

Chapter 19

Building Blocks of Health

Enzymes

The Key to Digestion

Enzymes are biological catalysts that speed up the chemical reactions in all living things. Without enzymes nothing would work. Our food would sit for weeks in our stomachs, and we would eventually die. Enzymes are absolutely vital to human health and are the foundation on which life is perpetuated. The purpose of enzymes is to break molecules apart or put them together, which they do very quickly and efficiently. There are specific enzymes for each chemical reaction needed to make each individual cell work properly.

Enzymes are like other proteins consisting of long chains of amino acids that are held together by peptide bonds. Amino acids are organic compounds made of carbon, hydrogen, oxygen, nitrogen, and sometimes sulfur that are bonded in various formations. There are strings of 50 or more amino acids known as proteins that are large molecules that promote growth, repair damaged tissue, strengthen the immune system, and make enzymes. Enzymes facilitate chemical reactions but are not affected by the reaction.

Many body processes that normally require high temperatures such as starch would have to come to the boiling point outside our stomachs. But with the catalytic enzyme action, starches are easily converted naturally to usable energy in the body.

Over 3,000 known enzymes in the body perform every type of chemical conversion imaginable. They control the body's vital metabolic processes and are present in every biological system. Enzyme conversion creates energy and builds new cells. All living cells require nutrients and enzymes to divide, grow, and perform their normal activities. Enzymes turn the food

we eat into energy and facilitate the use of this energy. There are two major enzyme systems in the human body: metabolic and digestive.

Metabolic enzymes help run all the body systems. They speed up the chemical conversion within the cells for detoxification and the production of energy and are produced in the organs of the body such as the liver, pancreas, and gallbladder. Enzymes enable us to move, think, see, hear, and feel, which, in reality, comprise the complete control mechanism of the body. One researcher found over 98 enzymes carrying out metabolic functions in the arteries alone.

Digestive enzymes break down the food we eat to release the nutrients for absorption. They are perhaps the most talked-about enzymes, because food is the fuel for life. These enzymes are secreted along the digestive tract where the food is broken down and the essential nutrients, vitamins, and minerals that sustain life are released to be absorbed into the blood stream and carried throughout the body.

The waste continues through the digestive tract and is discarded. However, if the waste does not move, causing constipation, then the waste begins to break down into putrefaction that the body will reabsorb as poison, creating all types of body dysfunction. Digestive enzymes include ptyalin, pepsin, trypsin, lipase, protease, and amylase. Another enzyme, cellulose, needed for the digestion of fiber, is not manufactured by the body, so it must come from the food we eat and the supplementation we take.

Heat is an enemy to enzymes, and when temperatures exceed 118 degrees, the enzymes begin to break down, and at 120 degrees the enzymes are totally destroyed, whether it is through pasteurization, sterilization, or commercial food preparation, etc., making the food difficult to digest. So naturally, that also means cooking. The body secretes its own digestive enzymes for breaking

Enzyme Quick Reference Guide

Please copy this page for a quick, daily reference. Keep it in the kitchen or carry it with you when traveling.

Open Capsules:

All capsules may be opened and enzymes sprinkled on any food or mixed in any liquid.

Combinations:

If more than one enzyme is recommended, you may take a combination or just one and see how your body responds. Basically, any combination is acceptable.

Example:

If you eat chicken with your evening meal, salad, vegetable, bread, juice, apple pie you will need more enzymes to digest during the night: 2 Polyzyme, 2 Essentialzyme, 1 Allerzyme, and 6 Detoxzyme. If it seems like too many, just reduce (the amount). For children: 3 Mightyzyme, 1 Polyzyme, 1 Detoxzyme

Standard Dosages for Each Meal:

Adults: 2-4; children: 1-2; babies: ¼ to ½. Check with your health-care provider regarding children less than 2 years of age.

Choices:

The first enzyme listed is usually the first choice in combination with any others as desired.

Start the Morning: Essentialzyme (Adults: 2-4; Children: 1-2 or MightyZyme 1-3; Babies: ¼ to ½)

Essentialzyme is an overall enzyme that supports the pancreas which produces glucose the body needs throughout the day for energy.

General Food Categories:

Carbohydrates, fruits, vegetables Carbozyme, Detoxzyme, Allerzyme, MightyZyme
 Fats Lipozyme, Carbozyme, Essentialzyme, MightyZyme
 Protein of any kind Polyzyme, Detoxzyme, MightyZyme
 Sugars, starches Carbozyme, Allerzyme, Essentialzyme, MightyZyme

Specific Foods:

Eggs, meat, fish Polyzyme, Essentialzyme, Detoxzyme, MightyZyme
 Grains, oatmeal, wheat, toast Carbozyme, Allerzyme, Detoxzyme, MightyZyme
 Meat with pasta, salad, cheese Polyzyme, Essentialzyme, Allerzyme
 Meat with salad, bread, dessert Carbozyme, Polyzyme, Detoxzyme
 Milk, yogurt, kefir, Lipozyme, Allerzyme, MightyZyme
 Pasta, cheese, bread Essentialzyme, Carbozyme, Detoxzyme
 Rice, vegetables, fruit Allerzyme, Carbozyme, MightyZyme
 Salad (*no meat*), vegetables Carbozyme, Allerzyme, Detoxzyme, MightyZyme
 Sweets (*ice cream, frozen Rice Dream, carrot cake, cookies, candy bars, granola bars, apple pie*) Carbozyme, Allerzyme, Detoxzyme

Carbohydrate Categories:

Carbohydrates (*simple: refined sugars, fruits*) Allerzyme, Detoxzyme, Carbozyme, MightyZyme
Carbohydrates (*complex: vegetables, fruits, grains, beans, rice, bread, some milk products*) Carbozyme, Allerzyme, Essentialzyme, Lipozyme

Bedtime: Detoxzyme: 5-15 as desired; MightyZyme: 3-4

down food, but when the naturally occurring enzymes in the food have been destroyed, the body is greatly taxed in its digestive function.

Amylase, found in the saliva of adults, breaks down carbohydrates and simple sugars found in vegetables and fruits. However, it is not produced in the bodies of infants when they are born. Their digestive systems are able to produce protease, cellulase, maltase, lipase, lactase, and sucrase, but they do not produce the enzyme amylase because it is at a very high level in the mother's milk and supplies the baby adequately through nursing. If the infant's body produced amylase and the baby was receiving amylase through the mother's milk, it would simply be too much and overload the infant's system.

All animal milk contains amylase for the same purpose of nourishing their off-spring. Many people choose to give their babies goat's milk because it is closest to the chemical structure of human milk and is easy to digest, but, of course, the best source of amylase comes from the mother of the infant.

There is a vegetable source of amylase that is made, but it is never as effective as true amylase, and one of the primary sources for the amylase is found in fecal matter.

Children are often given a milk formula that usually comes as a powder to be mixed with water. There are many different kinds of formula powders, and perhaps some are better than others. But the formulas are all still processed and "chemicalized" with ingredients that cause various problems that parents don't link to the synthetic milk. Unfortunately, much of the public is still very uneducated in the field of health and nutrition.

Many parents, unknowingly, mix their powdered formula with chlorinated tap water—**poison!** Then they heat the bottle in the microwave—**deadly!**

Heating the bottle or food in the microwave not only kills the nutrients but also poses a hazardous danger to the child. Anything heated in a microwave oven becomes hot on the inside first and yet feels cool on the outside. So if the bottle temperature feels nice and warm, it is probably extremely hot inside. It's a horrible experience for the unsuspecting child to get lips, mouth, and throat burned from the scalding milk.

Another threat is that the bottle could become so hot that it explodes, burning the person who opened the door and touched the bottle. Microwave cooking? Don't

do it! Besides, who wants to eat the plastic chemicals that have leached into the food?

How many babies on formula seem to cry a lot and keep their parents walking the floor all night? The baby can't tell you his stomach hurts and that his body does not want "that milk." How many babies have skin rashes, are not developing normally, or do not seem very happy? There can be any number of causes, but chemicals and processed foods are not healthy for anyone, and for an infant or growing baby, the negative effects can be more dramatic.

Unfortunately, too many children are not being nursed. Perhaps the mother is physically not able to nurse or she has to get back to work or she is just too busy. It does not matter what the reason: the results are the same—an amylase deficiency, which usually starts an allergic condition where the children begin to develop allergies to starches, usually proteins, and certainly sugars.

Unknowingly, parents, trying to help the child, rush to the doctor or the hospital, where more chemicals are put into this little, growing body, only to have more problems created that can become lifelong problems. If we just did things Mother Nature's way to begin with, we would not have to even be talking or writing about all this negative "stuff."

In the last couple of decades, science and technology have made it possible for us to supplement our diet with all kinds of nutritional supplements. With enzyme supplementation, children and adults alike do not have to suffer because of digestive problems and insufficient nutrient absorption.

Protease and amylase are the two most important enzymes that children need. **Ningxia Wolfberries** are naturally high in protein but also contain high amounts of carbohydrates and sucrose because of the natural sugars in the different berries.

You can take a protease enzyme first because protein takes a little longer to break down than starches, carbohydrates, and even lipids.

Amylase breaks down the simple sugars that have to be in the bloodstream in order for the body to utilize protein.

By taking protease and amylase together, the body is able to digest the sugar and facilitate the assimilation of protein.

It is extremely important that children who were not nursed, or most likely drank some kind of formula, have enzyme supplementation as well. In order for children to be healthy and free of allergies, they must have amylase.

Mightyzyme, a chewable multi-enzyme for children, is easy for children to ingest. Children who were not nursed and, therefore, did not get the needed amylase should take 1-2 tablets a day until about the age of 10. At about this age, it would be good to have the child start taking the adult enzymes, which have a broader nutritional profile and are a little stronger.

Many children prefer the adult enzymes and begin swallowing them as early as 7 or 8 years old. However, many children have difficulty swallowing capsules, so they can be opened and emptied into yogurt, kefir, oatmeal, NingXia Red, or anything that will help them “get it down.”

Below is a list of a few digestive enzymes, their actions, and the supplements in which they can be found. This will give you an idea of their critical importance in digestion, without which there will be minor and major dysfunction in the body. If any enzymes are missing or are insufficient in quantity, the body cannot perform optimally.

- **Alpha-Galactosidase** digests complex carbohydrate sugars found in vegetables, grains, nuts, seeds, and beans and prevents gas, bloating, cramping, and flatulence produced from fermented sugars (Allerzyme, Detoxzyme).
- **Amylase** found in saliva, breaks down carbohydrates and simple sugars found in vegetables and fruits (Allerzyme, Carbozyme, Detoxzyme, Mightyzyme).
- **Bromelain** is the enzyme found in pineapple that promotes digestion in systems lacking sufficient digestive enzymes. It helps break down protein and the digestion of trypsin or pepsin. It can ease heartburn, nausea, and diarrhea (Allerzyme, Detoxzyme, Essentialzyme, Mightyzyme, Polyzyme).
- **Cellulase** is an enzyme not found in humans. It digests cellulose fiber and aids in malabsorption (Allerzyme, Detoxzyme, Mightyzyme).
- **Invertase** hydrolyzes (liquefies) sucrose to glucose and fructose, promotes longer shelf life, and has broad activity range over pH (3.5 – 5.5) (Allerzyme, Detoxzyme).

- **Lactase** digests lactose, the sugar found in milk and dairy products (Allerzyme, Detoxzyme).
- **Lipase** breaks down fats in most dairy products, vegetables, nuts, oils, and meats (Allerzyme, Detoxzyme, Lypozyme, Mightyzyme, Polyzyme).
- **Malt Diastase (Maltase)** breaks down disaccharide maltose into glucose or malt sugars (Allerzyme).
- **Pancreatin** is an enzyme composition that combines amylase, lipase, and protease to help break down starches and fats, metabolizes complex proteins, and removes dead and dying tissue (Essentialzyme, Lypozyme).
- **Peptidase** promotes the hydrolysis of peptides into amino acids, which are the break-down product of protein absorbed in the gut (Allerzyme, Mightyzyme, Polyzyme).
- **Phytase** breaks down indigestible forms of phosphorus found in grains and oil seeds, releasing digestible phosphorus, calcium, and other nutrients (Detoxzyme, Mightyzyme, Polyzyme).
- **Protease** breaks down proteins in meats, nuts, eggs, and cheese (Allerzyme, Detoxzyme, Mightyzyme, Polyzyme).
- **Trypsin** is a pancreatic enzyme that hydrolyzes protein, operates at a pH of 7-12, and is used in baby food to predigest protein. It also breaks down the protein membrane surrounding cancer cells to digest and eliminate as toxic waste from the body (Essentialzyme).

Betaine HCL (hydrochloric acid) helps to break down fats and proteins and is found in Essentialzyme. It is important to have adequate levels of stomach acid for the absorption of protein, calcium, vitamin B12, and iron. Healthy stomach acid kills disease-causing microbes and parasites that are in the food we eat. Stomach acid decreases with age, which leaves us vulnerable to the attack of unwanted microbial invaders that bring disease and create unhealthy conditions in the body.

Food enzymes naturally come from the raw food we eat. However, the enzymes in a particular food are only for that specific food and have little effect on other foods. Some digestive enzymes are present in the food we eat; some are produced by the body itself.

Enzymes are very sensitive to heat, pH, and metal ions and are easily destroyed or rendered inactive.

Commercially grown foods that are sprayed with chemicals are also devoid of enzymatic activity.

Enzymes are completely destroyed when cooked, boiled, heated, grilled, and baked, which means that enzymes are also destroyed in all processed food.

This means that we should avoid processed foods whenever possible, as they are devoid of the necessary enzymes for digestion and usually contain enzyme inhibitors to increase shelf life. Inhibitors block the enzymatic process, which stresses the body into an out-of-balance condition.

A lack of digestive enzymes in the food we eat forces the body to overproduce its own digestive enzymes and limits its ability to produce metabolic enzymes, which are also crucial for health and normal metabolism.

This limitation occurs because both digestive enzymes and metabolic enzymes are created from the same enzyme precursors (PST) that are produced in the liver.

The production of these precursors is limited in the human body, so when the digestive system must overproduce digestive enzymes due to an enzyme-less diet, it causes a harmful underproduction of metabolic enzymes, which are involved in every process of the human body.

The immune system, circulatory system, liver, kidneys, spleen, pancreas, and even our ability to see, breathe, and think depend upon these metabolic enzymes.

When the diet is supplemented with digestive enzymes that are naturally present in whole, raw, or uncooked foods, there are two powerful benefits:

1. The body is able to extract the maximum nutritional value from the food.
2. The body can reduce its internal production of digestive enzymes, which allows for higher production of metabolic enzymes, crucial for daily metabolism, health, and detoxification.

When we put food into our mouth, amylase, in the saliva, begins to break down complex carbohydrates into simple sugars. While the food is still in the mouth, the stomach begins to produce pepsin, which, like protease, helps digest protein.

When the food enters the small intestine, the pancreas secretes pancreatic juice, which contains three enzymes that break down carbohydrates, fats, and proteins that pass into the small intestine.

The enzymes from the food mix with the nutrients and travel in the blood plasma, which is the watery liquid in which the red blood cells are suspended. This is how the body absorbs and uses the enzymes for their vast number of catalytic activities that aid the body in everything from growth to fighting infection.

Ancient cultures prized the natural enzymes in foods—especially meats. They probably did not know how the enzymes worked or what worked, but they knew that something happened when food was allowed to cure because it gave them more strength, endurance, and vitality.

That is why we read about the tradition of curing and why many ancient cultures “aged” or cured meats, which allowed the natural enzymes present in the flesh to predigest it, thereby easing the burden on their own digestive system and conserving their own limited pool of enzymes.

When meat is predigested, it places less stress on the body’s own enzyme bank. Predigestion also enhances the breakdown of peptide chains and proteins into free-form amino acids, the building blocks of every major body function, from immunity to growth.

Every protein that enters the human body via digestion has to be broken down into amino acids before it can be fully utilized. Meats that are not completely digested contain large protein fragments that cannot benefit the body.

In fact, these protein fragments can cause allergic reactions if the body’s antibodies mistake them for foreign microorganisms.

Even worse, these protein fragments can become trapped in the intestines, where they will ferment and promote parasite proliferation and disease.

Cathepsin, a natural enzyme present in all animal flesh, starts the aging or “curing” process to slowly digest the meat. This is not unlike the process that ripens bananas. A green banana starts out high in starch. As it ages or ripens, the natural amylase in the banana converts the starches into sugar. In effect, the amylase is digesting the banana, eventually turning it brown.

As soon as an animal is dead, cathepsin begins to predigest the meat. It begins splitting large peptide protein chains into smaller, more digestible ones. When the meat is eaten after it has been hung for two to three weeks,

the digestive system now has a far easier job completing its breakdown and liberating the vital free-form amino acids, the building blocks of all bodily processes.

This explains why when an animal such as a dog or a cow is killed and left to “rot,” the vultures can be seen sitting on the fence for days, just waiting until the enzymes have done their job. Then the birds have a feast and eat the dead animal to the bones.

The history of enzymes is rather interesting. Long before chemists determined that there was some kind of chemical reaction taking place in organic substances, common people were making soaps, fermenting wine to make vinegar, and baking breads and pastries and many other things through these enzymatic reactions. Early in the 19th century, scientists began to investigate this unusual change in substances.

The well-known French chemist Louis Pasteur (1822-1895) called these catalysts *ferments*. A few years later, the German biochemist Eduard Buchner (1860-1917) isolated these catalysts and determined that they were chemicals, which later were named enzymes.

This began the most revealing scientific journey into the world of enzymatic activity and the discovery of their purpose in all living organisms. It is fascinating to think about how this phenomenon has been observed and used from the beginning of time and was never understood or explained until modern science had the technology to give us that information.

The remarkable physical strength and endurance exhibited by the pioneers and Native Americans may have been due to their consumption of enzyme-rich raw and unprocessed foods, despite the sometimes meager rations of less than 4 ounces of food a day. We have been taught that you must eat to have strength. But there is more to it than that. You must be able to digest what you eat and assimilate the nutrients in order to sustain health and strength.

On the average, only 8 percent of the food we consume is metabolized to sustain normal bodily functions. The remainder passes through undigested. Even worse, only 1 to 2 percent of the nutrient value of the food that we consume reaches our cells.

Many people today suffer with wheat and grain allergies, perhaps caused by the fact that when the grains are cut during the harvest, they are not bundled and left standing in the fields for a few days before thrashing, as was the practice many years ago.

The purpose of leaving the bundled grains standing in the field was so that the dew at night or the rain would soften the shell. Then the next day the sun would evaporate the moisture, stimulating the enzymatic process within the kernels. This began the germination to prepare the grains for digestion.

Without the germination process, the enzymes in the kernels remain inactive and, therefore, do not have the ability to digest the grain, which makes it even worse for people who have low sulfur levels and phenolic sensitivity.

Most often, the PST pathway becomes blocked and cannot digest the gluten in the grains. PST (phenol-sulfotransferase) is a Phase II enzyme that detoxifies leftover hormones and a wide variety of toxic molecules such as phenols that are produced in the body and even in the gut by bacteria, yeast, and other fungi as well as food dyes and chemicals.

A four-year from study (2000-2004) conducted by the Young Life Research Clinic in Springville, Utah, found that people with gluten intolerance and even celiac disease had no allergic reaction after eating grains grown from non-hybrid seed with no chemical sprays, harvested with horses, and then left to stand in the field for 7-8 days before thrashing.

Egyptian hieroglyphics depict the ancient process of grain harvesting. The grain was cut with a scythe, tied into sheaves, and left to stand in the field for several days. It was then loaded into ox carts, hauled to the threshing site, and thrown into a big stone grinder operated by an ox team. The stone rolled around on the grain, cracking the hulls. With the sifting of the wind, the chaff was blown off, and the grain was picked up by slaves and carried in baskets to the storehouse.

Stone-ground, whole wheat bread, which is rich in enzymes, vitamin E, and other nutrients, sadly, is a thing of the past. Today, modern technology brings grain to us via a machine called a combine. The combine cuts the grain, almost instantly separates the kernel from the husk, and delivers the grain ready for market on the same day it was cut. It is then further processed to strip out the vitamin E and other oils. Most of it is then bleached, leaving only a tiny fraction of the grain's initial enzymes.

To maximize the enzymes in a food, the fruit of the plant needs to mature on the stalk or stem to the point of “ripening” or readiness to sprout. This is when the

enzyme content of the food is the highest. Unfortunately, many fruits, vegetables, and grains are harvested when they are immature and assumed to ripen “in transit,” resulting in a food that has a far lower enzyme content.

In order for grains to fully digest in the human body, they must contain a full complement of their natural enzymes. Every food has its own specific enzymes. In order for a grain to have viable enzymes, it must have time to germinate. Once it germinates, its enzymes are released from the bondage of enzyme inhibitors. This is why sprouted grains are so health-giving—the enzyme inhibitors have been deactivated and can no longer counteract the natural enzymes present in the food.

Early signs of enzyme deficiency can manifest with many complaints. Heartburn, gas, bloating, fatigue, headaches, stomachaches, diarrhea, constipation, chronic fatigue, yeast infections, nutritional deficiencies, pain, joint stiffness, skin eruptions, psoriasis, eczema, and colon, liver, pancreas, and intestinal problems are just a few.

Many enzymes are not only deficient but are also inactive. At the Young Life Research Clinic in Springville, Utah, D. Gary Young tested over 21 different enzyme products from 21 different manufacturers and did not find a single one that was effective in a clinical environment. The patients were closely monitored, their food intake measured, and their blood and digestive systems regularly tested and analyzed. The clinic staff found that patients were simply not obtaining value from their foods because their enzymes were inactive.

How are enzymes destroyed or rendered inactive?

1. Planting, growing, and cultivating food grown with chemical fertilizers, herbicides, and pesticides will produce a crop basically devoid of enzymes.
2. Heat begins to break down the enzymes at 118° F and are totally destroyed at 129° F.
3. Pasteurization, sterilization, microwaving, chemical processing for freezing, and any other modern processes kill the enzymes or render them inactive.

Dr. Francis M. Pottenger, Jr. conducted an amazing study with over 900 cats. He fed one group of cats raw milk and meat. They lived healthy and disease free. They produced healthy litters generation after generation. He fed another group of cats pasteurized milk and cooked

food. After the first generation, this group became lethargic and began to suffer from allergies, infections, and other diseases, including heart, kidney, and lung diseases. Each succeeding generation of cats that ate cooked food suffered more diseases. By the third generation, the cats were unable to reproduce.

Another study showed that after eating cooked food, the human body reacted just as if suffering from an acute illness. Within 30 minutes of eating cooked food, white blood cell counts increased dramatically, as though the body were fighting an infectious disease.

In a very interesting experiment, one group of pigs was fed enzyme-rich raw potatoes, and another group was fed enzyme-deficient cooked potatoes. The pigs eating cooked potatoes gained weight rapidly. The pigs that were eating raw potatoes did not get fat.

Obesity is an area of deep concern. Dr. David Galton at the Tufts University School of Medicine tested people weighing 230-240 pounds. He found that almost all of them were lacking lipase enzymes in their fatty tissues. Lipase, found abundantly in raw foods, is a fat-splitting enzyme that aids the body in digestion. Lipase activity breaks down and dissolves fat throughout the body. Without lipase, fats are kept and stored in tissues. We see this manifest around the waistline, hips, and thighs.

It is astounding to see the obesity levels of children and adults not only in America but around the world, which have reached epidemic proportions. Childhood obesity has more than tripled in the past 30 years. About 35 percent of children and teens between the ages of 2 and 19 are overweight.

According to the latest data from the National Health and Nutrition Examination Survey in 2008, over two-thirds or 64 percent of the adults in the United States are overweight, and over one-third are obese. In Europe over 48 percent are overweight.

These statistics are frightening when you look at the rapid increase in numbers. No wonder physical and mental problems as well as diseases are becoming more prominent in children and young adults. Clinics and hospitals are full of people suffering from problems due to being overweight. It is certainly possible that this overweight problem is due partly to chronic enzyme and nutrient deficiencies.

Our food is processed and devoid of nutrients and enzymes, so seeing such deterioration of our health is

not surprising. Even our fresh fruits and vegetables are grown in polluted water and air and sprayed with a myriad of chemicals for pesticide and herbicide control.

There are even chemicals to induce growth and produce perceived beautiful quality. It is hard to know the difference and impossible to see the contamination and food devoid of nutrients when we walk through a well-organized grocery store and see such beautiful produce and products on the shelves.

We have a better chance of buying nutritious food when we buy organic food rather than non-organic food, but even then we don't know all the conditions under which the food is grown. The food may not be directly sprayed, but that does not change the quality of air and water. Government regulations for the organic food industry are allowing "less dangerous" chemicals to be used in organic farming, but we want to avoid all chemicals whenever possible.

Besides that, we do not know what is done to the harvest after it leaves the farm. Preserving freshness is critical to the brokers and retailers, and how long is the food kept in storage before it goes on the shelf for the buyer? These are all things to consider.

Can we live without enzymes? The evidence is voluminous. Our bodies would cease to function without them. It would be ideal if we could consciously eat raw, unprocessed foods rich in enzymes in order to maintain an ample reserve in the body to maintain optimal health and effectively prevent and fight disease.

Unfortunately, most of our food supply does not contain the quantity of enzymes needed for proper digestion and conversion. That is why enzymes are added to so many commercial products. Start reading the labels. You will be amazed to see such phrases as "Enzyme enriched, enzymes added, enzymes for better digestion," etc. We eat too much processed and devitalized foods. So what do we do? How do we solve this problem?

Enzyme supplementation is the modern-day solution. Science has come a long way in its ability to manufacture high quality enzymes that are absorbable and usable. Medical research shows that enzyme supplements can help fight illness, reduce or block the development of life-threatening diseases, and slow the effects of aging. There are enzymes specific to a particular need, and there are enzymes that provide overall enzymatic needs.

The best time to ingest protein is in the early morning or by mid-afternoon. You must have glucose in the blood to absorb protein. Because your body operates on glucose and protein primarily, it is better to put that in your body in the morning than at night when there is little or no activity. Protein at night is more difficult for the body to digest because it just sits in the stomach while the body is working to detoxify and cleanse.

Water is the activator of your enzymes. To activate your vegetable enzymes, you must have minerals and water. Water activates and creates enzyme saturation to the food that you have ingested. Water carries up to 18 percent oxygen, providing greater enzymatic action, so by drinking water with your meal, your food will digest better, giving you better nutrient availability, much more so than if you do not drink water with your meal.

To begin your day with breakfast, take 2 Polyzyme and 1 Essentialzyme, which help to supply both metabolic and digestive enzymes and at the same time target the carbohydrates and proteins that you've ingested for your morning meal.

There is an old belief system that says "Never drink with a meal." This is correct and incorrect at the same time. All of the Young Living enzyme supplements contain raw, plant-extracted enzymes that require two things to activate them—minerals and water.

However, if you drink milk with your meal, saturating your food with lactose, you will need a high lactose enzyme for digestion that can create fermentation along with the other foods that you have eaten. If you drink apple juice, orange juice, or other juices high in sugar with your meal, you will need a high sucrase enzyme to digest the simple carbohydrates (sugars) and proteins in the juices.

Essential oils are an ingenious addition to enzyme supplementation. They support enzyme conversion with many added benefits specific to any particular oil. Many oils such as tarragon, ginger, peppermint, juniper, rosemary, lemongrass, anise seed, fennel, and patchouli are natural enzyme promoters in the body. They help increase the oxygen for the uptake of ATP, adenosine triphosphate, one of the most important (if not the most important) molecule that exists in the body.

ATP provides the chemical energy of fuel within the cells for all processes of human metabolism. Each

enzyme supplement contains various oils for the promotion of natural enzyme activity. Enzymes and essential oils work in a synergistic way to promote a healthier digestive system.

Enzymes can be taken in many different quantities for many different needs. Different enzyme supplements may be combined or added for specific digestive functions. Most people are enzyme deficient, which is very detrimental to the healthy state of the body. Optimal digestion and metabolism is dependent on the presence and activation of enzymes.

It is not likely that you will do something wrong by taking too many or combining too many enzymes if you are just using common sense. The body will tell you by how you feel and by the increase in energy that you might experience.

Pay attention to an increase in clarity of thought, awareness, ability to respond faster, more energy to get things done, and not feeling tired or feeling less tired at the end of the day. These are all indicators that things are working better in the body. Minerals, vitamins, enzymes, and water must all be present and work together for a balanced process of nutrient conversion, absorption, and utilization.

This partial list of complex and simple carbohydrates, proteins, and sugars might help you determine which supplement you want to take for different foods.

Carbohydrates (complex):

- Vegetables: spinach, lettuce, zucchini, asparagus, artichokes, cabbage, yams, carrots, cucumbers, potatoes, radishes, broccoli, cauliflower, onions, peas, celery, sprouts, dill pickles, eggplant
- Fruits: Grapefruit, apples, prunes, pears, plums, strawberries, oranges
- Grains: Buckwheat, oat bran, oatmeal, wild rice, brown rice, multi-grain breads, lentils, granola
- Beans: Pinto, soy, garbanzo, kidney, navy
- Milk products: Skim milk, soy milk, low-fat yogurt

Carbohydrates (Simple):

- Table sugar, corn syrup, fruit juice, cake, honey, milk, yogurt, jam, chocolate, white-flour pasta, white-flour bread, most packaged cereals

Proteins:

- Meat such as beef, chicken, turkey, bison, elk, venison, fish, nuts, nut butters (almonds, peanuts, etc.)

Allerzyme is a complex blend of enzymes used to help the body utilize nutrients, combat allergies, expel waste, and prevent gas and bloating. As children reach the age of 10, it is a good time for them to begin taking adult enzymes, which are more complete. Allerzyme (1-2 capsules daily) is a good companion for children because it specifically contains amylase and protease, along with a full complex of enzymes, such as Bromelain to help prevent or alleviate symptoms of allergies, aiding in better digestive function.

Carbozyme assists the body in the digestion of sugars and starches found in vegetables and fruits. When overcoming allergies, Carbozyme gives added benefit in breaking down carbohydrates. Take 1-2 Allerzyme for greater support in fighting allergies. If you are still eating proteins at lunchtime but adding carbohydrates like a salad combined with bread and dessert, take 1-2 Carbozyme.

If you have a food allergy or a metabolic problem from gastrointestinal surgery or disease in the gastrointestinal tract, take 1-2 Carbozyme with 3-4 Essentialzyme to meet digestive needs. If you are amylase-deficient, take 1-2 Carbozyme.

Detoxzyme contains amylase and bee pollen rich in amino acids, which are important for healthy body function in the promotion of enzyme development and performance. Detoxzyme is a vegetarian-based enzyme used to help digest milk products, meats, and nuts and to eliminate toxic chemicals and waste.

Detoxzyme can be taken more heavily for a detoxification program, anywhere from 4-6 capsules morning and midday and 6-10 in the evening. Your body can utilize a lot of Detoxzyme. You will know when it is enough if you start to have diarrhea.

The essential oil of cumin has been recognized as a very powerful detoxifying agent. Combined with anise seed and fennel, it creates nice stimulation of the hydrochloric acid and the pepsin that are naturally occurring in the gastrointestinal tract for more effective digestion and cleansing.

Before going to bed, take anywhere from 2 to 10 Detoxzyme because during the night your body is going through metabolic processes of digestion and assimilation. The liver is detoxifying and “dumping” the waste into the colon to be released in the morning.

Essentialzyme is a multi-enzyme complex originally formulated to combat degenerative disease. It digests the protein shell around cancer cells so that it can digest and remove the dead cells. It is also used to promote balanced digestion and nutrient assimilation.

It takes a combination of enzymes, minerals, proteins, lipase, and fat for building hormones. Carrot powder is very nourishing, as carrots are one of the highest enzyme foods that you can eat.

Periodically a carrot juice fast can be very beneficial for 1 to 2 days to build a ready supply of natural enzymes, giving the body an extra boost in detoxifying and cleansing. Alfalfa sprout powder contains 21 minerals, which are critical for the activation of enzymes.

Start your morning with Essentialzyme. Adults: 3-4 before eating and 3-4 after eating. More capsules can be taken if needed. Children: 1 before eating and 1 after eating or both together. It is best to drink water or herbal tea. Drinking smoothies or juices complicates and compromises the ability to digest efficiently.

Lipozyme contains powerful, fat-digesting enzymes for dairy products, meats, and vegetables and promotes greater nutrient absorption. It is specific for digesting the lipids or fats in foods like avocados, olives, vegetable oils, and meats. Undigested lipids can contribute to gallstones by plugging the pathway out of the gallbladder for the bile and by also causing congestion and plugging the liver, causing increased fat deposits.

This is an important supplement in fat reduction for overweight conditions. Take 1-2 capsules 2 or 3 times a day or as desired. It also contains barley grass that is a complex green that is high in minerals needed for enzyme activation.

MightyZyme is formulated especially for children, providing a full spectrum of nutrients and enzymes combined with Ningxia wolfberry. Because MightyZymes are chewable and crunchy, children often think that they are a treat and are happy to eat them. They are a great snack to put in school lunches. Interestingly

enough, many adults prefer MightyZyme over other supplements and eat several daily.

Polyzyme is a powerful plant enzyme complex. It is very specific for the digestion of proteins in meats, eggs, cheese, and other foods high in proteins. The essential oils of anise, peppermint, and rosemary are specific for stimulating the production of natural protease in the body.

When eating meals with meat such as beef, chicken, turkey, bison, etc., taking 1 Polyzyme before dinner and 1-2 Allerzyme after dinner works well in aiding digestion to prevent bloating and in helping to alleviate that heavy, lethargic feeling after eating so much.

Although enzyme supplementation is a blessing to our modern society, not many people really know the importance of enzymes in our diet. Their function is not well understood and is often times confusing. However, more is being written about enzymes, and more people are beginning to add enzyme supplements to their diet. Many people have different ideas about how they should be used or taken, so perhaps the following suggestions will be helpful.

1. Some people open the capsules and sprinkle the enzymes onto their food, but not very hot food, to get the digestive process started.
2. Because it takes a while for the capsule to dissolve in your stomach, it is a good idea to take your enzyme capsules about 30 minutes before eating.
3. Drink plenty of water with your meal, because enzymes need water for activation.
4. Chew your food well so that the digestive enzyme cellulose can be released from the fiber; otherwise, you could experience a stomachache with gas and bloating.
5. Eat fresh fruits and vegetables to increase your enzyme intake.
6. Be careful not to eat too many foods that contain enzyme inhibitors, which neutralize some of the enzymes that your body produces. Be moderate in eating such foods as raw seeds, nuts, beans, grains, and especially peanuts and raw wheat germ. Enzyme inhibitors are found in potatoes, concentrated in the potato eyes. Lesser amounts of inhibitors are present in peas, beans, lentils, and egg whites.

7. Traditionally, seeds, nuts, beans, and grains were soaked or partially sprouted before they were eaten. These foods contain many enzyme inhibitors such as phytic acid that can tax the digestive system if eaten excessively.

Phytic acid is important because it prevents premature germination and stores nutrients for plant growth. However, it combines with minerals such as iron, copper, calcium, magnesium, and zinc in the intestinal tract and interferes with nutrient absorption.

Soaking these types of foods in an acid medium such as lemon juice or whey or even in water neutralizes the enzyme inhibitors and can make the vitamin and mineral content more available.

8. You can also destroy the inhibitors by cooking, but then that destroys the enzymes. The better way is by soaking, rinsing, germinating, and sprouting. This destroys the inhibitors while increasing enzyme production.
9. Another way to neutralize these inhibitors is to take extra enzymes when eating ungerminated or unsprouted seeds and nuts.
10. Fermentation also neutralizes damaging chemicals found in grains and beans. Fermentation adds many beneficial micro-organisms to food, making them more digestible, which increases the flora in the intestinal tracts.

A diet in unfermented whole grains can lead to mineral deficiencies and bone loss. The easiest way to cause fermentation is to put the beans, seeds, and grains in water, add whey or yogurt, and let them stand for seven or eight hours. A local health food store should carry whey or yogurt powder. Beans are even better if left in water for twelve hours.

11. Kefir is a special culture used in milk, which promotes fermentation and produces many enzymes in the process.
12. Small amounts of salt can also work as an enzyme inhibitor, so be careful. Besides the fact that salt is not the best choice to use in your diet because of the numerous health problems it can cause, it would be best to just eliminate it from your diet. Salt certainly has a place in the balance of diet, but today, white table salt is overused and becomes an enemy to the body.

Cooking with Essential Oils

Essential oil-enhanced cooking can be a lot of fun. A healthier lifestyle way of eating starts with your food preparation. When you have finished cooking your meats, add 2-3 drops of anise seed, fennel, basil, rosemary, or thyme and let the meat cool in the covered pot, so the oils can penetrate and soak into the meat.

After steaming vegetables, add 1-2 drops of lemongrass, melissa, oco tea, peppermint, spearmint, or lemon to enhance the enzymatic action of the food and increase the natural enzyme secretion in your GI tract (gastrointestinal tract).

When making apple pie, pumpkin pie, carrot cake, etc., add 3-4 drops of cassia, cinnamon, oco tea, or other oils you desire according to taste. Essential oils kill unfriendly and unwanted microbes that can survive cooking. The essential oils also increase the ion exchange in the cells of the foods, increasing the cell surface and allowing more ATP and oxygen uptake that enhance greater enzyme function.

The choice is yours. When you come to understand the critical importance of enzymes and the life-giving role they perform in our bodies, you have certainly discovered many possible explanations for health problems that you or those around you may have.

You can also see how you might prevent future health problems from arising. Knowledge gives hope, especially when products are available that can increase your potential for vibrant health and longevity.

For those who are already on a path of a healthier lifestyle, it is critical to spread this information to others who are searching for answers and to help those who do not know what questions to ask. We need to educate, strengthen, uplift people everywhere, and protect our children and the babies yet to be born.