

The Importance of Enzymes

True Source Of Most Disease

The Digestive Process

Most people do not fully understand the digestive process. Not much time is focused on the importance of properly chewing the food, and even less to the quality of the food selected for consumption. This is unfortunate, as both are critical to good health and long life.

In order for food to be easily assimilated, it must be completely broken down. The first phase of breakdown is mechanical that of using the teeth to chew the small chunks of food placed into the mouth. After swallowing, the food travels down the esophagus and arrives in the cardiac portion of the stomach.

It is here that the food sits for approximately one hour waiting for the hydrochloric acid to begin to come into the lower part of the stomach to further help in the breakdown of the food mass for proper assimilation of nutrient content. During this time, the naturally occurring enzymes in food (as long as the food has not been cooked above 105°F, micro-waved, or irradiated), begin the predigesting process. In about an hour, the food begins to work its way to the lower part of the stomach, and is mixed with acids and other digestive juices which are manufactured in the stomach lining.

Finally, the food moves into the small intestine where enzymes produced by glands in the intestinal lining complete the process. As the food passes through the small intestine there are various nutrient receptor sites through which vitamins, minerals, and enzymes are absorbed into the bloodstream or the lymphatic system. Finally, the food mass passes into the large intestine where most of the water is absorbed through the lining of the colon. All undigested matter is then eliminated from the body.

Enzymes are extremely fragile, and any processing destroys them to some degree. Enzyme quantities are also determined by the conditions the plants are grown in. Food grown on stressed, poor soil conditions produce lower quality food.

While it is true that our bodies can produce digestive enzymes, when we eat enzyme deficient foods, our bodies have to manufacture a higher quantity of digestive enzymes. This causes a corresponding decrease in metabolic enzyme

potential. Over time, this constant depletion of enzyme can affect the body's ability to maintain optimum organ function, and can lead to degenerative processes.

Name Your Poison

Evidence that has been available for over 75 years is now being brought forth and substantiated that the determining factor of health and long life may correspond to one simple condition: blood toxicity. **Toxicity means poison.**

You may think of poisons as things like arsenic, or cyanide, or rat poison, or things that secret agents in James Bond movies bite in capsules just before they're captured. As every good ninja knows, there are many levels and types of poisons. The best ones kill you the slowest and are undetectable. So let's consider the slowest poisons of all: **the food we eat.**

Most modern food of which the Standard American Diet (SAD) comprises, is poison to our system. Why do I say that?

A good poison will:

1. block the flow of blood.
2. decrease the amount of oxygen to the tissues.
3. interfere with one or more major systems of the body.
4. actually cause addiction to the poison itself.
5. eventually kill the subject without ever being revealed.

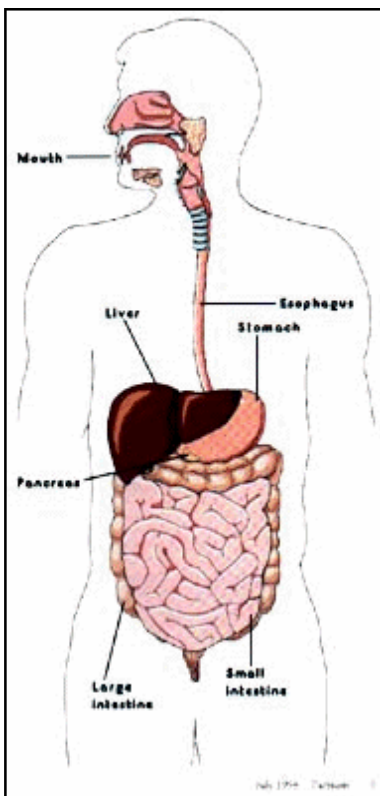
No poison in history has achieved these goals on the scale that processed food has.

The Importance of Enzymes

"Without enzymes, seeds would not sprout, fruit would not ripen, leaves would not change color, and you would not exist."

Very simply, enzymes are properties of all living cells that bring about changes. Enzymes are active in every cell of your body every second. Enzymes change things into usable forms.

As Dr. Royal Lee said long ago, **enzymes "...are the most important unit in the human body, because every chemical change that takes place to repair tissue or to assimilate food involves the**



activity of enzymes. Without enzyme activity there is no life. No plant or animal can live without the activity of its enzymes." - Conversations, 1955

Three Foods

We all know that human food comes in three varieties:

**fats
protein
carbohydrates**

Each is a large molecule made of smaller units. Since the body prefers the smaller units, these large fat, protein, and carbohydrate chains must be broken down. Fats are broken down to fatty acids; proteins are broken down to amino acids; carbohydrates are broken down to glucose-molecules. The process of breaking it down is called **digestion**.

Each food type has a special enzyme to make this breakdown happen:

**Lipase is the enzyme that breaks down fat.
Protease breaks down protein.
Amylase breaks down carbohydrates.**

Now many doctors and others with no background in nutrition will say that we can eat anything we want

because the body's digestive enzymes are designed to break the food down. This would be true if we were eating an 80% natural diet. By that I mean a diet in which most foods contain within them the enzymes necessary for complete breakdown without placing a burden on the body's own enzyme reserves. **The natural diet leaves behind no residue from the digestive activity. That is normal digestion.**

But we don't have a natural diet. Most of us have a SAD diet—the Standard American Diet. You know – burgers, fries, pizza, beer, chips, donuts, coke – etc. These are nonfoods, new to the human species in the past century. Our digestive systems were never designed to break these chemical bizzarros down. So the stuff doesn't get digested - it just sits there, rotting. Abnormal diet = abnormal digestion.

There are three primary groups of enzymes:

- 1. Food enzymes.**
- 2. Digestive enzymes**
- 3. Metabolic enzymes**

Food Enzymes...What Are They?

Food enzymes are naturally present in all raw foods, providing an external source of digestive enzymes when ingested.

There is only enough enzymes in raw food to break down that particular food. Enzymes are very specific. Food enzymes start to be killed when over cooked above 105°F and are completely denatured when they reach 126°F. The same is true for micro-waving and processing foods. Remember 118°F is about the temperature of the hot water we wash our hands in or the hot water that comes out of most of our water faucets.

We can eat all the "so called" healthy food and take all the enzymes, vitamins and mineral supplements you want but unless the enzymes are alive in the whole foods or the supplements you ingest, those foods or supplements will not be effective in maintaining a healthy body. Almost all degenerative diseases stem from a lack of complete digestion and improper elimination of what we ingest into our bodies.

Why Plant-Derived Enzymes?

Food enzymes derived from plants and not supplements are more precious than gold or diamonds. Your body requires enzymes to regulate every biochemical and metabolic process.

Why plant-derived food enzymes versus animal or fruit-derived enzymes? First of all, plant enzymes are active in a broad pH range of 2 to 12 and temperature ranges of 75°F to 126°F, most of which are well within the human body's normal temperature and pH ranges.

Animal enzymes do not activate until they reach the higher pH of the small intestinal tract so they will not be very effective at aiding the human body in pre-digestion or be active in the upper alkaline portion of the stomach. Animal enzyme's optimum temperature of activity is between 140°F and 158°F, way above the human body's temperature and can not be utilized in the aiding of digestion.

In other words, if you ate a raw salad there would not be any protein enzymes from the salad to digest the protein in your steak or chicken you might be enjoying with the salad.

Specific Shapes

Enzymes are known to have very specific jobs to do. Their activity is compared to keys that must fit certain locks. Enzymes are long-chain proteins held together in very specific shapes by hydrogen bonds. Think of a ball of string, which is held in a very weird shape by tiny strips of Velcro. If anything happens to the Velcro-like bonds, the enzyme protein unravels, losing its shape. Then it's no longer an enzyme – just another foreign protein. And what do foreign proteins cause in our body? Right **inflammation**. Immune response. And that's exactly the meaning of auto-immune. The body attacks itself because it senses there's an alien on board.

If the bonds are broken, the enzyme collapses, and can no longer do its specific job. A collapsed enzyme is said to be denatured. Several things cause an enzyme to become denatured:

heating above 105°F (cooking)	drugs
food processing	alcohol
genetic engineering	fluoride
free radicals	canning
irradiation	micro-waving

Digestive Enzymes... What are they?

The class of enzymes you're probably most familiar with is

the one that involves **digestion**. The mouth, the stomach, the pancreas, the liver, and the intestine produce various enzymes whose job is to break down any food we eat into usable components. They break down protein, carbohydrates, fats, and cellulose for fiber. Digestive enzymes are secreted from the pancreas into the stomach and small intestine.

No matter how greasy, no matter how much extra cheese, or how much white sugar, how many chemicals, no matter how indigestible a food is, your body will try to break it down by means of enzymes.

Now some foods are very easy on the body. Turns out, those are the ones which contain within them all the enzymes necessary for complete digestion. Examples: apples, pears, oranges, watermelon, green peppers, celery, get the idea? **Raw fruits and vegetables.** These foods don't require that the body waste energy producing a lot of powerful digestive juices in order to change them into a usable form.

Enzymes are delicate life-like substances found in all living cells whether animal or vegetable. Enzymes are energized protein molecules necessary for life. They catalyze and regulate nearly all biochemical reactions that occur within the human body. In other words, enzymes unlock the energy in the body and turn the food we eat into energy.

Enzymes digest all our food and make it small enough to pass through the pores of the intestine into the blood. They are the energy used to rebuild muscle, cell, nerve, tissue, bone, and gland. Enzymes assist in storing nutrients and glucose in the liver and muscles for future energy use.

Our living and being is enzyme dependent.

Metabolic Enzymes...What Are They?

Metabolic enzymes run the body's system and are connected to every working organ in the body. Metabolic means having to do with operating the body's specific systems. Cell life, nerve transmission, brain signals, hormone distribution, oxygen exchange, liver function, acid-base balance in the blood, stuff like that. All these jobs require specific enzymes in order to happen, on a second-by-second basis. Metabolic enzymes are the worker protein molecules that keep this whole biochemical circus going all day long.

Metabolic enzymes are what actually utilizes the nutrients that have been broken down by the digestive enzymes, provided that normal digestion has taken place. So the direct interrelationship between the two types of enzymes - digestive and metabolic - is not really a big subject for debate.

Toxemia and Vicarious Elimination

Toxemia means **blood poisoning**. Way back in 1926, a famous Colorado healer, JH Tilden MD, wrote a book, which was the culmination of a lifetime of clinical experience, Toxemia Explained. Dr. Tilden was radical. He didn't believe drugs cured disease. He had one simple thesis:

"...every so-called disease is a crisis of toxemia,

which means that toxin has accumulated in the blood above the toleration point. ...the crisis, the so-called disease - call it cold, flu, pneumonia, headache, or typhoid fever - is a vicarious elimination method. Nature is endeavoring to rid the body of toxin." Toxemia Explained

A disease is named for where the toxins accumulate and the body part start to fail. e.i. Heart disease – bad heart.

This concept of disease known as vicarious elimination has never been disproved. What happens is, as a survival instinct, various organs of the body try desperate measures to expel the rotting poisons, becoming inflamed in the process. This happens because the normal avenues for expelling toxins – from liver, kidneys, colon - are overwhelmed by the amount of poisons being accumulated. Mostly from indigestible food. So in desperation, other organs that weren't originally designed for waste removal get into the act.

One obvious example of this idea is acne. **Acne is not a skin problem.** It is a vicarious elimination: the blood is so toxic with poisons (accumulating faster than they can escape) that the body tries an extreme solution to expel the poisons through the body's largest organ, the skin. As the poisons leave, they irritate the normal skin and cause postulated eruptions, like pimples or boils. This is why skin creams and lotions don't work in such a scenario. It's not a skin problem. It's a problem of chronic blood poisoning by means of an indigestible diet. Third World people rarely get acne. **Acne is a disease of the fast food lifestyle.**

Chronic "incurable" eczema and psoriasis often fall into the same category. People suffer needlessly for years with these diseases, under the direction of their well-intentioned but clueless dermatologist who has convinced them that their only hope is to find the right medication for their "skin disease."

Same with the kidneys. Their original job was simply to maintain water balance within the blood. But with the advent of the modern foods of commerce, suddenly the kidneys find themselves spending all their energy trying to filter out these new manmade chemicals from the blood. – a function for which they were never designed. **Result: kidney disease today is the #9 cause of death in the US.** (Historical Statistics)

Dr. Bieler offers another example of vicarious elimination: **the lungs take over for the kidneys.** When the level of toxins in the blood exceed the kidneys' capacity to eliminate them via the urine, the lungs try to take up some of the slack, sort of in desperation. The lungs secrete some of the blood's toxins through their mucous membranes. Such toxicity irritates and inflames the lung tissue, and can be the cause of pneumonia, bronchitis, edema or any other lung problem. (p 164)

Same with a cold. A cold is simply the body's way of saying that the level of toxicity has now surpassed the body's ability to get rid of wastes through the normal avenues: colon, kidneys, and liver. So it will try alternative or vicarious routes: nose, mouth, throat, eyes, lungs.

Bieler uses this same model to explain **dysmenorrhea and pelvic inflammatory disease**: irritation of female organs when they are used as alternate routes of toxin removal from the blood, every month. At menopause, when this avenue of detox falls into disuse, various new problems may occur as a result. (172) Vicarious elimination: an organ of reproduction being used as an emergency organ of detoxification.

Again, Tilden's theory of vicarious elimination is that **many diseases are really just an organ's emergency attempt to discharge excess poisons because the primary avenues are overloaded**. If that body part is overwhelmed in the process it becomes diseased and we pretend that, that organ in isolation from the rest of the body, is the problem.

Such thinking is more than just simplistic; if medical decisions are based on false perceptions characterizing the diseased organ as the disease, the results can range from ineffective to fatal.

Cooked VS Raw

Edward Howell MD, a world class authority on enzymes and human nutrition, talks about how enzymes are denatured above 118°F. Since water boils at 212°F, you can see how cooking is detrimental to most foods. That's why when it comes to vegetables, steaming is much better than overcooking them on a stove and convection ovens or dehydrators set at 105°F are better for baking. Overcooking destroys enzymes and vitamins.

Savings Account

We have two main types of enzymes in our bodies. Dr. Edward Howell, probably the leading world authority on enzymes, in his masterwork Enzyme Nutrition, tells us it's as though we are given a bank account of enzyme energy at the beginning of our lives. **The bank account contains two types of enzyme currency:**

- **metabolic** enzymes (cell functions, body systems)
- **digestive** enzymes (catalyst)

The more of that bank account we have to use for digestion, the less is left over for the thousands of other tasks which enzymes have to perform in our bodies. Minor details like thinking, breathing, walking, seeing, cell life, etc. - all depend on enzymes. So think of someone grossly overweight: do they perform all these other functions well, or do they seem impaired? Obvious. Reason: they have to expend too much of their enzyme bank account trying to digest all the heaps of indigestible food that keeps coming down the hatch. So there's not much left over for basic life functions.

What Creates Enzyme Deficiency?

Digestion of food takes a higher priority and acts as a powerful stimulus in the demand for enzymes. **When you habitually eat food deficient in enzymes, your digestive organs become exhausted**. The body puts a higher priority

on digestion than on maintaining health, so it will call enzymes from other parts of the body to finish the job, thereby depleting the immune system. The pancreas sends out these messages looking for enzymes it can reprocess into digestive enzymes. **When it finds them it has to change metabolic enzymes into digestive enzymes** this means extra work and the **enlargement of the pancreas**.

Poorly Digested Food Pulls On Our Immune System

When food is not properly digested, we create "digestive leukocytosis" in which the white blood cell count increases after a meal. These incompletely digested food molecules are unable to be absorbed and the body then identifies this particulate matter as foreign objects and forms circulating immune complexes. The immune system then mobilizes white blood cells to digest food, pulling on the body's energy and immune system.

We use 80% of our body's energy to digest food alone. When food enzymes are present to predigest the food, digestive leukocytosis does not occur. Proper digestion allows the immune system to focus on disease prevention rather than digestion.

Researches believe that our enzyme energy has a limit and we must help to maintain them as much as possible in order to have a longer life.

"The Food Enzyme Concept" written by Dr. Edward Howell states that after 30 years of research he feels that medical science should take a different approach when looking at disease. **He states that when ingesting, the enzymes in raw food the result is a significant degree of digestion, lowering the drain on the organisms own enzyme potential.**

Dr. Howell defends that by eating raw food the work of the enzymes is less and the result is a healthy body. By eating raw food less stomach acid is secreted.

Dr. Edward Howell was one of America's pioneering biochemists and nutrition researchers and he stated:

"Enzymes are the most vital nutritional discovery since that of vitamins and minerals".

WARNING: The Information in these articles is not intended to replace medical advice or treatment. Questions about symptoms, specific dietary needs and medications, general or specific, should be discussed with your physician. The information in this article is for informational purposes only, and is not medical advice or a substitute for a physician's consultation and/or examination.

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