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®
Supplement to
The Art of Getting Well
Systemic Enzyme Therapy

Sources are given in references.

Authors of contributions/quotations are alphabetically arranged; major author, if any, is underlined.

John Beard, Herxheimer, Dr. Inderst, Kleine, Dr. Kunz, Jaeger, Prof. Seifert, Hector E. Solorzano del Rio, M.D., D.Sc., Ph.D., Prof. Wolf, Dr. Wrb/Responsible editor/writer Anthony di Fabio. This remarkable doctor sits in the only chair for Alternative Medicine, in the Second largest university in Mexico, University of Guadalajara.

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Hector E. Solorzano del Rio, M.D., D.Sc., Ph.D

People must know that the correct medical name for the therapeutic use of natural enzymes is "Systemic Enzyme Therapy." This means that enzymes flow throughout our body, producing the desired healing effects.

For an accurate description of Systemic Enzyme Therapy, one needs to know a little bit about the structure and function of enzymes, in general.

You must know that without enzymes, there is no possibility of life, in animals, plants or persons. Enzymes are essential for each and every reaction in a living organism.

We could even follow the arising of life on earth, if we think of enzymes that were necessary for the evolution in each stage. Oxygen from the air arose because certain new enzymes were formed by single plants that released oxygen. These plants had learned to produce certain enzymes that separate oxygen from carbon dioxide in the air. Today, we accurately know how this works. Every second we change; every second we become a new human being. This is because more than 2,700 different enzymes act with an incredible speed to keep our vital functions in order.

Since ancient times it was known by Egyptians and the Arabians that there was an invisible force which made all living things shift. It was a mysterious force that transforms one substance into

another; milk became a cheese, grapefruit to wine, etc.

Enzymes are catalysts, or rather we should say, "biocatalysts." We are dealing with determined substances whose presence causes the transformation of an organic substance and it also accelerates it, just as a catalyst would do it. Today we know what these enzymes are and how they act.

Catalysts produce, with a small effort, a big effect. Nature can not waste energy. In technical terms, enzymes are albuminoid, macromolecular bodies, with a complex structure and are active biocatalytically speaking. These albumins are made of 20 different amino acids. Each enzyme is specific not only in its substratum (the place where they react) but also in its effect. In 1930 we only knew 80 enzymes. In 1993 we know more than 2,700 enzymes. However, we do not know how many are left to be discovered.

Enzymes are necessary for the adequate functioning of our whole metabolism. In our body, every part of it is related to all the rest; that is, that even one tiny disturbance, biochemically speaking, can result in a complete imbalance. Diseases are the consequence of this disorder.

In biochemistry, when something is designated with the ending "ase," one can almost be sure that we are talking about an enzyme. In the early stage of the discovery of the enzymes, they were known with names that ended usually with an "in," like the well known pepsin and trypsin.

Enzymes are constantly produced within our body. Described in a simple way, there are certain organic molecular pieces that in small quantities are required to form these enzymes. These pieces are the vitamins, minerals and trace elements. Altogether they are called "co-enzymes."

The deficiency of any of these co-enzymes will result in a specific medical condition. For example, vitamin B₁ deficiency will elicit "beri-beri." The vitamin B₁₂ deficiency causes a special anemia called "pernicious anemia." The same thing happens with deficiency of essential minerals and trace elements. Basically, in these cases, we are speaking of an illness elicited by a disturbance in the enzymatic balance.

These co-enzymes, in fact, are different from the enzymes. It was already said that enzymes are made of albumin and the co-enzymes are not. The enzymes are rather large molecules. On the other hand, co-enzymes are rather small. Enzymes are not consumed in the true sense during their activity, while co-enzymes are consumed in it and they must be replaced through our diet.

To act adequately, enzymes must be exposed to certain physical conditions. Each of them needs a specific temperature and pH, which causes them to have different speeds of action. To have an appropriate idea of the speed, you must know that lysozyme (an enzyme that helps in the elimination of bacteria) produces a change of approximately 30 molecules of substratum per minute, that is, every 2 seconds. On the other hand, the fastest degrader among the enzymes is quite different, it is carboanhydrase, which changes an incredibly 36 millions of substratum in only one minute.

Some enzymes live only 20 minutes and must be replaced by new enzymes of the same type, recently produced. Other enzymes remain active for a period of several weeks before they are eliminated and when they are, they are eliminated because of their age.

At the Program for Studies of Alternative Medicines of the University of Guadalajara (Mexico), we have researched the therapeutic value of these natural proteolytic enzymes in the treatment of acute and chronic clinical conditions. We have had the opportunity of reaffirming that enzymes are catalytically active polymer compounds made of amino acids. They are involved in virtually all of the vital metabolic processes. They set metabolic conversions in track (in train), control energetic processes and

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regulate syntheses. Without enzymes, nothing goes on at all within an organism.

It is therefore normal to use enzymes for therapeutic purposes. Substitution in intestinal enzyme deficiency conditions is a classical treatment modality that no one would dispute. External use of enzymes for impaired wound healing (e.g. in the presence of varicose ulcers) has been part of the armamentarium of medical practitioners for centuries. Parental lytic therapy with streptolysin or urokinase for cardiac infarct or for vascular occlusions is today standard throughout the world.

Enzymes are very highly substrate specific. Due to their different places of action, it is therefore reasonable to use mixtures of enzymes in the treatment of diseases. One important enzyme is called the hydrolases, which cleave complex compounds (esters, peptides, and glycosides).

There are some substances that are very similar to co-enzymes. They look so similar that our body can not distinguish between them. In fact, our system does not see the difference and tries to use them as real active enzymatic centers. Of course, the enzyme compensated by such substances (not the true co-enzyme) do not work and the biochemical error makes us sick. For example, when poisoning rats, these poisons very frequently contain an aromatic, vegetal substance known as coumarin. The animal and the human organism see the coumarin as if it were co-enzyme vitamin K. This vitamin K has a definitive role in the production of the enzymes necessary for coagulation. If the body receives coumarin, it incorporates it into the enzymes, instead of incorporating vitamin K, and so the necessary enzymes for coagulation stop functioning. The blood liquefies in a way that causes the rats to bleed to their death.

When we get sick, particularly in the case of an infectious disease, our temperature rises. This is an intelligent way by which nature accelerates the activity of our enzymes to try to get rid of the problem.

To bring about certain tasks of great importance within our organism and to keep our system in a perfect equilibrium between too much and too little, the enzymes work most of the time in continuous steps, that is, in what is called "enzymatic cascades." One enzyme activates the next enzyme, and, in turn, that enzyme activates another enzyme, until one last enzyme finally produces the desired effect. This happens due to nature's design to conserve energy, because these small individual steps require much less energy than big complicated ones. On the other hand, nature desires safety, in that our bodies must be sure that these enzymatic cascades are not activated unless really necessary. That is why there are two security systems. If one enzymatic cascade is wrongly activated, there can be dangerous consequences that may lead to death.

The first lock of the security system is to produce new enzymes, but the characteristic of these enzymes is that they are active. That is, they will not work until they are activated by certain changes in the structure of the amino acids. Thus, the innocuous enzymes flow all over the lymphatic system and the bloodstream. Whenever the body needs to have a certain effect, a corresponding enzymatic cascade is activated accordingly.

The inhibitors of the enzymes are the second security system. In biochemistry they are so-called "enzymatic inhibitors." These proper enzymatic inhibitors of the organism can avoid the activation of the enzymes when the quantity of enzymes is too large.

Other several substances have been discovered to help to neutralize certain enzymes, and by this means we can intentionally act on the process of metabolism. The most famous drug in the world, "acetylsalicylic acid," works according to this principle. During a very long time, the fact that acetylsalicylic acid neutralized enzymes was unknown. We used the substance as a pain killer

simply because we knew it worked. This acid can be stored firmly as a foreign substance in an enzyme with the complicated name of "cyclooxygenase." Cyclooxygenase plays an important role in the processes of coagulation and inflammations. Thus, the acid inhibits the coagulation of blood and then blood becomes more liquid. It also inhibits the processes of inflammations, and this way the inflammations and pains are diminished.

Think about antibiotics, for example, penicillin; or about steroids, that is, cortisone. These substances also are enzymatic inhibitors. What medical science is doing, then, is using this knowledge in the symptomatic treatment of diseases.

Enzymes are widely used in the food industry. Enzymes are essential in the manufacture of beer. But our interest is in three medical fields. So, in this area, enzymes are used in: (1) analysis, (2) pharmaceuticals and, (3) therapy.

Enzymes are very important in paraclinical diagnosis. For example, in the past it took a long time to determine the blood sugar level. Today, we can use a special tape, wet it with some blood or urine, and in 60 seconds know our blood sugar level. What we are doing, is using our knowledge about the way enzymes react.

In the pharmaceutical area, it was already mentioned that many of the drugs used today are in reality enzymatic inhibitors, such as cytostatics, antibiotics, steroids, etc. Everybody knows that these medicines have different adverse side effects. It would be better to help our body to react, instead of inhibiting it.

After many years of experience in analysis and pharmaceutical areas, it was thought that these powerful enzymes could be used in the therapeutic field, too. This way, a new area of enzymatic therapy began. It was applied to alleviate disturbances in the metabolism, that is, impairments in the functions of the organs and to repair genetic faults.

Soon scientists concluded, thanks to these new biochemical tools, that the genetic defects could be corrected or neutralized by means of the application of enzymes. Besides, the genetic defects are enzymatic defects. So far there have been reported in the medical literature more than 150 diseases that are due to enzymatic faults genetically conditioned. This means that the patient's organism does not form a specific enzyme or it manufactures and places a similar enzyme which has only weak activity. This weak enzyme replaces the right one.

An enzymatic defect genetically conditioned is found also especially in certain human races. For example, the black population is affected by an enzymatic defect genetically conditioned that can lead to the so-called anemia of falciform cells, while half of the Japanese people suffer from another hereditary metabolic error. They lack an enzyme, so-called aldehyde dehydrogenase. This enzyme is required to degrade alcohol. This is the reason why Japanese people are more sensitive to drinking alcohol. Most women have the same enzymatic defect.

Some of the enzymatic defects genetically conditioned have different kinds of consequences that are hardly noticed, while others have a remarkable effect in the display of disease.

DIGESTION

We can say that in spite of the different foods we eat, they all are made of carbohydrates, proteins and fat.

To be able to transform these three basic food substances into biochemical substances, so that our body can take advantage of them, we need also three groups of enzymes; the proteolytic, enzymes (proteases), degraders of proteins, the lipolytic enzymes (lipases), degraders of fat and the amilolytic enzymes (amilases), degraders of carbohydrates.

This enzymatic transformation begins in the moment we place a piece of food in our mouth. As always seen in nature, there is an

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But enzymes not only degrade foods. They also play a specific role in the process of absorption of substances. There are several enzymes that are essential as transporters of the nutrient substances.

We can understand now that when we eat too much, we can help our body to digest more easily our foods by taking some medicine, which contains digestive enzymes.

ENZYMES, GREAT HEALERS

When someone gets sick of any disease we can be sure that something is wrong with his/her enzymes. If the enzymes had been able to eliminate the cause of the disease, then the person would not have become sick.

What we logically must do, in almost any disease, is to replace the type and quantity of the required enzymes as soon as possible. Our body will automatically do the rest.

It is so simple, we just take some enzymatic tablets to help ourselves. In emergency situations, we can administer them in great quantities through injections or even rectally.

The defense mechanisms of the organism are fortified by the enzymes. They are important for all the inflammatory processes, they take care to keep a good blood circulation, they help in wound healing of any kind and even in the case of abnormal cells they regulate cellular growth and fight against viruses. These features are impressive. They embrace almost all the conditions which we nowadays call "chronic diseases."

Of course, enzymes can be taken as a preventive measure against many diseases.

One great problem is obtaining an effective formula of enzymes, as some governmental authorities do not permit the use of a mixture of active substances. It is essential to have a mixture, otherwise the therapeutical effect desired will not be produced. In the literal sense, any food has a mixture of "drugs" [or chemicals] such as vitamins, minerals, trace elements, amino acids, etc. And, we combine these more complexly when we combine foods.

There are some monoenzymatic preparations, but their therapeutic effect is very limited. Many studies have been done regarding the effect of an enzyme used alone and also used in a mixture. There is a clear synergistic effect when combined with more than one enzyme. For example, bromelain, we'll say, has an effect factor of 1, but if we combine bromelain with papain -- which we'll say also has an effect factor of 1 -- the resulting effect will not be their sum of $1+1=2$, but rather $1+1=3$, or perhaps even $1+1=4$. This is due to their natural ability to act synergistically.

In reality, it is difficult to get a monoenzymatic preparation, since, for example, pancreatin itself is composed of at least 12 enzymes.

Enzymes are very safe. A lethal dose (LD-50: the LD-50 is the measure of the dosage necessary to kill off one-half of a trial group of rats, and is a standard used to measure safety of most drugs) could never be found. Rats, for example, were fed with the equivalent of 2,500 tablets for 6 months, with no significant changes and no harmful effects. Horses were also fed with the equivalent quantity of 250 tablets daily for 6 months, too, with no problems. No toxicity has ever been found.

Since enzymes are natural agents, they can be included in the category of the biological response modifiers (BRM). This means that they do not alter the physiology of our body, instead, they just stimulate our bodies to act according to its own inner wisdom. This is really fascinating. Enzymes will work only if they are needed to do so.

Caution must be taken in certain specific cases. Hemophilic patients should not take enzymes. We can say the same thing

concerning the patients who have a risk of hemorrhage. The reason is that enzymes liquefy blood and make coagulation slower. In case of pregnancy, we must ponder the risk. But all the studies in animals have demonstrated no teratogenic effect by enzyme mixtures.

Scientific research has proven that enzymes not only have a synergetic effect, as a mixture, but also elicit the same kind of effect when they are combined with antibiotics, sulfonamids, steroids and other drugs or medicines. Regarding synergy with chemotherapy, we have seen an increase in the effect of the chemotherapy from 8% to 40%. This is wonderful, because it means that we can diminish, in certain cases, the dosage of cytostatic medicines without decreasing their therapeutical effect. About 5% of the patients who take enzymatic mixtures will have a mild side effect. It consists simply in a change of the odor in their stools.

Systemic enzyme therapy is a form of therapy that has been taken over from naturopathy. Today it has a firm place in the spectrum of treatment available under the aegis of mainstream medicine -- despite all hostilities. Extensive research made this possible.

It has always been believed that enzymes do not reach the whole organism. This is because it is thought that enzymes are not absorbed in the intestines. The reason for this belief is that enzymes are macromolecules. A macromolecule has a weight of at least 1,000. Enzymes have a weight between 16,000 and 60,000 atoms per molecule.

Everybody knows that new born babies get antibodies from their mothers through the mother's milk. These antibodies must cross the barrier of the intestines' walls to reach the lymphatic vessels and the bloodstream. These antibodies are also macromolecules that have a size similar to that of enzymes. The antibodies are also called gammaglobulins. (See "Universal Oral Vaccine," <http://www.arthritis-trust.org>.)

Prof. Seifert (Chirurgischen Universitat-Klinik) in Kiel, fed rats and dogs with equine gammaglobulins radioactively marked to demonstrate on a scientific basis the absorption of these macromolecules. These equine gammaglobulins have a molecular weight up to 12,000 atoms; that is, they are extremely large.

These gammaglobulins were absorbed. This means that they arrived through intestines to the blood and could be found all over the organism of the rats and dogs.

Nowadays, there is no doubt about the absorption of enzymatic mixtures.

HOW DO ENZYMES WORK?

It is very important to remember that medicine does not heal, neither does any other remedy. We know that doctors do not, in the strict sense of the word, cure any disease. All of them can contribute through very different ways of supporting the body, but the healing and the maintenance of health is a task done by one's own defense system of the body.

We cannot speak about the treatment of diseases, or detoxification of the organism, without also including the immune system. We begin with grippe and finish with AIDS, and there is nothing that could be done without taking into consideration the field of immunology.

It is difficult to explain in simple words what the immune system is all about, but I will try to make it simple.

The cells, such as bacteria and viruses, are recognized by our body as enemies, that is, as "antigens," but also some other chemical substances and mutated cells act as antigens. In response to the presence of these antigens, our body produces "antibodies." The antibodies that couple with an antigen form an "immune complex." Macrophages are in charge of destroying these immune complexes enzymatically. But these macrophages look for large immune com-

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plexes, so sometimes the medium size immune complexes are ignored. These ignored complexes begin to flow through our lymphatic system and bloodstream until they finish sticking on a tissue wall, penetrating that tissue. Eventually they are stored there. From that moment on, these immune complexes become pathogenic, that is, they can cause a disease.

During this situation, we also find macrophages less active because the more immune complexes we have, the more inhibited is the activity of the macrophages. We have then arrived at a vicious circle, where one bad situation produces the other bad situation, and that one in turn producing the first situation.

When the number of immune complexes is so high, the second defense system of our body is alerted. The second immune system is called the "complement system." It is also made of a cascade of nine enzymes activated one by one. When the whole enzymatic cascade has been activated, a huge dissolvent activity of albumins begins and this causes an inflammatory reaction. In consequence, the tissue is destroyed and suddenly that which we call an "auto immune disease" arises; the organism attacks itself.

If, for example, the immune complexes are fixed in the renal tissue, then through the activation of the complement system, an inflammation can occur in the kidney, resulting in what we know as glomerulonephritis. In this particular case, clinical trials have been undertaken and so now we know that what the enzymes do is to interrupt the enzymatic cascade of the complement system.

There are many similar diseases elicited by the activation of the complement system. All of them are so-called "autoimmune diseases." Until recently they were considered as incurable diseases, because they could only be influenced medically very little, if any, that is, chronic inflammations of the intestines, such as Crohn's disease or ulcerative colitis. This kind of sickness is due to the immune complexes in the intestinal tissues.

The interruption of the complement system cascade always works to avoid damage upon ourselves. To achieve this, we dilute enzymatically the pathogenic immune complexes and we activate the macrophages. This way, we are interrupting the vicious circle that leads to chronic degenerative diseases.

Depending on the organ where these immune complexes are fixed is where the disease is produced. For instance, if the lung is involved, then the result is pulmonary fibrosis. If the pancreas is involved, then we will get a pancreatitis, and so on. The list of the diseases of autoaggression caused by immune complexes is very long. The type of disease does not depend only on the place where the immune complexes are fixed, but also on the origin of the antigen.

Among the typical diseases of autoaggression, we can find chronic articular rheumatism, glomerulonephritis, and ulcerative colitis. The diseases due to virus, bacteria or certain parasites can also lead to autoaggression diseases; for example, as in infectious hepatitis, herpes zoster, toxoplasmosis, etc.

Orthodox medicine frequently uses two kinds of remedies. One is the kind of antiinflammatory drugs which only suppress the symptom but not the disease. The other kind are so-called immune suppressors. These drugs weaken the body's own defenses.

More scientists are taking an interest in the biochemical method of systemic enzyme therapy. Enzymes are adequate to dissolve and to eliminate immune complexes. They also stimulate the body's defenses and accelerate inflammatory mechanisms.

In the beginning of the treatment, an apparent impairment may occur, since the enzymatic mixtures can destroy the immune complexes that are fixed in the tissues. So, enzymes take the immune complexes back to the bloodstream. Because of this, there is a greater quantity of circulating immune complexes and this tempo-

rarily increase can temporarily increase the symptoms in the patient. [See "The Herxheimer Effect" <http://www.arthritistrust.org>.] However, the enzymes, in a short time period, if they are administered in the right dose, will certainly eliminate the titrated immune complexes that have once again entered the blood stream.

During the Second Mexican National Congress on Enzyme Therapy, Dr. Kunze reported fascinating findings of his immunological research. He says that there is no disease where the immune system is not involved. Now we know that enzymes can help to avoid the formation of autoantibodies. They can inhibit the production of immune complexes. They are useful in avoiding the activation of the complement. They mediate the action of the citoquines, as well as the fibrin.

Clinical trials have been done on the systemic enzymatic treatment of many, many diseases. There are two main ones to be discussed herein. When one speaks about hope in the case of Multiple Sclerosis, one must be sure of what one is saying. We all know how terrible this disease is. According to Dr. Hector E. Solorzano del Rio, M.D., Ph.D., D.Sc., chairman of the Program for Studies of Alternative Medicines of the University of Guadalajara, it has been scientifically proven that enzymes indeed help MS patients.

The etiology of MS is unknown. We know that there is a demyelination, that is, the nerve fibers lose their myelin [insulation] and the symptoms arise. There are certain factors that seem to influence the appearance of this medical condition, such as is the case of hereditary factors, dietary factors, etc.

Another factor found in MS patients is a deficiency of unsaturated fatty acids.

One final theory says that viruses can be the etiological factor for MS. Different clinical trials around the world have confirmed that the MS patients have higher levels of circulating immune complexes.

Dr. Solorzano tells about one of his MS patients, named Jose. He is 40 years old, in a wheelchair, and desperate. He had received all known orthodox treatments with no results. So, he took the enzymatic treatment. In one month Jose felt more strength in all of his muscles. He could again take care of himself regarding dressing himself. In three months he could walk, but with some difficulty. After six months of enzymatic treatment, he was no longer sick. He is very happy and now lives a productive life.

Hundreds of patients have been treated with enzymatic therapy, with good results, not only in Germany or Mexico, but in many other countries.

It is important to remember that patients also have dietary care, and that they are also given unsaturated fatty acids. Most of them have a deficiency in selenium, and so we prescribe accordingly.

The sooner the patient receives enzymatic treatment, the faster the improvement will be noticed. Of course, if the patient has not taken immune suppressors, then, again, the response will be seen earlier.

We can also talk about a very frequent but not cured disease by orthodox medicine. This is Rheumatoid Arthritis. Its etiology is not yet known. There are many theories. Some scientists say that it is an autoimmune disease.

There are millions of people suffering from Rheumatoid Arthritis.

In this kind of disease we find high levels of circulating immune complexes. So, this points out that we are really dealing with an autoaggression disease. Here the immune complexes are fixed in the articular capsule, that is why eventually the joint will be destroyed.

The regular (traditional) medical treatment is a symptomatic

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one. The patient receives a prescription of antiinflammatory drugs, analgesic drugs, gold, cortisone and in the worst cases, cytostatic drugs; i.e., methotrexate, etc.

All that these drugs provide is temporary relief. They will not stop the arising of immune complexes, except cortisone. Besides the side effects are not mild and innocuous (including the use of cortisone). Sometimes the side effects are quite dangerous.

Some double blind clinical trials have been done in Germany using, on one side, enzymatic mixtures, and on the other side, gold salts. One main study lasted six months. The scientists were surprised when they knew that they got the same good results using any of them. (In a double-blind clinical trial, the doctor does not know which tablets are whose, and neither does the patient). The great advantage was that the enzymes were very much better tolerated and had no side effects.

INFLAMMATION

Enzymes are not antiinflammatory drugs, instead, they promote the inflammation; this is, inflammation is the marvelous response from our body to a noxious stimulus. Most times we look at inflammation as something bad and to be avoided. It should not be so. It is the way our body is trying to get rid of the harmful foreign agents.

The classical signs of inflammation are; pain, tumor, heat and blush. When inflammation ends, the body repairs the area affected. So, if the inflammation finishes sooner, then the repair will begin earlier. That's the reason why enzymes are promoters instead of inhibitors of inflammation.

If we try to think of a disease which has as a feature inflammation, we'll find that such diseases are those that their names finish with "itis." Such as tonsilitis, colitis, otitis, dermatitis, etc. Thus, we can easily conclude that enzymatic mixtures are excellent for any of these "itis" diseases. Enzymes will help our body to heal itself.

In studies made at the University of Guadalajara, Dr. Solorzano has used enzymes not only to treat sports injuries, but also -- read this carefully -- TO PREVENT them. This means that patients will take enzymes before playing their sports. When they become injured, the injury heals in a significantly shorter time period. Some times it is almost half of the regular time. It's incredible!

One very frequent and elective wound is one made by the surgeon. Although a surgical operation is for the good of the patient, it is still an aggression to our body. Our system will react the same way if it had been produced by any other harmful agent. Those patients who receive enzymatic treatment before and/or after surgery will have some important advantages. They will stay in bed less time, the risk of a thrombosis will be much less, the patients have a better psychic state, the pains will go earlier. During surgery the operation field will be better. Patients under enzymes will have a better and faster wound healing, and last but not least, they will spend less money because of hospital costs.

The area where enzymes work the best is in vascular diseases, such as thrombosis, phlebitis, and varicose veins. Enzymes avoid the formation of thrombosis. They lower cholesterol levels and triglycerides.

Dr. Inderst (1990) has reported on the effect of enzyme therapy in vascular disease and found that enzymes cause a definite reduction in symptoms (pain, cramps) and a measurable improvement of objective findings (e.g. swelling) even when lymphedema was present for many years.

Until now the treatment of venous and lymphatic vessel diseases, especially when combined with edema, gave insufficient results. Compressive therapy is rejected by many of the patients suffering from these diseases, so it may be necessary to treat the main symptoms with drugs. Systemic enzyme therapy is a proven method;

it diminishes the edema, activates the fibrinolytic system, and stimulates cells like macrophages. The pain and the cramps disappear, swelling goes away, and blood flow increases in a short time. The efficacy of certain enzyme mixtures has been tested by double-blind studies.

CANCER

About 100 years ago, a British embryologist, John Beard, decided to treat cancer patients. He knew that the important enzymes are produced mainly by the pancreas. He had a theory about the etiology of cancer, where pancreatic enzymes were involved. He wanted to try some clinical research with terminal cancer patients, so he extracted the pancreatic juice of the pancreas of pigs and calves just born. His solution had then a high concentration of these useful enzymes.

Almost immediately after the extract was ready, he injected it into his cancer patients. These injections were applied slowly intravenously or intramuscular. Sometimes, when the tumor was available near the surface of the body, he injected right into it.

Of course, not all of these treatments were a success, due to the lack of purification of his extract, as it contained strange albumins which in some cases elicited allergic reactions and even some anaphylactic shock. You can easily imagine that this provoked an immediate reaction from his colleagues. He was seen as a quack.

Eventually Dr. Beard had the opportunity to observe how certain tumor masses really disappeared due to the effect of these enzymatic injections. He also noticed how many of his cancer patients survived longer than the expected, according to the orthodox expectancy rates.

He treated a total of 170 patients with this method. In 1907 he wrote a book describing his experiences with these patients. Some patients were totally recovered, some improved, and some lived longer with a better quality of life.

Almost everything about Dr. Beard was forgotten until Prof. Wolf, who had an office in New York, decided to research enzymes. After reading literature that was written and researched on enzymes, Prof. Wolf wanted to continue the study of these wonderful biological agents.

Prof. Wolf noticed that by using purified mixtures of enzymes there were no risks of frequent allergic reactions.

We know that the war against cancer has not been won. Many people around the world die of cancer every day.

There are many non-toxic approaches to treat cancer, but since our aim in this paper is to speak about enzyme therapy, we'll concentrate on how they are beneficial in the treatment of this disease.

Each cancer cell has on the surface of its membrane, specific antigens. It is naturally ideal when the body can recognize these markers -- by being released from the fibrin -- because the cancer cell can be destroyed after this. Although the cancer cell is destroyed, however, the antigen remains. By means of a change in its membrane, the cancer cell can sometimes throw off its antigen. It seems that cancer cells do this, so that our defenses go in the wrong direction. Regrettably, this trick really works. If the number of formed immune complexes is kept within the normal limits and our defenses are allright, then our macrophages can embrace and dissolve these immune complexes. If the number of immune complexes is superior to the strength of the macrophages, then some immune complexes remain not dissolved in the blood, as well as in the lymph.

By means of a complicated mechanism -- we talk about activation and aggregation of thrombocytes -- it promotes a greater formation of fibrin, by depositing the not dissolved immune complexes in the tissue. This normally diminishes defenses. And this

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The immune complexes can weaken the body's defenses in another way. Too many immune complexes inhibit the activity of the macrophages, which are the main destroyers of the cancer cells. Their capacity to destroy and to clean out the system is paralyzed. Thus cancer cells can grow without being bothered by macrophages.

What the enzymes do to help is that they discover the receptors. Enzymes also facilitate the reaction of recognition. Another important action of the enzymes is to improve immunity, which is done by breaking the circulating immune complexes by activating the natural killer cells and the T-cells, and also by inducing mediators and cytokines, such as TNF, Tumor Necrosis Factor.

Enzymes have the ability to reduce the thick fibrin layer which is abnormally 15 times thicker than normal. By reducing this fibrin layer the stickiness of the cancer cells is also diminished, and by this means we can prevent metastasis.

One advantage of using enzymes is that we can combine them with orthodox treatment, that is, chemotherapy and/or radioactive therapy. As a bonus, the patient will have less side effects by combining these natural enzymes.

The world-famous professor and doctor from Vienna, Dr. Wrba, states that enzymes are a new approach to cancer treatment. There are two main factors in the treatment of cancer cells (1) defense of the host and (2) virulence of the cancer cells. As has been already said, systemic enzyme therapy increases the defense mechanism, that is, improves the recognition reaction of the cancer cells, plus lowers its virulence. In doing so, Wrba feels that this action causes modulation of the cell membrane, uncovers the cell surface and receptors, improves immunity, facilitates the recognition reaction and reduces the stickiness of the tumor cells.

VIRAL DISEASES

Jaeger (1990) investigated the use of hydrolytic enzymes in the treatment of HIV infection and stated that there are increasing indications that autoimmune processes are involved in the destruction of the immune system that is fundamental to the pathogenesis of HIV infection.

According to Jaeger, a number of autoimmune mechanisms have been replicated in the pathogenesis of HIV infection, particularly in the more advanced clinically symptomatic stages of the diseases. Thus, different auto-antibodies and increased levels of circulating immune complexes have been described.

Thus, enzyme therapy becomes an adjuvant form of treatment. As mentioned earlier, the immune complexes can be eliminated by the hydrolytic enzymes. Results indicate that this form of treatment was well tolerated, patients improved in functional ability and also gained weight. The clinical symptoms typical of the HIV infection were reduced.

Kleine (1990) states that in herpes zoster patients there are typical dermatological findings in the distribution area of one or several peripheral nerves. Pain in this area exist almost always, and internal organs may also be involved. The course of the disease is relatively invariable. The nerve pain can out last the cutaneous manifestation for a long time (post zoster neuralgia). Elderly people and those who are immunodeficient due to diseases or drugs are especially at risk. Systemic enzyme therapy represents a new principle of therapeutic action. The studies indicate a positive influence of the enzymes on the acute form of herpes zoster as well as on the complications.

SUMMARY

Enzyme therapy has long been part of the methods of treatment of traditional medicine. Meanwhile, enzymes have even become one of the most innovative and expanding drug groups, and systemic

therapy with proteolytic enzymes has become an important method of treatment in natural medicine.

There is hardly any regulatory system in our body which does not depend on enzymes. Enzymes control coagulation and fibrinolysis, inflammation and complement activity, phagocytosis, wound healing and tissue regeneration as well as the specific and non-specific defense systems. Here the enzymes function as biocatalysts.

The idea of supporting the weakened or stressed human body in fighting disease by administering enzymes seems very reasonable. After all, the structures and various functions of some 2700 enzymes have already been discovered in the human organism.

The most important enzymes used in therapy are hydrolases, which split ester, peptide and glycoside bonds by introducing a water molecule.

The tasks and goals of enzyme therapy are manifold. Enzymes are used to support the body in stress situations, such as chronic or acute inflammations, digestive disorders, vascular or malignant diseases. A further field of application for enzymes is substitution in enzyme defect disorders. The classical examples of this are pancreatic insufficiency or blood clotting disorders due to deficient clotting factors.

Each enzyme has different effects. It is therefore reasonable to use combinations of enzymes to ensure a sufficiently broad spectrum of effects and via synergism for greater efficacy.

The absorption of enzymes

The pharmacological principle of systemic enzyme therapy depends on the absorption of enzymes as intact molecules after oral administration. Thus their biological effects are fully preserved. The tablets or coated tablets must resist gastric secretion, to prevent destruction by the acid milieu of the stomach. Once in the small bowel, the large enzyme molecules, like all macromolecules, may be absorbed in two ways:

1. They may bind to specific receptors in a particular area of the intestinal mucosa, and be transported through the gut's epithelium (pinocytosis).

2. They may be taken up by lymphocytes "roaming" in the lumen of the bowel, and be released again after passage through the gut wall.

In this way about 25% of the administered dose may find its way into the circulation and the lymph system still in an active form.

As already stated, it is important that the structure responsible for enzymatic activity remain largely intact so that the enzyme retains its activity.

In the blood, enzymes do not exist in a free form but are bound to a carrier, e.g., the antiproteinase, α_2 -macroglobulin. This protects the enzyme from interactions with other molecules and "neutralizes" potentially allergenic properties of these proteases. In spite of this carrier binding, the enzyme remains active.

The fact that, after absorption from the gastrointestinal tract, these enzymes reach their site of action via the blood and lymph systems, is referred to as "systemic action."

Enzymes promote the body's own regeneration processes.

Certain proteolytic enzymes possess pronounced anti-inflammatory and anti-oedematous properties. They promote the breakdown of toxic metabolites and inflammatory products and thus contribute substantially to the detoxification of the human body. Simultaneously, the additional fibrinolytic activity of the enzymes and the "vessel-sealing" effect of rutin accelerates the blood flow. Together with the dissolution of fresh blood clots (microthrombi), this allows normalization of the microcirculation.

Therefore, the inflammatory products that mediate pain are eliminated more quickly, the improved blood supply enhances local oxygenation, and tissue tension decreases in parallel with the

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reduction in oedema. All of this provides some analgesic effect.

In sharp contrast to the mechanisms of action of conventional non-steroidal and steroidal anti-inflammatory drugs, systemic enzyme therapy thus does not block the natural healing processes of inflammation.

It is also characteristic for some enzymes, that they activate or stimulate macrophages and natural killer cells (NK cells). These cells have a well-recognized essential role in the body's own immunological defense. They are part of a larger system, the reticulo-endothelial system.

Therefore, enzymes also affect the whole of the body's immune system as a "biological response modifier." Macrophages stimulated by the enzymes secrete tumour necrosis factor (TNF) and other cytokines. For these two reasons, enzymes are predestined to become a future chemotherapeutic agent, they do not lead to the destruction of all cells with high mitotic activity, but only of those that are actually malignant.

A further characteristic feature of enzymes is their carrier function. Enzymes are able to transport antibiotics and cytostatic drugs to sites which would be nearly impossible for them to reach otherwise. Enzymes can therefore be used as "transportmedia," e.g., in the therapy of sinusitis, prostatitis, bronchitis or specific tumours.

Enzymes destroy immune complexes

Immune complexes arise from the combination of an antigen with an antibody. If the antigen is formed by the body itself, as, for instance, in rheumatism, or if very large complexes form through the conglomeration of several antigen and antibody molecules, pathogenic immune complexes may result. This may subsequently lead to autoimmune disease, especially if these complexes activate the complement system. In conventional medicine, pathogenic immune complexes are eliminated via plasmapheresis, lymphopheresis and cryoprecipitation. It is much easier, however, to remove the pathogenic immune complexes using enzymes that activate the "phagocytic macrophage system," or by breaking down the large complexes into smaller ones which can be eliminated far more efficiently.

These mechanisms of action justify the large number of indications for systemic enzyme therapy; it is, therefore, the basis of treatment in acute and chronic inflammatory conditions, autoimmune diseases such as polyarthritis, states of impaired resistance (viral and neoplastic diseases), and also for vascular conditions, in which the additional improvement in blood flow is of great importance. There is also increasing evidence for their prophylactic efficacy (prevention of tumour metastases.)

CONCLUSION

(Instructions for side effects during use)

Orally administered enzymes should not be taken with food. They should be taken at least one hour before or 1-1/2 hours after meals. Otherwise, there is a risk that some of the dose will merely help to digest the food.

From the start, relatively high doses must be used in systemic enzyme therapy, since enzymes are large molecules and their absorption, transport and distribution are different from those of small molecules.

It is worth emphasizing, that even with large doses taken over prolonged periods of time, no immunological dysregulation will occur.

Concomitant oral administration of vitamin preparations represents an ideal adjunct to systemic enzyme therapy. For this purpose, emulsions are particularly suitable, especially in higher dosages.

'Healing' Enzymes for Arthritis and Sports Injuries

In their August/September 1993 issue, Townsend Letter for Doctors and Patients [911 Tyler St., Port Townsend, WA 98368-

6541; p. 878] published our article "Bees: The Perfect Food." Based on now deceased Royden Brown's work, How to Live the Millennium, [C.C. Pollen Company, 3627 E. Indian School Rd., Suite 209, Phoenix, AZ 85018-5126], this article was important because virtually all essential human nutrients are available in the properly chosen and prepared bee pollen. Among those nutrients were literally tens of thousands of important enzymes. [See "Bees: The Perfect Food," <http://www.arthritis-trust.org>.]

In our 1995 newsletter we published two excellent articles by Hector E. Solorzano del Rio, M.D., Ph.D., D.Sc., "How do Enzymes Work?," and also "Enzymes, Great Healers."

Dr. Solorzano introduced us to Wobenzym N, a German developed product that, perhaps, has been greatly under-rated by the alternative medical profession, and especially by arthritics.

The following article explains why. It was provided us by NutriHealth International, a publisher, through one of its representatives, Shailesh Patel. We hereby print the article with some changes with their permission.

We do not have a financial interest in Wobenzym N.

Proteolytic Enzymes as an Arthritic Breakthrough

Wobenzym N is actually not a single substance but rather a unique, synergistic combination of various proteolytic (protein-destroying) enzymes, or proteases. Wobenzym N was developed over 30 years ago by world-renowned immunologist and biochemist Dr. Kari Ransberger and Dr. Max Wolf of Germany. Wobenzym N is in fact endorsed by leading European scientists and is backed by over 30 years of scientific research and clinical studies confirming its benefits. Although individual proteolytic enzymes are useful, the extraordinary combination of these enzymes yields a combination greater than the sum of its parts. Systemic multi-enzyme therapy has proved helpful in cases of arthritis and related diseases, offering a wide range of benefits from anti-inflammatory to vascular system protection, and regulating the immune system. The precise formulation of Wobenzym N has evolved over the years, but its basic ingredients remain the same. The ingredients include the enzymes, bromelain, papain, pancreatin, trypsin, and chymotrypsin and the flavonoid rutin.

One of the most important potential benefits of systemic multi-enzyme therapy is in the treatment of arthritis. Proteolytic enzymes are essential regulators and modulators of the inflammatory response.

They help to hinder pain and inflammatory reactions in a number of ways.

The Wobenzym N formulation has been shown to help :

* Break down proteins in the blood that cause inflammation by facilitating their removal via the blood stream and lymphatic system. (See "Lymph Drainage Therapy," and "Lymphatic Detoxification," <http://www.arthritis-trust.org>.)

* Remove "fibrin," the clotting material that prolongs inflammation.

* Clear up edema (excess water) in the areas of inflammation.

* Counteract chronic, recurrent inflammation, a primary cause of chronic degenerative joint disease.

Conventional treatment of inflammatory diseases such as arthritis involves powerful drugs like steroidal and non-steroidal anti-inflammatory drugs (NSAIDs), as well as more exotic treatments, such as methotrexate and D-penicillamine. [This foundation, of course, does not recommend the traditional approach. See *Arthritis: Osteoarthritis and Rheumatoid Disease Including Rheumatoid Arthritis*, <http://www.arthritis-trust.org>.] Although NSAIDs reduce inflammation and pain, they are toxic and do very little to start the healing process. In this sense, enzymes may be superior as they

Medical data is for informational purposes only. You should always consult your family physician, or one of our referral physicians prior to treatment. have a profound influence on the immune system.

Proteolytic enzymes degrade circulatory immune complexes (CIC's) that can inhibit normal immune function. These immune complexes, which consist of an antigen bound to an antibody, are a normal part of the immune response. But when immune complexes occur in excess, they are a principal cause of a number of [symptoms of] rheumatologic diseases, including [those observed in] rheumatoid arthritis. Evidence suggests that trypsin, papain, and other proteolytic enzymes can break up existing circulatory immune complexes and possibly even prevent their formation in the first place. The bottom line of these actions is a regulatory or stimulatory effect on the immune system.

Numerous studies in animals and people with rheumatoid arthritis indicate that Wobenzym not only manages symptoms of pain and inflammation but provides immense healing benefits as well. Most recently, researchers from the Ukrainian Rheumatology Centre, in Kiev, tested Wobenzym N on 78 patients with severe, crippling rheumatoid arthritis and who were using other prime treatment drugs. All of the patients in the study showed a decrease in circulatory immune complexes (CIC) concentrations, averaging between 28% and 42%, and decrease in rheumatoid factors. Of all the patients 20% reduced their NSAID doses and one patient stopped taking methotrexate and experienced a clinical remission.

A number of sufferers of arthritis have indeed applauded Wobenzym. Hedy Mink from Oviedo, Florida boasts "my whole family has been using Wobenzym since 10 years when I lived in Germany. It has helped me keep my arthritis under control and we take Wobenzym for all possible inflammations in our body".

A Case History

Elizabeth Bapes, Illinois has said, "There are no words to describe what Wobenzym N has done for me. My homeopath started me on this about 4 months ago, and the change in me is miraculous. I haven't felt this good in a very, very, very long time. I used to dread getting up in the morning — now I look forward to starting the day with enthusiasm. My energy is remarkable.

Before taking these wonderful enzymes I felt like an old, old, lady, because even though I am now 75 years YOUNG, no one believes that I have arthritis and lupus. I have a handicapped husband that I take care of without help praise to the makers and developers of Wobenzym."

Proteolytic Enzymes Bring Relief to Sufferers of Lupus

One of our referral physicians and Board Member, Ron Davis, M.D. [5002 Todville Rd., Seabrook, TX 77586-1702, (281) 474-3495] has had excellent success bringing about complete remissions in patients with Systemic Lupus Erythematosus and Progressive Systemic Sclerosis. Dr. Davis' method is available on our website, <http://www.arthritis-trust.org>, under the same title, "Systemic Lupus Erythematosus and Progressive Systemic Sclerosis." Wobenzym N, we feel, is an additional nutrient that will help to speed up the day of wellness.

Systemic Lupus Erythematosus (SLE or lupus) is a chronic inflammatory disease [said to be] of unknown cause. Lupus is [classified as] an autoimmune disease. [There are several theories as to] why the immune system, normally designed to fight infections and tumors, turns on its own human host. Many components, particularly certain white blood cells, are involved in the development of Lupus. Lupus can be a life-threatening disease and may affect every organ in the body. It strikes women far more often than men, and is most common among women of childbearing age.

Enzymes help to dissolve circulating immune complexes and antibodies that cause the severe inflammation of Lupus. A 1996 study of Lupus patients demonstrated how clinical and laboratory immuno-inflammatory activity decreased more quickly when medi-

cal drugs were used in combination with Wobenzym. Some patients were able to reduce their dose of the medical drugs Voltaren [a non-steroidal anti-inflammatory drug] and prednisolone [a form of cortisone, not recommended by this foundation]. This is important as these drugs often pose serious complications.

Enzymes may be particularly important for Lupus sufferers for another reason: they've been strongly shown to help prevent kidney disease and failure, both of which are commonly associated with Lupus.

The Wider Benefits of Multi-Enzyme Therapy

The body's inflammatory response to sinusitis, chronic bronchitis, and cystitis is benefited by multi-enzyme therapy. For bronchitis, enzymes lead to a reduction of mucosal swelling and an improvement in expectoration and ventilation. In cases of chronic sinusitis, improvements were seen in the normal inflammatory process and the natural clearance functions while stimulating the immune system. In cases of cystitis and UTI (urinary tract infections), Wobenzym N was an ideal partner with antibiotics and chemotherapeutic drugs, as it helped to deliver increased serum concentrations of these conventional medical treatments. A complete cure without recurrence was achieved only by this combination therapy. (Also see "Nose, Eye, Throat & Urinary Infections: Old Fashioned Simple, Safe and Effective Cures!" <http://www.arthritis-trust.org>.)

Enzymes interrupt the causative pathogenic sequence of chronic inflammation. They cause dissipation of inflammatory edema and counteract the pathogenicity of inflammatory products and antigen-antibody complexes by causing their breakdown and elimination.

Systemic multi-enzyme therapy has practical uses for anyone suffering from acute bronchitis, sinusitis, prostatitis, cystitis and pelvic inflammatory disease (PID). They can help reduce heart disease and circulatory disorders, as well as providing relief for some of the most painful cases of ulcerative colitis, Crohn's disease, and multiple sclerosis. Women will be happy to know that they will also be able to get relief from the painful disorder of fibrocystic breast disease with the aid of enzymes.

Enzymes for Sports Injuries

Just ask Boris Becker and Steffi Graf, two of Germany's leading internationally recognised tennis stars. Both use Wobenzym to help battle the aches and pains of sports injuries. Meanwhile, the German and Austrian Olympic teams ordered one million Wobenzym tablets for the 1998 Olympics. Why? Because they wanted to win and combination oral enzymes offer them a super competitive edge.

It was the German National Hockey Team (in the early 1990's) who began experimenting with Wobenzym N in an attempt to shorten the recovery time for common hockey injuries. All of the injuries suffered by the hockey players were well documented. The convalescence process was carefully and systematically monitored with regard to multiple criteria. Hockey players suffered bruises, contusions, torn muscles, and ruptured ligaments. The swelling, pain, and immobility left the players feeling uncomfortable, and diminished their performance, or kept them off the ice altogether.

Both the physicians and the players of the Hockey Team were pleased with the results of taking Wobenzym N. Bruises and hematomas shrank in size faster, swelling was less severe and resolved faster, spontaneous pain, pain on mobility, and pain on pressure were all lower than expected, and full mobility returned quicker. Moreover, they found that taking Wobenzym N as a preventative

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measure worked better than taking it right after an injury.

Recommended Nutrient Quantity

Wobenzym N is available in quantities of 100 capsules. The recommended dosage is 3 capsules per day at least 45 minutes before meals or as recommended by your health care professional.

Wobenzym N should be avoided during pregnancy and lactation and a physician should be consulted before use if you are currently on blood-thinning medication.

Wobenzym N can be purchased through a number of sources that can be found on the internet via search engine.

RESOURCES

In Mexico, for further information, including clinics, organizations or referral to practitioners, you can contact:

Dr. Hector E. Solorazano del Rio, M.D., D.Sc.
Programa de Estudios de Medicinas Alternativas
Universidad de Guadalajara
Calle Escuela Militar de Aviacion No. 16
Guadalajara, Jal. MEXICO

Mailing address:

Dr. Hector E. Solorazano del Rio
Universidad de Guadalajara
Apartado Postal No. 2-41
44280 Guadalajara, Jal.
MEXICO
Tels. (3) 637/7237, 6515476
Fax (3) 637/0030, 619/3722

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Explanation of Alternative Medicine

by

Dr. Hector Solorzano del Rio, M.D., Ph.D., D.Sc.

To facilitate comprehension for the patients who come to me on their first visit, I always explain to them through a leaflet, and when I see them, the following:

1. We claim that there is no cure-all medicine. All the different treatments may be good, but the secret is to find which ones to use and how to combine them. Most of the physicians are fanatic about the medicine they particularly practice. This is an error. There are cases in which surgery is unavoidable. We never put in danger the life of our patients. I still practice surgery when necessary. Now you can understand how I can combine many therapies. I take the good

part of them all.

2. There are no sicknesses but sick ones. In (conventional) allopathic medicine, we try to find the diagnosis and consider everyone the same. It is like putting a label on each patient. In alternative medicine, everyone is different, so, although many patients can have the same allopathic diagnosis, we can treat them in a different way, because of the distinct imbalance found in each of them. The same thing happens within nutritional therapy. I can have many patients suffering from arthritis but maybe one has a subclinical deficiency of boron. Another can have a subclinical deficiency of magnesium and so on.

3. When we treat a patient, we treat the whole body. In alternative medicine, we do not divide the patients into parts, that is, there are no specialties. You know, in allopathic medicine a specialist can give you a medication that will disturb another organ. Then, you have to see another specialist, who will give you another medicine, which, in turn, will disturb another organ and so on. All medications, in allopathic medicine, have side effects; most of them are adverse.

4. To find out the micro-bioelectronic imbalance of the patients, I use different machines, such as the Dermatron invented by Dr. Voll to measure the electrical potential of the cells. We do this in certain points, so called measurement points. The normal reading is 50 in a scale of 100. Readings below indicate a degenerative process and readings above, mean an inflammatory process.

5. According to the imbalance, I choose the treatment "individually." There are 216 alternative medicines and I recommend to patients the treatments that I think are best for their case in particular.

6. As patients look for good doctors, doctors look for good patients, that is, we need our patients to indeed want to help themselves. We, the doctors, are only the instrument by which God will heal them.

7. Every patient receives a diet in quality, not in quantity, based on the principle by Hippocrates, "let your food be your medicine and your medicine, be your food." We design the diet according to the microbiological readings of each person.

8. We also keep the premise from Hippocrates "first, do not harm." Sometimes, the allopathic treatments are more aggressive than the clinical condition itself.

9. I follow the Hippocratic philosophy that says *Natura Vix Medicatrix*, that is, Nature Heals. What I do, then, is only to stimulate the homeostasis (natural force to keep our body in order) of the patients. This way, I can say that they heal themselves. I am giving them a little push to help them.

Also see "Thyroid Hormone Therapy: Cutting the Gordian Knot," <http://www.arthritistrust.org>.)

Brief Curriculum Vitae

Hector E. Solorzano del Rio, M.D., Ph.D., D.Sc.
Medical Doctor (Surgeon) from Universidad de Guadalajara
Master of Acupuncture Degree from Chinese Culture University, Taiwan
Doctor of Science from Open International University for Complementary Medicines
Professor of Pharmacology at Universidad de Guadalajara
Professor of Traditional Practices at the Specialty on Public Health Course at Universidad Guadalajara
Coordinator of the Program for Studies of Alternative Medicines at Universidad de Guadalajara
Organizer of more than 150 seminars on Alternative Medicines at Universidad de Guadalajara
Lecturer in several congresses domestic, as well as national and international ones

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Author of many articles for different magazines for laymen and for doctors

President of la Sociedad de Investigacion de Acupuntura y Medicina Oriental, A.C.

President of La Sociedad Medica de Investigaciones Enzymiaticas, A.C.

Co-author of the book *Enzyme Therapy* published by Universidad de Guadalajara

Co-author of the book *Tunia* (Infantile Massage)

Breve Curriculum Vitae

Medico Cirujano y Partero egresado de la Universidad de Guadalajara

Maestria en Acupuntura en la Chinese Culture University of Taipei

Doctorado en Ciencias en la Open International University for Complementary Medicines.

Profesor de Farmacologia de la Universidad de Guadalajara

Profesor de Practicas Tradicionales en la Especialidad de Enfermeria en Salud Publica en la Universidad de Guadalajara

Coordinator del Programa de Estudios de Medicinias Alternativas de la Universidad de Guadalajara, donde se han hecho muchas investigaciones sobre varias diferentes medicinas alternativas.

Organizador de mas de 150 seminarios sobre medicinas alternativas.

Ponente en varios congresos tanto locales, como nacionales e internacionales.

Autor de mas de 100 articulos para varias revistas tanto legas como medicas.

Presidente de la Sociedad de Investigacion de Acupuntura y Medicina Oriental, A.C.

Presidente de la Sociedad Medica de Investigaciones Enzimaticas, A.C.