NEW ENZYMES AND
THERE WONDERS SERRAPAPTASE TRYPSIN

AMYLASE DEFICIENCY:

Skin Rash
Hypoglycemia
Depression
Mood Swings
Allergies
PMS
Hot Flashes
Fatigue
Cold Hands and Feet, Neck and Shoulder Ache
Inflammation

PROTEASE DEFICIENCY:

Back Weakness
Fungal Forms
Constipation
High Blood Pressure
Insomnia
Hearing Problems
Parasites
Gum Disorders
Gingivitis

COMBINATION DEFICIENCY

Chronic Allergies
Common colds
Diverticulitis
Irritable Bowel
Chronic Fatigue
Sinus Infection
Immune Depressed Conditions

LIPASE DEFICIENCY

Aching Feet
Arthritis
Bladder Problems
Cystitis
Acne
Gall Bladder Stress
Gallstones
Hay Fever
Prostate Problems
Psoriasis
Urinary Weakness
Constipation
Diarrhea
Heart Problems

PROTEASE DEFICIENCY:

Protease digests protein. Acidity is created through the digestion of protein. Therefore a protease deficiency results in an alkaline excess in the blood. This alkaline environment can cause anxiety and insomnia. In addition, since protein is required to calcium in the blood, a protease deficiency lays the foundation for arthritis, osteoporosis and other calcium-deficient diseases. Because protein is converted to glucose upon demand, inadequate protein digestion leads to hypoglycemia, resulting in moodiness, mood swings and irritability. Protease also has an ability to digest unwanted debris in the blood including certain bacteria and viruses. Therefore, protease deficient people are immune compromised, making them susceptible to bacterial, viral and yeast infections and a general decrease in immunity.

AMYLASE DEFICIENCY:

Amylase digests carbohydrates along with dead white blood cells (pus). When you are low in amylase you are a candidate for abscesses (inflamed areas with pus but not bacteria). Amylase is also involved in anti-flammatory reactions such as those caused by the release of histamine and similar substances. An Amylase deficiency can result in skin problems such as psoriasis, eczema, hives, insect bites, allergic bee and bug stings, atopic dermatitis, and all types of herpes. Asthma and emphysema may also be exacerbated by an amylase deficiency.

LIPASE DEFICIENCY:

Since lipase digests fat and fat-soluble vitamins, lipase deficient people can be expected to have a tendency towards high cholesterol, high triglycerides, difficulty losing weight and diabetes. The future outcome of these tendencies is heart disease, which kills one out of two Americans. Lipase deficient people also have decreased cell permeability, meaning nutrients cannot get in and the waste cannot get out. The condition of vertigo or labrynthis, also called Meniere's disease (dizziness aggravated by movement such as walking or driving), can also result from lipase deficiency.

CELLULASE DEFICIENCY CONDITIONS:

Cellulase breaks down the fiber in our diet. Because our body does not produce cellulase, this food enzyme is essential. We must eat it on a daily basis. Remember, ONLY RAW FOODS contain cellulase. Of all the enzymes, this deficiency carries with it the most categories of problems. The symptoms of cellulase deficiency can best be described as malabsorption syndrome (impaired absorption of nutrients, vitamins, or minerals from the diet by the lining of the small intestine). Malabsorption has many symptoms including lower abdominal gas, pain, bloating and problems associated with the jejunum and pancreas.

SUCRASE, LACTASE & MALTASE DEFICIENCY:

People who have malabsorption syndrome and cellulase deficiency also have a tendency towards sugar (sucrose, lactose, & maltose) and/or gluten intolerance. Sucrose, lactose and maltose are three common sugars which some people cannot tolerate. They are broken down and absorbed into the system by three enzymes; sucrase, lactase and maltase.

SUCROSE

Intolerant people cannot split the sucrose disaccharide into twin partners, two units of glucose. Glucose is a primary brain food so expect mental and emotional problems in people who cannot get glucose into the brain. Symptoms include depression, moodiness, panic attacks, manic and schizophrenic behavior and severe mood swings.

LACTOSE

intolerant people also have classic symptoms which include abdominal cramps and diarrhea. Other allergic symptoms, including asthma, have been witnessed from the ingestion of lactose-containing products.

MALTOSE

intolerant people are generally sensitive to environmental conditions. An intolerance to sucrose, lactose, or maltose may be worsened by a deficiency in sucrose, lactase, or maltase.

Enzyme Nutrition

http://www.med-library.net/content/view/222/41/

by Ron Kennedy, M.D., Santa Rosa, CA

The energy of life is expressed through DNA, desoxyribonucleic acid. These magnificent, complex molecules reside in the genetic material located in the nucleus of each living cell. DNA contains both the program **to create the body and the ability to mobilize the energy to carry out the job**.

The first order of creation by DNA in the daily process of living is the production of more DNA (when the cell divides), and the second order of creation by DNA is the production of RNA. RNA stands for ribonucleic acid and this molecule is made by DNA (and sometimes by other RNA) through DNA's ability to copy amino acid sequences in a selective fashion. Whereas there is only one structure for DNA, there are many RNA structures depending on the job assignment of a particular molecule of RNA.

While many molecules in the body can be considered essentially dead when measured alone, RNA inherits a full complement of the vital life force contained in DNA. The job of RNA is to make proteins (and other RNA). Proteins serve as building blocks of the body, as well as many other functions. A large percentage of lean muscle tissue, for example, is made of protein. Connective tissue, including fascia, tendon and bone also is made largely of protein.

Enzymes

A specialized type of protein is called an "enzyme." **Enzymes are protein molecules made by RNA and other enzymes with the ability to facilitate and speed up chemical reactions throughout the body**. In the haphazard process, thought to have been the beginning of biochemistry in nature which eventually gave birth to life, amino acids formed and strung themselves together by chance into polypeptide chains some of

which became enzymes quite by accident. These structures, which had the ability to speed up reactions between the molecules around them, made life possible. The reactions they facilitated otherwise took so long to happen as to put off the development of life to the infinite future.

Enzymes are thought to have conspired with each other to create the first nucleic acids, very large structures which eventually evolved into RNA and DNA. **There now are around 3000 known enzymes** in the body and probably several thousand more as yet undiscovered, one for each kind of biochemical reaction which occurs there.

Enzymes inherit from RNA a full measure of the vital life force originally given to RNA by DNA. Enzymes are both the parents and grandchildren of DNA, the source of our vital life force. In the context of the living body, enzymes are living molecular entities.

Enzymes work by virtue of their shape. An enzyme molecule can be compared, in shape at least, to many short strings of pearls (amino acids) strung together. This long string folds in on itself as certain sequences of amino acids (pearls) are more attracted to each other than to other sequences, thus giving the enzymes a specific shape. At one point on the surface of this string of pearls, there exists something which looks like a keyhole. This is called the "active site" on the enzyme.

When matched with its specific coenzyme (a vitamin, or mineral, or trace element) this "lock**" has the exact inverse contour of the "key" which is contained in the molecule of the enzyme's "substrate," the molecule the enzyme wants to transform into a different molecule. When the substrate appears, it inserts the "key" into the "lock." The molecular structure of the substrate is transformed into a different molecular structure, and both enzyme and the newly transformed molecule go on their merry ways. The slowest known enzyme (lysozyme) processes one substrate every two seconds. The fastest known enzyme (carbonic**

anhydrase) processes a phenomenal 36 million substrate molecules per minute. The shortest lived enzymes function for twenty minutes, and the longest are around and doing their jobs for several weeks. When an enzyme is worn out, it is broken down and disposed of by other enzymes, its component amino acids and polypeptide chains used to make new enzymes.

Dr. Edward Howell

Every area of knowledge in progressive medicine has its early champion, Broda Barnes in the study of hypothyroidism, Jens Moeller in the therapeutic uses of testosterone, for example. The study of enzymes is no exception. Dr. Edward Howell has clarified enzymes and enzyme therapy for us. We owe Dr. Howell a debt of gratitude for his pioneering work. In helping us understand the role of enzymes, Dr. Howell studied man, animals and plants with equal curiosity and scientific acumen. By comparative studies of disease states in man and in animals, Dr. Howell clearly demonstrated the disastrous nutritional effect of cooking food — more about that later.

A Classification of Digestive Enzymes

Particular types of enzymes have digestive functions. The job of a digestive enzyme is to break down food during the digestive process. The intestine is more able to absorb food which is thus broken down into smaller units, and the rest of the body is more easily able to utilize food which is in this form.

There are three basic types of digestive enzymes, one type for each class of food: **lipase for fat**, **proteinase for protein** and **amylase for carbohydrate. Enzymes which drive the other processes of living are called "metabolic enzymes."** There is one enzyme for each type of biochemical reaction which happens in the body. **Metabolic enzymes are by far the most numerous of all enzymes. Enzymes which are present in**

raw, uncooked food are called food enzymes to indicate where they come from: the food itself. **They also are called "exogenous" enzymes, because they come from outside your body**. **Enzymes which are made in the body are called "endogenous" (meaning "inside-created")** and include both **metabolic and digestive enzymes**.

Enzymes which are eaten with your food and are made by other animals or plants, are exogenous (outside-created). Food enzymes are exogenous enzymes. Exogenous enzymes have **two origins: animal enzymes from animal food (raw meat, raw eggs, raw milk, etc.) and phytoenzymes, which come from plants (*phyto* = plant). Autolytic (meaning "self-digesting") enzymes**, which are very important in this discussion, are endogenous enzymes contained inside cells. **The purpose of an autolytic enzyme is to break down the cell in which it is contained after that cell dies. Autolytic enzymes are contained in little bag-like structures which rupture upon death of the cell, releasing the autolytic enzymes to do their jobs. Because the body is made of fat, protein and carbohydrate, these enzymes are lipases, proteinases and amylase.**

It is important that you understand the above terminology for purposes of this discussion. I suggest you make a note card for each type of enzyme with a definition on the reverse side of the card. This terminology may seem confusing at first but as you study it, it begins to make an elegant kind of sense. The following flow chart will help you get all this straight.

Flow Chart of Enzymes

I. Endogenous Enzymes: (from inside the consumer or predator, i.e., you)

A. Human enzymes

1. Endogenous metabolic enzymes (made throughout the body)

a. Endogenous lipases

b. Endogenous proteinases

c. Endogenous amylase

2. Endogenous digestive enzymes (made only in the digestive tract)

3. Endogenous autolytic enzymes (also lipase, proteinase and amylase)

II. Exogenous Enzymes:

A. Animal enzymes

1. Exogenous metabolic animal enzymes

2. Exogenous autolytic animal enzymes

a. Exogenous animal lipases

b. Exogenous animal proteinases

c. Exogenous animal amylase

B. Phytoenzymes (of plant origin)

1. <u>Exogenous metabolic plant enzymes</u>

2. **Exogenous autolytic plant enzymes**

   a. **<u>Exogenous plant lipases</u>**

   b. **<u>Exogenous plant proteinases</u>**

   c. **<u>Exogenous plant amylase</u>**

I have underlined the enzymes in which we have the most interest in this discussion. These enzymes can do a lot of work for us and save us a lot of energy. They are what this discussion is about.

Enzyme Activators and Inhibitors

Enzymes in the activated state are very busy little guys. They must spend most of their lives inactivated, otherwise they would digest their host organism in a few minutes. The body has elaborate mechanisms to keep enzymes inactive until they are needed. **The usual condition of an enzyme circulating throughout the body is that it is held in check by an amino acid chain, which is part of the enzyme** — a kind of safety latch similar to the safety latch on a gun or the lock on a door.

When the action of the enzyme is needed, an associated activating enzyme is released, for example, from an area of thrombosis (a clot — inside an important artery, let us say) or, to use another example, from an area of inflammation. This activating enzyme turns off the safety latch or, in the other analogy, unlocks the door, **allowing the enzyme to go to work, causing a breakdown of the blood clot or cleaning up the inflammatory debris.**

Another safety system is that of enzyme inhibitors. These are proteins, which fit into the active site of the enzyme molecule, thus preventing the admission of substrate (the stuff the enzyme is designed to break down). When the enzyme is needed, these proteins are signaled to release themselves from the enzyme thus freeing the enzyme to do its assigned task.

Examples of exogenous enzyme inhibitors include many **antibiotics, which kill bacteria by inhibiting key enzyme systems.** Unfortunately, **they also inhibit the identical metabolic enzyme systems in the body and thus are toxic to both bacteria and host.** (You are the host.) **This is one more reason I prefer to avoid the use of antibiotics, if at all possible.**

Another example of exogenous **enzyme inhibitors are those contained in seeds and nuts** (which are also seeds). From seeds (nuts are seeds) entire plants grow with only the addition of water, soil, sunshine and the right temperature. From these facts, you can guess that seeds are loaded with enzymes. **However, they must be held in the inactive state until water is present. Nature has loaded seeds with enzyme inhibitors, which are deactivated by the addition of water.**

This process is called "germination." Therefore, when you chow down on your favorite seeds and/or nuts, you are loading your stomach with enzyme inhibitors. These enzyme inhibitors slow down or stop the action of whatever digestive enzymes may be present with your food, whether from an endogenous or exogenous source.

Therefore, either avoid seeds and nuts unless **(1) you germinate them first by letting them soak in water for a few days or (2) you consume them along with sufficient extra enzyme powder to neutralize the enzyme inhibitors.**

Misconceptions About Enzymes

Professor B. P. Babkin wrote, in 1935, that when the pancreas is stimulated to secrete enzymes for digestion, it secretes equal amounts of proteinase, lipase and amylase. This was known as the "Theory of Parallel Secretion of Enzymes." (These three enzymes are responsible for digesting protein, fat and carbohydrate respectively.) Babkin's theory held that if you ate a meal of almost all protein, for example, your pancreas would pour

out enzymes to digest not only protein but also fat and carbohydrate as well, and that these latter two enzymes would simply go to waste.

The Theory of Parallel Secretion implied that enzymes are so easy for the body to manufacture, it can afford the luxury to make some and then throw them away! Regardless of how little sense this made, the theory was accepted and taught in medical schools because of the reputation of the eminent Dr. Babkin. This is an example of the operation of dogma in medical thought. The eating and digestion of dogma in medical schools is identical to the same process in theology and law schools.

No enzymes are required, only lame brains. It is now known that the pancreas exhibits "selective secretion," meaning that t**he organ is signaled as to what sort of food is present and needing digestion, so it can then secrete the enzymes which are specifically needed for that kind of food**. This is not only experimentally true, but it also makes sense! Given how complex and specific enzymes are, obviously a lot of energy is required to create them, and it makes no sense that the body would then waste them. No intelligent being would create such a mechanism in the human body, or any other body for that matter.

Nevertheless, many doctors have not reconsidered what they were taught in medical school and find the idea of "enzyme therapy" to be absurd because, as they think they know: enzymes are so easy to make, the body is willing to waste them and, being so insignificant, they could not possibly constitute a valuable therapy. For many years it was taught in medical school biochemistry classes that an enzyme was not changed in any way when it performed its function of facilitating and speeding up a reaction. Enzymes were thought to act as true "catalysts," just as some metal ions do in purely non-biochemical chemical reactions. This is now known not to be the case.

Enzymes are used up and destroyed in the process of doing their jobs, and the remains must be disposed. They are broken down by other enzymes and new enzymes are made to replace them. **Enzymes do last a long time: from twenty minutes to a few weeks, doing the same job many times before wearing out.** Enzyme creation and destruction is happening throughout the body at all times. It only stops when the organism dies and actually not even then as we will now see.

It was also once taught in medical schools that enzymes could not pass through the gut wall and, therefore, any exogenous enzyme would have to first be digested, i.e., broken down to its component amino acids like any other protein, before it could be absorbed and used by the body. **It is now known that both enzymes and ordinary proteins can be absorbed whole without being fully digested. The fact of antibody (which is protein) absorption directly through the gut wall is the basis for the transmission of immunity from mother to child through breast feeding**. This has enormous therapeutic implications where enzymes are concerned, because **once in the body an exogenous enzyme identical in structure to an endogenous enzyme can be used as though it were an endogenous enzyme** — the body has no way to distinguish it from an enzyme made inside the body.

Comment on Medical Politics and Dogma

The medical dogma that proteins could not be absorbed without being broken down to the component amino acids died hard in standardized medical circles and medical schools, and this delayed the popular perception of the value of oral enzyme therapy immeasurably. The heyday of enzyme therapy has not yet come in the United States, although it certainly has arrive in other countries, notably Europe and Japan. It is truly unfortunate that the medical establishment in the U.S. is so intensely nationalistic as to believe that if a therapy has not been proven inside the boundaries of the U.S.A., then it is worthless until proven otherwise.

Autolysis

All animals and plants contain the enzymes to "autolyze" themselves when they die. "**Autolysis" literally means "self-breaking"** and refers to the fact that **plant and animal tissues digest themselves after they die**. Nature, folks, has thought of everything. The Egyptians developed a process to prevent bacterial breakdown of the body after death; however, they could not solve the problem of enzymatic autolysis.

Therefore, a mummy, while it retains the essential form of the original body, is not exactly ready for a hot date. This fact, autolysis, leads us into the field of enzyme therapy. Unfortunately for humans, we have discovered how to cook our food. Cooking destroys the autolytic enzymes contained in food! All enzymes are extremely heat sensitive. If you cook them, they die! While pre-fire man received all the benefits of exogenous enzymes, post-fire man is starved for exogenous enzymes and must rely almost entirely on endogenous digestive enzymes, those he makes for himself.

The Function of Fever

If you raise temperature a few degrees above normal body temperature, enzymes become hyperactive. **The enzymes in the immune system are activated and powered up to fight infection by acceleration of the activity of certain white cells which literally eat and digest bacteria**.

This process is called "phagocytosis," which means literally "eating cells." At 104 degrees Fahrenheit, enzymes and phagocytic cells are at their maximum state of activation. Therefore, a fever should not be artificially brought down unless it exceeds 104 degrees Fahrenheit. **At 106 degrees, brain damage (i.e., enzyme destruction) begins.** When there is a fever it should be monitored every thirty minutes and treated if it

Cooking: The Great Nutritional Disaster

If you raise the temperature to 118 degrees for a few minutes enzymes are completely destroyed. It is practically impossible for the body to create such an intense fever; however, cooking can easily exceed this temperature. **Therefore, cooking, even at low temperatures, is the death of enzymes**. Since man mastered the use of fire, the practice of cooking food has been with us.

From a nutritional standpoint, this was a great disaster. Let me explain that. Enzyme production is so labor-intensive that the eating habits of animals in nature are designed to take advantage of the presence of living enzymes in food. Fortunately for animals, they have not discovered how to cook their food.

The Overgrown Pancreas

Because of cooking, our digestive organs, especially the pancreas, are called upon to do the job of enzyme production alone. **In a person who eats even a moderate percentage of cooked food, the pancreas is hypertrophied (overgrown)** to two or three times its normal size (that size found in people who eat only raw food).Animals in the wild eat raw food and their pancreases are approximately 1/3 the size of the typical human pancreas when corrected for body weight. **Those animals are busy taking advantage of exogenous digestive enzymes contained in the raw food they eat.**

"So what?" you ask. So what, is that you have an organ (the pancreas) which is hypertrophied and is begging, borrowing and stealing from the rest of the body, so that enough enzymes can be produced to digest the food you eat. The precursors of **metabolic** enzymes, the amino acids and polypeptides, which are needed in the rest of the body are being hogged up by the pancreas to produce **digestive** enzymes because the pancreas is getting no help from the enzymes contained in raw food. Cooking has destroyed them. **It is this simple: if living enzymes can**

be derived from food sources, the body does not have to expend its precious energy making digestive enzymes in large quantity. It can utilize that energy in the process of **living healthier and longer by concentrating its ability to make enzymes on the production of metabolic enzymes.** This is important. If you do not understand this, read it again until you do.

Cooking Milk

Pasteurization — the heating of milk to 145 degrees centigrade for thirty minutes — totally destroys not only bacteria from sick cows **but all enzymes as well**. There was a time, before the turn of the nineteenth into the twentieth century, **when doctors recommended a raw milk diet for the cure of many diseases.** This was before cows were locked up, pumped up (on drugs and enzymeless feed) and sucked out, but rather were allowed to roam freely, foraging for raw plant food and came in every morning to be milked by hand.

Unpasteurized and unhomogenized milk, made in this fashion, is loaded with valuable enzymes and, if you can find it, **will serve as a therapy for a number of diseases**. Given what has happened to milk in this century, *informed* doctors recommend that you avoid milk like the plague rather than drink it as a treatment for illness. It was inevitable, I guess, that man would finally think of cooking (pasteurizing) milk also. This avoids the necessity to monitor the milk cows to insure that they are free of disease.

Eat Raw Meat? Thanks, But No Thanks

While it is true that raw meat contains loads of living enzymes, I am not suggesting that you eat raw meat. Given how animals are treated in modern animal husbandry, you cannot count on raw meat for being only raw meat. It also will contain hormones, antibiotics, herbicides and pesticides before and after cooking. Also, there is the matter of how it tastes.

But The Eskimos Did!

For primitive, fireless man and for Eskimos, before acculturating to white man ways, raw meat was a great source of energy which kept these people free from degenerative diseases. **The name "Eskimo" is an Indian term meaning "he eats it raw."** Alas, it is no longer so. Most Eskimos now are eating potato chips and hamburgers, having adopted the white man's habits. Eskimo forebears knew e**mpirically (simply by observation) that raw food, even raw meat, is healthy food.** Nature has designed a process of **assisted autolysis using both cathepsin made in your stomach and cathepsin contained in the raw meat. Cathepsin is a proteinase enzyme, able to break down protein, including meat**.

Eskimos did not know this explanation, but they knew they felt good and stayed healthy when they ate raw meat. Besides, that was almost all that was available to them. Vegetables do not grow so well in snow and ice. The only choice the Eskimos had was to cook their meat or not. Empirically, by the way they felt after eating raw meat, they chose not to cook it. The problem with raw meat is, of course, the possibility of infection with parasites living in the meat. **However, in the colder climates meat-borne parasites are non-considerations**. Because the **life cycles of most parasites involve an out of body experience (out of the body of the host), usually at the egg or larval stage, they are not able to survive in cold weather** — they bite the ice, usually by having their eggs or larvae frozen solid.

They do thrive, on the other hand, in warm tropical climes, and they do well in temperate climes. Eskimos did not have the parasite problem. The point of this discussion about Eskimos is that the phobia of meat and fat is not justified. We should focus our attention where it belongs: the fact that cooking is the real culprit. If you are a vegetarian and you cook your vegetables, guess what? You would be better off not doing that.

Stomach Physiology

The first part of the stomach, called the "**antrum" or "cardia**," or as Dr. Howell named it: the **"food enzyme stomach,"** is similar in function to the "extra" stomach(s) in ruminants (cattle, deer, elk, moose, etc), in cetacea (whales, porpoises and dolphins) and in seed-eating birds such as chickens and pigeons. In all of these animals, the first stomach (or stomachs in some cases) and the food enzyme stomach in man, **are where, together with cathepsin contained in raw meat, protein is partially digested**. Of course, if you cook the meat, that portion of exogenous cathepsin is destroyed.

In the food enzyme stomach, fats and carbohydrates eaten from raw sources (and thus containing lipases and amylase for autolysis), proceed to autolyze (predigest) themselves. In the food enzyme stomach, food is allowed to autolyze as much as it will for a period up to one hour. In humans, the food enzyme stomach functions as a separate organ by virtue of the **fact that the lower stomach**, also called the **"fundus" or "pyloric stomach**" (it could also be called the "endogenous enzyme stomach"), remains shut, the potential space closed by forcible opposition of the anterior and posterior walls of the stomach against each other.

After autolysis the fundus opens, receiving the food, making a load of hydrochloric acid and pepsin and proceeding with digestion. Under "normal" circumstances of raw sources of protein, about half the stomach digestion of protein is achieved in the antrum or food enzyme stomach with cathepsin and other autolytic enzymes and the other half in the fundus with pepsin and hydrochloric acid.

The typical doctor might disagree with this description and cite "barium swallow" fluoroscopy studies which show the entire stomach frantically contracting and relaxing after a barium swallow. This may be how the stomach behaves when insulted with a solution of barium, but barium is not food! The stomach

behaves differently when engaged in digestion and is not being assaulted by a barium swallow.

If your stomach contracted frantically after a meal you would know it, you would not need a barium assault to prove it. The point is: we can see by the behavior of the stomach during digestion that it is designed to **take advantage of the enzymes which are contained in raw foods, so that we do not have to expend the large amounts of energy and resources necessary to make a huge load of endogenous digestive enzymes to do it on our own.**

Exogenous Enzymes and Longevity

Lest you still are not taking this discussion seriously, let us consider some research relating to enzymes, health and longevity. Because insects are cold-blooded and short-lived, it is easy to demonstrate the value of enzymes to their longevity. A study done with *Daphnia magna*, the water flea, **demonstrated that raising its environmental temperature from 46 degrees to 82 degrees Fahrenheit cuts its life-span to 1/4 of that at 46 degrees.** Increased temperature **raises enzyme activity, and when enzyme vitality is used up, life is over.**

The same can be said for you, not because of increased temperature — because you are a warm-blooded animal, able to regulate your temperature — **but because you deplete your enzyme stores in another way: by eating cooked food and requiring your body to divert precious resources to making digestive enzymes. This shortens your life span and robs you of your natural state of health.**

Many people, even people otherwise well-educated in nutrition, do not take the idea of enzyme support seriously. Many seem to think that enzyme support should be done only if the pancreas is weak, **while the truth is that it should also be done if it is strong. If the pancreas is strong** — enlarged and producing triple doses of enzymes, thus robbing the rest of the body,

including the immune system, of precious enzyme precursors — we would do well to supplement endogenous enzyme production with exogenous food enzymes contained in raw foods.

People who eat lots of raw food live longer and feel better. If you are interested in living long and remaining healthy, perhaps I can get your attention with the fact **that enzyme production, both digestive and metabolic, decreases with age.** When the enzymes finally check out, so do you. Maybe Methuselah really did live a long time, if he ate pure raw food as the Bible assures us that he did. However, if he lived in excess of 900 years, we still need to know more about how he did that! Most scientists consider this account fiction; however, I prefer to keep an open mind about things outside my personal experience.

Enzymes and Obesity

Still don't have your attention? Let us talk about being fat. Have you noticed how many people are overweight, I mean, uh, fat? You may be one of them. If the body is starved for the vital energy of enzymes which have been depleted in the cause of digestion, that body craves more energy.

The only way the body knows to get more energy is to eat, and the only way to insure that you eat is to create the experience of hunger. So you eat and eat and eat, trying to get satisfied. What is missing is not calories but vital life energy, which has been robbed from your enzyme system. **So you eat more dead, enzyme-free food**, the calories are stored as fat, and the craving goes on. **You can eat more calories and lose weight, if your source of calories is raw food because you are consuming vital life energy, i.e., enzymes, with your food, and this energy will convert more food to motion and thought and less to fat.** When the body is **presented with exogenous food-derived enzymes, it is able to make more endogenous enzymes for metabolism.**

One class of endogenous enzymes is lipase. The job of lipase is to break down fat. Got a fat problem? Get some lipase. Lipases are contained in all raw, uncooked food containing fat. Do not be afraid of fat, **be afraid of fatty food which has been *cooked* and stripped of its autolytic lipases**.

Remember what Einstein taught us: mass and energy are interchangeable. With exogenous, food-derived enzymes, you can convert some of your mass to energy, maybe not at the speed of light squared, but fast enough.

Too Skinny?

Some people weigh much less than they want to weigh because their pancreas has been exhausted by a lifetime of no support from exogenous enzymes. This person may eat loads of food and yet remain underweight. **The solution for such an underweight individual is not to eat more but to digest better**. If pancreatic exhaustion is the problem, digestive enzyme supplementation is the solution and will produce better digestion and dramatic weight gain.

Fasting and Enzymes

It has long been known by practitioners of fasting that health can be restored by this ancient practice. Water fasting — **no food consumed, only pure water — relieves the body of the necessity of producing enzymes for digestion**. The enzyme precursors can **therefore be used for metabolic enzyme production.**

The same is true in juice fasting, which requires that only freshly prepared vegetable juices, and sometimes a smaller quantity of freshly prepared fruit juices, be consumed along with pure water. I**n this kind of fasting, fresh enzymes are given to the body in concentrated form in the juice.** If illness is present, it may be helped through fasting. **The immune system is given what it needs to correct illness — enzymes — and thus a sufficient supply of enzyme precursors.** There may be a

"healing crisis," or detoxification stage, which is uncomfortable to go through but which leads to a new level of vital health. **Fasting can be considered a form of enzyme therapy.**

Enzymatic Therapy For Arthritis

Still not convinced? Lets talk about treating and avoiding disease. In the 1940s, Dr. Arnold Renshaw of Manchester, England suspected rheumatoid arthritis to be a digestive disease. He based his suspicions, published in the Annals of Rheumatic Disease in 1947, on many observations at autopsy of the small intestines of people who had rheumatoid arthritis at the time of death. **He found the small intestines to be consistently atrophied**.

Dr. Renshaw tested his hypothesis by having an enzyme preparation made for oral administration. **He found that rheumatoid arthritis patients improved dramatically in just over one half of 556 patients. Another 219 of these 556 patients were improved to a lesser extent**. He also discovered that the pain of osteoarthritis could be helped with enzyme therapy.

T**he time required for improvement in these illnesses varied from two months to two years, so persistence is the key in this type of therapy.** Similar results can be obtained **with raw diets**. It may be a long time to wait for results, but for most people it is worth waiting for and easier to confront knowing that this type of therapy benefits the rest of the body as well.

Enzyme Therapy For Cancer

You may have heard of cases of cancer cured using only raw foods. If this happens, one of the explanations is clear: **the immune system is powered up by a surge of enzyme precursors available when exogenous food enzymes are added to the diet, thus allowing the immune system to defeat (eat? digest?) the cancer.** Enzyme treatment is the most exciting and promising approach to cancer. **It attempts to**

duplicate the spontaneous cancer cures which are sometimes seen in oncology. Some doctors, including Dr. Howell, offer enzyme therapy for treatment of cancer.

It stands to reason that if a prolonged fast or a diet of only raw vegetables can help some cases of cancer, massive doses of enzymes should also be able to help. This kind of therapy is done in a hospital and involves frequent small meals and doses of enzymes every thirty minutes. The need for careful supervision is obvious. I do not offer such a therapy, however, the folks at the Bradford Research Institute in Tijuana, Mexico offer this therapy along with others.

Enzymes and Allergy

It is undeniable that some people react to certain foods. The explanation is that digestion is proceeding badly due to poor enzyme and/or stomach acid production. This causes food to arrive in the lower small intestine and colon relatively undigested. T**his upsets the normal flora of bacteria found there by favoring those bacteria able to digest that food**. These bacteria replace so-called friendly species of bacteria which normally live symbiotically with us.

The overall result is a condition called "dysbiosis" and malabsorption. The body forms antibodies to foods and bacterial breakdown products in the lower gut. **These antibodies also attack, as if to neutralize, normal tissue of the body such as joint and skin tissue. Arthritis and skin disease are only two examples of diseases which have their origin in disordered digestion,** diseases which have long been considered incurable in medical circles.

Lipase and Atherosclerosis

As we grow older, the supply of all endogenous enzymes decreases. This includes lipase. It may be that the decrease in lipase as a function of aging has a lot to do with fatty deposits on the walls of arteries and the acceleration of atherosclerosis.

Decreased supplies of lipase occurs in the intestines and in the serum (the noncellular part of blood).

Therefore, as we grow older, it becomes increasingly important to either cut fat intake or to ingest exogenous lipase along with fat to help prevent atherosclerosis. This means raw food or supplementation with enzyme powder. Elsewhere, I have expressed the opinion that fat is not so disagreeable to the human body (provided there are plenty of antioxidants on board), rather what is in the fat constitutes the problem: **herbicides, pesticides, synthetic hormones, antibiotics, etc., all fed to cattle to increase production**. For an older person, it also may be that it is what is *not* in the fat: lipase is not in the fat if the fat is heated to 118 degrees Fahrenheit for only a few minutes.

A rational approach to vascular disease is to load up on lipase with each meal containing fat. If you cannot bear to eat raw meat and you have no access to raw dairy products, buy some enzyme powder from your friendly health food store or organic grocery. In this manner, you can obtain the nutrition contained in the fat (**the most powerful source of calories available) and not have to be concerned with the consequences.** Nevertheless, it is not wise to unbalance your food intake in any direction, including excess fat.

Comparative Pathology

Let us see how we can be relatively sure of the importance of ingesting exogenous enzymes. Domesticated animals suffer the same degenerative diseases which humans are subject to: cancer, arthritis, and atherosclerosis; whereas this does not happen with animals in the wild. Animals procured from the jungle, when dissected, show no evidence of arthritis, cancer, or atherosclerosis, unless they live close to human pollution. **But pity the health of the animal in captivity which is fed processed food.**

The explanation which makes the most sense to me is that domesticated animals fed processed food, because they receive no exogenous enzymes, fall ill with the same diseases we have. Processed human food (heat is part of the "process") is stripped of its enzyme content. It is what some people call **"dead food."**

The animal equivalent is dog and cat chow, as well as cattle and chicken feed, which has gone through heat processing. This stuff is the animal version of the dead food we eat ourselves. Animals in the wild must eat fresh raw food, because nothing else is available. Therefore, they receive liberal amounts of all enzymes.

The Point

The purpose of this discussion is to point out to you the importance of enzymes. Enzymes are not yet in the consciousness of the public, whereas the importance of vitamins and minerals is firmly entrenched. Your nutritional regime is not complete until cooked-food-induced enzyme starvation is corrected.

The best solution, of course, would be to revert to raw food exclusively. T**he next best solution would be to revert to eighty percent raw food. A salad with your meal is a nice gesture, but it is not enough, although every little bit helps. If you are not able or, more likely, not willing to make the change to exclusively raw food, the next best solution is to supplement your diet with enzymes.** These should be taken just as you begin to eat, and they should be in powder form. If you have the type which is powder in a capsule, separate the capsule, and pour the powder on your first bite of cooked food after it has cooled to around body temperature (otherwise, the enzyme is destroyed by the heat of the food). Do not use the tablet form of enzymes unless you chew it up.

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ENZYME DEFICIENCIES

http://www.enzymes.com/enzyme_deficiencies.html

"How is it possible that I am sick even though I eat the most organic foods, am very careful with my diet and exercise regularly?"

The answer tends to be: ENZYME DEFICIENCY.

The following is a brief summary of several of the more common enzyme deficiency conditions.

Protease digests protein. What happens when you are protease deficient? You will have protein deficiency symptoms, depending on how deficient you are in protease. Protease deficiency creates alkaline excess in the blood. This is not because protease itself is acidic; it is not. Acidity is created through the digestion of protein with protease. Some people may be vegetarian not by choice**, but because they are protease deficient and cannot digest protein**. Since acidity comes from the digestion of protein with protease, **protease-deficient people may have an alkaline excess which can produce anxiety states**.

Often people take tranquilizers such as Xanex and then they zombie around in a fog, **when simply taking protease can, through increased digestion of protein, acidify them to HOMEOSTASIS with resulting relief of their anxiety**. **Homeostasis is the dynamic equilibrium within the body**. Without successful physiological homeostasis (balance), in which relatively constant conditions are maintained in the internal environment, the body cannot survive. The maintenance of homeostasis involves a number of factors in **addition to metabolism, such as water intake and retention, acid-base**

balance, excretion of waste matter and control of body temperature.

In other words our body will do whatever it must to stay in homeostasis. Protein is also required to carry protein-bound calcium in the blood. **Insufficient protein-bound calcium lays the foundation for arthritis and other calcium deficient diseases**. Why? **When the blood cannot carry calcium because it lacks protein, it withdraws the necessary calcium from the bones to maintain homeostasis**. **This situation is aggravated in people who take calcium carbonate *supplements, such as Tums or other antacids*, because this adds to the alkaline stress on the blood.**

The blood cannot carry ionic calcium as efficiently because ionic calcium requires a certain level of acidity to be present. **Overly alkaline people have a multitude of calcium metabolism problems, such as osteoarthritis, osteoporosis, gouty arthritis, degenerative disc problems, bone spurs and related disorders such as sciatica and ligament problems**.

Because 46% of digested protein is converted to glucose upon demand, inadequate protein digestion leads to hypoglycemia (hypoglycemia also has other causes such as hypothyroidism and vitamin deficiency). Symptoms include moodiness, mood swings and irritability among many others. ***Water follows protein (literally). Inadequate protein in the blood also means inadequate water***.

Where does the water go? ***Into the tissues after the protein!*** This causes tissue swelling (edema). **Water is forced into the capillaries and into the tissues by the pressure of blood being pumped around the body. By a reverse process, which depends on the water-drawing power of the proteins in the blood, it is reabsorbed in the capillaries from the tissues. These two mechanisms need to remain in balance. Protein maldigestion leads to a toxic colon.**

People in this category often have problems in the area of the descending colon (lower right quadrant of the abdomen). This includes developing appendicitis and even more serious problems such as mucous colitis and even colon cancer.

Another of the most common results of protein maldigestion is chronic ear infections and fluid in the ears, especially in children. This is a protease calcium deficiency. To drain fluids from the middle ear, you must increase protease in the blood. Protease will pull water out of the middle ear, and also the ankles, hands and feet during PMS, and put it back into the blood.

Protease is also involved in the immune system via its action on bacterial debris, certain viruses, and its ability to break down circulating immune complexes. **Protease has an ability to digest unwanted debris in the blood and should be considered your friendly blood cleanser**. **Protease deficient people are immune compromised, making them susceptible to bacterial, viral and yeast Infections and a general decrease in immunity**. Protease deficient women are predisposed towards PMS.

The only people who cannot tolerate protease are those who suffer from ulcers, gastritis or hiatus hernias. The already damaged mucosal tissue cannot handle the extra acidity from the digested protein

AMYLASE DEFICIENCY CONDITIONS: Amylase digests carbohydrates or polysaccharides into smaller disaccharide units, eventually converting them into monosaccharides such as glucose. People who are fat intolerant (can't digest fats) often eat sugar and carbohydrates to make up for the lack of fat in their diet**. If their diet is excessive in carbohydrates, they develop an amylase deficiency** and symptoms arising

therefrom. **Amylase digests not only carbohydrates but also dead white blood cells (pus)**.

For example, when you are low in amylase you are a candidate for abscesses (areas with pus but not bacteria). If you have a toothache and are being treated with antibiotics, but it doesn't go away, chances are you may have an abscess. **Amylase is involved in anti-inflammatory reactions such as those caused by the release of histamine and similar substances.** The inflammatory response usually occurs in organs which are in contact with the outside world such **as the lungs and skin.**

These include skin problems such as psoriasis, eczema, hives, insect bites, allergic bee and bug stings. Atopic dermatitis, and all types of herpes. The lung problems including **asthma and emphysema** require amylase plus other enzyme formulas depending on the particular condition. Carbohydrates require phosphorus. If excess refined **carbohydrates are consumed, a phosphorus deficiency will result.**

Phosphorus deficiencies include: thick blood, tendency towards gastritis (inflammation of the gastrointestinal tract) and stiff joints, especially in the morning. Why stiff joints**? Adequate phosphorus prevents the deposit of calcium oxalate and calcium carbonate in the joints.** If phosphorus is deficient **due to excess consumption of sugar, joint pain results from deposits of oxalates and carbonates** Phosphorus deficiency is often accompanied by thick blood and high blood pressure. Please do not feel you can run out and get a phosphorus supplement to solve this problem. Quite the contrary. The only way the calcium and phosphorus can be balanced is by getting them both from the foods in which they originate in a natural, balanced proportion.

LIPASE DEFICIENCY CONDITIONS: Since lipase digests fat and fat-soluble vitamins, lipase deficient people can be expected to **have a tendency towards high cholesterol, high triglycerides, difficulty losing weight and diabetes or a**

tendency towards glucosuria (sugar in the urine without symptoms of diabetes). The down-the-road outcome of these tendencies is heart disease. Because lipase requires the co-enzyme chloride, lipase deficient people have a tendency towards hyphochlorhydria (low chlorides in our electrolyte balance).

This can be easily remedied with lipase, but often nutritionists recommend using betaine HCL, which places acidic stress on the blood, leading to an inability to provide the alkalinity required to activate the body's pancreatic enzymes. **Lipase requires a high pH for its activation among food enzymes. That is why fats are the hardest of all foods to digest.** Fat intolerant people can be helped by taking a lipase supplement, but the fat intolerance problem still exists. (i.e .... Taking a food combination containing lipase will gradually reduce the size of gall stones, thus reducing symptoms, but this does not cure fat intolerance just as surgery does not cure disease.)

The lipase will help prevent an **aggravated condition ONLY if the fat intolerant person minimizes fat consumption.** Lipase deficient people ***have decreased cell permeability, meaning nutrients cannot get in and the waste cannot get out of the cell***. For example, **diabetics are lipase deficient and cannot get glucose into their cells, and wastes or unwanted substances cannot get out**.

People with 'hidden viruses" that are often diagnosed with "Chronic Fatigue Syndrome" also fall into this category**. Lipase modulates cell permeability so that nutrients can enter and wastes can exit.** Of course, waste-eating enzymes (such as protease) must be taken to help cleanse the blood of the unwanted debris. **A common symptom of lipase deficiency is muscle spasms**. This is not the "muscle cramp" (tetany) resulting from low ionized blood calcium. **It commonly occurs as trigger point pain in the muscles across the upper shoulders, but it can occur in other muscles, such as those**

in the neck or anywhere in the small or large intestines including the muscles of the rectal tissues.

If chronic muscle spasms keep you going back to a chiropractor, osteopath or acupuncturist for repeated adjustments or therapy, **try adding some lipase to your diet. It may help you hold your adjustments.** People with **"spastic colon"** may be lipase deficient. They are given toxic muscle relaxant drugs to control the symptoms, but what they really need is a simple food enzyme called lipase.

The condition of vertigo, or labrynthis, also called Meniere's Disease (dizziness aggravated by movement such as walking or driving), can result from lipase deficiency. A nutritionist saw this condition develop suddenly in a young man after the typical American fat challenge test - a meal which consisted of a fried fish sandwich with tartar sauce, double cheeseburger plus a bag of french fries. The dizziness was accompanied by severe nausea and vomiting which was aggravated by movement. This condition lasted several days. Lipase can relieve a condition like this, often within minutes.

The condition of menopause is often associated with lipase deficiency **because lipase addresses the gonadal tissue.** However, PMS is more often associated with protease deficiency.

CELLULASE DEFICIENCY CONDITIONS: Our body makes no cellulase at all, whereas our pancreas produces enzymes similar to protease, amylase and lipase. They are similar, but not identical, **because ONLY FOOD ENZYMES WORK IN THE STOMACH**.

Pancreatic enzymes work in the duodenum when it is at the right alkaline pH (third part of digestion). Because our bodies do not make cellulase, this food enzyme is essential. We must eat it on a daily basis**. Remember, ONLY RAW FOODS contain cellulase.** Of all the enzymes, this deficiency carries with it the most categories of problems.

Cellulase deficiency is a malabsorption syndrome (impaired absorption of nutrients, vitamins, or minerals from the diet by the lining of the small intestine) with its many symptoms of lower abdominal gas, pain, bloating and problems associated with the jejunum and pancreas. Other conditions associated with **cellulose deficiency include nervous system conditions such as Bell's Palsy, Tic and facial neuralgia, all of which respond remarkably to cellulase**. **Certain toxic conditions, such as chemicals, drugs and toxic metals, including silver amalgam fillings (mercury in the teeth) are greatly alleviated with cellulase**. This also includes acute food allergies.

People who have malabsorption syndrome and cellulose deficiency have a tendency toward sugar and/or gluten intolerance.

SUCROSE INTOLERANCE: This condition exists when people cannot split the sucrose disaccharide into its twin partners, two units of glucose. **Glucose is a primary brain food so expect mental and emotional problems in people who cannot get glucose into the brain**. These symptoms include the **whole gamut from depression and moodiness to panic attacks, manic and schizophrenic behavior and severe mood swings, which often lead to toxic behavior**- **modifying drugs**. **Seizures, cranial problems and headaches in sucrose intolerant people have been observed,** not to mention the symptoms **of B-vitamin deficiency resulting from the use of refined white sugar**.

One researcher has observed almost **a universal intolerance syndrome among childhood asthmatics**. Whether from genetic intolerance or over consumption, the symptoms are the same. Do not be fooled by thinking that refined white sugar is the only culprit and that other synthetic sugars are okay. Many people do not think that such synthetic sugars as corn syrup, fructose, Nutrasweet, saccharin, Sorbital and Mannitol are

harmful. However, severe health problems have occurred from one or all of these as well.

LACTOSE INTOLERANCE: People who **are intolerant of lactose** also have classic symptoms which **include abdominal cramps and diarrhea. Other allergic symptoms have been recorded, not the least of which was asthma, from the ingestion of lactose-containing products**. You should know that the FDA allows the addition of lactose as a food additive without labeling. **Do not think that your children are safe if they are lactose intolerant just because they do not drink milk.**

GLUTEN INTOLERANCE: Gluten intolerance is associated with Celiac Disease and Malabsorption Syndrome. It is also associated with Crohn's Disease. The insidious thing about gluten intolerance **is that it creates a sugar intolerance because when gluten intolerant people eat food containing gluten,** the brush border cells **of the jejunum are injured and thus unable to secrete the disaccharidases (sucrose, lactase and maltose) leading to sugar intolerance**. Double Trouble! Most gluten intolerant individuals usually **do not need to abstain** from all the gluten grains (wheat, oats, rye and barley). **However, sometimes it is a must.**