

## ***Ozone & Oxygen Therapies***

By Ryan Harrison, MA

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To breathe or not to breathe? There's actually no question. We all know we have to breathe to live. Oxygen is essential for human life. But did you know that it can also help you overcome disease, fight cancer, promote cellular repair and improve overall body functioning?

Oxygen therapy and Ozone Therapy, though less common in the United States, have been utilized for many years in European countries. In general, oxygen therapies are classified according to the type of chemical process involved: "Oxygenation" involves adding oxygen to blood or tissues, while "oxidation" involves the splitting off and transference of microscopic electrons.

Oxygenation therapies saturate the body's cells with oxygen. Typically, this is done through the use of gas, and sometimes at high pressures (known as "hyperbaric oxygen therapy" or HBOT). While oxygen is necessary for health, too little may promote the growth of harmful bacteria and viruses, and too much may damage otherwise healthy tissues. So, oxygen therapies certainly require the guidance and skill of a trained practitioner.

Oxygen is essential for all cells, organs and bodily functions throughout the body. A variety of conditions such as illness, stress, a poor diet, shallow breathing and inadequate lung function can lead to oxygen depletion. When this happens, disease-causing microorganisms that thrive only in low-oxygen environments multiply and negatively affect your health. Some studies have even indicated that low oxygen levels in the blood can contribute to premature aging. Otto Warburg, a two-time Nobel laureate and Director of the Max Planck Institute for Cell Physiology in Germany, suggests that a lack of oxygen at the cellular level may actually be the primary cause of cancer, as well. His work with tissue cultures showed conclusively that oxygen therapy can kill cancer cells.

Oxygen therapy aims to restore optimal cell function and can take several different forms. It can be professionally administered in many ways: orally, rectally, vaginally, intravenously, intra-arterially, through inhalation, or by injection into the skin. One of the most popular forms of oxygen therapy is HBOT, which introduces oxygen into the body via a pressurized chamber.

Oxidation therapies are quite different altogether. Oxidation is a chemical reaction in which electrons are transferred from one molecule to another. Oxygen molecules are frequently, but not always, involved in these reactions. Molecules that "donate" electrons are said to be "oxidized," where those that receive electrons are called "oxidants."

Oxidation is a natural and necessary process in the body, but a body's oxidative function can be weakened by prolonged exposure to environmental toxins or stresses. Introducing oxidation therapy can help "jump start" the body's natural oxidative process, while additionally destroying disease-producing bacteria, viruses and other microbial organisms. Oxidative therapies also

deactivate toxic substances in the body without harming otherwise healthy tissues. An example of this is topically applying hydrogen peroxide to a wound: the normal cells thrive while bacteria and other pathogens die. Hydrogen peroxide and ozone are two substances typically used in oxidation therapies.

There are three main types of treatments utilized today that fall under the “oxygen therapy” umbrella: HBOT, ozone therapy, and hydrogen peroxide therapy.

Hyperbaric oxygen therapy, or HBOT, dates back to the beginning of the 20<sup>th</sup> century; it was fairly popular throughout the 1920s and 30s. Though its prominence has diminished, its usefulness has not. It can be used successfully to treat a wide range of ailments from burns, poisoning and radiation necrosis (death of an area of tissue or bone) to multiple sclerosis, cerebral palsy and stroke. In fact, HBOT may be the single most effective therapy – conventional or otherwise – for reversing the damage caused by a stroke. Providing the brain with such a rich source of oxygen within the first 24 hours following a stroke can often eliminate 70% to 80% of the damage and salvage a great deal of brain tissue.

A good deal of work has also been done using HBOT as an adjunct cancer therapy, to help minimize the side effects of radiation and chemotherapy. Research has found that non-cancerous cells are much less sensitive to radiation when oxygen levels are high.

In HBOT treatment, the patient is put into a small chamber (if being treated singly) or a room (if being treated in a group setting). The entrance is sealed and the chamber is then pressurized at up twice the Earth’s atmospheric pressure with pure oxygen for 30-120 minutes. The increased pressure makes it possible to breathe a higher concentration of oxygen than by any other means. After the treatment, the chamber is depressurized slowly, with the patient resting inside.

Ozone therapy, is unique in that it is both oxidative and oxygenating. The trick lies in the ozone molecule itself. Where oxygen is comprised of two oxygen molecules ( $O_2$ ), ozone is comprised of three ( $O_3$ ) and is molecularly less stable. Because of the added oxygen molecule, ozone is more reactive than oxygen and readily enters into oxidative reactions with other molecules. During oxidation with ozone, the extra oxygen molecule in ozone breaks away, leaving a normal  $O_2$  molecule, increasing the oxygen in the blood and tissues.

Ozone, itself, is antiviral, anti-bacterial and antifungal in action. This means it can be used to treat a wide spectrum of health issues including skin ulcers, slow-healing wounds, burns, chronic infections, viruses and yeast infections. Like oxygen therapy, it can be administered in several different ways: topically, intravenously, intra-arterially, intramuscularly, intra-articularly, and subcutaneously. If ozone is added to water, it may also be introduced to the body orally, rectally or vaginally. Because ozone is dangerous when inhaled, it should only be administered by a trained specialist, and research suggests that taking supplemental vitamin C in conjunction with ozone therapy is important to prevent uncontrolled oxidation, which is detrimental to the body.

Hydrogen peroxide therapy, like ozone, works by oxidation. It is a liquid comprised of two atoms of both hydrogen and oxygen ( $H_2O_2$ ) that, when entering an oxidative reaction, becomes oxygen in water ( $O + H_2O$ ). In this way, it adds oxygen atoms to the body. Intravenous hydrogen

peroxide has been used since the 1920s and since that time has been discovered helpful in cases of poor circulation, heart disease, angina, emphysema, bronchitis, asthma, influenza, chronic fatigue, candidiasis, parasitic infections and arthritis, among many other ailments. It has also been shown to cause cancer cells to become more sensitive to radiation therapy, making it helpful in treating cancer, as well.

Oxidation through hydrogen peroxide regulates tissue repair, respiration, growth, immune and energy functions, and most hormone systems. It also destroys bacteria, viruses, yeast and parasites, without causing injury to healthy tissues. Hydrogen peroxide, though readily available to most people, should not be taken orally or rectally. As with all other oxygen therapies, it should only be administered by a trained health professional.

Most widely used in Germany and Russia, oxygen and ozone therapy can have powerful health-promoting effects for many people. The wide range of health issues that can be addressed by these therapies suggests they may be due some resurgence in popularity. To find out more about either oxygen or ozone therapy, speak to a naturopathic doctor or trained holistic health practitioner.