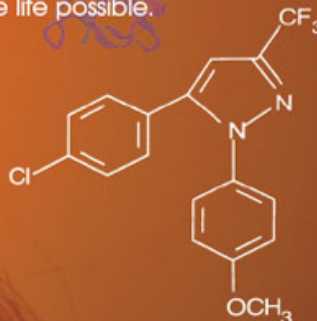


Don't Underestimate *enzymes*

When we think of all the factors affecting our health, enzymes rarely rate a mention. Yet, says **Teya Skae**, we need them just to make life possible.



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Did you know that good health starts with proper digestion and good digestion relies on the right enzymes in the right amounts being at the right place and time? Sounds complex? It is, and is just another example of how intelligent our bodies really are.

As we age, we become more challenged by various forms of stress, environmental pollution, chemicals and our emotional stress. All of these deplete our body's natural ability to make enough enzymes

to meet the demands of daily life.

Our body needs enzymes to function properly. Not only do we need them for healthy digestion, but we also need them to live, as without them we wouldn't be able to breathe, swallow, drink, eat, and digest our food.

So what are enzymes and how important are they to us?

Enzymes are complex protein molecules that are manufactured by all plant and animal cells. Enzymes are very important because

they break up large food molecules into smaller units that are absorbed into the cells.

They help the body digest food and assimilate nutrients from proteins, carbohydrates, fats, and plant fibres. In addition, enzymes assist in all chemical reactions taking place in our body, including the regeneration of cells/tissues and the elimination of waste products/toxins, as well as supporting our immune system. In short, enzymes make things happen!

According to Dr Edward Howell, pioneer

of Enzyme Therapy: "Enzymes are substances that make life possible. They are needed for every chemical reaction that takes place in the human body. Without enzymes, no activity at all would take place. Neither vitamins, minerals, nor hormones can do any work without enzymes."

In support of this view, Drs D A Lopez, R M Williams, MD, PhD and M Miehke, MD state that: "Enzymes are the body's labor force to perform every single function required for our daily activities and are required to keep us alive. They are responsible for all of the functions of every organ system in our bodies. In addition to our immune and defense systems, we require enzymes not only to eat, digest and absorb nutrients, but also to see, hear, smell, taste, breathe and move.

Do we have an infinite supply of enzymes?

No, we do not. Until recently, the scientific community believed that the digestive enzymes in our body are constant and last forever. Researchers now know that we lose digestive enzymes through sweat, body waste and the natural ageing process of the organs that produce our digestive enzymes.

Our current fast-paced society with its preoccupation with convenience has resulted in more chemical pollution, overly processed foods and microwaved cooking, all of which create a lot of free radical damage in our body. We also know this as the process of accelerated ageing. This process of creating free radicals lowers the body's natural ability to produce enzymes and meet its demands to function well. Are there practical solutions we can implement to offset this phenomena? Yes, but first let's get familiar with the different types of enzymes and what they do.

The three main categories of Enzymes are:

- * Digestive Enzymes
- * Food or Plant Enzymes
- * Metabolic Enzymes

Digestive Enzymes, secreted by the salivary glands, stomach, pancreas, and the small intestine, help break down food into simple components.

Food Enzymes exist naturally in raw food. If the food is cooked above 47 degrees Celsius, the high temperature destroys the enzymes.

Digestive enzymes and food enzymes serve the same function – they digest the food so it can be absorbed into the blood stream. The difference between the two is that food enzymes are derived from fresh raw uncooked foods such as fruits, vegetables, eggs, raw unpasteurised dairy, meat and fish (sashimi), while digestive enzymes are made inside our body.

Metabolic Enzymes are produced in the cells and are found throughout the body in the organs, the bones, the blood, and inside the cells themselves. Metabolic enzymes help run the heart, brain, lungs, and kidneys. Hundreds of metabolic enzymes are necessary for the working of our body.

Enzyme supplementation in our diet

- * Improves overall digestion so we have more energy for life
- * reduces the effects of ageing, wrinkles, sun spots.
- * aids in disease prevention
- * aids in the prevention of cancer and debilitating diseases
- * minimises the negative effects of cancer therapies
- * boosts the immune system
- * reduces inflammation /soreness of muscle and joint pain
- * retards periodontal disease
- * helps prevent heart disease
- * speeds healing after surgery
- * reduces the negative effects of anesthetics
- * aids in reproduction problems, regulating cycles, infertility and sterility
- * cleanses our system from allergic reactions

Let's look at some of the enzymes and what they do.

Lipase is an enzyme that digests fats, helping to maintain correct gall bladder function. When added to a meal as a supplement, it digests dietary fat, relieving the gallbladder, liver and the pancreas, which would otherwise need to produce the required enzymes. Protein absorption from fatty foods such as fish or seeds can be improved by incorporating supplemental lipase enzymes in the diet.

Protease breaks down protein found in meats, poultry, fish, nuts, eggs and cheese and may be helpful for people with food allergies or difficulty in digesting protein.

Amylase is a natural plant extract that helps your body break down and assimilate starches and carbohydrates. It works well for digesting starches and carbohydrates and may be useful for people with gluten sensitivities.

Cellulase breaks down food fibre (cellulose) found in fruits and vegetables. Cellulase, which is not found in the human system, breaks the fibre bonds and increases the nutritional value of fruits and vegetables.

Lactase digests milk sugar. Lactase deficiency is the most common and well known form of carbohydrate intolerance. It is estimated that approximately 70 per cent of the world's population is deficient in intestinal lactase. Supplemental lactase enzymes have been found to decrease the symptoms of lactose intolerance associated with the consumption of dairy foods.

Phytase breaks down phytic acids in grains, seeds, and simple sugars into fructose and glucose.

Maltase digests complex and simple sugars. Maltase breaks down unused glycogen in muscle. Glycogen is a thick, sticky substance that is converted from sugars and starches

and is stored in your muscle cells for future use. If stored glycogen continues to build up in the muscle tissues, it leads to progressive muscle weakness and degeneration.

Papain from papaya and *Bromelain* from pineapple, both help digest protein. Bromelain is also a natural anti-inflammatory.

Why are enzymes so important for digestion?

In its raw state food contains enough natural enzymes to enable us to digest it properly. However, when the food is heated above 47 degrees Celsius, we are also heating the enzymes. So, in the process of cooking, we denature the enzymes or make them inactive. This makes the enzymes useless in the digestive (breaking down) process.

What can we do about it? Eating raw food as much as possible is ideal but is obviously not acceptable in some cases. For example, eating raw meat, raw fish (apart from sushi), or uncooked rice is not only difficult, but even unpalatable and certainly not enjoyable to most palates. So, eating raw vegetables like spinach, greens and carrots with our meats is helpful. If we eat our meats medium rare to medium at the most, that also preserves some enzymes. But if we eat cured or well cooked meats we might as well take a lot of digestive enzymes with them because all the enzymes have been destroyed and it is very taxing to our body to digest the overly cooked meat devoid of its own enzymes.

Another very important fact to consider is if we totally depend on our internally made digestive enzymes, we are placing more stress on our body's systems/organs. In turn, these systems and organs have less time to make more enzymes for rebuilding and replacing worn out, damaged cells and tissue and keeping our immune system strong.

Your body's top priority is making sure it has enough nutrients to run its systems. This means digesting food and converting it into nutrients. There is no activity more important to the body than this. This takes a lot of energy and enzymes, particularly if the body must make most or all of these enzymes. Remember that no food can be digested without digestive enzymes, and they are destroyed above 47 degrees Celsius. It sheds light on why so many people suffer from digestive complaints and lethargy.

Dr DicQie Fuller PhD, in her book *The Healing Power of Enzymes*, emphasizes the importance of enzymes for digestion:

"Eighty percent of our body's energy is expended by the digestive process. If you are run down, under stress, living in a very hot or very cold climate, pregnant, or are a frequent air traveler, then enormous quantities of extra enzymes are required by your body. Because our entire system functions through enzymatic action, we must supplement our enzymes. Aging deprives us of our ability to produce necessary enzymes. The medical profession tells us that all disease is due to a lack or imbalance of enzymes. Our very lives are dependent upon them!"

What enzymes should we take and how?

Approximately 80 per cent of digestive enzymes supplements are plant-based. Look for combinations that have high Protease, Lipase, Amylase units with added lactase and bromelain. This would be a very good combination to take with each meal. This combination may also be taken in between. If taking straight pancreatic enzymes, make sure they are of good quality and reputable sources. This is a delicate area in Australia and it pays to investigate the companies' sources of enzymes.

For vegans and vegetarians, plant based and fungi derived enzymes would be ideal and the good thing is that plant based enzymes do the job well. In some cases, plant

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based enzymes might even be more effective as they survive the acidity of the stomach, whereas pancreatic enzymes may not and might not get to the small intestine where they do their job. This highly complex area of biochemistry of digestive enzymes is beyond the scope of this article, and for the purpose of more understanding it is helpful to have as much fundamental science as we can when selecting the right supplements.

In the long run, it is better to get professional nutritional advice in relation to taking digestive enzymes, as we are all biochemically unique. No two people have the same fingerprints, not even identical twins; therefore no two people will have the same digestion and biochemistry.

In essence, in improving our digestion we

are improving our health. Enjoying eating our food as close to its raw state as possible is a good place to start. If eating well cooked/cured/smoked meats, then adding digestive enzymes would be necessary to ensure they are digested. When cooking eggs, soft boiled or poached is best, instead of omelettes and frying. Eggs have some of the best enzymes and nutrients particularly for our thyroid gland and our liver, so it pays to preserve these delicate enzymes in eggs as well as other proteins. This is because proteins are the building blocks of life, and we constantly need these building blocks in rebuilding and maintaining lean muscle tissue, regenerating organs/glands, synthesising hormones, regulating our brain chemistry, and supporting our immune system. If we are

not digesting our protein well we don't have the necessary building blocks for life and that, of course, will affect our health. The key to good digestion is enzymes, and ensuring we have enough supply in our system for optimal digestion, energy and overall wellbeing.

In Wellness! ●

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Disclaimer: The views expressed in this column are those of the writer and are intended as an informed contribution to people seeking to pursue holistic health and lifestyle. For medical advice, always be guided by your own healthcare professionals.