

## HEALTH

# The use of ozone therapy as a palliative treatment in diseases grows in Spain

**Madrid, August 23, 2018.-** Ozone therapy is practiced in Spain as a complementary, coadjuvant or palliative treatment for various diseases, according to the latest report published by AEPROMO (Spanish Association of Medical Professionals in Ozone Therapy). A total of 15 autonomous communities in written responses to Aepromo have established the criteria for the practice of ozone therapy, and 23 pain units and two diabetic foot of Spanish public hospitals have included it in their services.

The Spanish Agency of Medicines and Medical Devices (AEMPS for its Spanish acronym) has also authorized in Spain the realization of two clinical trials with ozone and a post-authorization prospective monitoring study (EPA-SP for its Spanish acronym).

At an international level ozone therapy keeps creating interest among medical professionals and MedLine currently accounts for 3,153 records, of which 235 are clinical studies published in PubMed. The European Medicines Agency (EMA) includes ozone as an authorized active substance and also it has active projects in research (<https://eudract.ema.europa.eu/results-web>).

Used in therapeutic concentrations determined and exclusively by specialized medical professionals, ozone therapy falls within the techniques of new technologies that complement, facilitate and optimize conventional treatments, which is why it has become one more tool in the therapeutic arsenal of the physician.

The oxygen-ozone mixture is obtained from medical oxygen exclusively by medical equipment that has the CE mark [CE Marking on a product is a manufacturer's declaration that the product complies with the essential requirements of the relevant European health, safety and environmental protection legislation. <http://www.ce-marking.org/what-is-ce-marking.html>, translator's note]\_with classification IIb, that is, the same classification that has a defibrillator or an electric scalpel.

### Beneficial effects of ozone in relation to health

- Regulates cellular oxidative stress contributing to strengthen antioxidant factors and to fight free radicals excess.
- Triggers an increase in O2 metabolism in the case of tissue hypoxia.

- Modulates the auto immune activity. Ozone can activate the production of cytokines (interferon, tumor necrosis factor, interleukins, etc.) from monocytes and lymphocytes in the peripheral blood. These activated blood cells are taken up by the lymphoid tissue (spleen, bone marrow and lymph nodes) where the release of the cytokines produces a modulation of the immune system. These cellular interactions are very similar to the physiological processes that occur in the body to keep the immune system in an active state.
- It has a high bactericidal and germicidal power. The germicidal action of ozone is based on the formation of toxic molecules such as hydrogen peroxide, and very toxic free radicals (such as superoxide), which are especially toxic for anaerobic microorganisms, since they lack endogenous enzymatic systems capable of breaking down these products and eliminate them from the body.
- It is a circulatory activator. After treatment with ozone, blood improves its ability to circulate through the narrower microcapillaries, thus improving microcirculation by platelet breakdown.
- Improves cellular oxygenation. Disaggregated and softened erythrocytes are in better conditions to absorb and transfer oxygen, among other factors, due to the greater free contact surface and deformability. The arterial oxygen pressure increases and the venous oxygen pressure decreases. An increase in 2.3 DPG (Diphospho glyceratel) is observed, which facilitates the transfer of oxygen trapped in oxyhemoglobin in red blood cells.
- It is a powerful analgesic and anti-inflammatory. It has the same effects as a corticoid, but without the side effects of it.
- It is a stimulator of tissue regeneration.

### **Diseases susceptible to be treated with medical ozone as adjuvant**

- Diabetes
- Infected ulcers of torpid evolution or difficult healing, such as diabetic foot and ulcers in diabetics.
- Wounds and ulcers.
- Burns and abscesses.
- Peripheral vascular disease.
- Cardiovascular disease.
- Neurodegenerative diseases (senile dementia, Alzheimer's, Parkinson's, etc.).
- Joint inflammations in orthopedics and rheumatology (fibromyalgia, chronic fatigue). Herniated discs. Tendinitis, tendinosis.



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- Gynecology: in vulvovaginitis and vaginitis of fungal or mycotic origin.
- Geriatrics: increase quality of life and cerebral oxygenation in symptoms such as memory loss, circulatory difficulty in legs, tiredness ...
- Coadjuvant in oncological treatments.
- General activator of the immune system.
- Pathologies of viral origin, such as hepatitis and herpes.
- Situation of chronic stress.

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