

## **Hyperbaric Oxygen Therapy (HBOT) for Anti-Aging**

According to the tabloids, this was the application of Hyperbaric Oxygen Therapy (HBOT) that Michael Jackson made famous. According to Michael Jackson, he has no idea what people are talking about. According to Dr. Paul G. Harch, depending on how you define aging, hyperbaric oxygen therapy maybe the proverbial "fountain of youth."

### **What is Aging?**

So, what is aging and how do you define it? Aging appears to be a genetically programmed event. Biologically, scientists have found that the chromosomes in our cells progressively shorten each time the cell divides. Eventually, the chromosomes can shorten no further and stop dividing. When this happens, the cells become senescent (sleepy) and die. If this were the sole determinant of the length of a human life, then we would all live about the same length of time, plus/minus some genetic variation. In fact, as we all know, people's life spans can vary widely, and this wide variation is largely due to the cumulative insults that a person's body experiences over the course of a lifetime. In this respect, it is more appropriate to talk about premature aging.

### **Hyperbaric Oxygen Therapy (HBOT) for Premature Aging**

Premature aging is a shortened lifespan due to the effects of various stressors/insults to the human body. The most common and obvious ones are alcohol, tobacco, and drugs. This category of substances exerts a tremendous aging effect on the human body. Tobacco alone causes a 15% average reduction in lifespan. Using the figure of 80 years for an average U.S. adult's lifespan, the smoker usually lives to 68 years of age. And, the last decade of their lives are miserable with emphysema, heart attacks, surgeries, cancer, hospitalizations, infections, etc. When alcohol, drugs, chemicals from food or environmental pollution, trauma, systemic infections, and myriad other insults are added, the reserve capacity of the human body is progressively lost. The net result is a shortened life.

As you've read from the previous hyperbaric oxygen discussions on altMD, insults to the human body cause progressive wounding of the body. This is easiest to see on brain blood flow scans such as SPECT (Single-Photon Emission Computed Tomography) and PET (Positron Emission Tomography). Wounds in the brain on these scans are registered as areas of low blood flow/low oxygenation, which cause decreased neurological function. Most commonly, this decreased neurological function leads to the premature aging diagnosis called dementia. As discussed in the *Oxygen Revolution* by Dr. Harch and Virginia McCullough, Hyperbaric Oxygen Therapy (HBOT) is a generic drug for repair of these brain

wounds. Regardless of the causes of the brain insults or injuries, the end product is a stereotypic chronic wound that responds to low pressures of hyperbaric oxygen treatments. What Drs. Neubauer, Harch, and others have shown in the past 30 years is that these "premature aging wounds" can be repaired and the patient improved neurologically, cognitively, behaviorally, and emotionally.

Repair of these chronic wounds is a reversal of premature aging by use of HBOT as an anti-aging treatment. This is best illustrated with the brain scans of Dr. Harch's dementia patients as presented to the House of Representatives in 2002 and 2004. See the Alzheimer's and general dementia patient at International Hyperbaric Medical Association. The general dementia patient required 24h/day supervision and was facing institutionalization. After a two-month course of HBOT treatments, he returned to independent living that was unchanged four years later. With hyperbaric oxygen, the Alzheimer's patient experienced the first improvement in cognitive function in the three years since his diagnosis. Hyperbaric oxygen therapy slowed the progression of his disease until he succumbed to a heart attack 4 years later. In both cases, HBOT helped prolong their lives and gave them quality of life, thus functioning as an anti-aging tool.

### **Hyperbaric Oxygen Treatments for "Normal" Aging**

The question in this modern day is whether or not there is such a thing as "normal" aging. Given the pollution of our air, food, environment, ubiquitous exposure to automobile exhaust, second-hand smoke and carbon monoxide, heavy metals, dental amalgams, vaccines, anesthesia, chemicals, food additives, etc., one could make a case that we all age prematurely. If this is true, everyone could benefit from the restorative effects of Hyperbaric Oxygen Therapy (HBOT).

There is evidence from the Russians that continued intermittent hyperbaric oxygen treatments in stroke patients resulted in a decreased incidence of recurrent strokes. This is purportedly due to healthy effects of hyperbaric oxygen on blood vessels. In animal experiments, it has been shown that HBOT helps stabilize the inside lining of injured blood vessels. Hyperbaric oxygen treatments stimulates angiogenesis, growing new blood vessels into tissue and in 2007 has been demonstrated to cause stem cell release from our bone marrow into our circulation. HBOT has been shown to have detoxification effects and suppresses inflammation. Most of our chronic diseases are now recognized to result from chronic inflammation. When you begin to add up all of these beneficial effects of hyperbaric oxygen and combine them with the many other documented effects of HBOT on disease processes that are catalogued in *The Oxygen Revolution*, it is apparent that hyperbaric oxygen may in fact have anti-aging effects.

## **HBOT on Genetic Disorders**

But, suppose you live in the ultra-pure environment of some *Shangri-La* in this world. (I don't know if any such place is left on the planet, but let's assume there is one). The final question is whether or not hyperbaric oxygen can benefit the "normal" aging process in *Shangri-La*. The answer is not known for sure, yet, but there is a suggestion that hyperbaric oxygen maybe beneficial in this type of "normal" aging. In 2004 at the 12th Annual World Congress on Anti-Aging Medicine, Dr. Harch addressed this question by pointing out that in the last 10 years the primary site of action of HBOT is on the DNA of cells. Hyperbaric Oxygen Therapy in many instances acts like a stimulant or promoter that activates gene sequences that code for growth and repair hormones. In other instances, HBOT has positively impacted patients with a variety of genetic diseases. Dr. Harch treated one of the first of these cases in 1995. She was a patient with ceroid lipofuscinosis, which is an enzyme deficiency affecting fatty acids. Her condition is uniformly fatal. Hyperbaric Oxygen Therapy reversed the course of her disease and prolonged her life. Since that time, Dr. Harch and others have successfully treated a variety of patients with chromosomal abnormalities, including patients with Down syndrome. (Dr Pierre Marois in Montreal continues his work and research with the Downs Syndrome population.) This underscores the effect of Hyperbaric Oxygen Therapy on DNA. It is not much of a stretch of the imagination to believe that HBOT may affect the "defect" in our DNA that causes us to age. Literally, time will tell.

## **The Fountain of Youth?**

In the meantime, for all of us who have some degree of accelerated or premature aging, Hyperbaric Oxygen Therapy may in fact be an anti-aging tool. As Dr. Harch argues in *The Oxygen Revolution*, HBOT will likely become appreciated as the Fountain of Youth by the Baby Boomer Generation whose life spans have been compromised by years of drug experimentation in the 1960s and 1970s. Hyperbaric Oxygen Therapy will be able to restore waning brain function and prevent premature dementia.