



## HYPERBARIC OXYGEN THERAPY FACT SHEET

### Quotes

*“Hyperbaric Oxygen Treatment can provide an important weapon in the fight against numerous disorders.”*

Dr. Richard Neubauer<sup>1</sup>

*“Giving more oxygen is not alternative medicine, it is sound science and common sense. There is no substitute for oxygen.”*

Professor Philip B James MB ChB, PhD, DIH, FFOM<sup>2</sup>

*“Hyperbaric medicine has been operating in Russia since 1965. They have used it widely and have had very dramatic results...they’ve got figures showing they can detox people in half the time that it takes conventionally.”*

Peter McCann, Chairman, HBOT Trust<sup>3</sup>

### Summary

This fact sheet provides a general introduction to the benefits of Hyperbaric Oxygen Therapy (HBOT) and is aimed at people who are interested in finding out more detail about this remarkable treatment. Considering how few people know about the benefits of HBOT (even among the medical community) this fact sheet should be of interest to doctors and health professionals who are interested in finding new and cost-effective forms of treatment.



## Introduction

Hyperbaric Oxygen Treatment (HBOT) was first reported in *The Lancet* in 1887 and is best known for the treatment of deep-sea divers suffering from the “bends” (decompression sickness)<sup>4</sup>

HBOT can be used in the treatment of:

- Diabetes <sup>5</sup>
- Cancer <sup>6</sup>
- Cardiovascular disease <sup>7</sup>
- Liver disease <sup>8</sup>
- Brain injury <sup>9</sup>
- Cerebral palsy <sup>10</sup>
- Alcohol and drug addiction<sup>11</sup>

Anecdotal evidence also shows that HBOT helps to improve the appetite facilitating better nutrition in the recovering individual.

It also helps those who have had difficulty sleeping. Sleep is often referred to as the elixir of life. Without it, natural healing and repair simply does not happen as it should. It is also useful in the treatment of the damaged livers and brains of recovering alcoholics and drug addicts.

## What is HBOT?

*“Every time you go up in an aeroplane you are sitting in a hyperbaric chamber”,* explains Professor Philip B. James, a leading British expert. *“Hyperbaric is simply a term describing an increase in ambient pressure. In an aeroplane the pressure has to increase to compensate for the reduced pressure at altitude so our bodies can breathe enough oxygen.”*

HBOT (Hyperbaric Oxygen Therapy) is the medical use of oxygen at a pressure higher than atmospheric pressure. Patients go into a pressurised chamber for an hour or so and breathe pure oxygen through a mask or hood. The result is a significant increase in oxygen in the bloodstream, the generation of new stem cells and the natural repair of damaged organs and tissues. The treatment benefits a wide range of ailments and it also helps to reduce swellings, inflammations and wounds that have not healed.

Dr Paul Harch<sup>12</sup>, one of the leading American experts on hyperbaric medicine, describes HBOT as a *“biological therapy”*, in other words, the increase of oxygen in the blood enables the body to repair itself.

# The Cumbria Hyperbaric and Complimentary Therapy Trust



Dr Harch points out that most ordinary drugs treat only the symptoms of ailments. Whereas, HBOT enables the natural repair of damaged body tissues at the root cause of the ailment. Thus, treating the cause rather than just the symptom. Further, HBOT upregulates the release of stem cells and, *“is a DNA signaller...that spike of oxygen is turning on the DNA.”*

These factors collectively form a very powerful treatment process.

Professor Philip James<sup>13</sup> a leading British expert on hyperbaric medicine explains why a pressurised chamber is needed:

*“To significantly increase the level of oxygen carried in the blood needs a pressure chamber. Giving a high level of oxygen for just one hour a day may promote the repair of tissues when all other medical interventions have failed. In other words, giving more oxygen extends the envelope of natural recovery.”*

Many people wonder why standard oxygen therapy (the application of oxygen through a facemask, as commonly used in ambulances and hospitals) does not have the same effect as HBOT. The experts point out that in order to benefit from an increase of oxygen in the blood, the air pressure in the surrounding atmosphere must be higher than normal air pressure (i.e. the patient needs to go into a pressurised container and then breathe additional oxygen). Standard oxygen therapy helps improve breathing, but it lacks the therapeutic properties of HBOT.

## How Does Oxygen Help the Body?

Oxygen plays a key role in the healing and repairing of damaged cells in our bodies, but often the flow of oxygen is blocked, and the healing process takes much longer. All cells benefit from exposure to oxygen, for example a cut on the knee will heal more rapidly if exposed directly to the air.

## Does it Help the Brain?

Years of alcohol, tobacco and drug abuse can result in brain damage and a prematurely aged brain. Initial evidence suggests that HBOT may have a role in rejuvenating and rebuilding patients' brains and hence their lives. A hyperbaric chamber can supply pure oxygen to the brain, stimulating the production of new blood vessels. New research shows that increased oxygen flow in the blood can result in the awakening of dormant cells in the brain and the creation of new ones (neurogenesis). This recovery envelope extends beyond addiction recovery into most neurological disorders including injury and neurodegenerative disorders.



## How it Works.

Briefly explained here is the mechanism behind the question, "How does it work?":

*"Oxygen is dissolved in the blood plasma and transported, in combination with haemoglobin in the red blood cells, throughout the body. This dissolved oxygen passes into the tissues. Breathing high levels of oxygen under hyperbaric conditions cause greater uptake of oxygen by the bodily fluids and so more can reach areas where the circulation is diminished or blocked and therefore improve recovery. The extra oxygen greatly enhances the ability of white blood cells to kill bacteria. It also reduces swelling and allows new blood vessels to grow more rapidly into the affected areas." (Source: HBOT Trust<sup>14</sup>)*

## What is an HBOT or Hyperbaric Chamber?

The typical hyperbaric chamber is a hard-shelled structure, rather like a section of a big metal pipe. They are similar to the hyperbaric chambers which are used for divers with decompression sickness (the "bends"). Such chambers can be run at absolute pressures of up to 6 bars, but the usual pressure is around 2 bars.

## Is it Safe?

*"To be in a hyperbaric chamber is to be in the safest place in a hospital as breathing such a high concentration of oxygen a patient cannot suffer a stroke or heart attack...It would be difficult to find a patient killed by oxygen in a year but of course there are plenty of deaths from lack of it."*

Professor Philip James, former Emeritus Professor of Medicine at the University of Dundee

Chambers offering type 3 services, used by the many similar charities, are considered so safe that their use was deregulated by an Act of Parliament in 2008<sup>15</sup>. They are no longer required to be CQC registered.

Each session is monitored by several trained technicians. Visual communication is ensured by CCTV and audio communication is provided by an open intercom system.

Over 3.5 million treatment sessions for neurological problems and other conditions have been carried out in the UK since 1982, at up to 67 non-profit centres run by volunteers and patients in the UK. These treatments have been carried out without a single serious accident.



## **Contra Indications**

There are some rare contra-indications for HBO treatment such as some chronic lung disease and disorders, chronic kidney disease, unmanaged high blood pressure, untreated pneumothorax and unrepaired hernia and conditions that prevent the equalisation of air spaces within the body. However, the medical textbook *Hyperbaric Medicine Practice* states, "Of all the medical treatments carried out in hospitals, hyperbaric oxygen treatment is one of the most benign when it comes to side effects."<sup>17</sup> These contra indications, or reasons why a person may not be eligible for treatment are extremely rare. For this reason, most clients would visit their GP before coming for treatment and get the all clear to undergo pressurisation. Not strictly a referral, but rather to establish that there is no reason why they shouldn't undergo pressurisation. Clients would be given a form to take to their doctor.

## **What are the Benefits of HBOT?**

As mentioned above, HBOT can be used as treatment for a wide range of diseases such as diabetes, multiple sclerosis, cancer and Lyme disease. The various benefits of HBOT are still being discovered by medical researchers. Evidence shows that HBOT curbs infection and promotes the growth of new capillaries and blood vessels to areas of poor circulation (particularly useful for those with diabetes and compromised vascularisation). It also boosts collagen formation and is very good for the complexion (in the USA, HBOT is used as a beauty treatment). Similar physiological processes are responsible for accelerated wound healing in soft tissue and bone alike.

HBOT helps clear the body of toxins through upregulated metabolism and can be a useful component of drug and alcohol detoxification as well as other occurrences of poisoning. Oxygen is the natural antibiotic of the body. It controls over 300 genes and increases stem cell release and cascade. It helps damaged bodies to recover by accelerating the healing process.

## **Creating Stem Cells (Stem Cell Cascade)**

The most exciting development in recent years was the discovery by medical researchers at Pennsylvania University in the USA that HBOT can help the body increase the production of stem cells. New stem cells can help repair damaged organs, skin, bones and ligaments and are instrumental in the healing process.<sup>18</sup>



## **What's it like?**

Hyperbaric oxygen treatment involves sitting in a pressurised chamber and breathing oxygen through a face mask called an oral nasal mask for a period of one hour or so. Some treatments can be as long as 90 minutes. A typical number of treatment sessions may be 20, one a day, for a period of four weeks, but some ailments may require more, or less sessions, as each individual requires different levels of treatment.

The increase in air pressure can be felt in the ears (which “pop”) and patients are given water to drink to help with this. The experience is similar to ascending in a plane or indeed what SCUBA divers experience when diving under the water. This is easily equalised.

## **What Does the Medical Profession Say About HBOT?**

Despite the fact that there is a wealth of HBOT experience from the diving, aviation and military sectors, the medical establishment in Britain remains uninformed about HBOT. In addition, oxygen medicine is not taught at medical school and as a result, most GPs are unaware of its benefits. The official NHS position is that HBOT is a safe treatment, but more research is needed.

The Lancet medical journal does not comment on HBOT as a treatment, but it has listed a number of articles in various medical journals.<sup>19</sup>

While the NHS recognises the value of “standard” oxygen therapy, it only recommends HBOT for the treatment of carbon monoxide poisoning, decompression sickness and arterial gas embolism.

Unfortunately, the NHS does not recommend HBOT as a treatment for all the other ailments it can help with – but neither does it oppose the treatment by private or charitable therapy centres.



## What's the View of the HBOT Pioneers?

Professor Philip James, Emeritus Professor of Medicine at the University of Dundee, frequently challenges the “establishment” position on HBOT:

*“Giving more oxygen is not alternative medicine, it is sound science and common sense. There is no substitute for oxygen and hyperbaric medicine must be included in the core curriculum of our medical schools.*”

*“It is necessary to have distrust of the miraculous in medicine, especially when, for example, claims are made for drugs whose pharmacology and benefit have not been scientifically established. Although oxygen hardly falls into this category as no one seriously denies its importance to life, it is surprising that using a simple enclosure to allow the delivery of high level of oxygen to relieve an acute deficiency is still regarded by some physicians as quackery.”*

Professor James goes on to address the other arguments against the establishment view of oxygen therapy:

*“They commonly argue that as blood is virtually saturated with oxygen breathing air, no more can be carried, but the saturation referred to is of haemoglobin not plasma and the haemoglobin value can be 100% when the brain is dying from hypoxia. In fact, there is actually no limit to the amount of oxygen which can be carried in plasma and, at three times atmospheric pressure, sufficient can be dissolved to support life without the presence of haemoglobin...The arguments against oxygen treatment must be met and toxicity is easily dealt with - because the dose time limits of hyperbaric oxygen treatment are very well established and include data from millions of man hours of pure oxygen breathing in military diving. So are the minor barometric problems, such as clearing the middle ear.”*

Further information can be found in professors James's book “Oxygen and the Brain, The Journey of our Lifetime”. There are also lectures available to view on YouTube.



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