

OZONE OXYGEN THERAPY

Information for patients

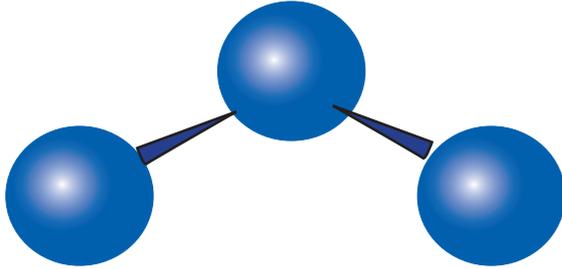


Medical Society for the Use of Ozone
in Prevention and Therapy
Member of the European Cooperation
of Ozone Societies EUROCOOP

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Ozone O_3 or triatomic oxygen is a chemical compound consisting of three oxygen atoms, a highly energetic form of normal or diatomic oxygen (O_2) in the atmosphere.



At room temperature, O_3 is a colourless gas with a characteristic odour (as in high altitudes). Closer to ground level it is found (as smog) at maximum concentrations of 1 part O_3 per 10 million parts air (= 0.1 ppm = 200 $\mu\text{g}/\text{m}^3$). At a height of 2000 meters, it generally occurs at only 0.03 - 0.04 ppm.

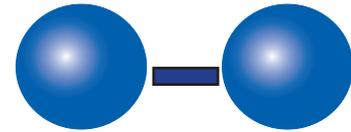
Due to its powerful oxidizing and disinfectant properties, it is used both as a germicide in water treatment and as a purifier of drinking water on a worldwide basis.

External ozone is damaging to the respiratory system and should not be inhaled over an extended period.

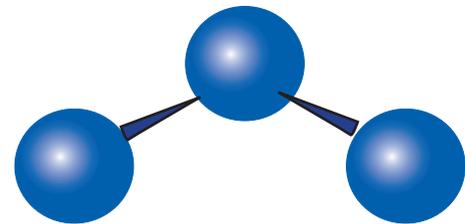
Single or repeated application of medical ozone in low concentrations, low quantities and in the specific forms of ozone-treatment the organism can make full use of its biological benefit.

This effect, nowadays generally known as hormesis, was already formulated by the famous Swiss physician Paracelsus (1493—1541) with the words: „All things are poison and nothing is without poison, only the dose makes something non-poisonous.“

What is Ozone?



OXYGEN
Chemical Symbol O_2



OZONE
Chemical Symbol O_3

What is Ozone Therapy?

Properties and effect

Medical ozone is always a mixture of purest ozone and purest oxygen.

According to its application, the ozone concentration can vary between 1 and 100 µg/ml (0.05 - 5 Vol % O₃).

A qualified physician determines the concentration and total dosage according to symptoms and general condition.

1. Medical ozone has remarkable bactericidal, fungicidal and virostatic properties. This is why it is widely used in the cleansing and disinfection of infected wounds and the elimination of fungus and combined infections.

2. Its circulatory stimulant properties and ability to improve oxygen availability (via activation of red blood cells) is made use of to treat circulatory disturbances and to induce revitalization.

3. In the low concentration range, O₃ activates the immune system, thereby mobilizing the body's own resistance to disease.

As a response to O₃, the immune cells produce specific messenger substances, the cytokines such as interferones or interleukins, which pass their information on to other immune cells, inducing a cascade of immune activities. This means that medical ozone can always be applied in cases of immune deficit.

4. Small quantities of ozone, applied in the form of "major autohemotherapy", activate the cellular antioxidants and radical scavengers.

We now understand why ozone therapy is effective in chro-

nic inflammation and oxidative stress situations. A moderate stress regulates the oxidant/antioxidant balance.

From its specific properties, the following application fields for medical ozone can be derived:

Indications

Indications of Ozone Oxygen Therapy	Underlying Effects
infected, badly healing wounds and injuries; fungus infections of the skin	desinfecting, wound cleansing effect, improved wound healing
circulatory disorders, especially in diabetes, angiopathia	improved oxygen supply through activation of the Red Blood Cell metabolism, activation of antioxidants
general immune weakness and dysbalance, e.g. chronic inflammatory processes (hepatitis B and C); supportive therapy in cancer	activation of the immune system; activation of the antioxidants and radical scavengers at cell level
chronic inflammatory processes, such as chronic muscle pain, recurrent arthrosis; complementary in rheumatoide arthritis. inflammatory intestinal conditions	antiinflammatory effect by activating radical scavengers and antioxidants; activation or rather modulation of the immune system

Forms of Application

The inhalation of ozone in any form is strictly prohibited.

Following applications have been established from decades of experience:

1. Major autohemotherapy (as an extracorporeal blood treatment and immediate reinfusion) for revitalization, circulatory disorders and virus-caused diseases, or for general activation of the immune system:

with this method, 50 to 100 ml of the patient's own blood are removed using disposable sterile material and containers and enriched with an exactly defined and measured quantity of medical ozone. Of this, 100 % reacts specifically with red and white blood cells to activate their metabolism.

Ozone is completely consumed for the activation process whereas the oxygen passes through the blood in infusion flask and is thus not reintroduced.

The activated blood is immediately reinfused in the form of a normal drip infusion. Not a single molecule of ozone or oxygen is able to enter the patient's vascular system.

2. The minor autohemotherapy takes place via the intramuscular route for an unspecific immune activation and revitalization in allergic conditions or as a general method of improving the biological resistance system.

3. External treatment of wounds using ozone-resistant plastic boots, bags, cups or ozonized water.

Ozonized water disinfects as well as relieving skin conditions such as itching (pruritis), infections and inflammations

4. Rectally applied ozone (insufflation) is helpful in cases of inflammatory conditions of the intestinal tract, for systemic revitalization and virus-produced diseases.
5. Injections of ozone into the joints (intraarticular) is to treat inflammatory joint diseases (arthritis, recurrent arthrosis) – usually applied in an orthopaedic clinic.
6. In cases of sprained and painful muscles, small quantities of ozone in low concentrations are infiltrated or injected at trigger points, and frequently in acupuncture points.
7. The treatment of slipped disk has to be carried out in special orthopedical clinics or practices. Here, injections can only be applied with computer tomographic (CT) monitoring (MRI).

Which Indications are Ideal for Ozone?

A wide range of diseases exist which can be influenced positively or even healed by ozone. This has been confirmed by many scientific publications. As a rule, medical ozone is applied to support other therapies. In other words, it is a part of a complementary medical concept.

To inform all patients about the latest developments in ozone therapy as quickly as possible, therapists in Germany have founded the Medical Society for Ozone Application in Prevention and Therapy (formerly: Medical Society for Ozone Therapy) in 1971 and in 2003 the European Cooperation with 9 ozone societies as members in 2011.

Its aim is to standardize the therapy, to improve and accelerate communication between all medical specialists in this field.

Your physician will advise you on the diseases for which ozone therapy can be applied. Medical ozone is safe, practical, effective and low in cost, although no guarantee of complete success can be given for ozone therapy in every case.

Circulatory disorders

Arterial circulatory disorders include a sensation of coldness in the legs and pain after walking for a short distance (smoker's leg or intermittent claudication); these are alarming signals. As classical treatment of choice, ozone has been used to treat these symptoms for over five decades. A number of short clinical studies confirm its success.

Medical ozone is used in combination with conventional and

other biological therapy forms as a highly valuable complementary method.

Professional stress situations or excess mental and physical exertion respond particularly well to ozone treatment.

Activation of the cellular metabolism in red and white blood cells produces an improvement in general condition, resulting in overall revitalization. Professional athletes also gain great advantage from such treatment. Although it does not increase peak performance, the ability to maintain the endurance phase i.e. submaximum performance, is improved. In addition, ozone shortens the regeneration phase in long-term athletic disciplines.

As full use can be made of all its properties, elderly patients respond very well to ozone therapy:

they profit from an improved supply of oxygen, mobilization of the immune system, an activation of the body's own antioxidants and radical scavengers. A positive influence can be exerted in cases of cerebral circulatory disturbance — which frequently becomes noticeable as a result of decreased ability to concentrate, general reduction in performance, insecurity when walking, and a sensation of giddiness.

In addition to other complementary medical treatmentsystems, medical ozone can also be applied as a preventive, providing a marked improvement in general wellbeing and life quality.

Regeneration and Revitalization

The elderly patient: Prevention and Revitalization

Eye Conditions

In elderly persons, circulatory disturbances can also affect the eyes in the form of atrophic and degenerative changes. The best known form is “age-related macular degeneration” in the centre of the retina — where visual focus is sharpest. In certain cases this may result in so-called atrophy of the optic nerve of varying severity.

Together with results gained in actual practice, a study conducted by the Ophthalmological Clinic of the University of Siena, Italy has confirmed improvements in visual capacity after ozone/oxygen autohemotherapy. These can last up to six or eight months.

Continued treatment is able to produce further improvement or prevent further deterioration.

Cancer and Complementary Oncology

Applied as a biological complementary treatment, ozone/oxygen autohemotherapy or rectal application (insufflation) are valuable in cancer therapy.

The immunoactivation of low-dose ozone: immunocompetent cells such as lymphocytes, helper cells, suppressor cells and natural killer cells, respond by producing their specific messenger substances, the cytokines e.g. interferones.

Induction and activation of cellular antioxidants and radical scavengers in healthy cells and organs counteract any excess of reactive and aggressive oxygen radicals to build up a cell-protecting mechanism.

For over 100 years, the drinking water industry has been making increasing use of the fungicidal and bactericidal effects of ozone on a worldwide basis. And the same effects make medical ozone a powerful instrument in combating persistent fungus infections of the skin, in particular combined fungal/bacterial infections of the feet, trunk or mucous membranes.

The local treatment of infected wounds, which can easily occur in the form of bedsores (decubitus), ulcers of the legs and thighs (ulcus cruris), diabetic gangrene or difficult wound healing processes belong to the classical measures of medical ozone. Initially, the disinfectant properties of ozone are used to obtain a clean, germ-free wound (destroying fungi and bacteria). In the second phase, low concentrations of ozone ensure a rapid healing of the wound.

Local application of ozone via rectal insufflation provides rapid relief to inflammatory conditions of the intestine, preferably in Stage I. Normally, a treatment series of ten sessions is enough. A study on proctitis involving 248 patients shows that more treatments are only necessary in 10% of the cases.

Herpes simplex (serpigo), herpes zoster (shingles) are both caused by viruses. Lip herpes, a frequently occurring and very unpleasant condition, responds well to different forms of ozone treatment when combined with conventional methods.

The complementary use of ozone is very useful against shingles (herpes zoster), both locally using ozonized water com-

Fungus Infections of the Skin and Infected Skin Lesions

Infected Wounds

Intestinal Conditions: Proctitis und Colitis

Virus Diseases

Inflammatory Liver Diseases

presses and in the form of autohemotherapy avoiding post zoster neuralgias in several cases.

Inflammatory liver conditions are classical indications for medical ozone. Whereas the A form (HVA or hepatitis virus A) is relatively easy to treat and heals completely, the B form (HVB) often develops into a chronic condition. As complementary methods combined with conventional therapy, ozone via reinfusion as well as rectal O₂/O₃ insufflation are effective choices. This also applies to the treatment of hepatitis C which is generally diagnosed as a chronic liver disease as its incubation period generally lasts for several years.

Inflammatory and Degenerative Diseases of the Joints

If inflammatory and degenerative diseases of the joints are divided into three categories, we find that Stages 1 and 2, in which no bone deformation has taken place yet, are particularly responsive to medical ozone application. This applies for gonarthroses or activated arthrosis of knee and shoulder joints. In addition to classical medical basic treatment, intra-articular ozone injections are particularly effective in combination with movement therapy. This makes use of ozone's antiinflammatory properties, as well as immune modulation and activation of cartilage cell metabolism.

Rheumatism Arthritis, Rheumatoid Arthritis

The whole complex of rheumatism, arthritis and rheumatoid arthritis comprises various painful conditions of the skeletal and muscular systems. In many cases, these also involve functional restrictions.

Here too, complementary medical ozone application is part

of a basic therapy programme in addition to the corresponding physical therapy measures.

In rheumatoid arthritis (chronic polyarthritis), medical experience indicates medical ozone as a useful complementary method. This takes place in the form of extracorporeal blood treatment during the non-active phases of the disease. The effects of ozone are based on its immunomodulatory and anti-inflammatory properties.

In low concentrations and quantities, ozone is used as complementary method for muscular tension, chronic muscle pain, triggerpoints etc. frequently combined with neural therapy (local anesthetic) and acupuncture.

Large-scale international studies on the treatment of slipped disk have been published over the last 7 years. It must be noted that intradiscal injections can only be carried out by trained specialists monitoring the procedure on a computer screen.

Pain Therapy

What Should I Know as a Patient?

Before undergoing ozone therapy, you must inform your doctor about any medication you are presently taking. Do not discontinue medication before consulting your doctor.

Even in countries with health insurance, ozone therapy is not always covered. However, as the medical – and economic – advantages of ozone treatment (shorter therapy, no hospitalization necessary, savings on medication) are obvious, a number of health insurance organizations are prepared to assume at least part of the costs on application.

In fact, ozone therapy is listed by a number of private health insurance companies.

Always try to obtain coverage by your insurance organization. This is only useful in justifiable cases such as diabetes or cancer and not, for example, if ozone is applied for revitalization etc.

Ozone therapy following the „Low-Dose Ozone Concept“ is low risk and usually applied as an additional (complementary) or restorative method, i.e. together with conventional medical measures.

For further reading:
„The Use of Ozone in Medicine“ 5th english edition
ODREI publisher Dr.J.Hänsler GmbH 2007
ISBN 978-3-934181-02-1

Ozone is one of the most important gases in the stratosphere surrounding our planet at a height of 10 - 50 km.

At a height of 20 – 30 km, its maximum concentration is one part O₃ per 100,000 parts air (10 ppm) and thus far above the ground level value (0.03 - 0.04 ppm).

The ozone layer filters out the otherwise highly destructive hard radiation in the form of ultraviolet (UV) energy coming from the sun, thus helping to maintain the biological balance on our planet Earth.

When this important filter effect is reduced it produces what we call the “ozone gap” i.e. a low ozone concentration in the ozonosphere.

On the earth’s surface ozone (smog) can be produced by industrial and other gases, especially by the interaction of nitrogen and sulfur oxides with oxygen and ultraviolet radiation. As it is relatively simple to measure O₃ accurately, it is therefore taken as an indicator for environmental pollution — though it does not cause it.

The maximum permissible workplace concentration (MAK*) for ozone is 0.15 ppm = 200 µg/m³. Because ozone can damage the respiratory tract when inhaled for a longer period, this value must not be exceeded during an 8 hours’ working day and 40 hours per week. This is in agreement with the recommendation by the WHO.

* MAK = Maximale Arbeitsplatzkonzentration, the official abbreviation for Maximum Workplace Concentration

Ozone Finger Print

Natural Occurrence

Ozonosphere

Ozone Gap

Ozone Smog

How Much Ozone is Allowed in the Sur- roundings?

Technical Ozone

As used in industry and technology, ozone is manufactured from atmospheric oxygen and is used in the form of an ozone/air mixture for water treatment and disinfection of drinking water.

Medical Ozone

By contrast, medical ozone is prepared from pure medical oxygen via silent electrical discharge and is used in the form of an ozone/oxygen mixture at an exact concentration and dosage.

Its concentration ranges from 1 – 100 µg/ml, corresponding to an ozone/oxygen mixture between 0.05 % O₃ (and 99.95 % O₂) up to 5 % ozone (with 95 % oxygen). As the O₃ molecule is not stable, its medical form is always freshly prepared for immediate administration.

Modern ozone generators have an integrated concentration measuring device. This guarantees safe application and accurate individual dosage following the „Low-Dose Ozone Concept“ in the Guidelines of the Medical Ozone Societies, united in the EUROCOOP (European Cooperation of medical Ozone Societies).

Effects of Medical Ozone		Main Indications
Activation of metabolism in red blood cells → improved oxygen release	→	arterial circulatory disturbances (especially peripheral and cerebral); revitalization
Activation of immune cells → release of cytokines, such as interferones and interleukins	→	as complementary therapy in various kinds of cancer; as revitalization; general immune weakness
→ Increase and activation of the body's own antioxidants and radical scavengers	→	inflammatory processes such as arthritis and recurrent arthrosis; vascular diseases; age-related processes

Ozone Therapy in Short

Your doctor will inform you about your condition (indications) and the treatment you require.

Addresses of doctors trained in ozone therapy in your local area or country can be obtained from the:

Medical Society for Ozone Application in Prevention and Therapy: Fax: +49-7229-30 46 30

(Ärztliche Gesellschaft für Ozon-Anwendung in Prävention and Therapie e.V.)

Secretariat: Nordring 8, D-76473 Iffezheim

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www.ozone-association.com

Where can I Obtain Information?

Notes

Notes

Questions on Medical Ozone?

For more than 50 years your qualified partner:

Dr.Hänsler OZONOSAN



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