attacks the bone marrow. This complication affects up to 20% of AIDS patients.

Reillo cites the case of June, age 29, who had been diagnosed with AIDS and MAC as a complication. June's conventional doctors gave her three months to live. At Life-force, she took an anti-tubercular drug called Ethambutol and 'dove' six days a week.

June didn't die, says Reillo. Instead, she gained 30 pounds-she started HBOT treatment weighing just 90 pounds-and her fever dropped. A year after her predicted demise, June was asymptomatic and in complete remission, says Reillo. 'Anti-tubercular medications have been shown to be more effective when used in conjunction with HBOT' Marcel, 50, is one of Life-force's long-term survivors. When he started diving at 49, he had a life-threateningly low level of immune cells; his T lymphocyte (T cell) level was only 100 while the healthy norm is 800-1,200. Over the previous two years, he had lost a lot of weight and suffered from extreme fatigue, which prevented him from going to work.

Marcel underwent HBOT three times a week in a multiplace chamber, each session lasting about 45 minutes. In a multiplace chamber, up to six people sit inside a sealed chamber, each wearing a special transparent hood into which the pressurized oxygen is pumped. Concurrently with his oxygen therapy, Marcel took a conventional drug for a lung infection (Pneumocystis carinii, a form of AIDS-related pneumonia). "Marcel was very compliant with all the requirements of treatment," notes Reillo. Within two weeks, his fatigue began to recede and his appetite returned. Although he had been unable to work for two years, after only four weeks of diving, he returned to work full time. "His fatigue was completely resolved," says Reillo. Seven years later, Marcel had not developed any other opportunistic infections; he had gained weight, and was leading an active professional life.

Compliance, says Reillo, means a commitment to regular HBOT, dietary changes, and the use of certain broad-spectrum nutritional supplements such as Advera (containing cod liver oil) and Ondrox (containing antioxidants). Life-force also gives their AIDS patients once-weekly injections of B12 (1,000mg), as this vitamin-essential to neurologic function-cannot be readily absorbed by people with AIDS.

Getting more oxygen invariably stimulates the appetite and the patients want to eat more, says Reillo. "Oxygen makes you hungry," she says. With appetite improvement, Reillo counsels AIDS patients on the details of a well-balanced, nutritionally rich diet.

'The healthier you eat, the less likely you are to lose weight and develop infections," she states. Reillo cites another case of a patient who experienced rapid, much-needed weight gain after diving. Pierre, 42, stood six feet one inch, but weighed only 105 pounds. He was suffering from a body-wide dissemination of Mycobacterium which had begun to spread several months before he came to Reillo's clinic. Pierre was taking two conventional antibiotics to stem the spread of this opportunistic infection, and he continued with these drugs during hyperbaric oxygen treatment, says Reillo.

HBOT made rapid inroads on Pierre's infection and weight loss. He got into the chamber for 45 minutes three times weekly for a month, after which he had gained 30 pounds. Reillo notes that HBOT enables patients to remain on conventional drugs longer and with more safety because the oxygen helps detoxify the liver, which is continuously burdened with the toxic load from these drugs.

One of the most serious consequences of AIDS is the dangerously low level of immune cells called T lymphocytes, or T cells, but here again, HBOT is helpful, says Reillo. Over the course of four months of HBOT, Reillo was able to get a woman's T cells to climb from 400 to 800; even better, her CD4 count (another type of immune cell) doubled.

To a healthy person, this rise may seem modest, but declining T-cell counts is one of the hardest symptoms of AIDS to reverse, or even halt, Reillo notes. 'Rises like this can happen often if you start with the patient early after their diagnosis,' she adds.

HBOT can also provide relief from the severe dermatitis that often accompanies AIDS. The body of one male patient, 55, was 90% covered with dermatitis; oral and topical antifungal creams and prednisone brought no relief. Yet after one week of HBOT (three treatments), the man experienced a decrease in the itching and irritation, says Reillo, and after two weeks, the skin on his arms and torso was free of dermatitis. Two months after starting oxygen therapy, all of his skin lesions had disappeared, and the condition did not reappear in the following months, Reillo adds.

Given these benefits, HBOT 'should be the standard of care instead of operating on the edges of medicine,' says Reillo. Elsewhere in the world, HBOT is widely used for many disorders of blood circulation that arise as complications to major illnesses such as AIDS, she adds. In the U.S., there is still considerable resistance-fueled largely by the financial interests of conventional medicine-to the widespread use of HBOT for many conditions.

The cost savings of using HBOT adjunctively for AIDS treatment are pervasive. "HBOT is cost effective, saving between \$50,000 and \$75,000 annually when compared with only the current medical standard of care," Reillo states.

One of her patients saved \$164,264 over the course of three and a half years; another patient's costs were only \$12,615 a year on HBOT compared to the \$89,518 he would have paid had he received conventional care; a third patient saved \$215,303 over the five years in which he was treated with HBOT.

Restoring Oxygen to Dying Tissues

Interest among physicians and patients in using oxygen therapy for an increasing range of conditions is growing, thanks to its 'terrific side benefits,' states Trish Planck, director of The Hyperbaric Oxygen Clinic of Nevada, in Reno. Planck's clinic, like Reillo's, is also freestanding and independent of hospitals.

'We operate with the same standards and practices as HBOT delivered at a hospital, but we are not bound by the approved condition list, namely, what insurance companies are willing to reimburse,' Planck says. If the patient can pay for it, Planck can provide it, she says, even if, according to conventional medicine, the application is "experimental."

One application frequently employed at Planck's clinic that is hardly experimental is the use of HBOT for repairing the extensive skin damage caused by radiation therapy for cancer. This widespread 'side effect' is called radionecrosis. A patient is given radiation for a cancer, whether on the skin or located internally, and the radiation beams are so toxic they seriously damage the skin and surrounding tissues; they turn black from lack of oxygen supply and begin to die (necrosis).

Skin damage due to radiation therapy is widespread and problematic. Bone necrosis (in the mouth, pelvis, sternum, clavicle, or thigh bone) resulting from radiation was reported as early as 1926. A ten-year study reported that the overall incidence of necrotic complications associated with head or neck tumors was 65.3% for 128 patients. A later study established that 235 of 378 patients (620/o) treated with radiation for cancer of the head or neck ended up with necrotic facial tissue.

This same study showed that when 206 of these patients underwent HBOT for the restoration of dying tissue, 720/o had an "excellent" result, 10% a "good" result, 150/o a "fair" response, and only 3% were 'judged failures. Actually, scientists have known about HBOT's ability to treat radiation damage since 1976, when at least 69 success cases were documented.

Many of Planck's HBOT radionecrosis patients are in the excellent category, she reports. One such patient, named Rene, had developed radionecrosis at 83 following radiation treatment for a head and neck cancer six years earlier. Soft tissue in his mouth was damaged in the course of radiation and several teeth died and had to be removed. Pain and infection developed in his lower jaw and failed to heal, and soon Rene whole mouth was necrotic, says Planck.

Not only was the tissue diseased, it was disfiguring his entire face. Here the utility of HBOT becomes apparent. Patients undergoing dental work (called debridement) for pain, infection, and necrosis of the mouth receive HBOT before and after the oral surgery, Planck explains. Typically, 20 to 30 treatments are required before surgery to oxygenate the tissue and reduce the infection. Following surgery, another 20 treatments are usually given to help the restored tissues heal.

Rene had 30 sessions in the hyperbaric chamber, after which his facial tissue showed signs of coming back to life, says Planck. Had he not undergone this therapy, it is probable that his skin infections would not have healed nor would the disfigurement have abated, despite surgery.

Following surgery, Rene had another 20 dives in the chamber. 'The tissues have healed up nicely and he's without pain,' says Planck. 'Rene now getting fitted for new teeth.'

How does oxygen do its work? The oxygen appears to flood the damaged area and adjacent tissue with oxygen; this stimulates the tissue to revascularize-to repair damaged tiny blood vessels or to generate new ones. Then the body can recognize the radiated tissue as being a wound and apply energy and nutrients to its healing. Apparently, prior to this the oxygen-starved tissue is regarded by the body as if it were infact, dying, and best removed.

Another of Planck's patients, Linda, 40, developed dental infections and decay following radiation treatment for throat cancer. The radiation reduced the blood flow in her mouth and necrosis set in. The tissues in her mouth were black, says Planck. The teeth she had left were dead. Linda's throat cancer had required the surgical removal of her l leaving her unable to speak. In addition, earlier breast cancer and surgery had left her right arm almost immobilized.

Linda arrived at Planck's clinic frail with a grayish pallor, and was initially afraid of getting into the sealed chamber. As her treatments proceeded, however, Linda came to look forward to the next dive.

Linda had 40 sessions in the hyperbaric chamber in preparation for restorative oral surgery, says Planck. Her improvements were considerable. 'She regained her natural skin color and her hair grew back. As we restored blood circulation and oxygen supply to her mouth, she began to heal.'

Somewhere in the middle of the course of treatment, Linda regained mobility in her right arm, raising it above her head. A hip problem that prevented Linda from sleeping on that side improved after only three treatments. "In fact, her whole body gained in mobility such that physically she was a changed woman."

Planck's clinical observations of the success of HBOT when used for radionecrosis leads her to the following recommendation: "When patients have received high dosages of radiation, HBOT might be used early as a primitive measure for radiation necrosis that would otherwise develop."

Is Multiple Sclerosis a Oxygen Deficiency?

"Conventional medicine theorizes that multiple sclerosis is an autoimmune disorder caused by a microorganism (probably a virus) whose activity leads to the removal of the protective myelin sheath surrounding nerve fibers 'in the brain and spinal cord.

However, if you ask hyperbaric expert Richard A. Neubauer, M.D., director of Ocean Hyperbaric Center in Lauderdale-By the-Sea, Florida, the cause of multiple sclerosis (Ms) may be a lack of oxygen in the body's tissues. He's been proceeding on this hypothesis using pressurized oxygen for patients with multiple sclerosis. Dr. Neubauer proposed the oxygen deficiency cause based on the observed fact that providing MS patients with HBOT was successful in reducing symptoms of the disease. So he reasoned back wards to find a probable cause.

MS is a "wound or a disease of the blood vessels in the central nervous system," Dr. Neubauer contends in his new book, *Hyperbaric Oxygen Therapy* (with Morton Walker, Avery Publishing, 1997). A condition of chronic high blood pressure Within the brain and spinal cord damages blood vessels and leads to a lack of oxygen similar to that seen in cases of stroke. HBOT reoxygenates these oxygen-deprived tissues, he says.

The clinical evidence supports Dr. Neubauer's bold theory. In 1992, he summarized the existing clinical reports and estimated that about 12,000 MS patients in 14 countries had been treated for MS with HBOT. Of these, 70% had

improvements in terms of bladder and bowel function and muscular spasticity. Very few patients who continued with HBOT had relapses or deteriorated any further.

At that time, on the basis of treating 1,500 MS patients over the course of 12 years, Dr. Neubauer declared that 'MS is sensitive to the dose of oxygen' but requires long-term therapy. The initial response may be an unreliable guide to the eventual outcome, he also cautioned, and concluded that, while HBOT is not a cure for MS, it is "the safest, most noninvasive, least expensive treatment devised to date." Another early study by Dr. Neubauer reported that of 250 MS patients treated with HBOT, 39% had a "dramatic" improvement 52% had "minimal to moderate" benefits, and only 90/o had no improvement.



Dr. Neubauer likens HBOT to insulin for diabetes: 'it provides a significant chance for control and stabilization of MS.'

Documented benefits include a lessening of fatigue and pain, and improvements in balance, bladder control, vision, upper and lower limb mobility, coordination, and speech. Dr. Neubauer suggests that on the average, 20 HBOT sessions annually (1-2 per month) are enough to prevent a remission of MS. For best results, Dr. Neubauer recommends starting HBOT treatment as early as possible following the initial MS diagnosis. But even treating MS late in the game doesn't preclude positive results, as this brief case report shows.

Martha, 50, came to Dr. Neubauer's clinic in a battery powered cart. She could barely stand on her own and had been disabled for many years with MS. Shortly after her third hour of oxygen treatment, she announced her improvements. Martha said she felt 'absolutely wonderful' and called for her crutches. 'I got out of my cart and walked around and was astounded at my progress-it was happening that quickly.'

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