

# The Hypoglycemic Health Association

# NEWSLETTER

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The NEWSLETTER of the Hypoglycemic Health Association is distributed to members of the Association and to Health Professionals with an interest in nutritional medicine and clinical ecology.



The year has flown by and Xmas is around the corner. The Association wishes all members a Merry Xmas and a happy New Year. We will be celebrating the festive season one hour before Dr Chris Reading's talk with a social gathering and distribution of gifts. Readers are referred to the announcement in the top-left corner on page two of this Newsletter.

Also this is the time when we are reminded that our subscription fees are due for the year 1997. We still have not increased the fees since the inception of our Association twelve years ago. These are \$15 per annum (\$10 for pensioners and students). Your expiry date is shown in the top-right corner of the address label. Your contributions are of vital importance for the survival of this Association, which brings us all together thanks to the voluntary labour of our Committee members. Some members will have printed (INTRO) after their names, indicating that they have received copies of the Newsletter by way of introduction. We welcome them to our Association and look forward to receive their application form, which is printed on page 8 of this Newsletter. If you want to preserve the Newsletter, please take a photocopy of the application form and send it to the Association as per above address.

Our aim is to inform the public about choices in medical practice using orthodox as well as "alternative" modalities.

Our Next Public Meeting will be at 2 PM  
on Saturday, the 7 December, 1996  
at the YWCA,  
2 Wentworth Ave, Sydney and  
our guest speaker is

**Dr Chris Reading**

(Psychiatrist)

who will be speaking

on the subject of

***"Advances in  
Orthomolecular Psychiatry"***

**Dr Chris Reading** graduated in medicine from Sydney University in 1968 and qualified in psychiatry in 1973. He then specialized in organic psychiatry, and subsequently became interested in vitamin/mineral deficiencies, metabolic disorders, food allergies and clinical immunology/ecology and genetics as it applies to neuropsychiatric disorders. It was in this area that he became increasingly aware of the medical significance and implications of genetics, which prompted him to write his book *"Relatively Speaking: The Family Tree Way to Better Health"*. Dr Reading will be discussing Down's Syndrome, Alzheimer's Disease, SLE, Multiple Sclerosis & Motor Neurone Disease, Schizophrenia, Manic-Depressive Illness and other topics in the area of orthomolecular psychiatry.

## CHRISTMAS PARTY

Our next meeting on Saturday the 7th December 1996 will start one hour earlier than usual (1 pm) to celebrate our Super Christmas Party. Members and friends are invited. Please bring along a plate of sugar-free foods.

**Presents:** The Committee asks every one to participate in the present Lucky Dip. Bring a wrapped present worth \$5 with you and mark it "male" or "female"; but even if you don't, you won't be disappointed. There will be presents for kids, and they are welcome.

**ADVERTISING MATERIALS** appearing in or with this Newsletter does not necessarily imply any recommendation by the Hypoglycemic Health Association.

### *Books for sale at the meeting*

Jur Plesman: **GETTING OFF THE HOOK**

This book is also available in most public libraries (state and university)

Sue Litchfield: **SUE'S COOKBOOK**

Dr George Samra's book

**The Hypoglycemic Connection**

(now out of print) is also available in public libraries.

**Contributions of articles** by members and practitioners are very welcome. The Editor is interested in meeting any person aspiring to research natural medicine and contribute articles as a sub-editor to this Newsletter.

**The Newcastle branch of the Association** are still meeting with the assistance of Bev Cook. They meet on the last Saturday of each month beginning 1.30 pm to 3.30 pm at the Hillsborough Primary School. Enter the school from the Waratah Avenue. For further information ring Mrs. Bev Cook at 049-59-4369.

### *Organise local meetings*

If any member would like to organise meetings in their local area or meet other members, we can help by advertising your name and phone number in this Newsletter.

### *Entrance fee at meetings*

Because of increase in costs the Committee has decided to charge an entrance fee of \$2 per person or \$3 per family at our public meetings.

### *Donations for raffle*

One way of increasing our income is by way of raffles. If any member has anything to donate towards the raffle, please contact Dr George Samra's surgery at 19 Princes Highway, Kogarah, Phone 553-0084.

**Joy Sharp** won the Lucky Door Prize and **David Martin** won the Raffle Prize at our last

public meeting on 7 September, 1996.

### **Committee members**

The Association is in need of your support and ask members to help out with sending the Newsletter to our members. We also need committee members and if you are interested please contact Dr George Samra's surgery at **553-0084**.

### **Research into illnesses**

Members who are interested to have an informative article written on a particular illness or disease, should contact the Editor, c/- PO Box 8, Sylvania Southgate NSW. The editor is willing to research literature on the illness and report in the newsletter with the known traditional and complementary treatment. Or he may refer any medical question to an expert in the field. However, it must be understood clearly that treatment remains the responsibility of your doctor or health practitioner and that such articles are only designed to provide some enlightenment to the patient or to complement his/her discussion of the illness with the professional practitioner. The

**Any opinion expressed in this Newsletter does not necessarily reflect the views of the Association.**

# OXYGEN THERAPY

*By Dr Joachim Fluhrer*

THE SUBJECT of oxygen therapy occupies large tomes of textbooks. I hope that today's talk will leave you with a better understanding of this topic and the utilization of oxygen in Natural Medicine. Very often the term oxygen has been associated with "oxidation" and we will need to differentiate between the two terms.

### ***Oxygen essential to life***

But let us compare the essential nature of oxygen with other sources that maintain life.

We can live without food for about two months and here we would gradually run out of available glucose on which the brain depends. Starvation will ultimately lead to coma.

We can live without water for about a week depending on temperature and energy ex-

penditure.

However, we can live for only very few minutes without oxygen. The brain uses almost 20 per cent of total oxygen consumed by a resting human adult. This rate is fairly constant during active thought as well as during sleep.

Muscle tissues at rest consume 0.05 litres per 10 minutes, but 1 litre during a sprint in the same period. You will have noticed that after the finish of a race athletes continue to breathe heavily for air. The reason is that during strenuous exercise the blood supply is insufficient to deliver the necessary oxygen to tissues. In that case, glucose can be converted to energy without oxygen (anaerobic), but the toxic by-product is lactic acid. This is destroyed by subsequent oxygen intake of an estimated 4 litres of oxygen above the sedentary rate so repaying the debt. Thus we see that

oxygen, although often ignored, is literally a vital element in the survival of mankind.

We derive our oxygen from the air we breathe. The surrounding atmosphere contains about 21 per cent of oxygen, and this depends very much on the quality of air. In many cities this would be considerably less. In a room, for example, it may be less again. Thus many people suffer from an environment that has a reduced oxygen supply.

### ***The path of oxygen in our body***

Let us follow the path of oxygen throughout the body. We obtain our oxygen from the air through breathing. Hence our oxygen supply depends on the spaces available in our lungs.

The oxygen passes through membranes of the *alveoli* or "lung bubbles" into the blood stream. There are certain disease conditions

that may interfere with this transfer of oxygen. For example, in emphysema - which is now called *chronic obstructive airways disease* - the little lung bubbles are damaged and become enlarged. The surface area of thousand little bubbles is much bigger than one large bubble. This reduces the area of the membrane for transfer of oxygen into the blood stream. Therefore the rate of exchange of oxygen and carbon dioxide in the lung is considerably less. Emphysema can be caused by smoking, other environmental pollutants, chronic infections etc.

In asthma there is a constriction of large and small airways, resulting from bronchial smooth muscle spasm, oedema, inflammation and excess of mucus. This also interferes with oxygen uptake by the lungs. Many respiratory disorders, too many for mention here, would have the effect of reducing our capacity to obtain oxygen from the ambient air.

### **The act of breathing**

We in the West do not breathe very well. We breathe mainly with our rib-cage and not with our diaphragm. People who do yoga and others who do breathing exercises extend their lungs downwards. Many people do not realize that they have a diaphragm. There are studies to show that people who don't use their diaphragm but only their rib-cage can get symptoms which are similar to chronic fatigue syndrome (CFS). There appears to be an imbalance between the oxygen they breathe in and carbon dioxide (CO<sub>2</sub>) they breathe out which changes the pH (acidity) of the blood. This often results in their being tired. By just breathing differently they will get a lot better.

To learn to use your diaphragm you breathe in by extending the stomach whilst keeping the chest in. The chest contains additional muscle that we need when we are running. Singers are specially trained to use their diaphragm in the first phase and then their chest

muscles later on. If you only use your chest muscle you will soon get tired. By exercising ten minutes twice a day it will take you about six weeks to convert your breathing habit during sleep from rib-cage breathing to diaphragm breathing. Many of the Eastern therapies use breathing as a form of treatment eg Chi-gong.

This is one form of oxygen therapy.

### **Oxygen in the blood**

When the oxygen enters the blood stream it attaches itself to the red blood cells, in particular the haemoglobin. So it travels with the red blood cells throughout the body via the blood stream. At the end of that journey the oxygen needs to enter the target cell in the body. It needs to be released from the red blood cell again. There are many chemicals and physics involved in the transfer of the oxygen into the cell. Oxygen therapy aims to help the release of oxygen from the red blood cells, so that we end up with more oxygen in the tissue.

For those interested in how and where we use oxygen see **Box 1**.

### **Blocked arteries**

We know that we can get blockages in our arteries through the build-up of atherosclerotic plaques within the walls of arteries. This disturbs the flow of the blood stream. These plaques are usually in the larger arteries. But in the smaller veins and capillaries the diameter is about half the size of a red blood cell. These red blood cells can go through tiny arteries by changing its shape. Red blood cells have a flat doughnut shape, thus they are squashable. When a little artery is blocked the red blood cell cannot reach the tissues and therefore suffer from lack of oxygen (ischaemia). A little capillary can go into spasm. This happens when we are cold and capillaries in the skin narrow. This helps to preserve our

temperature. Skin tissues can do without oxygen for quite some time, but this is not so with brain cells or heart muscle cells.

### **Rouleaux of red blood cells**

When we look at red blood cells through a microscope they appear to be like little doughnuts. But sometimes those red blood cells are stuck to each other, and they may form into rows of cells resembling a roll of coins, hence the term 'rouleaux'. Sticky blood cells can be caused by nutritional inadequacies. When they come to the little capillaries they cannot get through and they return to the venous circulation. The tissues end up without oxygen and suffer.

Sometimes I refer patients to cardiovascular specialists who examine them with ultrasound imaging. These doctors look for atherosclerotic plaques in the carotid arteries or those running along the legs. They often report back saying that there are no big plaques in the arteries. The problem is not so much of plaques in the arteries but rather in little capillaries. In diabetes there are more problems with the smaller blood vessels causing blockages and these are closely associated with diabetic complications.

The retina behind the eyes is especially vulnerable by a blocked blood supply and this may have serious consequences if it is deprived of red blood cells and therefore oxygen. This applies to all small capillaries that serve tissues in the body.

It is therefore important to aim therapy at separating red blood cells. Sometimes the membranes of red blood cells themselves are very stiff and therefore cannot change their shape to get through the little capillaries. A group of scientist in New Zealand and also in Adelaide, examining people with chronic fatigue syndrome, found that membranes of their red blood cells were rigid. By giving them essential fatty acids, such as evening primrose oil or fish oil, you can make these red blood cells more pliable. By making these cells more flexible increased oxygen will be transported to tissues. Hence prescribing essential fatty acids is part of oxygen therapy.

Every living cell has an electrical charge. If there is a change in the electrical charge than they may act like magnets and latch on to each other. If the charge is right then they should bounce off each other. If you look through a microscope at healthy live blood you see the red blood cell bounce off each other. With a different electrical charge they will cling together.

### **Delivery of oxygen to target cells**

The aim of the red blood cells is to deliver oxygen to tissue cells. In intensive care situations, as in a severe heart attack, the oxygen supply may be too low.

It is common that oxygen supply is adversely affected because there is not enough haemoglobin in the blood stream. This can be caused by an iron deficiency, which affects the haemoglobin. Thus giving someone iron

## **BOX 1**

### **How and where energy is produced**

Every cell in the body needs oxygen for production of energy. Oxygen is required to convert glucose into energy via the Krebs cycle or what is called the *citric acid cycle*. This is a complex biochemical process which converts carbohydrates, fatty acids and also some amino acids (from proteins) into a 2-carbon molecule (called *Acetyl-CoA*). This then enters the citric acid cycle to release energy. The energy is conserved in the form of a substance called *adenosine triphosphate* (ATP) with the production of carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O) as by-products which are excreted from the body. When ATP is hydrolysed (split) it releases energy bound up in high-energy bonds of three phosphoric acid molecules which then becomes *adenosine diphosphate* (ADP).

The principal location for energy production is in the mitochondrion, also called the 'power-house' within each cell of the body. This little organella within the cytoplasm of the cell consists of two membranes, a smooth outer one and a convoluted inner membrane. The ATP is produced within the inner membrane of the mitochondrion and then transferred to the cytoplasm.

who is iron deficient is also part of oxygen therapy, as it will increase the oxygen supply to the tissues.

In ischaemia (deficient blood supply) there is a decreased supply of oxygenated blood to a body organ or part. This may be caused by a blocked artery.

Another problem is in a disturbed diffusion in the transport of oxygen through cell membranes. Membranes serve the transport of various substances, including oxygen, in and out of cells and cell parts, such as the mitochondria.

If there are cytotoxic substances or toxins inside the cell, this would also disturb the processing of oxygen inside the cell. All of these can interfere with transport of oxygen into the cells and inhibit the energy producing mechanisms within these cells.

The problem is not so much as getting enough oxygen from the air, but rather of delivering the oxygen within the body where it is needed. A new term, the "Oxygens Starvation Syndrome" has been used to describe this situation.

Special environmental circumstances that lower the oxygen content of air may aggravate the situation.

#### **Extraordinary claims of oxygen**

Some of the claims made by people who write articles or books on oxygen therapy are quite extraordinary. As if oxygen therapy can cure anything from a little wart on a toe to cancer and AIDS. The claim is that all diseases are in one way or other the result of a state of oxygen deficiency. All one needs to do is to get the oxygen to the disease sites. This is a very simplistic and inadequate view of the situation of health and disease.

It would be wonderful if all we need to do in order to help the cure from a disease is to have more oxygen.

If you go to Tokyo you can go to an 'oxygen bar' with a canister of oxygen to sniff.

#### **Exercise an important part of oxygen therapy**

It is said that ways of improving oxygen supply are by 1) getting away from the cities, 2) planting trees in your environment, 3) changing your breathing patterns, 4) improve the shape and size of your red blood cells through a healthy diets.

Professor Manfred von Ardenne from Eastern Germany devised a system of 'oxygen multistep therapy'. He put people on an exercise bike and let them breathe in oxygen at a higher concentration at the same time. He increases the heart rate to 120 - 130 in order to actually increase the oxygen throughout the blood flow. This cannot be done with little babies as they would go blind if they are given too much oxygen. Medical scientists learned this in the 1920's. This goes to show that anything can be toxic if you get too much of it.

Our bodies have the capacity to get rid of extra oxygen by opening up the capillaries.

Professor Manfred von Ardenne called this the micro-circulatory switch. People who exercise very strenuously can have that experience. Long distance runners can get an oxygen rush. The German professor induced such a rush by getting people to exercise on his bike.

Sometimes with strenuous exercise you can experience a pain in the muscles. This is because there is a shortage of oxygen and the body provides energy anaerobically, that is without the use of oxygen. In this process lactic acid is produced which causes the pain. If you exercise with an additional supply of oxygen, you will produce less lactic acid. People who have chronic fatigue syndrome get more pain when they exercise. Hence "oxygen-exercises" may help people with chronic fatigue syndrome by gradually increasing their capacity to utilize oxygen.

#### **Medical use of ozone**

There are other forms of oxygen therapy using hydrogen oxide, ozone, oxygenated water or oxygen electrolyte.

There is no oxygen in any of these substances. But they have some form of oxygen that has changed. All these substances aim at increasing the turn-over of oxygen inside the cell. So you are in fact exercising the system inside the cell to put it very simple.

We have all heard that ozone in the air can be very toxic, especially when it is combined

with nitrogen. The theory behind the use of medical ozone is to stimulate cells to use oxygen more efficiently.

From a historical point of view ozone was discovered in the late eighteenth century by Schönbein. In about 1910 it was used as a result of a meeting between a surgeon and a dentist. The dentist used ozonised water to clean a wound. The surgeon then adopted the use of medical ozone (a mixture of ozone and oxygen) as a disinfectant to clean wounds. From these clinical experiences other uses of medical ozone were gradually developed.

In 1940, a physicist called Haensler made the first machine to produce medical ozone. Another doctor, Dr Wolff, introduced it into medical practice. There is now an International Ozone Association.

Ozone is mainly used for cleaning, bleaching and killing viruses in most industries. You can use it in swimming pools to kill bacteria in place of chlorine. I believe there are swimming pools in Homebush, Willoughby and Sutherland that use ozone. Ozone is a very reactive substance, so it does not stay around for very long.

The problem with the use of ozone inside the body is, that if you want to kill bacteria in the blood, it will kill healthy cells too. Viral genetic material is usually inside the cell, where they multiply and from whence these viruses are released. They then infect other

### **BOX 2**

#### **Haemoglobin: carrier of oxygen**

Haemoglobin is a complex protein-iron compound that carries oxygen to the cells from the lungs and carbon dioxide away from the cells. Each red blood cell contains 200 to 300 molecules of haemoglobin. Each haemoglobin contains several molecules of haem, and each molecule of haem can carry one molecule of oxygen. The normal concentration of haemoglobin in the blood are 12 to 16 g/dl in women and 13.5 to 18 g/dl in men. The capacity of haemoglobin to carry oxygen depend upon four factors: 1) Pressure of oxygen, 2) Acidity of blood (pH), 3) Concentration of 2,3-diphospho-glycerate, and 4) concentration of carbon dioxide (CO<sub>2</sub>). Diabetics and hypoglycemics may have a serious acid imbalance of the blood (pH may fall as low as pH 6.8 compared to normal value of pH 7.4). This acid-base imbalance can adversely affect the haemoglobin capacity to carry oxygen and carbon dioxide in and out of the body, causing chronic oxygen starvation of tissues.

Each litre of arterial blood contains the equivalent of 200 mL of oxygen. A normal adult male at complete rest requires about 375 L/d of pure oxygen gas, equivalent to the oxygen content of about 1900 L of air. If he has a sedentary occupation his O<sub>2</sub> requirement might be twice as great. A trained athlete running in a race may consume oxygen 10 times greater than the resting rate. A 70-kg person has about 5.6 L of blood, so has 1.12 L of oxygen circulating in his or her blood at any one time. An important regulator of oxygenation of haemoglobin is 2,3-diphosphoglycerate (DPG). The higher this concentration of DPG in the cell, the lower the affinity of haemoglobin for oxygen. People living in high altitudes, or who have a deficiency of red blood cells have higher concentration of DPG, allowing the haemoglobin to release its oxygen more readily to tissues. In an atmosphere of low oxygen concentration, such as in the peripheral tissues of the body, oxygen is replaced by carbon dioxide to form carboxyhaemoglobin. This is released in the lungs for excretion and the haemoglobin picks up more oxygen for transport to the cells.

cells where they again multiply and infect other cells. In order to kill the virus, you need to kill all the cells that are infected with the virus.

But if the virus is in the blood it can be killed. In the early 60's ozone has been used in blood banks, particularly in France. If you infuse ozone as a gas into a blood donor's bag, you can kill the hepatitis virus in the blood. One would expect that this knowledge which has been reported in the scientific literature would be known all around the world and be used to disinfect blood. Ozone will inactivate the HIV virus, if you can get to it. Inside the cell it is inaccessible, but you can kill it when it enters the blood stream.

Ozone, instead of other chemicals, is used in water-cooling towers in order to clean the water. Ozone will kill the Legionnaire disease, caused by the *Legionella pneumophila*, and a few buildings in Sydney with air-conditioning units are using ozone. BHP in Wollongong uses this technique.

#### Production of ozone

In nature the action of high-energy ultraviolet radiation of oxygen in the stratosphere (between 28 to 50 km above the earth) produces ozone. This is where the so-called ozone layer is. By absorbing most of the solar ultraviolet radiation the ozone layer protects living organisms on earth. Scientists now agree that various chemicals, such as chlorofluorocarbons used as propellants in aerosol sprays, nitrous oxides in nitrogenous fertilizers and the effects of high-flying jet aircrafts are destroying the protective layer of the ozone shield. This allows excess radiation to reach the earth, subjecting humans to increased dangers of skin cancers and health problems. All other life forms will be affected.

The ozone can also be produced commercially by passing oxygen through a silent electric discharge. Therefore, ozone is formed when oxygen is electrically charged, as might happen in a lightning storm. The distinctive smell after a storm is due to an increased ozone concentration in the air. When oxygen ( $O_2$ ) is subjected to an electric discharge the oxygen molecule splits up into two singlet oxygen molecules, which are very reactive, and these join up with other molecules of oxygen to form ozone ( $O_3$ ). This is a very unstable and reactive molecule, which can now be produced in special machines. They collect the ozone in special cylinders that doctors use. The half-life of ozone is about 15 to 20 minutes, when it converts back into oxygen.

Ozone is a toxic substance. If you ingest a

high enough concentration you can die from it. In moderate concentrations you can develop permanent toxic damage especially to the brain and membranes in the lungs. Lower concentrations would not necessarily produce symptoms. The medical application of ozone is well below this level, usually between 0.5 to 3 per cent of ozone mixed in oxygen.

There is a complex mechanism responsible for separating oxygen from the haemoglobin (see Box 2). People with diabetes have fluctuating levels of an oxygen-release enzyme, which affects the supply of oxygen to the tissues.

#### Ozone stimulates detoxifying enzymes

When ozone comes into contact with a cell it produces small amount of *peroxides*, acting as free radicals inside the cells. These peroxides will activate a detoxification system within the cell. Cells can use various enzymes to

is a product of derived from glutamate - also functions to protect cells from the destructive effects of hydrogen peroxide ( $H_2O_2$ ). Hydrogen peroxide can convert the iron in haemoglobin to a form yielding *methaemoglobin*, which is inactive in carrying oxygen. Glutathione peroxidase protects against the formation of methaemoglobin by consuming hydrogen peroxide in the reaction. Glutathione peroxidase is a selenium dependent enzyme.

Thus, provided the production of peroxides is limited and the body is not deprived of the various co-enzymes, such as dietary copper, manganese, zinc and selenium and other 'antioxidants', our cells should be able to protect ourselves against these toxins. Ozone and peroxides are part of our free radical system and these are neutralized into oxygen and water by these enzymes.

Vitamin C, vitamin E, vitamin A and D, zinc and selenium are called 'antioxidants', but in reality these cofactor make the real antioxidants - the enzymes - do their work. Certain foods are rich in these co-enzymes. Oxygen therapy stimulates the antioxidant system within our cells, and hence this therapy requires that we eat good foods to assist the enzymes doing their job.

#### Ozone separate sticky blood cells

The introduction of oxygen into the blood stream helps to separate red blood cells from each other like an 'anti-sludge' effect. Another phenomenon, called the 'Ketch-up phenomenon', is like the emptying of a bottle of tomato sauce. As you try to empty it nothing happens, but if you bang it at the other end, suddenly all the tomato sauce comes out. Similarly, by increasing the energy in the blood stream with ozone, the red blood cells start bouncing off each other and you can increase the circulation. 'Oxygenating substances' are substances that release oxygen. A blood vessel with a plaque formation will cause the body to form other blood vessels to go around the blockage. The use of medical ozone improves the building of new blood vessels by increasing the electrical charges in protein synthesis.

#### Ozone in external and internal use

Ozone in high concentrations kills, but in low concentrations it will enhance the ability of cells to deal with toxins. For external use, as in cleaning a wound, ulcers, bed-sores and so on, high concentrations of ozone are used. However if you want to enhance the blood circulation or the delivery of oxygen to internal tissues, low concentrations are being used.

In peripheral vascular diseases, when there is a blockage in the vessels going down our legs, or around the heart, ozone in low concentrations is used. This is applicable in many other degenerate diseases.

Oxygen therapy is only additive therapy in

Table 1

#### PER CAPITA ANNUAL CONSUMPTION IN POUNDS

Foods	1920	1980	Percent
Grains	294	144	-51
Vegetables	188	144.5	-23
Fresh Fruits	123	82	-33
Meat	136.2	165.2	+20
Dairy	320.2	354.3	+11
Cheese	5	20.7	+322
Ice Cream	1.9	18.1	+852
Sweeteners	89	134.6	+51
Sugar	73.7	94.8	+29
Soft Drinks	1.1	3.1	+2638

convert peroxides, produced in normal metabolism, into less harmful substances like water and carbon dioxide. In some cases, peroxides are used by the cells themselves as part of their immune system. Thus the introduction of ozone stimulates the cell to produce enzymes that help to detoxify highly reactive peroxides.

Oxygen has a very narrow window of tolerance, that is to say that we cannot live without it nor with too much of it.

Toxic derivatives of oxygen ( $O_2$ ), such as *superoxide radicals* are scavenged by protective enzymes within the cells. When an oxygen molecule gains an electron it is negatively charged and becomes very reactive. This is called *superoxide anion*. These can be converted to hydrogen peroxides ( $H_2O_2$ ) by an enzyme called *superoxide dismutase*, which is said to contain copper, zinc and manganese as cofactors.

Two molecules of hydrogen peroxides are then converted to water and oxygen by the enzyme *catalase*.

Another enzyme, *Glutathione peroxidase*, together with a peptide (*glutathione*) - which

cancer treatment, but it is not cancer therapy by itself. Hydrogen peroxide or ozone applied externally can kill skin cancer. But if there is a cancer inside the body we cannot get at it and we are likely to kill other cells as well.

#### **Applying ozone in a closed system**

In external use, such as wound healing and so on, you can apply the gas directly on the local area of the skin. There is enough experience around the world to know what the concentration should be. As the gas can be toxic it has to be in a closed system so the gas cannot escape into the air. This will protect the patient as well as the operator from inhaling the gas. This is usually done by placing a suction cup over the wound, or by putting special boots to the patient's feet. These are then connected to a special machine producing the ozone gas.

In low concentration, ozone promotes circulation, regeneration of cells, stimulates the immune system, granulation and heals wounds. When treating ulcers it is recommended to use ozone in high concentration to kill all the infectious organisms, and then use a lower concentration to promote healing and avoid killing the new cells. By continuing the high concentration one could kill the granulation or new cell-formation.

Sometimes we hear that exposure to sunlight heals wounds and this is because some ozone can be produced by blood around the wound exposed to the sun. This is only in minor infections. You can use hydrogen peroxide too. Sometimes one can also promote wound healing by having a negative pressure in the suction cup or boot, thereby drawing the blood towards the wound and promote healing.

#### **Ozone and gamma-interferon**

If you increase the concentration of ozone in the blood it will promote the production of gamma-interferon from the lymphocytes. Interferons are natural proteins formed in cells, when exposed to a virus, which help to protect it and other cells from that virus. However, by further increasing ozone that production will decline again. Thus the effectiveness of oxygen therapy depends very much on how much is used.

Although fifty years ago, little was known about interferon, experience taught medical practitioners to use the right concentration of ozone, which is up to 40 mcg/ml. Subsequent scientific trials have supported this.

#### **Use of hydrogen peroxide**

Some people swear by the use of hydrogen peroxide. They may ingest it, but in my opinion they are most likely to damage the membranes of the digestive tract. Some writers have been promoting oxygen therapy as a cure-all - a magic bullet - for all illnesses.

Nevertheless, hydrogen peroxide injected intravenously in the right concentration could act as an antibiotic. This was common practice before the advent of antibiotics. Members of a group in America, called The Association of

Bio-oxidative Medicine, regularly use intravenous hydrogen peroxide in the treatment of their patients. However, their official opinion is that oral hydrogen peroxide does not work.

There are other liquid substances for oral intake called "stabilised electrolytes". The question is: will it actually go into the blood stream and what effect will it have there?

Another substance known as *Zell Oxygen* - a product of German origin - consists of embryonic yeast cells grown in a high oxygen environment. Being embryonic these immature cells are not likely to produce allergic reactions and are therefore fairly safe to sensitive people. *Zell Oxygen* is believed to increase the utilization of oxygen inside the cells. It is now available in Australia in any health food store. In Europe, *Zell Oxygen* has been used for peripheral circulation problems, claudication, angina and cerebrovascular problems. It is said to increase blood flow and promote the oxygenation of cells. Thus this too is another form of oxygen therapy, although the product does not contain oxygen at all.

Oxygen therapy, like any other natural therapy, does not destroy cancer cells, but oxygen therapy helps to improve cellular metabolism in general.

Professor Warburg, who won a Nobel prize in the fifties, claimed if the oxygen utilization of a cell is down to about 60 per cent, then it will turn into a cancer cell. This is, however, only one theory as to how cancer cells are generated.

#### **Oxygen therapy focus on internal metabolism**

When talking of oxygen it is not so much as to how much there is in the air, rather what happens to it inside our cells.

We are subjected to a plethora of toxic chemicals, such as drugs, alcohol, solvents, formaldehyde, pesticides, herbicides, food additives; and heavy metals like lead and cadmium, which are all part of the environmental toxicity that affect and disturb our chemistry. They decrease our oxygen utilization inside our bodies. To sustain our detoxifying enzymes we need good nutrition, and this leaves much to be desired.

Looking at **Table 1**, which represent our food intake over a period of 60 years from 1920 to 1980, it shows that our intake of grains, vegetables and fresh food has declined, whereas our consumption of dairy products, meat and cheese has increased considerably. Ice-cream, sweeteners, sugar and soft drinks have just sky-rocketed.

It is clear that junk food interferes with the proper use of oxygen within our body. Essential cofactors of enzymes are depleted on a diet of sugars and fat and our natural defence against toxins is undermined. Good nutrition plays a crucial role in the utilization of oxygen against free radicals.

#### **Functional versus pathological medicine**

Progressive doctors are using a new term

called 'functional medicine', which is in contrast to the kind of medicine taught at medical school, called 'anatomical medicine' or 'pathological medicine'. The latter concentrate on diagnosing diseases, but not on how the body actually functions.

As an example, in functional medicine we may focus on how food is absorbed by our digestive system, and how their break-down products are filtered in the liver. The liver may be seen as a series of filter-stations where the toxins are passed through from one to the next filter. In this process many toxins may only be partially 'detoxified' and accumulate in filter-stations along the line. These are ultimately returned to the blood stream. These recycled partially detoxified substances may be more damaging than those that entered the liver in the first instance. Known as 'intermediate metabolites', they cause much oxidation in the system. Even people on the healthiest of diets will become toxic if the liver does not function properly. Intermediate metabolites are especially destructive to the brain and immune system. When the body cannot handle the toxins it becomes acidic, and thus we need a good acid-buffer system.

Thus functional medicine looks at how the body functions and how it produces illnesses in the individual. This is in contrast to pathological medicine, which tends to look upon patients as though they are all the same, completely ignoring our biochemical individuality.

It is our biochemical uniqueness that is responsible for the phenomenon that the same symptoms in two persons may be caused by different disease processes, or different symptoms may be caused by the one underlying illness.

#### **What can we learn from all this?**

1. Reduce environmental pollution
2. Exercise regularly in fresh air
3. Eat a high nutrient dense diet with lots of fruit and vegetables, preferably organic
4. Look after your liver
5. Do not starve your body and your cells of the necessary oxygen
6. Seek advice from a qualified health practitioner before you embark on any "treatments".
7. Prevention is better than cure
8. If you require drug therapy, combine it with a health supporting and restorative regime.
9. Maintain positive attitudes and a sound belief system.

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## MENIERE'S DISEASE: a disorder of the ear

By Jur Plesman

NAMED after a French physician, Ménière's disease is a most distressing illness caused by a build-up of fluid in the inner ear, consisting of the cochlea and semi-circular canals (See Figure 1). Symptoms are (vertigo) dizziness, nausea and vomiting, accompanied by deafness (sensory hearing loss) and often a constant noise called *tinnitus*. Lining the inner ear are tiny hair cells that act as sensory receptors to transmit balance and hearing to the brain. A doctor should be consulted in all circumstances as many of the symptoms can be related to the disorders of the heart, brain, anaemia, diabetes, atherosclerosis, labyrinthitis, hypertension or a viral infection of the utricle.

Conductive deafness is hearing loss as a result of a dysfunction in the external ear (i.e., accumulation of wax), damaged tympanic membrane; and middle ear, such as disorders affecting the ossicles (hammer, anvil, stirrup) or by blocked eustachian tube. By putting your little fingers in the ears, you can experience conductive deafness.

In "nerve deafness" there is a loss of high frequency hearing as a result of some dysfunction in the inner ear, namely the cochlea, where hair cells are located. In sensory hearing loss, recognition of high frequency sounds is lost first and this becomes noticeable when you can hear people talk, but cannot understand what they are saying, especially in a noisy environment (which is low frequency). This is because human communication of speech depends on high frequency sounds such as consonants. The vowels in language (low frequency) do not convey much information. Short-hand writing is based on consonants and not vowels as all good short-hand-writers know.

Hearing impairment is becoming widespread: more than 60 per cent of incoming college students in the US have impaired hearing in the high range.<sup>1</sup> Noise exceeding 80 to 85 decibels can cause permanent hearing loss. Jet planes can reach (130 dBs), personal stereos (110), rock concerts (over 110), gunshot or dynamite explosions can damage hearing instantly.<sup>2</sup>

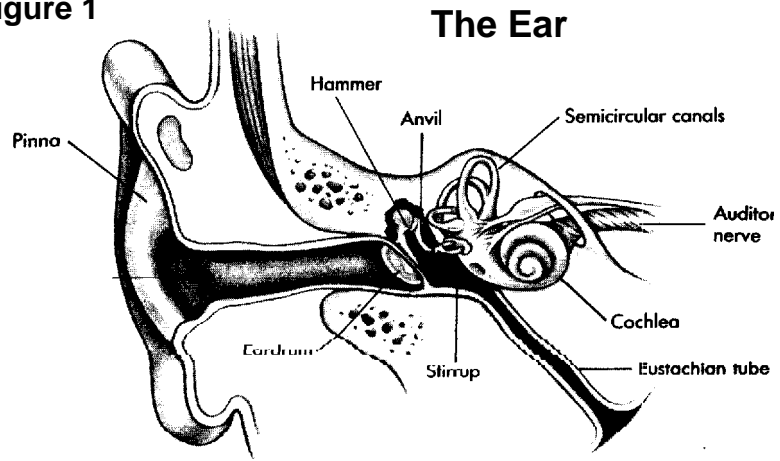
### Box 1

**Ginkgo biloba**, also called the "Maidenhair tree" has existed for more than 200 million years and can live as long as 1000 years. It grows in temperate climates such as Australia, Asia and Europe. The leaves of this giant fern tree are used for medicine and contain ginkgo-flavone, glycosides (ginkgo heterosides), proanthocyanidins, lactones, quercetin, anthocyanin, terpenes and organic acids.

Used in the treatment of age-related diseases, including memory loss, poor circulation, decreased alertness, speech defects, Ménière's disease, tinnitus, Alzheimer's disease and other dementias, impotence due to arterial insufficiency, senile macular degeneration [degeneration of blood vessels to the macula (central spot) of the retina leading to loss of central vision].

Ginkgo increases brain dopamine synthesis, and inhibits histamine by influencing muscle receptor sites. It also increases the release of epinephrine and norepinephrine. (Source: Florence TM, Setright RT (1994), The handbook of preventive medicine, Kingsclear Books, Crows Australia, 420)

Figure 1



### Other possible causes

Other causes of hearing loss and of tinnitus may be excess consumption of caffeine, tobacco smoking (as this constrict blood vessels to the cochlea, hence restricting oxygen supply), aspirin, certain diuretics, chemotherapy, vascular damage or benign tumours, exposure to chlorine in swimming pools.

Patients should also be tested for possible heavy metal loadings such as lead, cadmium, mercury. There are conflicting reports relating to fluoride intake. One author warned that fluoride inhibits the enzyme phosphatase in experimental animals, which is of great importance for the assimilation of calcium and other minerals, which could affect the inner ear.<sup>3</sup> Another experimental study using sodium fluoride with 94 patients showed an improvement in sensorineural hearing loss among 64% of patients with cochlear otosclerosis (new bone formation affecting primarily the labyrinth of inner ear and cochlea) and 46% of patients with stapedial otosclerosis (bone degeneration involving the stapes in the middle ear).<sup>4</sup>

Deafness among children is usually due to some infection of the middle ear. Forty per cent of all antibiotics are prescribed to children with ear infection. The use of antibiotics may increase the frequency of ear infections compared to untreated group.<sup>5,6</sup> Only 50-70 per cent of ear infections are due to bacteria, others are due to viruses, yeast or inflammatory material that cannot be treated with antibiotics.<sup>7,8</sup> Perhaps doctors should consider herbal antibacterials such as a combination of *Echinacea* and *Goldenseal*, *mullein*, *hypericum* in a glycerin base. According to William Crook, MD, of Jackson Tennessee the use of antibiotics may lead to imbalance in the digestive tract causing the overgrowth of the yeast, *Candida Albicans*.<sup>9</sup> Thus treating ear infection with antibiotics may result in repeated yeast and fungal infection of the ear. Antibiotic treatment should certainly be followed by taking acidophilus in yogurt

and butter milk.

### Allergies

These infections may also be due to allergies to wheat, dairy products, cow's milk, environmental allergens such as dust, moulds, animal dander. Children with viral infections are usually low in vitamin A that may last 6-12 months, and usually low in vitamin E.

### Supplements

The cochlea has a high concentration of vitamin A<sup>10</sup> and its supplementation with calcium and vitamin D resulted in significant hearing improvement in 3 out of 16 patients in one study.<sup>11</sup> Other helpful supplements are B complex vitamins, iron only if there is a deficiency (excess iron can lower immunity), vitamin C, vitamin B6 and N-acetyl cysteine to remove the fluid and evening primrose oil. In Ménière's disease and tinnitus, it should be noted that Ginkgo biloba (See Box 1) is currently licensed in Germany for treatment of cerebral dysfunction: among these tinnitus. This is supported by many clinical studies.<sup>12</sup>

### Footnotes

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## Your pet is your healer!

From "Natural Health" Feb/March 1996, Page 22

According to a study by the Baker Medical Research Institute cats and dogs save up to \$1.5 billion annually in Australian national health cost. Dog and cat owners visit the doctor less, appear in better health than non-pet owners, and use less medication. Earlier research established that pet owners have lower risks for cardiovascular disease, not explainable on the basis of the usual risk factors.

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## Sir James Mackenzie's aphorism

There are three stages in the history of every medical discovery. When it is first announced, people say that it is not true. Then, a little later, when its truth has been borne in upon them so it can no longer be denied, they say it is not important. After that, if its importance becomes sufficiently obvious, they say that, anyhow, it is not new!

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