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A scientific disputation

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Traditional oxygen therapies compared with the progressive principle of Spirovitalisation

Survival time without solid food: 40 days; without liquid: 4 days; without oxygen: 4 minutes

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Traditional oxygen therapies compared with the progressive principle of Spirovitalisation

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Science tells us that no higher life forms can exist without oxygen. This demonstrates the crucial significance of a continuous supply of the "elixir of life", oxygen, for all higher organisms.

Adequate availability of oxygen is the prerequisite for all metabolic processes associated with the production of energy, a highly-complex process that only developed later on in the evolutionary process because of changing environmental conditions (oxygen revolution). This means the evolution of cellular respiration, which uses the oxidative power of oxygen to increase the efficiency of the energy metabolism (photosynthesis in plants, cellular respiration in animals). Electron transport chains are used to build up proton gradients and this activates and maintains ATP generation.

Cellular respiration is not possible without oxygen and therefore there would be no effective energy production to form ATP.

A constant and adequate flow of external air into the mitochondria must be guaranteed in all cases and under all circumstances.

This means a high investment in corresponding functions and structures and their protection: Transport into the lungs with the atmospheric air, transfer into the lung capillaries and into the erythrocytes, binding to haemoglobin in the latter, transport with the circulation into the periphery to all cells of the organism, detachment from haemoglobin, diffusion through the walls of the erythrocytes and vessels into the intercellular matrix, uptake into the individual cells, transfer into the mitochondria and there a regulated reaction with hydrogen ions for the controlled release of energy.

There are many possible disruptions along this route (illnesses, stress, age, behaviours, environment) and they are correspondingly frequent. The consequences are oxygen deficiency disorders, which – depending upon your medical training – includes a greater or lesser number of diseases and health conditions.

Accordingly, throughout the history of mankind there has been no shortage of ideas of how to improve (increase) oxygen status. So far traditional medicine and a large proportion of the related research and science have focused primarily upon developing methods and/or preparations to increase the supply of oxygen from the inhaled air to the individual cells. Bearing in mind that "only some" of it is converted into energy and a significant proportion is exhaled again “unused" (so it is inefficient), it is all the more surprising that so far the question as to how the existing oxygen could be used more efficiently has rarely been considered.

Even if initially the biological knowledge about the oxygen pathway through the body was not fully understood, accurate recommendations were developed for a healthy lifestyle (nutrition, physical fitness, and harmonisation of lifestyle).

With increasing knowledge about the subject the types of therapy offered became more varied. They concentrated on an increased supply of oxygen in the inhaled air, an increase in the transport of oxygen into the cells and better utilisation of the same.

This paper outlines the most common processes, how they work, how they are administered, with the corresponding indications and any possible side-effects and as compared to Spirovitalisation.

Haematogenic Oxidation Therapy (HOT)

In HOT a small quantity of the patient's own venous blood is led through a special device and enriched with oxygen and ozone and then returned to the patient. As a rule Ultra Violet Radiation (UVR) of the temporarily removed blood is done at the same time and this leads to its quantum energy exciting electrons in the sense of a photochemical excitation on absorbent biomolecules.

In the opinion of the supporters of the HOT/UVR it is not really an oxygen or ozone therapy because the quantities of blood removed and treated are too small.

So far the effect is only partially understood and it is perhaps best described as a stimulation and excitation therapy that triggers important biochemical processes in chronically diseased and overloaded tissue. According to its proponents the oxygen is activated and this prevents the oxidation of lipids, promotes biological oxidation, improves cellular respiration and has a favourable effect upon blood composition, clotting, flow properties of the blood, metabolism, the immune system and general functional capacity.

According to the International Working Committee for HOT the main indications for HOT/UBV therapy are peripheral circulation problems, cerebrovascular accidents, angina pectoris, high blood-pressure, low bloodpressure, diseases of the eyes, liver, lungs, kidneys and metabolic diseases, age-related diseases, post-cancer treatment and diabetes.

There are no stated side effects.

From a strictly biological point of view the method of action is not plausible and thus no positive effects upon the disease process have so far been clearly proven.

Hyperbaric Oxygen Therapy

In hyperbaric oxygen therapy (also known as hyperbaric oxygenation HBO, oxygen under high pressure OHP or hyperbaric oxygen pressure therapy HOPT) the patient breathes in pure oxygen at increased ambient pressure (usually in a pressure chamber) for defined periods and at defined intervals.

On a physical level the increased ambient pressure results in more physically dissolved oxygen in the blood and on a physiological level in elongation of the oxygen diffusion pathways. This has a toxic effect upon pathogenic anaerobes and their toxin production, improves cellular defence, stimulates the formation of capillaries or the reopening of capillaries already laid down and thereby improves microcirculation and reduces oedema.

The Association for Hyperbaric Oxygen Therapy itself recommends numerous indications for its use, some of them being generally accepted indications (carbon monoxide poisoning, gas and air embolisms, gas gangrene, decompression sickness and neuroblastoma), some of them probable indications (chronic osteomyelitis of the lower jaw, slowly healing wounds as in diabetes and circulatory disturbances, side-effects of radiotherapy and inflammatory bowel diseases) and others that are contested by conventional doctors.

Possible side effects are: Lung damage, cramp, short-sightedness, nausea, vomiting and barotrauma of the eardrum, which can however all be avoided if it is used properly.

Ionised Oxygen Therapy (IO2Th/Engler)

The patient is offered, via a mask, a precisely defined mixture of four types of oxygen (O_2, O^{2-}, $^1O_2$, O^{2+}) produced in a special device. These are the neutral, molecular, electron-stream basic state of oxygen; the oxygen anion (super oxygen, electron-activated, negatively-ionising oxygen such as is naturally found by the sea, in the mountains, at a waterfall or during a storm); the neutral, activated oxygen (singlet oxygen) and the oxygen cation (positively-ionising oxygen).

Negative oxygen ions should accelerate the transfer of oxygen from the lung into the blood, improve oxygen transport into the cells and optimise its utilisation there. The dissolution of pathogenic autonomic regulation rigidity has a healing effect, enhances general well-being, stimulates mental functional capacity and the growth of muscle.

Its proponents recommend it for the following indications: Disturbances in energy exchange and regulation, pain, cancer risk, as a supplementary therapy for cancerous diseases, metabolic diseases, all oxygen deficiency and oxygen utilisation disorders, rheumatic diseases, allergies, poor immunity, reduced physical and mental functional capacity, poor concentration, fatigue, AIDS, muscle tension, headaches, skin conditions, wrinkles, cellulitis, rashes, skin impurities, cosmetics, burns, wounds, pressure points, skin regeneration, acne, hair care, sinusitis, bronchitis, pneumonicosis, asthma, emphysema, stimulation of bone growth, hypertonia, hypotonia, vegetative dystonia, migraines, dysmenorrhoea, psycho-vegetative dysregulation, stress reactions, sleep disturbances, circulatory problems, disturbed circulation (cerebral, peripheral, cardiac), pre/post-apoplectic conditions, tinnitus, dizziness, sudden hearing loss, ulcus cruris, post operative rehabilitation, depression, symptoms of old age, anti-ageing, geriatrics.

Pressure in the chest, headache, dizziness, nausea, restlessness and sweating are regarded to be possible side effects. Hyperthreosis definitely is a contraindication. The method is not yet accepted by orthodox medicine, its therapeutic effects are highly controversial.

Oxyvenierung Oxygen Therapy

In this form of oxygen therapy the patients receive a series of intravenous oxygen infusions over a few weeks, whereby the oxygen introduced in the form of tiny gas bubbles dissolves in the serum and is partially bound to the haemoglobin of the erythrocytes.

According to its proponents, this is a unique, highly-effective and safe method of stimulating and activating self-healing and boosting the immune system.

Its effects are described as increasing prostaglandin formation (vasodilation, inhibition of thrombocyte aggregation and washing out of oedema), as augmenting a certain leukocyte fraction (which has a favourable effect upon the immune system), increasing blood flow, as enhanced formation of endogenous free radical scavengers, as improving general well-being and overall increasing vitality.

Its advocates states the following indications: Circulatory disturbances of all kinds (legs, fingers, brain, heart, inner ear, eye), ulcus cruris, polyneuropathies, memory disturbances, sequelae of strokes, sequelae of heart attacks, angina pectoris, myocardial insufficiency, migraines, tinnitus, macular degeneration, allergies, asthma, ulcerative colitis, rheumatism, polyarthritis, Alzheimer's, Parkinson's, neurodermitis, psoriasis, chronic eczema, impotence, complementary cancer treatment, liver insufficiency and renal insufficiency.

Critics say that possible side-effects include a feeling of pressure in the chest, coughing, tiredness, pressure headache, redness in the face and activation of chronic infections: proponents regard these as temporary symptoms that prove the effectiveness of oxyvenierung oxygen therapy.

A severe complication can be the occurance of gas embolism. Contraindications are acute infections, acute and severe trauma, heart attack and apoplectic insult. In orthodox medicine this method is not accepted and rather regarded to be a scientifically non proven method and controversial therapy.

Ozone Therapy

Ozone therapy consists of parenteral (e.g. injections; auto-therapy) or local (e.g. rectal) application of ozone (trivalent, high-energy variant of hardly reactive atmospheric oxygen, i.e. triplet oxygen).

The Medical Association for Ozone Therapy speaks of four main effects: Bacteria, viruses, fungi are killed (microbicidal effect); more oxygen is released (oxygen liberalisation); circulation is increased; immune status is improved (immune activation).

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It is said that the liberalisation of oxygen results in a specific effect upon the glutathione system of erythrocytes, specifically influences glucose-6-phosphate-dehydrogenase and, by lowering oxygen affinity, results in easier release of oxygen in the tissue.

According to users, the indications are: arterial circulation disturbances, stimulation/ strengthening, in support of conventional cancer treatments, viral infections, autoimmune diseases, toxic liver diseases, skin conditions, varices, asthma and allergies.

Contraindications are heart attack, blood coagulation disorders, strokes, hyperthyroidism and pregnancy.

According to the users there are hardly any side-effects, sceptics cite irritant gas, pulmonary embolism, circulatory collapse, hepatitis B, dizziness, nausea, headaches, arrhythmia and anaphylactic shock; certainly not a great risk if it is used carefully.

Oxygen Multi-Step Therapy

M. von Ardenne's Oxygen Multi-Step Therapy consists of three steps (administration of vitamins and minerals to improve oxygen utilisation in the cells, to bind free radicals and to fill the store; inhalation of an at least 92% oxygen mixture with a flow-rate of 5 – 30 l/min and of varying duration; improve the circulation by increasing HMO by light, continuous or intermittentphysical or mental stress).

All three steps together bring about an increase in the arterial oxygen supply and enhanced utilisation as well as neutralisation of the extra radicals produced due to the increase in arterial pO_2. The ultimate effect is a simultaneous increase in arterial and decrease in venous oxygen partial pressure and therefore an increase in the arteriovenous oxygen differential.

The cause of the positive effects is said to be the shrinkage of previously existing endothelial swellings, which hinder substance exchange and become more prevalent with increasing age, during stress or illness; also a reduction in blood viscosity and lastly an increase in erythrocyte deformability.

These are all causes of diminished oxygen exchange.

The Medical Association for Oxygen Multi-Step therapy states the indications as being: General loss of vitality, chronic fatigue, strengthening the immune system, circulatory disorders, metabolic diseases, memory and concentration problems, allergies, rehabilitation following heart attack and stroke, bronchial asthma and chronic bronchitis, emphysema, cardiac arrhythmia, cardiac insufficiency, angina pectoris, dizziness, circulation problems, arthroses, rheumatism, osteoporosis, spinal problems, sleep disturbances, depression, migraines, sudden loss of hearing, tinnitus, kidney diseases, rehabilitation after serious illnesses and operations, predisposition to respiratory tract infections, cataracts, retinopathy, cancer treatment and cancer prevention.

According to the proponents there are no side effects so long as the guidelines are followed. Sceptics say that overdosing leads to nausea, vomiting, headaches, dizziness, consciousness disturbances, epileptic fits, pulmonary oedema, coma and respiratory arrest but no problems if used correctly.

Spirovital Therapy / Spirovitalisation

Spirovitalisation generally refers to the energizing of the inhaled air, without changing the air composition itself. This energizing is brought about by a short-term raising of the oxygen in the atmospheric air from the normal state (triplet oxygen $^3O_2$) to a higher energy level (singlet oxygen, $^1O_2$). This happens because of the effect of light of specific wavelengths in the presence of a specially selected, patented photosensitiser.

However, this higher energy state of oxygen "only" lasts for fractions of a second before the energy that is released on its reversion to the normal state is given up to the water molecules in the air (conservation of energy principle) and inhaled together with the "normal" atmospheric oxygen of the ambient air that is saturated with water vapour.

It is possible to distinguish the following physiological or biochemical aspects that eventually leads to enhanced ATP generation:

1. The energy that is released after reversion of the previously created singlet oxygen into the normal state is used to form high-energy hydrogen bridges and can therefore be transported via the lungs to the capillaries.

2. There, by the activation of 2,3-biphosphoglycerate, more oxygen is released from the haemoglobin in the erythrocytes (displacement of the oxygen dissociation curve to the right).

3. Metabolism of the oxygen reaching the mitochondria with hydrogen ions to form water is enhanced in the respiratory chain by the activation of the cytochrome oxidise complex and this releases a lot of energy that then serves for the generation of ATP.

4. And an additional positive effect of Spirovital therapy is the neutralisation of oxygen radicals that are constantly produced during metabolism (and are also necessary for life), but when in excess (due to stress, old-age, illness) can dramatically jeopardise the energetic situation of the individual cells.

There are four important aspects in which Spirovitalisation has the advantage over all "oxygen" therapies. At the same time it must be pointed out that it is not actually an oxygen therapy (the inhaled air is no different from normal atmospheric air) but rather an energizing of the inhaled air.

From all of the experience and knowledge so far it appears that Spirovitalisation represents a complex intervention in the biocybernetic and bioenergetic functional processes of the organism. By harmonising the basic regulation in the cells and in the extracellular matrix this leads to improved oxygen supply to all structures and there to enhanced O_2 utilisation. This activates the cells own energy production (ATP) and contributes towards regulating the metabolism of the whole organism.

Both preventatively and curatively, Spirovitalisation activates and supports necessary bioregulatory processes in the sense of a complete and universally-applicable measure. As a basic therapy it accompanies and promotes both prevention and rehabilitation, performance optimisation, acceleration of regeneration, clinical treatment concepts and conventional medical interventions.

An evaluation of end user information on the effectiveness of Spirovitalisation in organic diseases showed that it had successfully been used in disorders of the nervous system, respiratory tract, cardiovascular system, locomotor system, endocrine system, in metabolic diseases, eye conditions, pain and immunological insufficiency.

In the case of functional disorders end users assessed the effects of Spirovital therapy on energy status (performance, activity, load tolerance, strength, and motivation), well-being (sleep quality, mood, breathing, digestion, and immune status), regeneration (deepening, accelerating, relaxing, pulse lowering) and on the sensory system (smell, eye-sight, skin, dizziness) as being very positive.

As far as the therapists' assessment goes, they found that Spirovital therapy could usefully be used for organic diseases in dentistry, oncology, respiratory tract diseases, eye conditions, disorders of the locomotor system, the cardiovascular system, the immune system, in metabolic diseases, as an anti-ageing method and for pain as well as for inflammation and post-operatively.

In the therapists' opinion Spirovital therapy has a favourable effect upon functional

disorders, in particular a drop in performance, absence of well-being, sleep disorders, immune insufficiency and poor eye-sight.

So far there are no known negative effects, side-effects or contraindications.

Comparison of the different therapy approaches

The physiological-biochemical background, mode of action and indications clearly show that all so-called Oxygen Therapies are based on similar theoretical premises.

Starting on the basic premise that the main determinant responsible for life is the continuous production of energy (ATP) that can be stored and called upon at any time, it is (quite rightly) concluded that health or loss of the same is primarily due to disturbances in the very complex regulatory system related to energetic aspects. Unfortunately these are often difficult for "conventional" medicine to access (because it is much more oriented towards cellular pathology than the pathology of the milieu), whereas naturopathic healing modalities with their multifactorial approaches (nutrition, exercise, stress reduction – even active behavioural changes) are being increasingly recognised, even by conventional medicine, and are therefore becoming more significant in the holistic treatment of the patient.

These methods are intended to stimulate the endogenous regulatory and healing powers, thereby overcoming "regulatory rigidity", whereby an optimal oxygen supply acts as a catalyst (key) to generate the energy required for this.

The primary aim is therefore the optimum supply of all the cells of the body with oxygen. The individual steps to achieving this are increasing the oxygen supply with the respiratory air, enhancing the transfer of oxygen into the blood and binding of the same to the haemoglobin of the erythrocytes, enhanced release of oxygen into the peripheral tissue, an increased flow of oxygen into the individual cells and then into the mitochondria and more efficient utilisation there.

Not all of these steps can be easily, effectively or safely influenced.

This is shown in medical-scientific evaluations of traditional oxygen therapies.

Most frequently it is attempted to influence the supply of oxygen in the respiratory air, the oxygen carriers in the blood and their more rapid uptake/release and reactivity in the mitochondria.

According to the medical (or therapists) associations responsible for them, it is precisely this that is achieved by the "established" oxygen therapies but it must be pointed out that most of them are restricted to influencing one “set screw" (e.g. hyperbaric oxygen therapy) and that their use can trigger undesirable accompanying reactions (e.g. the increased radical production of Oxygen Multi-Step Therapy), that then has to be neutralised by additional measures (vitamins, minerals) and that – from a scientific point of view – there are so far no detailed explanations of how they work.

In this connection the method of Spirovitalisation (energising of the respiratory air) that was developed a few years ago and has since been constantly improved merits particular attention.

Not only does this influence several set-screws at the same time (improving the supply of all body cells with the energy released on reversion of the high-energy singlet oxygen into its electron stream normal state because of the enhanced formation of hydrogen bridges; accelerating and increasing the detachment of oxygen from haemoglobin in peripheral 2,3 biphosphoglycerate activation; enhanced ATP generation in the mitochondria – cytochrome oxidase activation; enhanced capture of oxygen radicals – deactivation of NADPH oxidase). It does not cause any undesirable effects or side-effects, as far as we know from several million treatments. Thirdly a total of four mechanisms for its action have been identified and explained in detail and this is what elevates this therapy to the ranks of scientifically recognised methods.

Finally, a main reason for its acceptance is that on its own it incorporates the actions of other "standard" oxygen therapies but, at the same time, represents a good supplement to other oxygen therapies by intensifying their effects and neutralising their possible side-effects. Another important point is how simple it is to use – one simply wears a light nasal cannula.

Associations

Internationale Gesellschaft für Sauerstofftherapie und Forschung e.V.

Deutsche Gesellschaft für Oxyvenierungstherapie

Internationale Ärztliche Arbeitsgemeinschaft für HOT

Zentralverband der Ärzte für Naturheilverfahren e.V.

Ärztliche Gesellschaft für Ozontherapie

Interessengemeinschaft der Sauerstoff-Ozon-Therapeuten

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