

Paper Purpose

Periodically questions arise in the media about ozone. For example: What is Ozone? Is Ozone safe? What are the uses of Ozone? With the advent of the Internet, there are literally thousands of articles and hundreds of web sites commenting on ozone. Oftentimes there is confusion and differences of opinion between them. None of those sites are regulated, none of the content is certified by any government agency, and there is no single site considered to be the most accurate and resourceful when it comes to Ozone. A large majority of those sites are private, individual sites that advocate a particular view of Ozone and its uses; some sites are educational or governmental that make an attempt to provide a broad picture of Ozone issues; and some sites are sponsored and/or funded directly or indirectly through advertising dollars, by health related associations with a particular "agenda" or view of ozone.

In this Understanding Ozone™ site, we attempt to take some of the mystery and confusion out of the headlines by giving you a sense of the issues involved and a cross section of articles that make it clear that no matter where you stand on the issues of Ozone, there is a wide-spread consensus that Ozone is a substance that exists on an ongoing basis in Nature, and there are some universally accepted uses and benefits of Ozone.

What is Ozone?

Ozone is a marvel of Nature. In the upper atmosphere Ozone protects our planet from harmful ultraviolet radiation. Closer to Earth, Ozone purifies and sanitizes the air we breathe, the water we drink, and food we eat. Long used in medical therapies, Ozone has shown remarkable antibacterial, anti-viral, and anti-fungal activity.

As a gas it is highly mobile and can dilute into the air, flow over surfaces and seep into fabrics and crevices. Ozone, is a unique molecule that seeks out and destroys the organic molecules that form much of the indoor pollutants. Whether the pollutants are from biological or chemical sources, Ozone rapidly oxidizes them by first reverting itself to O₂ (oxygen) and then depositing the third Oxygen atom on the offending pollutant. This process very effectively deodorizes, disinfects, and destroys many of the pathogens and fumes that poison the indoor air.

Ozone (O₃) is an unstable form of Oxygen (O₂) and has a total of three atoms, unlike stable Oxygen that has only two atoms.

In Nature, Ozone is formed by the sun's ultraviolet rays and the high energy electrical discharges that happen during lightning storms.

Ozone can also be reproduced scientifically in safe, controlled quantities.

Ozone continuously applied in slightly elevated concentrations is an extremely effective, safe, and economical method of reducing common household bacteria, fungi, molds, mildew, and viruses on surfaces in our rooms, kitchens, bathrooms, and in the air we breathe. By oxidizing the byproducts of decay, Ozone rapidly eliminates the allergens from dust mites and other arthropods. Ozone can also eliminate harmful chemical gases that are emitted from plywood, carpet, glue, paint, many indoor cleaners, etc.. Ozone's powerful oxidizing action quickly reduces trapped chemical residues to harmless byproducts.

Is Ozone Safe?

If ozone was not safe, we would not be able to go outside and breathe the air, especially during sunshine, a thunderstorm, lightning, or after the rain. The fact is, when used responsibly, ozone is very safe just like oxygen and very beneficial to our planet and all of us that live here. To prove this obvious fact, many scientific studies have been done by experts on ozone, and all confirm the safety and beneficial aspects of ozone over and over again.

Here is what some doctors say about ozone:

"Recent authoritative investigations have established, that pure Ozone is Nontoxic even in concentrations as great as 20 or 50 parts per milliliters of air."

- **Clark Thorp, Ph.D., MD**

"Pure Ozone is not poisonous in any sense of the word as it breaks down in contact with the mucous membrane, and only Oxygen remains."

- **A. Hill, MD**

"Ozone is absolutely harmless when used correctly. We have demonstrated this over a period of many years in patients of all ages."

- **F. B. Carpenter, MD**

Ozone Safety Limits

OZONE LEVELS AND THEIR EFFECTS

Data from IOA

Edited by Den (Zdenek) Rasplicka - Ozone Services

ppm = Parts per million volume air concentration

0.001 ppm

Lowest value detectable by hypersensitive humans. Too low to measure accurately with elaborate electronic equipment.

0.003 ppm

Threshold of odor perception in laboratory environment, 50 per cent confidence level.

0.003 ppm to 0.010 ppm

The threshold of odor perception by the average person in clean air. Readily detectable by most normal persons. These concentrations can be measured with fair accuracy. Ozone levels measured in typical residences and offices equipped with a properly operating electronic air cleaner when outdoor ozone level is low. Infiltrating outdoor ozone could cause higher indoor concentrations.

0.020 ppm

Threshold of odor perception in laboratory environment, 90 per cent confidence level.

0.001 to 0.125 ppm

Typical ozone concentrations found in the natural atmosphere. These levels of concentration vary with altitude, atmospheric conditions and locale.

0.020 to 0.040 ppm

Representative average total oxidant concentrations in some major cities in 1964. Approximately 95 per cent or greater of these oxidants are generally accepted to be ozone.

0.040 ppm

CSA limit for devices for household use. Measured as sustained concentration in test room.

0.050 ppm

Maximum allowable ozone concentration recommended by ASHRAE in an air conditioned and ventilated space.

0.050 ppm

Maximum allowable ozone concentration produced by electronic air cleaners and similar residential devices according to the proposed amendment of the Federal Food, Drug and Cosmetic Act. (Note: Keep this figure in mind when selecting an ozone type air purifier)

0.100 ppm

The maximum allowable ozone concentration in industrial working areas: permissible human exposure - 8 hours per day, 6 days a week.

0.100 ppm

Continuous maximum ozone concentration allowable (per U.S. Navy_ in confined quarters such as atomic submarines).

0.100 ppm

Maximum allowable limit for industrial, public, or occupied spaces in England, Japan, France, the Netherlands and Germany.

0.15 to 0.51 ppm

Typical peak concentrations in American cities.

0.200 ppm

Prolonged exposure of humans under occupational and experimental conditions produced no apparent ill effects. The threshold level at which nasal and throat irritation will result appears to be about 0.300 ppm.

0.300 ppm

The ozone level at which some sensitive species of plant life began to show signs of ozone effects.

0.500 ppm

The ozone level at which Los Angeles, California, declares its Smog Alert No. 1. Can cause nausea in some individuals. Extended exposure could cause lung edema (an abnormal accumulation of serous fluid in connective tissue or serous cavity). Enhances the

susceptibility to respiratory infections.

1.00 to 2.00 ppm

Los Angeles, California, declares its Smog Alert No. 2 at 1.00 ppm ozone concentration and Smog Alert No. 3 at 1.500 ppm. When this range of ozone concentration was inhaled by human volunteers for 2 hours, it caused symptoms which could be tolerated without incapacitation with the symptoms subsiding after a few days. The symptoms were headache, pain in the chest, and dryness of the respiratory tract.

1.40 to 5.60 ppm

The pinto bean exposed to 1.4 to 5.0 ppm ozone concentrations for 70 minutes showed some signs of severe injury to mature leaves.

5.00 to 25.00 ppm

Experimentation showed that a 3 hour exposure at 12 ppm was lethal for Guinea pigs. Welders who were exposed to 9 ppm concentration plus other air pollutants developed pulmonary edema. Chest X-rays were normal in 2 to 3 weeks, but 9 months later they still complained of fatigue and exertional dyspnea (labored respiration).

25.00 ppm and up

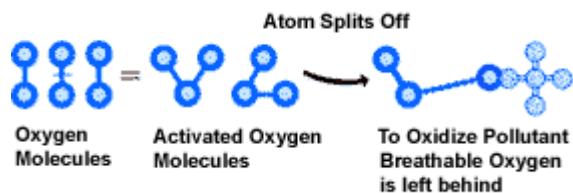
Ozone concentrations that are immediately hazardous to human life are unknown but on the basis of animal experimentation, and exposure at 50 ppm concentration for 60 minutes would probably be fatal.

What are some of the uses of Ozone?

Ozone is now known to be nature's most powerful disinfectant and oxidant and can even kill microbial contaminants like E-coli, Candida, Listeria, Staph, Salmonella, Giardia and Cryptosporidium more effectively than dangerous conventional disinfectants like chlorine or bleach. In fact, ozone kills E-coli more than 3,000 times faster than chlorine.

When ozone is created, it seeps into crevices, carpets, drapes, furniture, under beds, in closets, on countertop surfaces and other places where normal air currents are minimal or even non-existent.

When the extra oxygen atom splits off from the ozone molecule, two things happen: disinfection and oxidation. This happens as these atoms quickly destroy the bacteria, mold, mildew and odor as soon as they come into contact. The end result is clean breathable oxygen.



Air Purification, Water Purification, Deodorization, and Food Sanitation

Whether it's harmful fumes, chemical gases, odors, or any other scented air pollutant, ozone destroys virtually all airborne and water type pollutants!

Where are ozone type purifiers used?

Ozone type air purifiers have been used safely for years in homes as well as by professional restoration companies to remove fire and flood odors. They are also found in some major hotel chains, they use them to convert smoking rooms to nonsmoking rooms. Ozone type air purifiers are rapidly becoming the popular choice for indoor air purification. These advanced type air purifiers are great for use in your home, office, basement or any other area you wish to purify and/or sanitize not just the air, but also surfaces throughout indoor environments.

Here's what some experts say about Ozone?

"The trouble is that one soon gets used to bad air, and bad odors are not apt to be noticed after awhile; but the fact remains that pure air is more wholesome than contaminated air. In our regular daily life, it is almost an impossibility to provide for fresh air. No amount of ventilation, not even an unbearable draft, will be capable of keeping a room or a place in good condition, unless one takes recourse in ventilating with ozonized air. Removal of bad odors by means of air flushing is an absolute impossibility, and yet they should be removed. That is where ozone comes in. The method of purifying the air by ozone has the advantage of being fully reliable, very efficient and inexpensive."

**Authority: A. Vosmaer, Ph.D.,
London, England Electrical and Chemical Engineer In
"Ozone, its Manufacture, Properties and Uses"**

"Ozone destroys virtually all odors that are present. It does not merely mask them. The destruction of odors is impossible when air is circulated only, or when oxygen is used. This fact has been proven in cold storage warehouses, where all kinds and any food products are stored. Odors are not present regardless how strong they might be, or where they may originate, if only low concentrations of Ozone is used."

**- E. W. Reisbeck, M. E.,
Ozone Research Authority,
In "Air Conditioning and Ozone Facts"**

"As a deodorant for odors and stenches of organic origin, ozone has long proven effective and we can only confirm this general opinion."

**- Dr. Philip Drinker,
School of Public Health, Harvard University**

"Ozone destroys organic odors. Ozone is a deodorizer of powerful stenches, such as from garbage incineration and fat rendering. When the odors from chimneys cause public nuisance, Ozone has big commercial usefulness."

**- Milton J. Rosenaw, MD,
In "Preventive Medicine and Hygiene"**

"The effect of Ozone was thought in the past to be a masking action, but more recently the tendency is to hold that it is purely an oxidizing process. Most odors encountered in ventilation problems result from hydrocarbon compounds suspended in the atmosphere in minute quantities as the result of human or animal respiration and from various organic processes. These hydrocarbons are immediately oxidized upon coming in contact with ozone, the resulting products being water and carbon dioxide, both odorless. This process is effective in completely removing the scent of odors, if the reaction is complete, which requires that the Ozone be in such a manner as to insure its even distribution throughout the air.

- Editorial In "Heating and Ventilation Magazine"

"...In sales, cooler, fresh and sweet air at times would be a distinct selling advantage. OZONE seems to offer this solution, in the meat packing plant. In fact, it is being widely used in cold storage plants to correct the very situation objectionable in the meat packing plant."

- In "Refrigeration and Air Conditioning"

"Unpleasant odors are not masked or covered up, but are literally destroyed. The results in an ordinary room are almost immediate. Where clean, fresh air is desirable, this machine has a definite contribution to make to the Medical World.

**- George A. Johnstone, MD,
Medical Director of Behrens Memorial Hospital Glendale, California**

"When Ozone comes in contact with dead organic matter, oxidation immediately takes place with destruction of the organic matter. In this, it is powerful in removing odors."

- Dr. J. C. Olson

Is Ozone really effective in killing bacteria in air and water?

Ozone is an extremely effective, safe, and economical method of reducing common household bacteria, fungi, molds, mildew, and viruses. Scientific studies have proven this fact once and for all.

"Ozone owes its fame to its remarkable power of killing bacteria. That is why the world should look upon ozone as a gift to mankind. No matter how much bacteria there may be, direct application of ozone by Nature, or direct application of ozone reproduced in controlled environment will destroy any kind of bacteria, in any amount."

- A. Vosmaer, Ph.D.

"Experiments with cholera and typhus bacteria are rather awkward to be carried out in a private plant, handling, say a million gallons of water per day, and the firm Siemens and Halske were very fortunate to find the Prussian State officials willing and ready to test the matter. Dr. Ohlmueller and Dr. Prall published results of their finding regarding the action of Ozone on bacteria. The experimental series covered the effect of Ozone on pure water infected with 16,000 cholera, at another time with 30,000 to 40,000 typhus, and another time with 20,000 to 40,000 coli bacteria. The result was absolute sterility after treatment. The next step was to see the result on infected ordinary river water carrying over 4,000 bacteria. After treatment with Ozone, some 5 or 6 were left over and those were harmless."

- A. Vosmaer, Ph.D.

"Ozone in the air in minute quantity of only 1 part per million retards the growth of bacteria and molds."

- E. Howlett, ME

"Ozone is a powerful germicidal. Its high germicidal activity is doubtless due to its oxidizing power."
- **E. K. Rideal, Ph.D.**

"Ozone generators have been installed in many homes, and that super-oxygen is particularly destructive to all microbes and at the same time it makes inert the dangerous dust with its bacteria laden tenants."
- **W. E. Anghinbaugh, MD**

"One part Ozone in 2 million p. solution renders the virus polyomelitis inactive within 2 minutes compared with the double amount of chlorine using 3 hours."
- **D. F. Kessel, MD**

Can Ozone be classified as a therapeutic substance?

The remarkable capability of Ozone has interested doctors and hygienists for a long time. Therapeutic employment of Ozone is based on two modes of action. One is the action of the pure oxidation itself, the other, the action of the oxygen created by the oxidation, which in its status nascendi shows peculiar qualities.

"Ozone is exceedingly valuable from a therapeutic standpoint. It gives better and prompter relief than any other medication."
- **A. Caille, MD**

"If I could have only one remedy, I would prefer to take my chances with Ozone."
- **Noble M. Eberhard, MD**

"To group one, belong the employment of ozone by infectious diseases, especially by tubercular diseases. The fact that Ozone infiltrates through the pores of the skin can be proved in a double way through chemical physio treatments. Tests have been made in taking 1 cc. blood from the patient before giving him a 20 minute physical treatment with Ozone. Another 1 cc. of blood was taken afterwards. The result of the investigation showed by each of the persons tested an increase of healthy oxygen in their veins. In concluding, we can say that Ozone, in contact with the skin, is breaking down into molecular oxygen, and through perspiration enters into the inner tissue. The tissues are oversaturated and the Ozone diffuses into the veins. After the treatment, the increase in the different cases were 15, 17, 20, and 25% more oxygen in comparison with the original contents. This increase in oxygen in the tissues and veins leads forcibly to the complete oxidation of all organic acids, and by the expulsion of the carbonic acid, according to the law of the action of quantities to the complete deacidification, and therefore, to a spontaneous reduction of breathing frequency. These physiological verifications established Dr. Sehdens practical verified therapeutic results with many forms of diseases."
- **Th. Kunzemann, MD**

"Ozone has a direct influence on the blood itself. It has been proved that patients treated both by injection and orally, rapidly increase their number of red corpuscles, some blood tests showing an increase of 50% in a months treatment."
- **S. Barker, M.P.S.**

"I have before me 32 complete records and reports of reputable physicians who treated various diseases with olive or cod liver oil heavily charged with OZONE. By this method the oxygen content of olive and cod liver oil used for treatment was increased 8.53 per cent. In some cases the cod liver oil used for treatment was charged with Ozone until its gravity of 0.925 was increased to 1,000. Among the cases treated with this oil were tuberculosis, anemia, lung trouble, Bright's disease, abscesses, pneumonia and influenza, and as far as the records show, these cases were discharged as cured."
- **E. W. Riesbeck, ME**

"Like many other treatments, the reason for so many wonderful achievements derived from this simple aid, Ozone, is that it consists of nothing more nor less than activated oxygen. We all know that Oxygen is positively necessary to the existence of not only animal life, but of plant life as well. As a consequence, nobody can deny that activated oxygen must be very essential, not only as a preventive of disease, but also a great aid in the supplemental treatment of ailments of all characters. I am very much impressed with the use of Ozone. We definitely are on the threshold of another medicament which seems to be a specific in many diseases."
- **O. M. Justice, MD**

Statistic: In five years that Ozone has been used in the public schools of St. Louis, Tuberculosis cases have been reduced by 50%. Also other diseases have been materially reduced.

"Ozone would save thousands of lives every year if homes and schools were equipped with apparatus for the circulation of Ozone."
- **E. S. Hallett. ME**

About Us

The Understanding Ozone™ site was developed by a research group consisting of both companies and individuals as a result of their own experiences in attempting to research ozone related issues for particular client projects. These groups are now donating their time and resources to share the results of that initial research to help educate others about ozone, and shorten the time levels originally experienced in locating a cross section of articles. The information presented here is simply a compilation of public information and source materials that you can independently research and find on the Internet or through other sources. Based on

time constraints, these materials will be updated as necessary and additional materials may be added to the site in the future.

We hope you find value in this site.

The Understanding Ozone™ Group

“Dangers of Air Purifiers” In The Media

Often times articles are published regarding "Dangers from Popular Air Purifying Machines".

There will always be ozone critics and rightly so. In a "HIGH" concentration, ozone is very irritating and can even be unhealthy.

Water is also a problem when its concentration is too high. It causes death by drowning, mudslides, property damage, and disruption of public and private activities. Ingesting too much water at one time can be poisonous. Fire fits into the same category. We need fire for all of its practical benefits but we hate it when it attacks our forests and homes. Sunlight has good and bad extremes, as well.

Critics like to overlook the positive aspects of ozone. They cannot dispute the fact that ozone is a natural constituent of our atmosphere. In fact, the missing ozone in our atmosphere (the ozone hole) poses significant health hazards for the earth's human and animal population. Critics can not dispute that ozone is a strong oxidizer. Nor can they deny that ozone - in appropriate levels - is "safe" and gives air a freshness quality that is universally beneficial and appreciated.

Everyone likes the air freshness that we associate with thunderstorms. We all like the freshness that is common to beaches, islands, golf courses, forests, and mountainous areas. There are safe ozone type air purifiers on the market that replicate mountain fresh air conditions in homes. Millions of satisfied customers have proven the safety and effectiveness of these types of purifiers.

One statement that critics often say is "...ozone, the same chemical that the ARB and the USEPA (U.S. Environmental Protection Agency) have been trying to eliminate from our air for decades..." The truth is that these agencies have never set a goal to eliminate ozone from our air. They've identified ozone in HIGH levels as an irritating component of city pollution and tried to control the excesses. To say they wanted to "eliminate" ozone would be like trying to eliminate humidity from the air as a precaution against flooding. It's simply wrong! Even when ozone levels are high outdoors, they still tend to be low indoors. Ozone MUST be continually replaced through solar influence (or through an air purifier) or life on earth would not exist!

Again, ozone is needed to sustain life on earth. To condemn ozone because of the HIGH levels often found in man made smog would be like ingesting an entire bottle of pills, then condemning the drug as being dangerous.

Even OSHA (Occupational Safety & Health Administration) cites the risk of over exposure to one of the most basic elements of life, Oxygen. Too high a percentage of Oxygen causes weakness, fatigue, pain in joints and muscles, numbness and tingling in arms and legs, palpitations, headache, nasal congestion, ear disturbances, nausea, vomiting, loss of appetite, fever and swelling of mucous membranes. Does this mean that we should stop breathing Oxygen? Per OSHA, Like Oxygen, Ozone at "excessive" levels has it's downfalls too and can cause headaches, throat and nasal dryness, bronchitis, decreased pulmonary function capacity, and other respiratory ailments. Common sense tells us that too much of anything is typically not good!

The most irritating constituents of smog are hydrocarbon molecules from cars, sulphur and nitrogen compounds from industry, and smoke-type pollutants from all sources. Using the sun's energy, nature reacts to these compounds by increasing the air's ozone concentrations. The process is easy to explain. In a smoggy situation, the increased HIGH levels of ozone (while it is irritating to humans at these levels) actually helps oxidize away the aforementioned hydrocarbons, sulphur compounds, and nitrogen compounds. This situation is similar to the body's immune system responding with an elevated white blood cell count to fight an infection. Nature's way to combat pollution is an increased ozone concentration. Yet there are also many benefits that can be experienced at low safe levels of ozone.

In 2000, a study supported by the California Air Resources Board (under the auspices of the Long-Term Exposure Health Effects Research Program) regarding the effects of Air Pollution on children's lung function growth determined that "ozone did not play a major role in the pollution's effects on children's lungs. Instead, the offenders were nitrogen dioxide, microscopic particles known as particulate matter, and acid vapors. All come directly or indirectly from the burning of fossil fuels (the exhaust from a car or truck, for example), as well as from emissions from industrial plants and other sources." The studies lead author was W. James Gauderman, Ph.D., USC assistant professor of preventive medicine. Many experts have singled out ozone for criticism for fifty years because ozone is so easy to measure and is an easy "escape goat" that takes the focus off of the real problem that caused the smog to begin with! Rather than being an "original constituent" of smog, ozone simply appears as nature's response to combat the higher concentrations of the other chemicals in static atmospheric conditions.

A proper beneficial setting for home ozone air purifiers units would produce an indoor ozone level of .02 to .04 parts per million-well

below what some governments have established as a safe level (up to .05 ppm). Criticisms in many articles cite much higher concentrations and the interesting thing is they never even mention what the safe limit is. Doing so would remove the controversy of their articles. Controversy is what sells and that is why ozone critics love to feature ozone as a "bad guy"! In a nut shell, good news is no news and that is why you generally will never hear news reporters promoting it as a good thing!

The greatest opportunity that many reporters are missing is the fact that the real controversy would be in revealing the "truth" to the public about why many agencies unethically downplay ozone. Approaching the controversy from this angle would allow reporters to still have their "controversial edge" and most importantly at the same time maintain their integrity. Hopefully in time as more and more people become educated on the importance and benefits of ozone, reporters will recognize that the "truth angle" is their biggest market and their true wild card!

Many customers of ozone type air purifiers have used them safely in their homes for over twenty years, and more. Some have had babies that are now teenagers. Those children have breathed "ozone purified air" every day of their life and have reaped the positive benefits of doing so-with no negative effects!

The bottom line is this... At the end of the day the truth will still be there. Any reporter, politician or agency that deliberately denies or holds back the truth (both sides of the story) about ozone or any other helpful life-changing substance, product or information for their own gain, will ultimately be exposed in the end!

Ozone is Not Smog - Ozone is Good & Natural!

By Ed McCabe

Ozone is one of the most beneficial substances on this planet, and the BAD science you may have heard quoted on the news may be causing you to subconsciously be afraid of nature, and therefore, a part of life itself. They tell you that somehow hydrogen plus nitrogen or sulfur equals ozone. $H + N + S = O_3$? Not on this planet it doesn't!

What is ozone? Simply put, oxygen. Three atoms of nature's oxygen. It exists in a very active form for about 30 minutes before breaking down into two atoms of regular oxygen - by giving up one atom of singlet oxygen.

Where does ozone come from? Nature, and nature is efficient. The new growth in the forests, the trees, the grass on your front lawn, and the plankton in the ocean are continually creating oxygen. As you read this, this oxygen is rising up into the atmosphere where the ozone layer is. In the region of the ozone layer, our rising oxygen is bombarded by the sun's photo chemical energy in the form of ultraviolet (UV rays). The UV energy bombardment changes the oxygen from O_2 - two atoms of stable oxygen, into O_3 - three atoms of unstable active oxygen. We call this pure form of oxygen "ozone." The using up of the UV rays to create ozone is how the ozone layer shields us from their harmful effects. This is all part of the natural process of life on this living biosphere called earth. The chemical formula for this is $3O_2 > UV > 2O_3$.

Being heavier than the oxygen in the atmosphere, this newly created ozone falls back to earth, eventually giving us one atom of oxygen, it changes back to O_2 , and is immediately replaced by more rising oxygen which is also soon changed into ozone by the sun. The ozone falls to earth and is all around us purifying our water and air, decomposing bacteria, molds and fungi. It is the fresh smell of laundry dried outdoors in the country. It is the fresh air by a clean seashore, and the sweet smell of the air after a lightning storm. Lightning, also possessing photo chemical and electrical energy, creates ozone as well. At least this is how our world was operating until man started ruining it.

Ozone has always been with us in nature, and the fact that ozone gives off that single oxygen atom is a significant factor in life, in medicine, and in toxic waste cleanup technology. Thousands of physicians in Europe have been using ozone as medical treatment for over 50 years, and the use of Ozone in medicine is starting to finally catch on here in the U.S.

How is it used in medicine? This O_3 Ozone is not as stable as regular O_2 oxygen because it has that extra atom of O_1 attached to it. Ozone will readily give up this extra atom of O_1 and revert it back to stable oxygen again. This giving off of the O_1 is the reason why ozone has been used in medicine. It has been proven extensively that O_3 will kill bacteria, viruses, fungi and molds by attaching, oxidizing and eliminating them. Oxidizing means to burn without giving off light or heat. These bacteria, etcetera, are lower life form organisms, and are mostly anaerobic. That means they can't live around activated oxygen/ozone. Doctors using the proper concentrations and correct medical protocols have achieved substantial positive clinical results with ozone.

Far from being a poison, ozone, when used properly, has been shown repeatedly to kill pathogens - yet not harm normal cells. This is because disease causing pathogens do not have any strong enzyme coatings to protect them - as do all the cells of higher life forms like humans and animals for example. Pure ozone is available to purify all our counties stored blood supplies. There is no reason why people have had to come home from the hospital with AIDS or hepatitis from blood transfusions. European doctors and respected NY University researchers all state that ozone has been used to eliminate AIDS in humans, animals and blood supplies. Without any side effects. Why don't we see this on TV? Why isn't ozone being used more widely in the US like it is in other countries? Read on to find out.

Breathing ozonated air or drinking ozonated water (at the safe legal concentrations that are already conservatively laid out by the government) are two of the ways of getting activated oxygen into your body. Did you ever drink clean water just downstream from a waterfall and feel invigorated? That was because the water had tumbled over the rocks, thinned out, and absorbed oxygen/ozone from the air. Other methods being explored medically in the US are rectal ozone insufflations, ozone autohemotherapy and intravenous ozone infusions. These methods of killing viruses and bacteria in humans have been in use in European medicine for over 50 years.

Most European and several major US cities have been purifying water, sewage and toxic dump sites with ozone, some for over 70 years. Ozone based systems can even break down PCB's and all other industrial chemical wastes both organic and inorganic. This is possible because ozone based systems are able to create enough of these singlet oxygen atoms to oxidize anything unnatural found in our air, water, sewage, and sediment. Ozone can do this yet is so safe that it is used on humans and animals as the water purifier at Marine World and in the Olympic swimming pools.

Why does the media call Ozone "smog?" Bad science and bad reporting. Mostly because of deliberate political misrepresentation! It's also not in the best interest financially to promote the concept that ozone is good. A Los Angeles nurse that I met told me she actually treated a patient who got sick from going around breathing bus fumes deeply: The poor man had heard that ozone kills the AIDS virus and because of TV had thought ozone was the same as smog!

By calling nature's oxygen "smog," and diverting your attention away from the real polluters, no one has to clean up the environment! Did you know that your automobile emits its own weight in pollutants into the air every year? Television tries to position itself as "concerned" and wastes your time arguing over what type of shopping bag you should lobby for at the local supermarket. Meanwhile, the factory next door continues its deadly course of spewing tons of poisonous pollutants into your air and drinking water. While you are constantly made to feel guilty about every day living, they won't give any significant air time to cover the far more dangerous industrial polluters that are too cheap to put scrubbers on their smokestacks. Why? Because the corporations might be "offended" and have to pay to clean up their mess.

Go into a city, look up, and taste the dirty air you're breathing. Try and tell me that the brown / gray / yellow color is ozone. I doubt that I'll believe you. All of this can be cleaned up with colorless, clear ozone.

Ozone based systems are able to purify 99% of every liquid, gas or toxic substance coming out of any industrial operation. The engineers even tell me we can include radiation in the list since the radiation is carried by something. Why isn't some type of ozone system being used?

Nature constantly works through the balancing out of different electrical, magnetic, and chemical charges. When man dumps pollutants into the air, nature tries to clean it up by in effect creating and "sending" ozone into the affected areas to oxidize and clean up the pollution. What got us into this mess was the old idea that the earth and water and air magically combined into one giant "sponge," where we could just "toss it out" and it would all disappear. Well our sponge is full now, and although nature still tries, the ocean polluters and rainforest clear cutters have significantly choked off nature's means of cleanup - Ozone!

That is why Ozone is always found as a very tiny component of air pollution. Here we find out why the newscasters and scientists try to blame your respiratory problems on your "friend ozone" and call her names like "smog." You can almost hear them thinking..."Well boss, here's 5,000 pounds of toxic hydrocarbons and nitric compounds coming from our factory, and those pesky environmentalists are starting to notice it and make noise...Let's see...There's less than .12 parts per million (or only 12 millionths of a pound) of ozone in the area...I've got it J.R.! We'll blame the "teensy weensey" little ozone molecule - so the sheep won't notice our toxic soup, the real cause of their dead trees, lung, eye and throat irritation!" "Smithers, that's brilliant! Let's do lunch at the club."

By blaming nature, the huge polluters are never forced to take responsibility for the current dirty engine designs and factories, and never have to incorporate any of the already invented clean energy sources. What they call "ozone smog" is a toxic soup of compounds. Why they don't tell you is that Nature's ozone is trying to clean it up, and is a very tiny portion of the smog they report.

THE MORE CHEMICALS DUMPED IN THE AIR, THE HARDER NATURE TRIES TO CLEAN IT UP, THEREFORE THE REPORTED OZONE LEVELS WILL BE HIGHER.

They also don't admit that pure ozone is strictly, always, only O₂+O₁ pure oxygen, and never anything else.

The ray of hope here is that the media professionals and federal, state, and corporate decision makers and their families are themselves coming down with all manner of new mutant diseases. Their vacation hideaways are spoiled. It is no longer an "us" versus "them" class struggle. We are all in this earth boat. This is quickly forcing change in "business as usual."

As to their claims that ozone is smog, I can refer detractors to internally clean people who work in very high concentrations of pure ozone all day long without any ill effect. In fact, they commonly report a healthy invigoration. Where these scare stories come from is

the following typical scenario. When a typical smoker, or junk food or drug addict - a person whose body cells are loaded with toxins finally gets near enough to an activated oxygen (ozone) source, his or her body starts to oxidize the toxins within it, in an effort to finally remove them. The pathways out of the body become filled with cellular debris, swollen, irritated, and fluid filled. Often this is uncomfortable, but only for a few days, while, and until, the oxidized toxins leave the body. The health professionals skilled in medical ozone usage call this a "typical detoxifying cleansing reaction" that will generally subside within a few days.

Most air ozone "studies" are halted at the point of detoxification discomfort, and not after the full cleansing has occurred. Therefore "negative reports" is erroneously reported in the scientific literature. In contrast, any properly conducted experiments are allowed to continue past this point - and report how the body replaces the weak, old, diseased, dying, feeble cells with new and very healthy oxidative stress resistant ones.

At times, an isolated and questionable report will surface in the scientific literature, telling of animals exposed to ozone who developed lung irritation. These studies were usually done at SUPER HIGH concentrations, way beyond the suggested typical medical Protocols!

I've actually cornered a few scientists and reporters and asked if they knew that they were not being scientifically accurate when in the press they equate ozone with the toxic soup of smog. They admitted (in private) that they knew they weren't, but keep up the charade "because everyone else does!"

What about the holes in the ozone layer? Consider the gluttonous "clear cutting" of the oxygen producing rain forests and the disappearance of our own oxygen producing national forests. Where is our oxygen going to come from? Then add the constant selfish polluting of the oceans and the greedy discharge of industrial pollutants, nuclear radiation and electrical energy into the atmosphere. These electrical, electronic, and radioactive discharges further scramble the elements in nature's air. At home, chlorine gas comes out of your water faucet and rises up into the sky. More and more, our oxygen is either missing or bound up in toxins. What we're experiencing is an increasing shortage of atmospheric oxygen that's available to be turned into ozone in the first place! That's why there is an ozone hole at both poles and the rest of the ozone layer is starting to look like Swiss cheese. Greed, not ozone is the problem!

The ozone layer is constantly changing, almost a living boundary, paper thin, and missing at night. When the oxygen is all bound up with toxins, then there will be no ozone layer. Without available oxygen, the sun's ultraviolet light passes right on through without being absorbed in creating ozone, and we are seeing increased cataracts, skin cancer, blindness, and burning of vegetation. So our bodies and our food supply - therefore our very existence - is in danger, unless we personally do something about turning back the rampant greed that is destroying us.

What can you do to help preserve and re-supply the missing oxygen in your life? Stop those unevolved people who think "We're all going to die anyway so I'm going to get all I can now" from cutting down all the trees. Convince the factory managers to install existing devices like ozone based smokestack scrubbers, factory discharge point ozone based purifiers, and to fund existing ignored clean energy sources. Plant lots of trees. Don't sell aerosols. Stop polluting!

Industrially, ozone air purifiers have been in use for decades. There have been no problems associated with their use, as long as they are used in average sized rooms, at the recommended government established safe healthy levels. Enlightened hospital operating rooms commonly use ozone air purifiers to keep everything sterile. The doctors and nurses aren't falling over dead are they?

Ozone air sterilizer/purifiers/deodorizers are commonly used: by hotel chains to remove odors; by used car dealers to give old cars that "new car smell"; by morgues to get rid of formaldehyde odors; by schools when they refinish a floor, so they don't have to close the school because of the dangerous refinishing chemical odors; in bars, comedy clubs, and restaurants - so the majority non-smokers can patronize them again and go home without stinking like an ashtray; in fitness/exercise clubs and gymnasiums where patrons don't smell body odor, they only smell fresh air and report increased endurance and strength; by grain storage building owners who report an end to mold and rot.

Owners of animal excretion soiled stable, barns, veterinary kennels, and professional dog and horse racing paddocks love them. If the animals could talk, they would probably echo this sentiment, and describe the air as fresh as a day in the country.

Entrepreneurs even buy - at a discount - sick cattle that are worn out from antibiotics and drugs, ozonate their air and water, and then sell them as healthy, disease free animals a year later at a profit. Plus, the consumer eats chemical free meat. Do you have any smoke damaged goods? Fire damaged furniture? Stick it in a room with an ozone air purifier running full tilt, and in a few days the useless items are restored. The applications are endless, wherever stale, polluted and toxic odors are encountered.

Factory and closed-up-tight office workers could ask management to install ozone air purifiers. Management would benefit at the bottom line, because happy oxygenated workers are more efficient workers, cheerier to customers, and don't need as many sick days. In the fifties, ozone air lamps were placed in schools, and absenteeism dropped. Commercial clothes dryers came with UV

ozone lamps in them. The federal government required their use in all government restrooms. If your home or work air stinks, think of ozone solutions!

If a foolish person sat only inches from an ozone generator on full blast and breathed deeply for a long period of time, they might have cell lysis (destruction) problems. But no one is advocating doing that and anyone who does this has too much time on their hands!

"Ozone is smog" is a great, quick, one liner for the media to hype, but it is far from reality! This "instant journalism created hysteria" is so bad that the "Earth Day" environmental organizations even emblem their signs with well meaning but uninformed slogans. In a twisted way, people subconsciously are made to fear the very act of breathing, so that every breath taken on a hot summer day in the city is tainted with a fear of life itself.

At the home level, many thousands of people are now exploring the many medical oxygen therapies and pollution control devices. One of the simplest methods of using ozone at home is by installing a home ozone air or water purifier. They do a fine job for what they were designed for, general air and water purification.

After installing air ozonators, many claimed "their house mold went away," "the odors stopped," their "emphysema became less," or their "lupus got better"! Sounds fantastic, but hearing these stories first hand has been my experience.

Of course no one is making illegal medical claims for these devices, but the anecdotal evidence in this area continues to amaze me as it piles up steadily. Since anaerobic (most) disease organisms simply cannot exist in oxygen, than oxygen is the first line of defense in your immune system. It's also necessary for the removal of every single bit of toxic waste in your body. Every waste product that comes out of you is oxygen combined with hydrogen, nitrogen, sulfur, or carbon. If the toxins in you don't have any available oxygen to combine with, they pile up inside you and they can't leave and eventually you get sick.

Dr. William F. Koch, MD., was a brilliant free radical chemist and former professor of chemistry at Wayne State University. He wrote that ALL disease originates from toxins in the body. Now think about the fact that we were genetically designed during a time when the atmosphere was 38 to 50 percent richer in oxygen than you now live in - especially if you live in a city. We are living way below our optimum efficiency. If your car has dirt in its oil, has half its air supply cut off, and has never had an air or gas or oil filter changed, it will die after sputtering along for a while. Our bodies are vehicles for the Soul.

Your liver and kidney and lymph system are the vehicle filters. You die too soon, and full of dirt as well. The Bible dates some in the old Testament as being over 900 years old. How did dinosaurs get to be 5 stories tall? You can guess why so many are sick so often in our "modern" society.

I am convinced that what we've been presently experiencing in our society is the rise of the age of toxins, diseases, and plagues all corresponding to the fall of our planetary and body oxygen levels. Fueled by greed and self imposed ignorance, the phenomenon is sad indeed, and unless abated, will drastically change or even eliminate life on this planet.

Some, including doctors, have added up the numbers, and concluded that half of the world's population will possibly be dead from AIDS, alone, in the next 20 years. I have seen slides brought back from Africa by Dr. William Douglas, the book author. Slides of whole villages that are now empty, and roads lined with burial mounds where the victims fell. Not a fantasy, it's real, it's right now, it's your/our problem. Pay attention to the warnings.

Take heart my friend, if you're reading this, it's not over yet.

We can help change above dire predictions, if YOU get involved at some level. Plenty of evidence exists proving that an increase of planetary and cellular oxygen levels will solve most of our life threatening industrial and medical problems. The bottom line is...Ozone is our friend. We should get to know it better!

Note: Ed McCabe is a recognized authority on ozone and oxygen therapies. This article is for general information purposes only and not for medical advise or for product endorsement.

Ozone - Breath of Life

by Robert Willner, M.D.

OZONE (03) "Breath of God" (Ancient Hebrew)

NOTE: THE USE OF OZONE THERAPY IN THE TREATMENT OF CANCER OR ANY OTHER DISEASE IS UNPROVEN AND NOT RECOGNIZED BY THE FDA OR THE MEDICAL PROFESSION IN THE "UNITED STATES". THIS ARTICLE PRESENTS INFORMATION ABOUT ITS HISTORY AND HOW IT IS BEING USED BY THOUSANDS OF PRACTITIONERS THROUGHOUT THE "WORLD". ONLY 34 CASES OF SIDE EFFECTS OUT OF 5,500,000 PATIENTS HAVE BEEN REPORTED.

ABOUT OZONE

The discovery and naming of ozone is attributed to Christian Friedrich Schonbein in 1840. Its value in medicine was debated for many decades and references to its use were sporadic. Dr. Albert Wolf, a German physician wrote in 1915. "As regards the medical usability of ozone, the viewpoint of experimental science may be considered as being in direct opposition to the practical experiences gained by industry." He used ozone successfully in the treatment of decubitus ulcers. During the First World War (1915) ozone gas was used to purify the drinking water of major cities since 1901. The first was Vienna and the most recent was Los Angeles. It does not give water the disagreeable taste that chlorine does. Although many authorities refer to it as poisonous and a hazard to life, like most anything else that is natural on this planet, if used properly it is very beneficial - in fact life would become extinct without ozone in our atmosphere. The breathing of inappropriate concentrations is indeed harmful to the lungs, but in PROPER concentrations it is safe and purifies the air we breath. Home and industrial ozonators are used throughout the world (including the United States, to purify the air), and yet, comments are being made publicly by authoritative figures that ozone is poisonous and a hazard to life. This is indeed true if, as in the case of any substance on this earth, if it is used in "unsafe" amounts. Statements of this nature are unjustified and fraudulent when they are intended to misinform or alarm the public in a way that would indicate that ozone is unsafe under any circumstances!

Ozone is created by the action of ultraviolet light or a strong electrical field on oxygen atoms. The result if the forcing together of 3 atoms into unstable groups (O₃) that rather quickly break down into the usual oxygen molecule (O₂). Ozone is lethal to almost all viruses, bacteria, fungus and cancer cells. The scientific literature is replete with articles proving these facts. Ozone is formed in our atmosphere naturally by the effect of lightning on oxygen. It is that wonderful sweet smell that you can detect after a summer storm. It is nature's method of cleansing our atmosphere of contamination. The poisonous HIGH ozone levels reported effecting our cities differs dramatically in that it represents the combining of the extensive overwhelming pollution with ozone insufficient to do the job. If you wonder why cancer rates have tripled in the last 20 years, consider this startling fact: The oxygen level of the air we breathed 200 years ago is much higher than it is today. (From the work of LaVosier - the discoverer of oxygen and current figures)

In 1931, Dr. Otto Warburg was awarded the Nobel Prize in biochemistry. Dr. Warburg demonstrated that the metabolism of a cancer cell was like that of a plant cell, which thrives on carbon dioxide and gives off oxygen as its waste product. It actually represents the process of fermentation. We are composed of animal cells and oxygen is essential for our assimilation of nutrients and the detoxification and elimination of waste products. When ozone is introduced into the bloodstream, it is converted into oxygen, hydroxyperoxides and other beneficial free radical scavengers which actually seek out and destroy diseased cells.

Nearly 50 years later, the prestigious journal SCIENCE, VOL. 209, 22 AUGUST 1980, published a paper entitled: OZONE SELECTIVELY INHIBITS GROWTH OF HUMAN CANCER CELLS. This paper dealt with the exposure of human lung, breast, and uterine cancer tissue to ozone at concentrations of 0.3 to 0.8 parts per million, well within the non-toxic limits tolerated safely during the average ten minute period that medically administered ozone takes and concentrations far less than that are used. In the experiments, normal human cells were not effected at these levels. The modern development of ozone application in medicine gained impetus in the 1950's in Europe, and its use gradually spread throughout Europe to Australia, Israel, and Brazil.

INTRA-VENOUS OZONE GAS is extremely safe and effective against all infections. The earliest evidence that I could locate of ozone's recommendation as therapy in the United States, appeared in an 1885 issue of the Journal of the Dade County Medical Association. In spite of this and many other references prior to 1920, the FDA has illegally raided and confiscated ozone generators from the offices of advanced (alternative) physicians. Ozone is classified as a toxic gas if inhaled in large quantities. However, it is not toxic when injected slowly into the body by intra-arterial injections, I.V., intramuscularly, subcutaneously or by vaginal or rectal insufflation. Ozone has no side effects when administered, using these methods, in the proper quantities and concentrations. It does not effect healthy cells of any type adversely under those conditions.

It is obvious why it is lethal to cancer cells. The cancer (plant) cell is being given toxic waste product, while our normal cells are being given their essential for life. Individuals receiving ozone for the first time are usually apprehensive. It is scary to have "air" injected into their veins. They have images of dying from an air embolus. Almost everyone seems to recollect a murder mystery in which the villain killed his victim that way in the hopes of committing the perfect crime. It will never happen in real life because: 1. Nitrogen would have to be present in order to cause a toxic reaction and therapeutically only pure medical grade oxygen is used. It would take at least 50 cc of gas given within 2 to 3 seconds. That cannot even be accomplished with a very large bore 18 gauge needle. The procedure is done with a fine 25 gauge needle. Death could only occur intentionally, never accidentally.

Specific therapeutic applications of ozone include the treatment of circulatory problems, decubitus ulcers, some forms of cancer (still under investigation as to how many), AIDS, viral diseases, wounds, scars, burns, gangrene and liver disease including hepatitis. Ozone is the only substance known which is virucidal, bactericidal, fungicidal, protozoacidal and cancericidal. Over 1,000 medical papers exist in the world medical literature attesting to its efficacy in the treatment of disease in many tens of thousands of patients. Typically it has been ignored in America because it cannot be patented. Therefore, it is not profitable for the pharmaceutical industry to spend the millions of dollars necessary to prove its effectiveness by FDA standards. It would reap scorn and outrage of incredible proportions if the truth were known! The pharmaceutical industry and the FDA confuse and distort the role of ozone in our ecosystem and suppress its use therapeutically (even though, under law, it should be "grandfathered in"). In addition to the many articles on the use of ozone in medicine, there are medical texts such as "THE USE OF OZONE IN MEDICINE" by Prof. Siegfried Rilling, M.D. and Renate Viebahn, Ph.D., and medical organizations in the major industrial nations of the world dedicated to the education and instruction of its use.

A WORLD OZONE CONFERENCE has been held frequently since the early 1970's, the most recent was held in San Francisco (1993), and was attended by hundreds of doctors from many countries. Russia sent seven scientists to present papers on their discoveries of its application. In no other science does acceptance take as long as it does in medicine. The use of deep freezing techniques took over 80 years and television over 30 years, but in medicine, where human life is at stake, it can take 150 years and maybe never if there is no profit to be made. Fortunately for mankind, there are still countries where investigation into non-drug, non-patentable, non-toxic and inexpensive therapies are still being carried out.

SUBSTANTIAL EVIDENCE

The PROCEEDINGS OF THE WORLD OZONE CONFERENCES have documented and published the techniques and dosages of ozone for its beneficial use in the following conditions. Cancer (Carcinoma), Spastic Colon, Arterial Thrombosis, Osteomyelitis, Acne, Proctitis Bladder Fistula, Wounds, Ulcers, Varicosities, Radiation burns, Phlebitises, Parkinson's, Ulcerative Colitis, Mucous Colitis, Chronic Cystitis Colitis, Chronic Cystitis, Coli Infections, Chronic Hepatitis, Hemorrhoids, Anal Eczema, Arthritis Intra-rectal insufflation is excellent for diarrhea and candidiasis (in women intravaginal insufflation is also effective), and it is applied in this manner when intravenous administration is impractical or unavailable. As long as the lobbyists and influence peddlers for the pharmaceutical industry and the AMA are able to convince our representatives that anything outside of the mainstream of medicine is either useless, fraudulent or dangerous, many safe, non toxic and effective therapies will be denied to the public. Our representatives must be made aware that although the safety is not usually the problem, proof of efficacy by the double-blind standard is economically prohibitive. In those instances where such proof has been offered, fraudulent tactics by the opposition have resulted in blocking the use of some incredible therapies. If you want to know what benefits ozone bestows in disease, ask the doctors and patients who have used it - but, of course, that's anecdotal!!!

THE IMPORTANCE OF OXYGEN

Virtually every patient's room in a modern hospital is equipped for the administration of oxygen. Certainly, an emergency room cannot be without one because it is required by law. Deep breathing exercises are prescribed for patients with lung problems and for individuals recovering from surgery. The narrow use of these techniques are indeed unfortunate, they should be routine for all patients. The local gymnasiums and health spas routinely employ the proper use of deep breathing exercises. The average person takes their respiration for granted. There are large religious cults who incorporate consciousness of breathing as an important ritual of their beliefs. Indians refer to breathing as an important ritual of their beliefs. Indians refer to "Prana" as a wonderful substance that God has provided for a healthy life. Certainly, Prana is oxygen, or possibly even ozone. Both aptly fit their description. Obviously, chronic and gradual oxygen deprivation on metabolism is devastating and leads to an inadequate processing of the toxic wastes that our bodies are constantly producing. One of the consequences of lowered oxygen concentration is the elevation of uric acid in the body. This one compound alone, is implicated in a wide variety of metabolic problems. The most common disease associated with uric acid disorder is gout and it is primarily due to an inability to process meat protein. However, the far reaching effects on almost every system of the body gives us an indication of the widespread effect that a low-grade increase can have. The formation of a stone in the kidneys and gallbladder, the blocking of circulation and the destruction of joints by the formation of crystals are just a few of the problems that arise. There are literally hundreds of known biochemical reactions in the body that utilize oxygen. There are probably many thousands more waiting to be discovered. Acute deprivation of oxygen leads to a rapid death. We are getting there more quickly than we should. The importance of oxidative processes is discussed more fully elsewhere, but the relationship with the development and progress of cancer is no longer in doubt. The use of ozone appears to go beyond the benefit of oxygen in the treatment of disease. The production of electromagnetic energy at the molecular level, as the ozone molecule disassociates into oxygen, undoubtedly plays a role in its usefulness in therapy. Permit me to list just a few of the proven effects of ozone.

OZONE ACTIONS

1. Ozone activates the enzymes involved in peroxide or oxygen "free radical" destruction i.e. glutathione, catalase, s.o.d.
2. Accelerates glycolysis (breakdown of glycogen) in RGSs, thus it: Increases the release of O₂ from the hemoglobin in the blood to the tissues. Enhances formation of acetyl coenzyme-a, which is vital in metabolic detoxification. Influences the mitochondrial transport system which enhances the metabolism of all cells and safeguards against mutagenic changes. d. Increases red blood cell pliability, blood fluidity and arterial P_{O2} (oxygen content) and a decrease in rouleaux formation (clumping) which interferes with the normal functioning of red blood cell metabolism.
3. Increases leukocytosis (production of the white blood cells) and phagocytosis (the manner in which certain white blood cells destroy foreign matter). Both processes are part of the immune defense system.
4. Stimulates the reticulo-endothelial system, the rebuilding of tissue.
5. Strong germicide - inactivates enteroviruses, coliform bacteria, saphylococcus aureus and aeromona hydrophilia.
6. Disrupts the cell envelope of many pathogenic organisms which are composed of phospholipids, peptidoglycans and polysaccharides.
7. Opens the circular plasmid DNA which lessens bacterial proliferation.
8. Fungicidal, inhibits candida cell growth.
9. Low doses stimulate the immune system.
10. High doses inhibit the immune system.
11. Limit dose to 3,000 ug.

References:

The information for this article is culled from the hundreds of papers presented at the World Conferences on Ozone. The scarcity of information available in the major medical journals is testimony to the power of the Pharmaceutical industry. With good reason, they have established a wall of silence and welcome the dissemination of falsehoods about the effects of ozone. They have an entire market of antibiotics that are at odds with ozone therapy. My conversations with practitioners in several countries, including the United States, confirms the remarkable results that I observed first-hand in my own practice.

Benefits of Ozone Surprise Researchers, Consumers

Much-maligned ozone can rid your home or office of modern pollution that can be more dangerous than outside air.

By Ron Rendleman

Most folks know ozone by name, especially since the upper atmosphere's protective ozone layer began disappearing. But a lot of misinformation, conjured up to further private agendas, would have you believe ozone is the bad guy of ground-level pollution.

True, ozone is present in smog, partly because the processes that create pollution also create ozone. When sunlight strikes industrial or automotive pollution, oxygen atoms are stripped from the pollutant molecules and form peroxy radicals—like nitrous oxide, nitric acid, sulphur dioxide and carbon monoxide. At the same time the freed oxygen atoms bond with the free oxygen in the air and form ozone. The more pollution, the more ozone.

But demonizing ozone is like blaming the fireman for the fire. Without ozone, pollution would render cities uninhabitable.

Nature creates tremendous amounts of ozone each day with the help of ultraviolet rays of the sun or electrical discharges of thunderstorms that neutralize many biological problems like bacteria, viruses, mold or chemical out-gassing, and to some extent, man-made pollution. Take a walk after a thunderstorm and notice the clean smell in the air—that's ozone at work.

So what exactly is ozone? It's stable oxygen O₂ that has picked up an extra atom of oxygen and becomes O₃. Scientists call it activated oxygen. At 20-plus miles above Earth, the ozone layer plays a crucial geophysical role in protecting people from excessive solar UV radiation.

Discovered in the 1840s, it wasn't until 1906 that the first ozone water purification facility was built in France. Today there are over 2,000 similar plants worldwide. Recently Los Angeles built the largest ozone purification plant in the world. The city chose ozone over chlorine because the latter has a bad health record.

Chlorine has been found to cause various illnesses, from nose and eye irritation to possibly even cancer. A few years ago more than 100 people living in Milwaukee died, and over 400,000 became ill in one cryptosporidium outbreak that chlorine failed to control.

The fact that ozone is a powerful air disinfectant is undisputed. Twin City Testing Labs in Minnesota demonstrated a steady decline in live strains of infectious micro-organisms in four hours with as little as .05 ppm of ozone. These germs incubating in dirty air ducts could be projected to be completely eliminated in 24 hours from the lab's data. It has been argued that the same disinfecting action takes place in the human sinus cavities where invading microbes first take hold.

Many people, especially the elderly, will retreat in doors, thinking they can avoid toxins from city air pollution, or if they are informed, from the products of chemtrails spewed out in recent years at 25,000 feet by tanker planes. But they may not be escaping at all.

As far back as 1989, the Environmental Protection Agency told Congress in hearings that indoor pollution is one of the nation's most important environmental health problems. They found that most homes have airborne concentrations of hazardous and toxic chemicals two to five times higher than outdoors. In a five-year study, many homes even had pollution levels 70 times higher inside than outside! Today's building methods and codes and the demand for energy conservation have created super-insulated airtight indoor spaces. Lower heating and cooling costs result, but natural air cleaning agents like ozone stay outside while pollution is trapped inside.

Two noted scientists, Drs. Gurbermskill and Dmitriev, found that air conditioning in office buildings caused workers to complain of headaches, weakness and oxygen deprivation that led to illness, and that colds, rheumatism and cardiovascular disorders significantly increased with conditioned air even in the absence of typical indoor air pollution.

The average home today contains more chemicals than were found in a typical chemistry lab at the turn of the century, much of it stored under kitchen and bathroom sinks—from bug sprays to detergents to oven cleaners. Most poisonings happen over a long period of time by daily exposure to toxins that enter the body through mouth or skin, and significantly, through breathing air loaded with chemical out-gassing.

In a study conducted over a 15-year period, women who worked at home had a 54 percent higher death rate from cancer than women who worked away from home. The reason? Daily exposure to hazardous chemicals in ordinary household products.

What are just some of the toxins the EPA and other researchers found in inside air?

- Benzene from paint, new carpet, new drapes and upholstery
- Ammonia in tobacco smoke and cleaning supplies
- Chloroform from paint, new carpet, new drapes and upholstery
- Formaldehyde from tobacco smoke, plywood, cabinets, furniture, particleboard, office dividers, new carpet, new drapes, wallpaper, etc.
- Sulphur dioxide, cyanide, and carbon monoxide from tobacco smoke
- Trichlorethylene from paints, glues, furniture and wallpaper
- Carbon tetrachloride from paints, new drapes, new carpet and cleaning supplies
- Nitrogen dioxide from stoves, furnaces
- Radon gas entering through foundations
- Pollen from plants and trees

- Mold spores from moisture and bacteria
- Dust mites from dust and bacteria
- Bacteria from all areas of the home

Exposure to these chemicals resulted in: headaches, memory loss, slow poisoning pulmonary irritation, fatigue, drowsiness, eye, skin and nasal irritation, dizziness, depression, respiratory irritation, gynecological problems, shortness of breath, cancer and bronchial constriction.

For the first time in history, it's safer to be in the wilderness than in your own home.

It's alarming that indoor air has become so contaminate, especially when children are considered. Physiologically, they are more vulnerable to toxic vapors because of their higher metabolic rate. They breathe in more than twice as much oxygen (and therefore toxins) relative to body size than adults. They are more active, which increases their breathing rate and they play close to the floor where heavier pollutants settle. Modern school buildings that are shut tight have the same problems.

These findings are not comforting. But there is good news: a few years ago some astute scientists reasoned that just as nature uses ozone to protect life on Earth, it might be possible to produce ozone electronically for indoor protection against polluted air and water. Small portable generators were designed to decontaminate a whole house.

The inventors were surprised to discover that ozone would remove, in hours, and sometimes minutes, very tough odor problems like smoke damage from fire, pet smells and stale tobacco odors often found in public places.

Practically overnight, the \$430 billion food industry began using ozone to protect produce from spoiling in transport by sanitizing packaging materials or adding to water to wash food. Meat packers found placing an ozone machine in a cooler kept meat fresher much longer.

Myron James, Technology Center Manager, said: "Ozone is very efficient in killing pathogens and spoilage organisms, and its use by the food industry will be welcomed as another tool to ensure the production of safe and wholesome foods."

Far from being a "bad guy," properly used ozone is a great remedy, even a Godsend perhaps, for modern society's ever-increasing contaminated air and water.™

Essential Ozone

Brujos Scientific Inc. - Industrial Hygiene and Toxicology
Robert B. Olcerst, Ph.D., CIH, DABT, CSP

Ozone or trivalent oxygen is perhaps the most misunderstood, hated and loved element in the air we breathe. On one hand we are told that it is a harmful, poisonous gas capable of doing great harm to our lungs. On the other hand we are told that it has the potential of being the greatest natural purification element we have available to deal with man-made pollutants.

The truth lies in the understanding of the nature of ozone itself, the mechanisms of ozone formation, the nature of the pollution problem that requires a solution and finally any adverse health effects involved with ozone as compared with other health risks encountered in our modern indoor environments.

In unpolluted areas ozone is created by the action of nitrogen oxides and ultraviolet light from the sun with the natural agricultural and animal husbandry sources of methane and even the hydrocarbon compounds of isoprene and terpene emitted from trees of the forest. In fact, anywhere in nature that hydrocarbons exist with strong sunlight and moisture, ozone will occur in some quantities. Areas that are considered the most healthy vacation spots in the country have some of the highest levels of naturally occurring ozone.

Ozone is also created electrically in nature during active thunderstorms. The electrical discharge creates that positive sweet smell that we understand as clean fresh air.

In urban areas ozone is also created in two other important ways. First, there is the direct breakdown of chemicals that are spewed into the environment in industrial processes. The second is related to the photochemical production of ozone from automobile emissions and mass burners.

It can be seen that in the last case ozone is being created by the breakdown of the hydrocarbons but that it is also aiding in the breakdown of these same chemicals. It is, therefore, natural that the highest concentrations of ozone will be found in areas with the highest concentration of unoxidized or unburned hydrocarbons. It is this confusion with cause and effect that have given rise to the notion that ozone itself is the source of the problems related to smog rather than just one of the elements present in the process.

The additional problem in the air quality of urban areas is related to the magnitude of the fee stocks of unburned hydrocarbons. With heavy industries and the associated heavy automobile traffic, the amount of chemical involved with this process is immense. While the ozone and the hydrocarbons are eliminating each other, there are enough of both in the air to be a problem.

Every chemical substance has a range of effects on biological systems that range from no effect to levels of lethality. In effect, every chemical has the capacity to be toxic, and it is dosage that becomes significant.

Ozone is no exception. At extremely high concentrations there are indications that ozone itself is harmful. However, in the case of smog, studies show that its other ingredients, the nitrogen oxides, sulfur oxides, suspended sulfuric acid, nitric acid particles and suspended hydrocarbons are the real health risks.

It is unfortunate that smog and ozone have been interchanged in the discussion of air pollution because it has masked the positive characteristics of ozone as the natural way of dealing with air quality problems. The focus on smog as "air pollution" has prevented us from seeing the even greater problem of indoor air quality problems.

The same chemical soup exists in our indoor environment as exists in smog. The only variant is the concentration of the pollutant and the total lack of any means of reconditioning that air to natural standards. The most common sources of indoor air pollution air:

- a. The building itself and the furnishings in the building emit hazardous chemicals such as formaldehyde and styrene. Sources range from particle board to ceiling tile to carpets and furniture to paints and finishes that continue to outgas.
- b. Chemicals inadvertently brought into the home such as drying cleaning, hydrocarbons collected on clothes while driving home, chemicals from the grocer. Cleaning products of all types.
- c. Tobacco smoke and the 3600 chemicals resulting from that smoke.
- d. Organic residue from insects, rodents, roaches, pets, etc...
- e. Microbial contaminants. Mold, mildew, bacteria, yeast, fungus

It is interesting to note that most of the pollutants are organic in nature and that the chemicals which we consider to be problems exist all around us in nature where they are not considered problems. To become a problem, the dosage must be such that adverse effects result. Dosage is, of course, a function of both concentration and time of exposure. Even small amounts of pollutants will cause adverse effects if the time of exposure is long enough. These adverse effects occur so gradually that they are not associated with their true cause.

The gradually increasing frequency of headaches may never be associated with the move to a new home or the acquisition of new furniture, or a child's allergy problem may not be associated with an exposure to pollutants in the bedroom that began at birth, or the hyperactivity of a child may not be connected to the fact that it began with a subtle change in the environment.

These changes have accelerated since the date of the first oil embargoes when the cost of energy for heating and cooling our environments soared. From the at date we have attempted to eliminate all outdoor air from our indoor environment. By doing so, we have also trapped all of the pollutants indoors and have eliminated the one chemical that has the capacity to restore the air to its pure natural state - ozone.

Ozone, the most powerful oxidizing agent occurring naturally in our clean outdoor environment, has the capacity to break down most of the organic chemicals that foul our indoor environment.

Ozone is, however, missing from our indoor environment. Ozone, because of its reactivity must be continually renewed. Ozone concentrations reduce quickly with ozone initial at the concentration of 30 ppb outside totally reverts in to oxygen in a period of 20 to 50 minutes depending on a variety of conditions. Unless efforts are made to restore this level in a modern building the ozone level will normally be zero.

Recent testing using natural ionization and ozone purification reproduced by antenna technology has shown that common household bacteria, mold, mildew, and fungus are greatly reduced by the addition of as little as 50 ppb in typical household environments. Specifically, E.Coli, Salmonella Choleraesuis, Staphylococcus Aureus, Candida Albicans and Aspergillus Niger have been shown to have dramatic reductions in over one thousand "before and after" population tests commissioned by Swab it Laboratories and it's federally licensed clinical scientists.

CONCLUSION

Considering the safety, the wide range and level of effectiveness, the cost of energy and the make up of our current indoor environment it would see that the closest alternative to opening the window is to replace the vitality of the air by replacing the ozone that occurs naturally outdoors each day.

The general recommended limits of ozone exposure should offer an adjustable amount from 3 to 50 ppb. This reactivation of the air results in the same effect as being in an outdoor environment in a clean unpolluted part of the world.

[Back to Top](#)

Ozone Gets OK For Use in U.S. Food Industry.

Reprinted from: The EPRI Journal - Volume 22, Number 4, 1997

Palo Alto, CA - Ozone, one of the most effective disinfectants used in food processing in other countries, has received "Generally Recognized As Safe" (GRAS) status in the United States from a panel of experts in the food science, ozone technology, and other

related fields.

The Electric Power Research Institute (EPRI) requested an independent contractor to review the history and health aspects of ozone for possible use in processing foods for human consumption and for GRAS status. After an initial meeting with the Food and Drug Administration (FDA), which allows independent affirmation of GRAS status of substances by a qualified panel of experts, six scientists met frequently over the course of a year to interpret and evaluate the history of ozone. The panel determined, when generated artificially and applied under controlled conditions, ozone can solve a number of environmental problems, such as being a sanitizer or disinfectant for food. The panel's findings include the following:

- Ozone is a more powerful disinfectant than chlorine. (The most commonly used disinfectant.)
- Ozone has been used safely and effectively in water treatment for nine decades and has been approved in the U.S. as "GRAS" for treatment of bottled water since 1982.
- Ozone has been applied in the food industry in Europe for decades and, in some cases, for almost a century.
- Ozone does not remain in water, so there are no safety concerns about consumption.

No further action is needed, and ozone can now be implemented in the \$430 billion dollar food industry, where potential applications include increasing the yield of certain crops, protecting raw agricultural commodities during storage and transit, sanitizing packaging materials used for storage, or added to water to wash food.

"Ozone is very efficient in killing pathogens and spoilage organisms, and its use by the food industry will be welcomed as another tool to ensure the production of safe and wholesome foods," said Jeff Barach, vice- president of research and food science policy at the National Food Processors Association.

"Ozone is one of the most powerful disinfectants known. There are no toxic byproducts or potential health hazards when properly used as a microbicide," said Myron Jones, EPRI Food Technology Center Manager. (Microbial contaminants include salmonella and giardia.)

"There are scores of other possible applications of ozone to explore," said Jones, "Basically, any application that calls for purification or oxidation can potentially benefit from ozone."

"While populations increase throughout the world, we are seeing an evolution of new microbiological strains involved in human illnesses. Ozone will help to keep people healthy," said Clark Gellings, EPRI's Customer Systems Group Vice-President.

Ozone's health and environmental benefits are working to secure it a place in a wide variety of other markets. Today, more than 200 U.S. drinking water plants use ozone, and the number is expected to climb rapidly.

The EPRI, established in 1973 and headquarters in Palo Alto, CA, manages science and technology R & D for the electricity industry. More than 700 utilities are members of the Institute which has an annual budget of some \$500 million.

[Back to Top](#)

Ozone & the Boating Industry

Source:

Sail Magazine
November 1994, page 77
NEW GEAR

Portable ozone generators are new to the marine market. Ozone, itself practically odorless, kills bacteria, mold, and mildew spores and neutralizes organic odors in a boat's interior or holding tank.

Ozone, or "activated oxygen" is a molecule made up of three atoms of oxygen and is an important component of our atmosphere. It forms naturally in a number of ways and is a byproduct of office machines like copiers and laser printers.

The molecule is inherently unstable and tries to break down into the oxygen molecule as quickly as possible. This is what makes ozone such a great air and water cleanser. The ozone molecules need to combine with something in order to break down, so they end up oxidizing organic compounds and turn them into harmless carbon dioxide and water. Because ozone quickly breaks down into oxygen, it's considerably less toxic than disinfectant chemicals like chlorine.

Ozone does its magic in extremely small quantities. Experts say that at 0.05 parts per million (PPM), ozone gives the air a fresh smell, similar to that after a thunderstorm. It's effective as a disinfectant and sterilizing agent at levels 35 to 50 percent of this amount.

[Back to Top](#)

IMPORTANCE OF OZONE

In a series of studies published in a Journal Priroda (1976) the Russian Department of Health established a number of important facts concerning the use of ozone in closed indoor environments.

They established that air loses its basic "freshness" quality merely by being drawn into air conditioning and heating systems with as much as 90% reduction of the ozone and ion levels. They established that the effect of the loss of these elements could cause the occupants to complain of headaches, weakness, and a general poor feeling and sick building syndrome. As a part of the study, they found that after five months of testing with both a test group and a control group that a feeling of well being returned to those exposed to a level of 15 ppb of ozone, and that at these same levels they were able to observe increased immune potential, higher oxygen content in the blood, improved blood pressure reading, and the reduction of many of the stress characteristics associated with working in modern office environments.

They found that by reactivating the air, by the injection of ozone to raise the level to a mere 15 ppb, the overall effect was similar to that of taking an outdoor walk of 2 hours during the day. In studies by the Institute of Child and Adolescent Hygiene, it was concluded that injection of ozone into the air of schools raising the level to 15 ppb had very positive effects on the students. In these tests, 69% of the students exposed to these levels of ozone decreased the time required to complete tasks requiring high levels of concentration. In addition, it was found that favorable changes in the functions of external respiration, increases in mental reserve capacities, and overall increases in general state of health and mental efficiency were observed.

Doctor's Ozone Reviews

Ozone, God's Gift to Humanity
Lecture by J. H. Effenberg, Ps.D., Ph.D.
Turlock, California
"Your Health Reflects The Air You Breathe"

Ozone

A blanket of OZONE in the atmosphere is our protection for life on this earth as it screens out the cosmic radiations. This has been our previous explanation in the subject of our lecture entitled lecture No. 1. In the lecture study No. 2, we have discussed OZONE in relation to our air belt acting as a great vacuum cleaner and as God's OZONE generator in action in order to keep the air fresh and clean for the sake of our health and pleasure. In this lecture, lecture No. 3, I will try further to discuss OZONE so that it may become an intimate part of your thinking in relation to your life, the community and as a health modality.

OZONE has a useful scope and is widely used throughout the world. Perhaps more so than any other like therapy. In this lecture, we shall discuss OZONE'S general and special therapeutic value, for OZONE has an outstanding medical history. It is used in operating rooms and wards in hospitals for the purpose of destroying harmful bacteria that constantly filter into the air and render the atmosphere unsterile in so far as surgical procedures are considered. One finds it a matter of standard therapy to protect patients, doctors, nurses and visitors besides its use for sterilization purposes in operating rooms and wards. It is also used by doctors for the treatment of many ailments with gratifying results.

For a great many years the use of OZONE therapy has been neglected because its therapeutic value was not sufficiently understood. However, after such outstanding research authorities as are hereinafter set out, the use of OZONE has become one of common knowledge.

I humbly submit to my readers some of my experiences gained over a period of some 40 years, in relation to the sick and ailing for as a Military Officer, I have had charge of an Army Hospital, in Germany. I also employed myself as a Medical Corps Officer in the Turkish Army. Then again, as a Missionary, I had charge of a large medical institution in Central China sponsored by the Seventh-day Adventists and in my extensive travels through China, Tibet and Mongolia I was able to help many of our suffering fellow men. Thus, in these 40 years I had occasion to study human ailments and learn many things concerning God's wonderful handiwork in relation to the human body and the body's opportunities for restoration. In 40 years of careful study I have concluded that there is nothing of such therapeutic value as that of OZONE. Despite 40 years of observations, I humbly acknowledge that OZONE therapy has such great prospects for alleviating sickness that I feel that we have just scratched the surface of this immensely interesting subject.

In this third lecture series I am submitting to you my reflections on the efficacious use of OZONE and in addition to this, am presenting to you a Compendium of outstanding Doctors and Scientists, who have spent many years in research work with OZONE and who have in their case histories indicated the advantages in the use of OZONE. In the hope that you will feel as I do, that there is a need for OZONE in the life of every single individual, I herewith present to you:

A Compendium of Outstanding Doctors and Scientists as a RESEARCH AND HEALTH FORUM. Represented in this survey are: Allison, D. K., M.D., USA Abbe, Donatien L., M.D., France Aughinbaugh, W. E., M.D., USA Bennett, H. Clark, M.D., USA Caille, August, M.D., USA Carpenter, Frank B., M.D., USA Chamorre, A. T., M.D., Argentine Drinker, Philip, M.D., USA Eberhard, N. M., M.D., USA Hallet, E. S., M.E., USA Howlett, E. S., M.E., USA Glockner, Albert, USA Glosses, Charles Le., D.C., USA Johnston,

Geo. A., M.D., USA Justice, O. M., M.D., USA Kaime, Martha, USA Vessel, J. F., M.D., USA Kleinemann, M.D., Germany Kunzemann, Th., M.D., Germany Marke, William, R. Ch., USA Moore, J. Fredrick, M.D., USA Olson, J. C., Ph.D., USA Oudine, G., M.D., France Pribluda, S., M.D., Argentine Quiros, Maria, USA Rideal, E. K., Ph.D., USA Riesbeck, E. W., M.E., USA Rosenaw, M. T., M.D., USA Steward, James, M.D., USA Stockes, Geo., M.D., England Thorp, Clark, Ph.D., USA Thorpe, Sir Edward, LL.D., England Tyler, Richard G., Ph.D., USA Verbon, Leo, M.D., USA White, E. G., H.R., USA

Research Centers Represented in this Survey:

Armor Research Foundation - Institute of Technology, ILL, USA. American College of Physical Therapy - USA Berlin University - Germany Behren Memorial Hospital, Glendale, Calif. - USA Board of Education, St. Louis - USA Bouvicant First Hospital, Paris - France British Army Medical Service, London - England Chicago College of Medicine and Surgery, Chicago - USA Harvard University, Cambridge, Mass - USA Polytechnic Institute, Brooklyn, N.Y. - USA Physical Chemistry University, Illinois - USA Post Graduate Medical School, New York - USA S. California University of Los Angeles - USA Salaberry Hospital, Buenos Aires - Argentine Spaulding General Hospital, Portland, Oregon - USA Western Reserve University, Cleveland, Ohio - USA Washington University, Seattle, Wash - USA

Authority: Dr. Clark Thorp, Ph.D., M.D.

Acting Chairman, Department of Chemistry and Chemical Engineering, Armour Research Foundation, Illinois Institute of Technology.

Subject: Ozone - is Non-Toxic!

In many discussions on the properties and uses of Ozone, it is stated that Ozone is a toxic substance, that is harmful to the mucous membrane, that it is an irritant or that it is a poisonous gas. These statements are based upon the results of experiments which were carried on by workers who were unaware of the true nature of the gas they were investigating. However, recent authoritative investigation have established that pure Ozone is non-toxic even in concentrations as great as 20 to 50 parts per million of air. Ozone containing oxides of nitrogen, on the other hand, can be toxic in higher concentrations such as 1.5 parts per million.

"Although it has not yet been definitely shown why Ozone containing HIGH nitrogen oxides can be toxic, IT HAS BEEN DEFINITELY ESTABLISHED THAT OZONE FREE OR LOW OF NITROGEN OXIDES IS COMPARATIVELY NON-TOXIC." CONFIRMATION WAS MADE IN 1942 by HILL, A PHYSICIAN SPECIALIZING IN INDUSTRIAL HYGIENE.

In 1921, Hill and Aeberly published a series of articles reporting on tests concerning the effects of Ozone, chemically, physically, and physiologically. As a result of these tests a toxic limit for Ozone was established at 1 part per million. It was also stated that 20 parts per million with an exposure of two hours might prove fatal to human beings. After noting the work of Thorp, Hill, realizing that oxides of HIGH levels of nitrogen had been present in his previous test, decided to re-run the test on an identical basis to determine if pure Ozone had higher toxic limits.

AS A FINAL RESULT OF HIS WORK, HILL STATES: "PURE OZONE IS NOT POISONOUS IN ANY SENSE OF THE WORD AS IT BREAKS DOWN IN CONTACT with the mucous membrane and only oxygen remains."

Authority: A. Vosmaer, Ph.D.,

London, England Electrical and Chemical Engineer

Subject: Ozone - for Air Purification - Remarkable power for killing bacteria. Ozone owes its fame to its remarkable power of killing bacteria. That is why the world should look upon Ozone as a boon to mankind. No matter how many bacteria there may be, Ozone will take care of them and destroy any amount of any kind. The trouble is that one soon gets used to bad air, and bad odors are not apt to be noticed after awhile; but the fact remains that pure air is more wholesome than contaminated air. In our regular daily life, it is almost an impossibility to provide for fresh air. No amount of ventilation, not even an unbearable draft, will be capable of keeping a room or a place in good condition, unless one takes recourse in ventilating with "ozonated" air. Removal of bad odors by means of air flushing is an absolute impossibility, and yet they should be removed. That is where Ozone comes in. The method of purifying the air by Ozone has the advantage of being fully reliable. Very efficient and inexpensive. In "Ozone, its Manufacture, Properties and Uses"

Authority: Dr. S. Pribluda

Supt. Hospital Salaberry, Buenos Aires, Argentine

Subject: Ozone - for aerobes and anaerobes

For nine years I have utilized Ozone Therapy with truly remarkable results and on numerous occasions I have published the practical results of personal experiences and those of others. Today I wish to return to evaluate all the reference material related to Ozone therapy, stimulated by the presence in our medical centers of the marvelous drug, penicillin.

What is Ozone?

Ozone is a natural gas with bactericidal properties.

Bactericidal Action:

It is effective against aerobes and anaerobes. Those which have the least resistance to the effects are pneumococcus, streptococcus hemolyticus, staphylococcus, e-coli, and diphtheria. In general, one ozonation of a few minutes is sufficient to sterilize a culture of aerobes; 15 or more for anaerobes. Subtilis and streptococcus viridans, as well as spore forming anaeroves are more resistant. THE ACTION OF OZONE IS ON THE BACTERIA, THEIR TOXINS, AND THEIR NUTRITION PRODUCTS (ENZYMES). The sterilizing action of Ozone does not depend on the number of germs, but rather on the medium of cultivation, on their vitality, the concentration of Ozone and the duration of its application. It is more active :

1. in liquid media than solid,
2. when in greater concentration and

3. when the time of application is longer.

In "La Semana Medica"

Authority: Dr. Charles Leland Glosses
General Health Clinic, Los Angeles
Subject: OZONE-for Arthritis

Ozone has several uses:

1. As an extremely active oxidizing agent.
2. As an effective disinfectant and germicide.
3. Clinically, it has been found effective in dissolving and breaking up various abnormal deposits, such as that of Arthritis, Nephrolithiasis, or Cholelithiasis. In chronic arthritis the lowered carbon dioxide tension results in an anoxia (oxygen deficiency) brought about by a lack of stimulation for oxygen-carbon dioxide exchange. Lack of oxygen results in a degenerative process that leads to hyalinization and later, calcification. Clinical evidence has shown results in the use of Ozone in both acute and chronic inflammatory conditions. It has been known to break up certain calcifications in arthritis. It sounds reasonable to assume that in the demand for oxygen in an acute process, if oxygen was administered in some rapid form, as Ozone, the augment of an already laboring normal oxygen supply would be of benefit. In the case of a chronic condition as arthritis (the normal tissue accepting only what oxygen it needs), if additional oxygen would be introduced into the abnormal, oxygen depleted tissue, the process would be reversible and result in a removal of the abnormal deposits and a return to normal or near normal. In "Theoretical Consideration of Ozone Therapy"

Authority: Dr. S. Pribluda
SUPT. Hospital Salaberry, Buenos Aires, Argentine
Subject: OZONE-for Asthma

Is Ozone Therapy Effective in Asthma?

New trials upon asthmatics; men and women, having distinctly chronic asthma, have led us to this conclusion: OZONE HAS THERAPEUTIC EFFECTS ON ASTHMATICS. Although it relieves them for greater periods each time, during which they are not fatigued, each was obliged to resort to Ozone therapy for one, two or more months. Many asthmatics considered them selves cured by a month of treatment, externally characterized by the total disappearance of dyspnea and paroxysms. How Long will this Symptom-Free Period Last? We do not know precisely. Several patients have gone six to eight months without an attack...we need a period of two or three years without relapse to consider such a case "cured" however. What is the Action of Ozone in Asthmatics? It is possible to consider it a Bulbar action...more probably Ozone modifies the allergic state by its properties of oxidizing energy over the intermediate products of metabolism. New studies have shown us the actuality of its therapeutic action. It is CERTAIN that ALMOST ALL of the ASTHMATICS IMPROVED UNDER OZONE THERAPY. In "La Semana Medica"

Authority: Hans Kleinmann. M.D.
Germany

Subject: OZONE - for treatment of diseased bodily cavities. General information concerning new possibilities of using gases in therapeutics. "Whereas, thus far in medicine the use of pharmano was limited to the use of a solid or liquid state of aggregation, and the use of gas with limited exceptions, priorily was used for diagnostics and mechanical purposes, this work aims to point out what advantages and multifarious possibilities extended employment of gases with pharmacological qualities could offer." I have come to the conclusion that in treatment of infected or general diseased bodily cavities and passages, gases of pharmacological qualities offer absolute advantages. All infections of bodily cavities, which have not been treated locally thus far (Pleur, Peritoneum, Pelvis Renalis) or have been treated with liquid disinfectors (Bladder, urethra, intestines) would be accessible with such gaseous treatments, and considering the effectiveness of the remedy, one must give primarily superiority to the gaseous state of aggregation. Only imagine how exceptionally deep folded and how richly wrinkled a mucous membrane of the bladder is, or how much protection bacteria finds in glandular openings or passages in the urethra: therefore, it is quite clear that a liquid solution which is rinsing the surface only, can have no deeper penetrative effects. It is different with gas. The same will stretch out the folds and penetrate into the wrinkles and passages. Considering all the mentioned conditions, from all known gases, it seems that Ozone is the one that can perform it. It is composed of three atoms of oxygen, and has the tendency to split off one of the atoms of oxygen. In so doing, it is a super-oxidizing agent, leaving as a by-product oxygen only, and this can be harmlessly absorbed by the tissue. This fact has persuaded me more than anything else for my first experimental investigation to use Ozone instead of light solutions of ether, chloroform, halogen, which as a by-product delivers corrosive hydro-acids. In "Treatment with Pharmacologically-active Gases", "The Action of Ozone"

Authority: Ellen G. White,

Health Reformer, World renowned Writer and Reformer.

Subject: PURE AIR for - The circulation of the Blood and Respiration CIRCULATION In order to have good health, we must have good blood: for the blood is the current of life. It repairs waste, and nourishes the body. When supplied with the proper food elements and, when cleansed and vitalized by contact with PURE AIR, it carries life and vigor to every part of the system. The more perfect the circulation, the better will this work be accomplished. At every pulsation of the heart, the blood should make its way quickly and easily to all parts of the body. Whatever hinders the circulation forces the blood back to the vital organs, producing congestion, headache, cough, palpitation of the heart, or indigestion is often the result. RESPIRATION In order to have good blood, we must breathe well. Full, deep inspiration of pure air, which fills the lungs with oxygen, purifies the blood. They impart to it a bright color, and send it, a life-giving current, to every part of the body. A good respiration soothes the nerves, it stimulates the appetite and renders digestion more perfect and it induces sound, refreshing sleep. The lungs should be allowed the greatest freedom possible, their capacity is developed by free action; it diminishes if they are cramped and compressed. Superficial breathing soon becomes a habit, and the lungs lose their power to expand. Thus an insufficient supply of oxygen is received. The blood moves sluggishly. The waste, poisonous matter which should be thrown off in the exhalations from the lungs, is retained, and the blood becomes impure.

Not only the lungs, but the stomach, liver, and brain are affected. The skin becomes shallow, digestion is retarded; the heart is depressed; the brain is clouded; the thoughts are confused; gloom settles upon the spirits; the whole system becomes depressed and inactive, and peculiarly susceptible to disease. PURE AIR The lungs are constantly throwing off impurities, and they need to be constantly supplied with Fresh Air. Impure air does not afford the necessary supply of oxygen, and the blood passes to the brain and other organs without being vitalized. In "Ministry of Healing"

Authority: Prof. Richard G. Tyler
Professor of Sanitary Engineering, University of Washington, Washington
Subject: OZONE - for treatment of chemical wastes.

University of Washington researchers have announced an Ozone process for treatment of chemical wastes which promises to become highly important. The process is ATTRACTING NATIONAL ATTENTION BECAUSE IT ELIMINATES THE USE OF CHLORINE. Which is becoming scarce. Ozone, a form of oxygen can be made from air. The Ozone treatment is of particular interest to the Pacific Northwest because it eliminates chemical products poisonous to fish life. The University experiments have been conducted with cyanide wastes. Cyanide is one of the deadliest poisons. The wastes, resulting from many industrial processes, usually are treated with chlorine. But the products of the chlorination process also are bad for fish. Laboratory tests, conducted by a research group under the leadership of Richard G. Tyler, Professor of sanitary engineering, indicate that the OZONE TREATMENT CAN ELIMINATE ALL DANGER TO FISH LIFE and that the cost, with large installations, will be no greater than for the chlorine treatment. As a result of the experiments: 1. The Boeing Airplane Co. is planning a pilot Ozone plant for treatment of its cyanide wastes. 2. Engineers planning a new waterworks for Fairbanks, Alaska. 3. Engineers also proposing Ozone treatment for the City's water supply. If enough Ozone is pumped into a cyanide solution, such harmless products as bicarbonates (baking soda, for example) and nitrogen result. The University experiments also are being directed toward substituting Ozone for chlorine as a bleaching agent. Wood pulp bleached with chlorine eventually takes on a yellowish or brownish cast, noted by all who have consulted old newspaper files. Professor Tyler hopes Ozone bleaching may remedy this. But before carrying these experiments further, he will have to enlist a new research crew. William Maske, research chemist, and M. J. Westin and Willard Matthews, research fellows, made up the team carrying on the cyanide waste. project. In "Seattle Times" May 25, 1951

Authority: August Caille, M.D.
Professor: Children's Diseases Post-Graduate Medical School, New York, N. Y.
Subject: OZONE - for Chlorosis
Increase of Oxyhemoglobin, Case Histories

The period of my observations extended over five months. Altogether this report embraces 22 cases. The salient points in the cases treated with OZONE inhalations are as follows: Case 4. Chlorosis and Anemia. E. V., 11 years old. Extreme anemia Cold skin. No appetite. Daily headache. No marked improvement after iron and arsenic. Vital capacity 90. Oxyhemoglobin 7%. OZONE inhalation twice daily for 15 minutes, for two weeks. Followed by a very great improvement. 11% oxyhemoglobin. Vital capacity 120. Warm skin. Good appetite. No headache. Case 5. E. H., 22 years old. Oxyhemoglobin 8%. General condition and treatment as in case 4. After two weeks inhalations, 10% Oxyhemoglobin and general condition very good. Case 6. Severe anemia since birth in a sickly looking and emaciated girl of 11 years. 5% oxyhemoglobin. Skin and mucous membranes white. General condition bad. No improvement after change of climate and iron, arsenic, phosphorus, etc. OZONE, 3 times daily for 10 weeks. Great change noticeable. Good color, warm skin, good appetite, no headache, great ambition to work and study. 10% oxyhemoglobin. Case 7. Chlorosis. K. W., 19 years old. Menses scant, every 8 to 10 weeks. All other symptoms of great anemia present. Duration of illness 4 years. 8% oxyhemoglobin. OZONE inhalations daily for 10 weeks, during which time the menses appeared twice at proper intervals. 3% increases in oxyhemoglobin. Case 8. Chlorosis. C. B., 20 years old. Much like case 7. No noteworthy improvement after iron. 8% oxyhemoglobin. OZONE inhalations daily for three months. Complete cure. 3% gain in oxyhemoglobin. Case 9. Chronic Bronchitis and Great Anemia. A. A., 40 years old. 8% oxyhemoglobin. After daily inhalations for 2 months, great improvement in regards to anemia. Case 10. Chlorosis and Nervous Prostration. E. S., 24 years old. Daily inhalations of OZONE for 4 weeks increased the oxyhemoglobin 3% and made further treatment unnecessary. No relapse after 2 months. Case 11. Anemia and Chronic Naso-pharyngeal Catarrh. A. R., 20 years old. Oxyhemoglobin 9%. Cured after inhaling for 2 months and ended local treatment of Naso-pharynx. 3% gain in oxyhemoglobin. Case 12 Chlorosis of long standing. E. K., 22 years old. Inhalation three months. All symptoms removed or much improved. 3% gain in oxyhemoglobin. Case 13. Anemia in Tuberculosis of Cutis. M. C., 22 years old. Unable to attend to business. No effect from usual drugs. After three months inhalations is in excellent general condition, but the skin affection remains stationary. 2% increase in oxyhemoglobin. Case 14. Extreme anemia from chronic lead poisoning. After 50 inhalations oxyhemoglobin increased 3%. No relapse after two months.

Pertussis: Seven cases, Children ranging from 18 months to 7 years. Each case well marked and of average severity. Two to three inhalations given daily. All cases discharged after two weeks, except one which lasted four weeks. The improvement became manifest after the first three or four inhalations, as regards the severity and frequency of the spasmodic attacks. The children slept better during the night after OZONE inhalations, than before the treatments, and the youngest children under observation usually went to sleep after each inhalation. (Whooping Cough) CONCLUSIONS: Daily Inhalations of Ozone Increases the Quantity of Oxyhemoglobin in the Blood from 1% to 4% in a Short Time. In Pertussis, OZONE inhalations have a very distinct curative effect as regards the duration and severity of the disease. In Chlorosis and anemia, Ozone inhalations are exceedingly valuable from a therapeutic stand point and give better and prompter results than any other form of medication. Atmospheric medication is readily secured, making this probably a valuable procedure in the treatment of Diphtheria, Scarlet Fever and other infectious diseases. I am convinced that it would be a value in Pernicious Anemia. The anemia children who came under treatment were very sick, especially the one case I referred to, in which everything had been tried, and it was really remarkable how soon this child picked up and became better in every way after inhaling OZONE. I was thoroughly surprised at the result. In "Report to the American Society:" Boston, Mass.

Authority: Dr. Leo Verbon
Director Spaulding General Hospital, Portland, Oregon
Subject: OZONE - for Sinusitis and Head Colds, Colitis, Arthritis and for deodorizing Patients rooms. "For de-odorizing patient's rooms, the Ozone generator is invaluable". "In SINUSITIS and HEAD COLDS we use OZONE as a STANDARD TREATMENT. It is an accepted fact that Ozone inhibits bacterial growth, and our use of Ozone generators in connection with the treatment of colitis

and arthritis cases has amply demonstrated this to us.

Subject: OZONE - for Cardia Vascular renal disease

There is hardly a condition that we have treated in this hospital where Ozone has not benefited them. An outstanding case in mind suffered from Cardia vascular renal disease. The dropsical condition of the lower extremities was very pronounced. The patient could not lie in bed, had to remain in a sitting position practically all the time in order to be able to breathe. After placing an Ozone generator in the room, his breathing, heart action and color of the skin improved remarkable. Although he did have other treatments for his condition, WE CONSIDER THE AID THE OZONE HAS GIVEN HIM, ONE OF THE GREATEST CONTRIBUTING FACTORS. At the present time the patient's condition is so improved that the heart action is practical normal, he sleeps comfortable in a normal reclining position, and the dropsical condition has cleared up. In "Cosmoray"

Authority: George Stocker. M.D., C.M.G., M.R.C.P. Major R.A.M.C.

Subject: OZONE - for treatment of Consumption

OZONE INHALATION TREATMENT OF CONSUMPTION AND CATARRH

The difficulty and trouble required to obtain a good result has hitherto led to the unpopularity of this method in the medical profession, and want of a proper understanding of the right way in which to carry out the inhalation treatment has sometimes led to bad results when it has been tried. Some years ago, Hass showed that it was possible to thoroughly impregnate the air of a closed room with volatile antiseptics so that a patient using the room could not avoid drawing the substances right down into the lung during the ordinary process of breathing. His experiment made it apparent that this principle was one of great importance AND ONLY WANTED A SUITABLE INVENTION OF AN APPARATUS TO BE OF VERY GREAT USE IN THE TREATMENT OF DISEASES OF THE LUNGS AND AIR PASSAGES. IT IS UNQUESTIONABLE THAT EVERY METHOD OF INHALATION TREATMENT MUST BE CONTINUOUS IF IT IS TO BE EFFECTIVE. Some of many case histories listed: Female, age 23. Two brothers and one sister had died of consumption. The patient suffered with cough, muco-purulent expectoration and had haemoptysis. Tubercle bacilli were present in small quantities. She was under treatment for one month. The purulent character of her sputum and the tubercle bacilli quite disappeared. The haemoptysis ceased and the patient gained 4 pounds in weight. Male, age 22. Several near relations died of consumption. Patient had large cavities in the apices of both lungs, repeated haemoptysis, profuse muco-purulent expectoration, night sweats, and severe cough. His average evening temperature was 102 and tubercle bacilli were present in large quantities. He was six months under treatment; at the end of this time his evening temperature was normal; the haemoptysis had ceased, the expectoration was healthy and the tubercle bacilli had disappeared and he gained 10.5 pounds in weight. The cavities had cicatrized and contracted so much that the top of the left chest was fixed. The most remarkable results of this system of treatment are to be seen in 1. the reduction of the temperature, and 2. diminution and disappearance of the tubercle bacilli. It may be stated that the patients had the usual meals, breakfast, lunch, tea and dinner or supper; in fact, had ordinary diets and the so-called "stuffing" system was not practiced. In "Case Records" and "British Lancet"

Authority: E. W. Reisbeck. M. E., Ozone Research Authority

Subject: OZONE - for destroying Odors

ERADICATION OF OBJECTIONABLE ODORS

"Ozone destroys all odors that are present. It does not merely mask them. The destruction of odors is impossible when air is circulated only, or when oxygen is used. This fact has been proven in cold storage warehouses, where all kinds and any food products are stored. Odors are not present regardless how strong they might be, or where they may originate, if only low concentrations of Ozone is used." In "Air Conditioning and Ozone Facts"

Authority: Dr. Philip Drinker, School of Public Health, Harvard University "As a deodorant for odors and stenches of organic origin, OZONE has long proven effective and we can only confirm this general opinion"

Authority: Milton J. Rosenaw, M.D.

"Ozone destroys organic odors," Ozone is a deodorizer of powerful stenches, such as from garbage incineration and fat rendering." When the odors from chimneys cause public nuisance Ozone has commercial use fullness. In "Preventive Medicine and Hygiene"

"Editorial"

OZONE HAS A STRONG PENETRATING ODOR WHICH IS PERCEPTIBLE WHEN IT IS PRESENT IN THE ATMOSPHERE IN CONCENTRATIONS AS DILUTE AS ONE PART IN 100 MILLION PARTS OF AIR BY VOLUME.

The effect of Ozone was thought in the past to be a masking action but more recently the tendency is to hold that it is purely an oxidizing process. Most odors encountered in ventilation problems result from hydrocarbon compounds suspended in the atmosphere in minute quantities as the result of human or animal respiration and from various organic processes. THESE HYDROCARBONS ARE IMMEDIATELY OXIDIZED UPON COMING IN CONTACT WITH OZONE, THE RESULTING PRODUCTS BEING WATER AND CARBON DIOXIDE, BOTH ODORLESS. This process is effective in completely removing the scent of odors, if the reaction is complete, which requires that the Ozone be in such a manner as to insure its even distribution throughout the air. In "Heating and Ventilation Magazine"

"Refrigeration and Air Conditioning"

"In the sales, cooler, fresh and sweet air at times would be a distinct selling advantage. OZONE seems to offer the solution of this and other problems of pure air in the meat packing plant. In fact, it is being widely used in cold storage plants to correct the very situation objectionable in the meat packing plant. In "Refrigeration and Air Conditioning"

Authority: George A. Johnstone, M.D., Medical Director of Behrens Memorial Hospital Glendale, California
Subject: OZONE - for eradication of objectionable odors

TO WHOM IT MAY CONCERN:

I have tested the Calozone Ozone Generator in the Behrens Memorial Hospital for the eradication of objectionable odors. In the tests that I have completed the following results were observed: Unpleasant odors are not masked or covered up, but are literally destroyed. The results in an ordinary room are almost immediate. Where clean, fresh air is desirable, this machine has a definite contribution to make to the Medical World. Sincerely, George A. Johnstone, M.D. Medical Director

NOTE: "Calozone Ozone" and "Vitazone Ozone" Generators are one and the same machine, manufactured by the same company.
"Result of Personal Investigation"

Authority: Homer Clark Bennett, M.D., M.E., Ph.D.

Subject: OZONE - for Insomnia, Hay Fever, Bronchitis, Tuberculosis, Anemia, Dyspepsia, Constipation, Headaches, Inactive Liver and Kidneys, Syphilis. "The conditions I would mention especially as being most amenable to OZONE treatment are: Neurasthenia, Melancholia, Insomnia, Hay Fever, Bronchitis, early stages of Pulmonary Tuberculosis, Anemia, Dyspepsia, Constipation, Headache, Inactive Liver or Kidneys, and Syphilis in any stage, and I would say that it is a most valuable adjunct to surgical, electrical and other procedures for the relief or cure of organic disease." In (The Electro Therapeutic Guide)

Authority: Torald Sollman, M.D., Professor Pharmacology & Materia Medica Western Reserve University. Cleveland, Ohio

Subject: OZONE - for Therapeutic Application "Ozone is a polymeric form of oxygen, O₃ which decomposes very rapidly with the liberation of oxygen. It is therefore a strongly oxidizing, deodorant and antiseptic. The older methods of preparing Ozone developed irritant nitrogen oxides. The modern generators are free from this defect."

Authority: Frank B. Carpenter, M.D., New York City, N. Y.

Subject: OZONE - for the Nervous System, Insomnia (sleeplessness) OZONE for the Nervous System "That Ozone is harmless, we have demonstrated over a period of many years in patients of all ages. By its soothing, quieting effect on the nervous system, it relieves Insomnia. It is especially indicated in Asthma and all diseases of the Respiratory Organs." In "Manual of Pharmacology"

Authority: E. W. Riesbeck. M.E., Ozone Research Authority

Subject: OZONE - for Monoxide Poisoning

"Carbon monoxide is a tasteless, odorless and almost colorless gas. The poisonous action of this dangerous gas depends on the fact that it has over 200 times as much affinity for the hemoglobin of the blood than oxygen. Formed by burning gasoline, oil, gas, coal and other combustible material with an insufficient supply of oxygen, this gas is dangerous to health. It attacks mostly without warning, and the victim in a great many cases, if he becomes aware is too weak to escape. With these facts in mind tests were conducted with various devices designed to reduce the carbon monoxide content of the air in garages. NONE OF THESE WERE AS EFFECTIVE AS OZONE. OZONE UNITES WITH THIS POISONOUS GAS AND RENDERS IT HARMLESS. Oxygen O₂ cannot exert the same action on the carbon monoxide as Ozone O₃. Ozone no doubt combines with a greater amount of carbon monoxide thus forming carbon dioxide, which is expelled during the process of respiration. For this reason the usual headaches are eliminated when Ozone is used in ventilating garages. Poisoning of air by carbon monoxide 1 part of carbon monoxide to 10,000 parts of air - effect noticed 2 parts of carbon monoxide to 10,000 parts of air - mild poisoning 6 parts of carbon monoxide to 10,000 parts of air - perceptible poisoning 9 parts of carbon monoxide to 10,000 parts of air - headache, nausea 15 parts of carbon monoxide to 10,000 parts of air - Dangerous to life In "Air Conditioning and Ozone Facts"

Authority: Sir Edward Thorpe. LL.D., C.B., F.R.S., England

Subject: OZONE - for oxidation of exhalations from the Lungs and Skin. "Another important application of OZONE which has made great progress recently is for the purification of the air of rooms and enclosed places. It is now recognized that the bad effects of the close air of crowded rooms etc. is not due to the excess of carbonic acid or of moisture present, but to TRACES OF VARIOUS ORGANIC EXHALATIONS COMING FROM THE LUNGS AND SKINS OF PEOPLE AND ANIMALS PRESENT. These traces of organic matter are readily oxidized by Ozone, as to be harmless, and even beneficial when breathed. It has been found that the introduction of small quantities of Ozone into close air has been the result of removing stuffiness and unpleasant effects, and making the air pleasant and invigorating."

Large numbers of installations have been put into houses, hospitals, theatres and other public buildings and the process has just been adopted on a large scale for the purification of the Central London Tube Railway. It has also been adopted with advantage in cold storage houses, slaughter houses, and factories where unpleasant smelling work is being carried on, for deodorizing generally and in Paris, in connection with the disinfection of clothing. In "Dictionary of Applied Chemistry"

Authority: Noble M. Eberhard, M.D., A.M., Ph.D., Formerly Director of the Department of Electro Therapy, Chicago College of Medicine and Surgery

Subject: OZONE - for Oxygenation of Blood and tissues increasing oxyhemoglobin. "Ozone increases the oxygenation of the blood and tissues, thus increasing oxyhemoglobin and also increasing the number of red blood corpuscles. There are some diseases of the respiratory organs, including tuberculosis, infectious diseases and all conditions, where imperfect oxidation and impaired nutrition are present, where OZONE is beneficial. An OZONE spray has been demonstrated to be healing in all forms of ulcers, etc. OZONE is especially effective in consumption." "IF I COULD HAVE ONLY ONE REMEDY, I WOULD PREFER TO TAKE MY CHANCES WITH OZONE." In (A Working Manual of High Frequency Current)

Authority: George Stocker, M.D., C.M.G., F.R.C.S., R.A., M.C.

Subject: OZONE - for Gas Poisoning

The idea of using Ozone inhalation in the treatment of cases of poison gas was first suggested to me by long experience of this

treatment in diseases of the air passages, such as pneumonia, bronchitis, bronchientacis, etc., and also of cavities in the lungs and in empyena; by this most successful results were obtained.

I considered poison gas as a producer of what may be called a mechanical Pneumonia, as opposed to the more ordinary forms resulting from cold causes etc., and requires the same treatment.

The principal effects of Ozone are:

1. as a complete germicide
2. a strong factor in the formation of oxyhemoglobin and
3. a powerful stimulant to the heart.

2. When prepared from atmospheric air, with proper ozonizers, and care fully administered, it is absolutely NON-IRRITATING. If these precautions are not observed, it may produce irritation instead of relief. Ozone should be inhaled directly from the ozonizers air-tight chambers, such as are used in hospitals for the treatment of tubercular cases, are cumbersome and inconvenient, and not suitable for the advanced front. Ozone is a very evanescent body and soon loses its power and becomes oxygen again, and for these reasons should be inhaled direct from the ozonizer.

Ozone should be thus inhaled from 10 to 15 minutes at each application. The number of applications being dependent on 1. the severity of the case 2. the toleration of it by the patient and 3. the relief afforded. It must be remembered that the sooner Ozone is inhaled, even though for a short time at first, the better the result will be. THE OBSERVED EFFECTS OF OZONE IN GASSED CASES ARE: 1. It relieves the cough, dyspones and pain. 2. It assists the expulsion of the glutinous mucous from the air passage. 3. It stimulates the heart's action and reduces its intermittence when this symptom shows. 4. In many cases of gassing, the mental condition of the patient is affected, they become dull, stupid and apathetic. OZONE RELIEVES AND BANISHES THESE CONDITIONS. In "British Lanset"

Authority: E. W. Riesbeck, M.E., Consulting Engineer, Chicago

Subject: OZONE - for Pneumonia

Let me quote a few cases on record:

Case No. 1.

"October 15. Pneumonia and Asthma patient 72 years old was transmitted to the hospital by ambulance. Temp. 105.2, pulse and respiration way above normal at arrival. The case was desperate and the doctor decided to place the patient in the air conditioned OZONE ROOM. During the next 6 days, temperature, pulse and respiration dropped gradually so that on Oct. 21, the temp. was 97.4, pulse 70, and respiration 23. Patient was discharged from Hospital, October 25. Case No. 2. "Patient admitted to the hospital Feb. 3, suffering from DOUBLE PNEUMONIA and placed in a private room. Feb. 5, his temp. reached 105.6, pulse 128, respiration 50. This desperate case was transferred Feb. 5, at 8 p.m. to the air conditioned OZONE ROOM. Within ONE hour, temp., pulse and respiration began to drop and the patient walked OUT OF THE HOSPITAL on February 14. Case No. 3. "A double pneumonia case became critical on July 1, at 7:30 p.m. when his temp. reached 103.8, pulse 140, respiration 58. Within 45 minutes after he was transferred to the air conditioned OZONE ROOM, his temp. and respiration began to drop rapidly. On July 7, his temp. was 98.6, pulse and respiration normal. Patient was discharged from hospital, July 12. These are just a few cases which prove the power of OZONE used in conjunction with properly conditioned air to be of help to the medical profession. In "Air Conditioning and Ozone Facts"

Authorities:

James Steward, M.D., Director of Hygiene

E. S. Hallett, Chief Engineer, Board of Education, St. Louis

Subject: OZONE - Indispensable in Schools

During the influenza epidemic in St. Louis, the most critical and advanced cases were transferred to an open air school, which made for high percentage of mortality. In one particular ward, experiments were made with ozonized air on cases approaching or at the crises period of the diseases where patients were able to inhale at all, they WERE AT ONCE RELIEVED AND SUCCESSFULLY CARRIED OVER THE CRISIS. Two schools were then used for an experiment, one with OZONIZED air and another with ordinary air. Both schools contained approximately the same number of rooms. The following cases of sickness were observed and tabulated:

CONDITION	OZONIZED AIR	ORDINARY AIR
Tonsillitis	13	57
Sore Throat	24	60
Colds	46	64
Headache	9	66
Stomachache	0	25
Earache	1	15
Toothache	0	15

Indigestion	0	9
Fever	1	49
The Grippe	0	6
Pneumonia	0	4

Comparing the total days absent we find that in the school where OZONIZED air was used, the school children were absent, due to the foregoing cases of sickness, 475 school days, while in the school where ordinary air was circulated by means of the ventilating system, the school children were absent a total of 1,098 school days. Thousands of lives would be saved every year if homes and schools were equipped with apparatus for the circulation of Ozone. Injected with the air of the building to the extent of one part of Ozone to one million parts of air, it effects approximately 100% purification. In five years that Ozone has been used in the Public Schools of St. Louis, TUBERCULOSIS CASES HAVE BEEN REDUCED 50%, ALSO OTHER DISEASES HAVE BEEN MATERIALLY REDUCED. In "Report to National Warm Air, Heating and Ventilating Association"

Authorities:

Dr. S. Pribluda. M.D.

Dr. T. A. Chamorro. M.D., Hospital Salaberry, Buenos Aires, Argentine

Subject: OZONE - for Rheumatic Pains

We have had the opportunity of treating with real success a large number of rheumatic patients with Ozone therapy. Many of these patients had retrogressed under other treatments. For two years, Professor Dr. T. A. Chamorro tried the effects of Ozone in diverse illnesses. In each of these cases Ozone provided a temporary analgesic in the painful areas of the body (see: "More experiments with Ozone in child birth and gynecology" by Dr. T. A. Chamorro, La Semana Medica.) What is the action of Ozone on rheumatism? Why is it analgesic? It is difficult to determine its true action for its introduction into the organism destroys it, and opposed to other pain-relieving agents (of complex chemical compositions) it does not undergo great transformations in the body which would permit the study of intermediate states; however, Ozone is O₃, and decomposes into atomic oxygen, a normal element of the body. Its behavior is that of nascent atomic oxygen which has acquired a large amount of radioactive energy, accumulated during the time of its production in the generating apparatus. Does the Ozone act through its oxidizing and radioactive properties? These properties tend to oxidize the intermediate products of metabolism; however, there exists a factor which contradicts this theory. At times the analgesic effect is almost instantaneous, more frequently when the subcutaneous method is used in the "locus dolenti." There is a direct action on the sensitive "filetes" IN THE SKIN IN DIRECT CONTACT WITH THE OZONE WHOSE DIFFUSIBILITY IN THE CELLULAR TISSUE IS QUITE MARKED. Leaving to one side its pharmaco-dynamic action, we will enumerate that which happens to the patient upon the injection of Ozone gas. There is a perfect tolerance of doses of from 150 to 450 cc. The only vexation reported was a sensation of distention, depending on the region injected, the elasticity of the skin, and the amount of cellular tissue under the skin. This was accompanied by a sensation of warmth varying with the concentration of Ozone.

The distension and warmth disappear in a few minutes, leaving an agreeable analgesic sensation, elasticity in the infiltrated zone, in neighboring area, and also in regions of innervation from the nerve near the injection. The duration of the initial improvement, which permits almost immediate physiological use of the injected area in variable hours to days, and when the pain returns it is lessened. In all the cases we have observed that the patients reappear at consecutively greater time intervals. At the beginning they come back two or three times a week and rapidly lengthen the intervals, returning once a week or every 10 or 15 days. Many considered themselves cured after two or three weeks, others visited the Clinic once a month or once every two or three months.

WE ARE ABLE TO SAY THEREFORE, THAT OZONE THERAPY ALLEVIATED THEM FOR GREATER PERIODS EACH TIME, OR THAT THEY WERE CURED IN A SHORT TIME. NOT ONLY WERE THEIR PAINFUL RHEUMATIC AFFLICTIONS IMPROVED, BUT THERE WAS AN EVIDENT GAIN IN THE GENERAL STATE, CHARACTERIZED BY AN IMPROVEMENT IN THE PHYSICAL ASPECT, AND A GREATER ACTIVITY, PHYSICALLY, PSYCHOLOGICALLY AND SEXUALLY.

We have observed these results in chronic rheumatism, and other rheumatisms of gonococcal origin embodied in the clinical records of the Gynecology Service, and one case of epilepsy where the sedation of the pain and the functional impotence was immediate. We have also treated two cases which regressed after having been cured by hot baths and which Ozone rapidly improved. Methods of application: Subcutaneous, intramuscular. and intravenous

The subcutaneous method has proven to be the most effective, with the least pain and the most rapid action.

RESUME:

1. Ozone is highly effective as a treatment for rheumatic pains, it rapidly alleviates them and permits functional recuperation.
2. It is innocuous and does not have symptoms of intolerance.
3. There are no contra-indications.
4. It improves the general condition.
5. It is convenient and economical.

In "Semana Medica"

Authority: E. K. Rideal, Ph.D., M.A., Past President Physical Chemistry University, Illinois

Subject: OZONE - for Powerful Sterilization

OZONE is a powerful germicidal as was first indicated by Frohlick. Its high germicidal activity is doubtless due to its oxidizing power,

and as a dual agent of this character, it has been fairly extensively employed for the sterilization of public water supplies, for the treatment of wounds in hospitals, and for various purposes of sterilization and preservation in industries. Some sterilization is effected by ozonation of air, since a marked reduction is obtained in the bacterial count of the air which has actually passed through the ozonizer and subject to the ultraviolet radiation in the ozonizer is practically sterile, and a consequent improvement in the bacteria naturally expected, in fact obtained. In "Personal Notes"

Authority: Hans Kleinmann, M.D., German Research Authority

Subject: OZONE - Its action on Surface Cultures, Bact. coli - Bacilli Diphtheria, Staphylococcus and Streptococcus Action of Ozone on Bact. coli 2 hours after vaccination.

Spread: 0.3 ccm solution 1:50000 of a 24 hour bouillon culture upon Endo medium. Two hours air dried, ozonized without pressure.

Ozone Concentration mg./1 hr	Time of ozonation Minutes	Bact. count after 36 hrs. incubation	MortificationPercent colonies
174.3	0	Ca 2-3000	0
174.3	2	60	98
174.3	8	15	99.5

Action of Ozone on surface cultures of Diphtheria Bacilli four hours after vaccination. 0.5 solution 1-50000 of a 48 hour bouillon culture on serum plates. Two hours. Air dried after two hours. Ozonized.

Ozone Concentration mg./1 hr	Time of ozonation Minutes	Bact. count after 36 hrs. incubation	MortificationPercent colonies
174.3	0	1126	0
174.3	2	0	98.1
174.3	8	0	100

Action of Ozone on Staphylococcus, Pyogens Aureus, four hours alter vaccination. 0.3 ccm solution 1010000 of a 24 hour bouillon culture spread on agar plates. Dry one hour. Ozonized after three hours.

Ozone Concentration mg./1 hr	Time of ozonation Minutes	Bact. count after 36 hrs. incubation	MortificationPercent colonies
174.3	0	840	98
174.3	0	0	100

In "Action of Ozone on Pathogenic Germs"

Action of Ozone on non-hemolytic streptococcus, four hours after vaccination. 0.5 ccm solution 1-10000 of a 48 hour bouillon culture of blood agar plates. Two hours. Dried after two hours of ozonation.

Ozone Concentration mg./1 hr	Time of ozonation Minutes	Bact. count after 36 hrs. incubation	MortificationPercent colonies
174.3	0	Ca 2000	0
174.3	2	teril	100

All these tables testify that Ozone, very quickly and energetically, acts deadly on germs, grown macroscopically and dried on a medium soil. The first table shows a mortification of 98% and 99% of the bact. coli within two minutes and this confirms completely the results of Dr. Heise. It also gave evidence that the action of Ozone is very intense on the plates and grows six (6) hours after the vaccination. The other plates, dysentery, streptococcus, staphylococcus, which commonly were ozonized after 3-4 hours after vaccination were absolute steril after two (2) minutes. According to the results of these experiments as shown in these tables, the disinfectory germical action of Ozone must be considered as most excellent and superior to other methods. In "Action of Ozone on Pathogenic Germs"

Authority: Joseph E. G. Waddington. M.D., C.M., American College of Physical Therapy

Subject: OZONE - for subnormal temperature and equalization of the blood Cases of suboxidation usually have a subnormal temperature, ranging from as low as 96 degrees; as Health cannot be maintained below the normal standard of 98.6 degrees. THE

SOONER THE CLINKERS OF IMPAIRED OXIDATION; DEFICIENT OR INCOMPLETE COMBUSTION, ARE REMOVED UNDER THE DISINTEGRATING AND STIMULATING DRAFT OF OZONE. THE SOONER WILL HEALTH BE APT TO BE RESTORED.

The visual evidence of the effect of Ozone upon oxidation is easily demonstrable by taking the temperature immediately before and after an Ozone inhalation, when a subnormal temperature will invariably show a raise after the inhalation, varying in degree directly with the extent of the subnormality. Infection is usually, if not invariably, the etiologic factor in an elevated temperature, and infections naturally vary intensively in degree of virulence and consequent altitudinous stimulation of the thermal reaction. This being true, we can realize the apparent-though only superficially apparent-paradox of prescribing Ozone not alone for conditions evidencing subnormal body heat, BUT ALSO FOR CONDITIONS EVINCING JUST THE OPPOSITE EXTREME.

Ozone inhalations, to quote from Tousey, "INCREASE THE PROPORTION OF OXYHEMOGLOBIN if that is subnormal and also the number of red corpuscles, cause an increase in respiratory capacity and A REDUCTION IN WHITE BLOOD CELLS IF THEY ARE IN EXCESS."

Inhalation should be given daily and of a duration from 15 to 30 minutes, depending solely upon the susceptibility of the patient to treatment. Saturation of the system is evidenced by a feeling of cerebral fullness, dizziness, and even nausea if carried beyond a healthful mean. In "Practical Index of Electro and Photo Therapy"

Authorities: Drs. L. Abbe and Oudin, M.D., Paris, France
Subject: OZONE - for Treatment of Pulmonary Tuberculosis

Our observation of treatments of pulmonary tuberculosis by inhalation of OZONE covering three years includes 38 cases, seven being in the first stage and 23 in the second stage, with eight being in the final stage.

ALL WITHOUT EXCEPTION, EXPERIENCED CONSIDERABLE IMPROVEMENT, PERMANENT IN MOST CASES, AND THAT FOR SUCH LENGTH OF TIME, IN 13 CASES THAT WE CAN CONSIDER THEM CURED.

The first result of the treatment is the return of appetite, which soon becomes imperious, obliging patients to eat four or five times each day. Then one sees the lessening of the diarrhea, vomiting and sweats. This triple improvement is soon accompanied by the return of strength and flesh.

ACCOMPANYING THIS RETURN OF FLESH THERE IS A CORRESPONDING INCREASE OF OXYHEMOGLOBIN, WHICH WAS EXAMINED IN ALL CASES BY HENOQUIES'S PROCESS OF HEMOTOSPECTROSCOPY.

The functional symptoms also improved very favorable and rapidly. The cough became more and more rare until it occurred only at awakening before finally disappearing altogether. The frothy expectorations became more solid and gradually less abundant.

Several of our patients had experienced spitting of blood, even frequent serious. In no case did it occur during the course of the treatment. The sore spots, the difficulty in breathing, disappeared gradually as the conditions improved and the fever also.

Among the patients in the first stage, at the end of two months at the most, there were no longer any abnormal noises. Even among patients in the first stage, we found noticeable stethoscopic modifications, as the disappearance of rales.

To the eloquent figures we have cited, we add only a few words to emphasize the fact that our patients have all, or nearly all, been drawn from the poorer classes, that is to say, living under detestable hygienic conditions, AND HAVE HAD NO OTHER TREATMENT THAN THE OZONE INHALATIONS FOR A QUARTER OF AN HOUR EACH DAY AND THAT FOR A NUMBER OF THEM, DURING A LONG AND RIGOROUS WINTER.

WE ARE ABSOLUTELY CONVINCED, AND SEVERAL CASES ACTUALLY OBSERVED, ENABLE US TO AFFIRM, THAT BY LONGER AND MORE FREQUENT INHALATIONS, THERE CAN BE OBTAINED THERAPEUTIC RESULTS MUCH MORE RAPID, MORE COMPLETE AND STILL MORE CONCLUSIVE. In "Report to Paris Congress for the Study of Tuberculosis"

Authority: E. W. Riesbeck, M.E., Nationally Famous Consulting Engineer
Subject: OZONE - for Water Purification

Various tests have proved that water treated with Ozone is almost sterile, because Ozone- 1. Kills the bacteria in the water; 2. Removes practically one-half of the organic matter carried in solution; 3. Discoloration is eliminated; 4. As well as bad taste. leaving the water wholesome and pleasant to drink.

During a controversy between engineers and medical men in Europe, it was decided that the medical men should conduct exhaustive tests in order that true facts might be established. Rigid tests and examinations of drinking water taken from various sources throughout Germany, all of which had been treated with OZONE were conducted. The drinking water so tested was taken at various intervals during the entire year. The bacteria count of this treated water was never more than 10 per cc. and in most cases was less. Not satisfied with these tests, the medical men contaminated the drinking water with different kinds of bacteria, starting with 20,000 bacteria per cc. and increasing the bacteria count to 60,000 per cc. IN SPITE OF THIS HIGH POLLUTION, ALL BACTERIA WERE KILLED BY THE OZONE. NOT UNTIL THESE EXPERIMENTS WERE REPEATED TIME AND AGAIN OVER A PERIOD OF YEARS, DID THE MEDICAL PROFESSION ACKNOWLEDGE THAT, IN THEIR OPINION, OZONIZED WATER WAS PRACTICALLY STERILE. In "Air Conditioning and Ozone Facts"

Authority: Dr. Donatien L. Abbe, M.D. Chief, Electro-Therapy Department, 1st Hospital Bouvicant, Paris, France
Subject: OZONE - for Whooping Cough

The first use of OZONE in whooping cough was made in 1890, under my advice by Dr. Hellet of Clichy. Since that time there have been several publications on the subject, in France and elsewhere, first by my friend Dr. Derecq of Paris, by Prof. Doumer of Lille and by Dr. Caille of New York; then, more recently, by Dr. Delherm of Paris, Dr. Thielle of Rouen and Dr. Bordier of Lyons. For my

own part, I have published at various times in collaboration with Dr. Oudin, numerous observations of whooping cough promptly relieved and cured by OZONE. My personal experience rests on over one hundred cases during ten years. In all these cases, and especially those treated from the outset of well developed whooping cough, I have obtained amelioration prompt and rapid at first, and later a complete cure. In a time little longer than that ordinarily covered by a very light attack, the result has been constant. This constancy and continuity of action enables us to be still more strongly affirmative than we were earlier in our researches and we do not hesitate to say that OZONE is a remedy par excellence for whooping cough. If less favorable results have been obtained by some experimenters, their lack of success arises not from any failing on the part of OZONE, but from the use of faulty apparatus or from defective application. The treatment would be rendered complete by maintaining an ozonized atmosphere in the patient's room. In "Clinical Reports" Journal de Medicine de Paris

Authority: John F. Kessel, M.D., Donald K. Allison, M.D., Martha Kaime, Maria Quiros, Albert Glockner Department of Bacteriology and Parasitology School of Medicine, University Southern California
Subject: OZONE THERAPY - for Cysts of Endamoeba Histolytica
Ozone has been known for years to be a highly effective oxidizing agent. It has been used extensively in Europe.

While certain of the early work with Ozone indicates its bactericidal properties, few quantitative tests have been reported, and WITH THE EXCEPTION OF STUDIES IN THIS LABORATORY no records are known to the author which compare the bactericidal effects of CHLORINE AND OZONE nor the effects of chlorine and Ozone on protozoan cysts or viruses.

A comparison of the cysticidal and bactericidal effects of chlorine and Ozone is made at pH levels ranging from 5 to 9. One hundred cysts per cc. were selected as a standard dosage for the experiments, the bacterial count accompanying this dosage ranging between 500,000 and 1,000,000 per cc. chlorine residuals of 0.5 to 1.0 p.p.m. were compared with Ozone residual of only 0.3 p.p.m. at time intervals ranging from two to 240 minutes at temperature of 27 C.

The bactericidal and cysticidal times required by OZONE producing a residual of only 0.3 p.p.m. were SEVERAL TIMES LESS THAN THOSE required by chlorine producing residuals of 1.0 p.p.m. Thus, in both bactericidal and cysticidal studies Ozone was several times more effective than either H. T. H. or gaseous chlorine.

In "American Journal of Tropical Medicine"

OZONE - At The Roundtable Discussion

Question 1:

Is Ozone a poisonous gas, a toxic substance and harmful? Answered by: Clark Thorp, Ph.D., M.D. Recent authoritative investigations have established, that pure Ozone is Non-Toxic even in concentrations as great as 20 or 50 parts per mill. of air. A. Hill, M.D. Pure Ozone is not poisonous in any sense of the word as it breaks down in contact with the mucous membrane, and only Oxygen remains. Th. Kunzemann, M.D. Casual toxic signs are only theoretically thinkable THROUGH OTHER unclean gaseous BY-PRODUCTS. Clark Thorp, M.D. Ozone containing oxide of nitrogen, can be toxic in concentrations as low as 1.5 p.p.m. T. Sollman, M.D. The older methods of preparing Ozone developed irritant nitrogen oxides, but the modern generators are free from this defect. F. B. Carpenter, M.D. That Ozone is absolutely harmless we have demonstrated over a period of many years in patients of all ages. Question 2: Wonder why Ozone has not been used more in America, whereas it has been used extensively in Europe and South America? Answered by: E. W. Riesbeck, M.E. "One of the reasons why the successes obtained with Ozone in Europe have not received wider publication in America is perhaps due to the fact that lectures, test data, etc. are given in German or French." Th. Kunzemann, M.D. "Moreover, the use of Ozone for therapy has been made difficult through inadequate apparatus, but the new Ozone technique has overcome this difficulty." Donatien L. Abbe. M.D. "If less favorable results have been obtained by some experimenters, their lack of success arises NOT from any failing on the part of OZONE. but from the use of FAULTY APPARATUS or from DEFECTIVE APPLICATION." John F. Kessel, M.D. The extensive use of Ozone in this country has been retarded because-

- a. of the high cost of power, and
- b. the low efficiency of the older type of Ozone generators Now, the cost of electrical power has greatly decreased and the efficiency of Ozone equipment greatly improved. The picture of production shifts strongly in favor of Ozone. Question 3: Is Ozone really effective in killing bacteria in air and water? Answered by: A. Vosmaer, Ph.D. "Ozone owes its fame to its remarkable power of killing bacteria That is why the world should LOOK UPON OZONE AS A BOON TO MANKIND No matter how many bacteria there may be, Ozone will take care of them and destroy any amount and any kind " A. Vosmaer, Ph.D. "Experiments with cholera and typhus bacteria are rather awkward to be carried out in a private plant, handling, say a million gallons of water per day, and the firm Siemens and Halske were very fortunate to find the Prussian State officials willing and ready to test the matter. Dr. Ohlmueller and Dr. Prall published results of their finding regarding the action of Ozone on bacteria. The experimental series covered the effect of Ozone on pure water infected with 16,000 cholera or with 30,000 to 40,000 typhus, or 20,000 to 40,000 coli bacteria. THE RESULT WAS ABSOLUTE STERILITY AFTER TREATMENT. The next step was to see the result on infected ordinary river water carrying over 4,000 bacteria. After treatment with Ozone, some 5 or 6 were left over and those were harmless. E. Howlett, M.E. "Ozone in the air in minute quantity of only 1 part per million retards the growth of bacteria and molds." E. K. Rideal, Ph.D. "Ozone is a powerful germicidal. Its high germicidal activity is doubtless due to its oxidizing power." W. E. Anghinbaugh, M.D. "Ozone generators have been installed in many homes, and that super-oxygen is particularly destructive to all microbes and at the same time it makes inert the dangerous dust with its bacteria laden tenants. Question 4: Can Ozone be classified as a "natural" deodorant? Answered by: M. J. Rosenow, M.D. "Ozone destroys organic odors. It is a deodorizer of powerful stenches; i.e. garbage incineration and fat rendering." Prof. Szyaplenske, Ph.D. "Ozone can destroy certain odors through oxidation as we can prove beyond doubt for hydrogen sulphide indole, skatol and decayed matter." A. Vosmaer, Ph.D. "Ozone will take care of bad odors in a very effective way, by oxidizing them to odorless carbon dioxide and other compounds." Dr. J. C. Olson "When Ozone comes in contact with dead organic matter, oxidation immediately takes place with destruction of the organic matter. In this, it is powerful in removing odors. George A. Johnston, M.D. "Unpleasant odors are not masked or covered up by Ozone, but literally destroyed. The results in an ordinary living room are almost

immediate. Where clean fresh air is desirable, Ozone generators have a definite contribution to make to the medical world".

Question 5:

Can Ozone be classified as a therapeutic?

Answered by:

A. Caille, M.D.

"Ozone is exceedingly valuable from a therapeutic standpoint. It gives better and prompter relief than any other medication." Noble M. Eberhard, M.D. "If I could have only one remedy, I would prefer to take my chances with Ozone." Th. Kunzemann, M.D. "The capability of the strong reaction of Ozone has for a long time found the interest of Doctors and Hygienists. Therapeutic employment of Ozone is based on two modes of action. One is the action of the pure oxidation itself, the other, the action of the oxygen created by the oxidation, which in its status nascendi shows peculiar qualities.

To group one, belong the employment of OZONE BY INFECTIOUS DISEASES, especially by tubercular diseases. The fact that Ozone infiltrates through the pores of the skin can be proved in a double way through chemical physio treatments. Tests have been made in taking 1 cc. blood from the patient before giving him a 20 minute physical treatment with Ozone. Another 1 cc. of blood was taken afterwards. The result of the investigation showed by each of the persons tested an increase of oxygen in their veins. In concluding, we can say that Ozone, in contact with the skin, is breaking down into molecular oxygen, and through perspiration enters into the inner tissue. The tissues are oversaturated and the Ozone diffuses into the veins. After the treatment, the increase in the different cases were 15, 17, 20, and 25% more oxygen in comparison with the original contents. This increase in oxygen in the tissues and veins leads forcibly to the complete oxidation of all organic acids, and by the expulsion of the carbonic acid, according to the law of the action of quantities to the complete deacidification, and therefore, to a spontaneous reduction of breathing frequency. These physiological verifications established Dr. Sehdens practical verified therapeutic results with many forms of diseases.

S. Barker, M.P.S.

"Ozone has a direct influence on the blood itself. It has been proved that patients treated both by injection and orally, rapidly increase their number of red corpuscles, some blood tests showing an increase of 50% in a months treatment." E. W. Riesbeck, M.E. "I have before me 32 complete records and reports of reputable physicians who treated various diseases with olive or cod liver oil heavily charged with OZONE. By this method the oxygen content of olive and cod liver oil used for treatment was increased 8.53 per cent. In some cases the cod liver oil used for treatment was charged with Ozone until its gravity of 0.925 was increased to 1,000. Among the cases treated with this oil were tuberculosis, anemia, lung trouble, Bright's disease, abscesses, pneumonia and influenza, and as far as the records show, these cases were discharged as cured." In "Ozone Facts" O. M. Justice, M.D. "Like many other treatments, THE REASON FOR SO MANY WONDERFUL ACHIEVEMENTS DERIVED FROM this simple aid, Ozone, is that it consists of nothing more nor less than ACTIVATED OXYGEN. "We all know that Oxygen is positively necessary to the existence of not only animal life, but of plant life as well.

As a consequence, NOBODY CAN DENY THAT ACTIVATED OXYGEN MUST BE VERY ESSENTIAL, NOT ONLY AS A PREVENTIVE OF DISEASE, BUT, A GREAT AID IN THE SUPPLEMENTAL TREATMENT OF AILMENTS OF ALL CHARACTER. "I am very much impressed with the use of Ozone. We definitely are on the threshold of another medicament which seems to be a specific in many diseases." In "Ozone Therapy" Question 6: What outstanding physiological effect of Ozone are known?

Answered by:

E. Howlett, Eng.

"Complete water sterilization can be affected in a few minutes " "Ozone in the air in minute quantity of only one part per million retards the growth of mold and bacteria." D. F. Kessel, M.D. One part Ozone in 2 million p solution renders the virus polyomelitis inactive within 2 minutes compared with the double amount of chlorine using 3 hours. E. S. Hallett. M.E. "In five years that Ozone has been used in the public schools of St. Louis, Tuberculosis cases have been reduced 50%. Also the other diseases have been materially reduced. "Ozone would save thousands of lives every year if homes and schools were equipped with apparatus for the circulation of Ozone." Conclusion Ozone, God's Gift to Humanity, surely has become an outstanding blessing to mankind. Its benefits are so great, so many fold and seemingly unlimited. Ozone is not a drug, but a wonderful and exceptional aid to nature, and with it the great unsurpassed artist and healer-Dr Nature-is blessing humanity. Ozone Blessings by Emma Leonard We ware sick and we did pray, The answer came the OZONE way OZONE comes from God above, Like an Angel of His Love; So to Him we give the Glory For our health and wonder story Are you feeling par today? Listen, what we have to say Give OZONE the acid test, Soon you'll feel your very best, And you'll bless the very day- You look Natures OZONE way.