

Natural Food Versus Cooked Food and Human Health in the Context of Food Enzymes



Manmohan Verma

Assistant Professor,
Deptt. of Chemistry,
Government Degree College,
Babrala, Gunnaur,
Sambhal, U.P.

Abstract

Enzymes facilitate nearly all cellular activities of the body which means that they are most essential biologically active species in our body organs like-, glands, tissues, heart, brain, liver, lungs etc. When digestive enzymes are not obtained through diet and the body must manufacture most of them to compensate, this infringes on the resources that are available to produce the metabolic enzymes that are needed to support these other important functions of repair and synthesis of biologically active substances in metabolic process.

Research has shown that your natural enzyme production starts to decline by the time you're about 25 years old. Studies show that, after every ten year, your body production of enzymes decrease by 12 % . by age 40, your enzyme production could be 26 percent lower than it was when you were a child. And by the time you're 70, you could be producing only 1 / 3(one third) of the enzymes you need. Making matters worse, your stomach produces less hydrochloric acid as you age, and hydrochloric acid is crucial in activating your stomach's digestive enzymes. The high demand for digestive enzymes *depletes your body's production of metabolic enzymes*, which is required in every cell of your body needs in order to function properly.

Thus it is clear now, that eating cooked food hamper our body functions of metabolic processes, and thus decrease our immunity to diseases thus in long time of duration cooked food is very harmful to the health.

Keywords: Food Enzymes, Metabolic Enzymes, Anabolic Enzymes, Catabolic Enzymes, Immunity, Denatured, Dead Food, Digestive Enzymes, Predigestion, Forestomach, Domesticated.

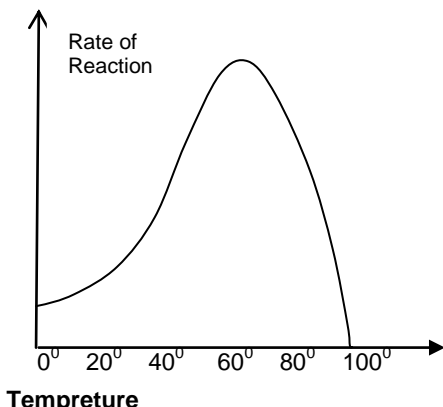
Introduction

Enzymes are very sensitive to heat and medium of reaction. Storage of enzymes at 5°C or below is generally the most suitable. Some enzymes lose their activity when frozen. In 1930, under the direction of Dr. Paul Kouchak off, research was conducted at the Institute of Clinical Chemistry in Lausanne, Switzerland. The effect of food (cooked and processed versus raw and natural) on the immune system was tested and documented.

It was found that after a person eats cooked food, his/her blood responds immediately by increasing the number of white blood cells. This is a well-known phenomena called 'digestive leukocytosis', in which there is a rise in the number of leukocytes - white blood cells - after eating. since this appeared to be a stress response, as if the body was somehow reacting to something harmful such as infection, exposure to toxic chemicals or trauma.

Aim of the Study

This paper clear the picture that (Rate of biological reactions) the activity of enzymes start above 0°C and go on increasing up to the temperature of 45°C and then start declining, thus all biological activity of enzymes cease at near 60°C temperature. As we increase more and more temperature above 60°C the structure of molecules of food deviate more and more from its natural analogues, and thus our body experience more and more burden-on personal enzymes to digest cooked and fried foods. it also gives some extra biochemical reactions which harm the body activity.

The effect of temperature on the rate of reaction on enzyme.

The graph shows that in the beginning as the temperature is increasing, the rate of reaction of an enzyme increases. But after 45°C temperature, about 99.9% of enzymes are warm enough, so that their shape becomes altered. (H-bonds now begin to break) and proteins of enzymes begin to denature. After 60°C temperatures, the total activity of the enzymes is now destroyed, the proteins of the enzymes become denatured now.

Enzymes are proteins that act as catalysts in biochemical reactions to increase the rate of reaction without being used up in the reaction. There are thousands of types of enzymes that work in the human body to carry out their functions such as digestion, synthesis of organ's cells and energy production.

Enzymes as catalysts help to make cells of your brain, muscles, liver, kidney, lungs, heart and all other organs. Enzymes also work faster and help to make energy to move your muscles; they also play a large and main role in the digestion process in the bodies of all animals, including amylases that break down sugar, proteases that break down protein and lipases that break down fat. There are three main types of enzymes.

- 1. Food Enzymes-** occur in raw food which begin the process of digestion.
- 2. Digestive Enzymes-** produced by the body to break down food into particles small enough to be carried across the gut wall
- 3. Metabolic Enzymes-** produced by the body to perform various complex biochemical reactions.

Food enzymes begin digesting food in the stomach and will work for at least one hour before the body's digestive system begins to work.

More than 3,000 different enzymes have been identified till now, and some experts believe there may be another 50,000 enzymes we have yet to discover. Each enzyme has a different function—like 3,000 specialized keys cut to fit 3,000 different locks. In this analogy, the locks are *biochemical reactions in the bodies of animals*.

Not very long ago the elements considered necessary for wholesome nutrition were protein, carbohydrates and fats. Vitamins and enzymes in the food were unknown. The fibers of foods were removed and discarded because fibers were believed

to be too coarse for the human digestive tract. All animals and vegetable foods in their natural state contain non-caloric elements in addition to proteins, carbohydrates and fat. These are recognized as indispensable food elements. These are minerals, vitamins, enzymes.

For over a hundred years, enzymes had a reputation as being important and main precursors, which catalyze the digestion of food. The work of enzymes in the digestive tract is only a minor part of their complete duties in the bodies of animals and human beings. Enzymes are the active agents in metabolism—such as anabolism and catabolism. Enzymes are the actors behind the scenes in the immunity processes. They power your thinking, breathing, sexual activity, immunity and thus health.

In another example millions of fish swallow entire smaller fish every day as their normal diet. While millions of birds gulp down entire fish or other organisms to constitute their complete food intake. And thus the ritual of predigestion by food enzymes is carried on in the entire animal kingdom. The digestive enzymes of the big fish cannot go into the body of the prey fish directly. Here the enzymes of the prey fish predigest it and then enzymes of the owner fish enter into the liquefied or predigested body of prey fish.

A lion has teeth adapted to tear away large chunks of meat from the body of prey. It may tear off about thirty pounds of chunks and then walk away dragging a full belly to a sanctuary to rest, while the pressure develops from the enormous distention of his stomach by the meat forms a coalescent bolus which crowds out everything, and giving no room for the lion's acid and enzymes to enter in the meat chunks. The lion's peptic enzymes and acids can find room to get into its stomach only after the catheptic enzymes within the meat itself have performed their role of predigestion and reduced the bolus to a plastic or liquid consistency. Only then the lion's enzymes carry on the digestive process from where the cathepsin stopped. It is indeed a law of nature, tested and proven by millions of years that enzymes within the food have been ordained by evolution, or god's evolution, to predigest food, and that your private enzymes were never intended to do the job alone.

One can say that food enzymes swallowed with food cannot do any work because the acid in the stomach prevents their activity. This can be true if the enzymes and very strong acid are mixed together in the test tube, but it is not true when enzymes are taken in to a living body. Our stomach normally allows salivary enzymes, food enzymes to digest food for up to an hour, till they finish their work of doing predigestion.

Methods**Materials**

Eggs, Carrots, Potatoes, Tomatoes, Curd, Incubators etc.

As we know that when we boil eggs, the biological activity of egg protein ceases and the structure of protein has been transformed to a denatured state and thus now it is not able to produce chicken or life. Enzymes are worker molecules of life; every single chemical reaction in our body is regulated by specific

enzymes. Enzymes need specific conditions (Temperature, PH) to work properly and can be destroyed if these conditions change.

Experiments 1

I took sixteen- fertile-eggs of hen, out of these four eggs I put in the incubator in good condition of temperature of 38°C, humidity(50 %) and good ventilation. then I boil four eggs for only 10 seconds, identified by red dots. Other four eggs I boil for 2 minutes, Another four eggs I boil for 5-minutes,

S.No	Number of eggs	Boiling Time In minutes	After 21 days of incubation	Results
1	4	Kept in incubator	After 21 days of incubation	Four healthy chicks
2	4	10 seconds (red dots)	Little inside chicks In yolk portion, dead	No live chicks
3	4	2 min	Rotten eggs	No live chicks
4	4	5 min	Rotten eggs	No live chicks

Above experiments show that temperature affect biological reactions very sharply. About -10 seconds of boiling of a egg destroy its 80 % biological activity, thus give little chick development in the yolk portion only. but boiling a egg for 2- min or 5- min or more cease its all biological activity and thus no live chickens, only rotten eggs.

Experiments 2

I took five bowls of fresh boiled milk and curd, where each bowl contain 100 ml milk with 10 gm curd. Which heated at different temperature for same times .as shown below. The result is as follow .

S. No	Bowl number, containing 100 ml curd	Heating temperature	Time of heating (in minutes)	I mixed 100 ml fresh boiled milk with 10gm curd in each bowl at 40°C. to find the result whether new fresh curd obtained after 12- hours
1	Number -1	0°C	5-min	At 0°C, No curd obtained. Only liquid is obtained
2	Number -2	40°C	5-min	Fresh curd is obtained
3	Number -3	50°C	5-min	Fresh curd with more water layer
4	Number -4	60°C	5-min	Very little chunks of curd, distorted structure of curd, not smooth curd.

5	Number -5	100°C	5-min	No curd is obtained, distorted floating chunks only.
---	-----------	-------	-------	--

As shown in the above experiments. It is absolutely clear that activity of enzymes cease at below 0°C temperature and above 60°C temperature. As the temperature increase from 0°C the we are getting good curds up to 45°C temperature. but above 60°C we are getting distorted structure of curds and milk liquid. .

The activity of enzymes drastically cease below 0°C and above 60°C

Experiments 3

In one experiment. I boil some vegetables (Like- carrot, potato, tomato) only for two minutes and compare their appearance with same remaining pieces of vegetables after 12 – hours.

S. No.	Vegetables – carrots, tomatos, potatos. Fresh	Vegetables – carrots, tomatos, potatos. After 12 hours of boiling
1	As fresh as before, eatable and useful	Not fresh as before , not eatable ,not useful

Enzymes in the above said vegetables get deactivated even in two minutes of boiling. It is very alarming that we daily take two diet of cooked food ,fried food , or toasted food without any aid of food enzymes . Daily-deficiency of enzymes in the food will create more force on the body to produce digestive enzymes , thus less production of metabolic enzymes take place in the body and thus less repairing of body tissues combining with less energy production . thus unhealthy body.

We pay a penalty when we force our personal digestive enzymes to digest food, instead of exogenous (outside) enzymes do part of the job by predigestion, according to natures law.

If we eat daily cooked food our body is forced to make too many enzymes for digestion, There is a penalty which is-definitely inescapable and cumulative. It is deceptively unnoticeable when we are young, but when our bodies are permanently forced to make too many enzymes for digestion, the stress of competition for enzymes ,forces our own organism to produce less of the other kinds of enzymes needed to keep all organs and tissues in proper repair and good health.

Results

Metabolic enzymes are more important than digestive enzymes. Smart person will not force their digestive enzymes to do work meant for food enzymes. If this extra burden on the digestive enzymes requires the body to put a strain on producing their multi-functional metabolic enzymes and not have enough of them to carry on their important functions.

Enzymes cannot withstand during cooking, boiling, frying, roasting, stewing, broiling or pasteurizing time. These activities destroy them to the extent of 100%. When we eat a natural food, the enzymes within it are immediately released and begin

to digest it in the mouth, even before being swallowed and our own enzymes are even secreted.

Since wild animals do not cook, what is there to prevent ingested food enzymes from predigesting the food of wild animals. This is the reason that wild animals, birds, sea animals do not fall sick very frequently as human being. In most of the cases wild animals, birds, sea animals do not fall sick throughout their life, because they do not play with the natural system of foods and its digestion. They do not cook their food and thus do not destroying the enzymes and vitamins of the food.

This leaves the human race in the unenviable and isolated position of being the only living creatures forcing their digestive enzymes to suffer the burden of unaided digestion of cooked, fried and toasted food. Food enzymes, functioning at a lower PH, continue digestion of protein, carbohydrate and fats for a longer time than salivary or pancreatic enzymes. As the stomach acid level becomes high, pepsin can continue the digestion of protein where the other left off. There have been dire consequences following use of the enzymes deficient diet, by discovering that the pancreas must enlarge to produce the vast quantities of enzymes necessary when the body is forced to digest all the food daily without the help of food enzymes.

An enlarged pancreas can give out and waste more precious enzymes than a normal organ, but this generous dispensation is not good for the body because it affect and decrease the production of metabolic enzymes to keep all organs and tissues healthy and disease free.

The organism cannot at the same time make very rich digestive enzymes and very rich metabolic enzymes. But a hyper secretion of one kind can be attained only at the cost of a hypo secretion of the other kind of enzymes.

Discussion

If anyone say that food enzymes cannot do any work in the stomach because all enzymes are proteins and food enzymes are digested as are other proteins. But the argument tries to hide the fact, that if the enzymes complex had no special and specific immunity against being digested because it contains proteins what is to prevent one portion of the enzyme pepsin from being digested by the other portion of the same enzymes because they are all proteins. Why do pancreatic proteolytic enzymes not digest each other when they are reducing food proteins to amino acids in the small intestine. It means food enzymes really work in the predigestion of food and help out body to produce less enzymes to digest food .so that our body can produce more metabolic enzymes to keep body disease free.

We all know that our nature has given us plenty of resources of food , medicines, minerals, proteins, carbohydrates , fats, vitamins and enzymes . if enzymes are not urgently required in the food, why nature has put them in the food. It is absolutely true that nature does not provide anything which is useless.

Can I get the answer of the following questions?

1. Human uses cooked food for the last few thousand years. It is very small time in comparison to the existence of human on the earth,. Which is several lakhs years. Even human being start their evolution in this nature millions years before, if the nature is not supporting to the good health and life of its creature , how can they exist for so long time of millions of years without cooked food?
2. Why do doctors says, eat more and more green vegetables?.
3. Why the health and fitness of wild animals are much better than domesticated animals and pets. Which fall sick very frequently and do not match with the fitness, activeness and good health of wild animals?
4. Why are there so many diseases such as kidney disease, skin disease, indigestion, constipation, acidity, diabetes, frequent fever, lungs disease, blood pressure, cardiovascular disease etc. in human? While wild animals are immune to these killer diseases.

The reason of these disease are our life style and our cooked food system, which destroy the capability of different organs of the body to do their job well and immunity to disease.

The ammunition and weapon of the any living bodies to fight with the pathogens, bacteria, viruses and fungi are enzymes, vitamins, these are living indispensable biologically active material. Which really give life to the body.

The continuous deficiency of enzymes, vitamins, minerals and fibers of green vegetables in the cooked food of today's human and during the growth of the children from birth to youth make the human being helpless to fight with the pathogens, bacteria, viruses, fungi etc.

Carbohydrate, fats and proteins etc. only make the animals body but enzymes, vitamins, minerals hormones etc. give real life to these bodies. But these biologically active material get destroyed or damaged during cooking , frying, toasting etc.

Can our body synthesize body proteins, carbohydrates, fats , bones, tissues of organs and repairing work without the aid of food enzymes gives much help to the body enzymes to involve more in the metabolic(anabolic and catabolic) process than to waste more body enzymes in the food digestion

Food enzymes have been ordained by nature over countless millions of years to help digest the food of all creatures including human beings.

Food enzymes are made up of proteolytic food enzymes to digest protein., amylolytic food enzymes to digest carbohydrates, and lipolytic food enzymes to digest fats.

The animals living on raw food, like bird's chicken, swallow intact wheat or corn seeds, they go into the crop. There the seeds swell with moisture and the food enzymes inside the seeds begin to digest the starch, protein and fat before the seeds reach the stomach of the bird. Snakes and many other creatures eat their food by swallowing it entire without chewing. Small snakes swallow live rats,

frogs, as such. Large snakes, such as python, engulf live animals like goat or pig. The body of the hapless victim shows up as a large bolus in the midriff, causing an enormous distention of the stomach of the snake, which allows no room for the snake's enzymes or acid to enter in the body of the victim.

The food enzyme stomach of whale has been found to contain more than a dozen (about 32) seals. In one instance this enormous food enzyme stomach. Which is the first stomach of the Whale's three stomach undergoing digestion by the seal enzymes which now belong to the whale and are the whale's food enzymes now. A remarkable fact elicited by physiologists is that the first stomach (forestomach) has no enzymes or acid of its own at all. Its membranes have no glands to produce enzymes for digestion. Enzymes within the bodies of swallowed animals to digest their own bodies to sufficiently liquid consistency, which enables the food materials to pass through a small opening connecting the first stomach to the second stomach, the second stomach now produce enzymes to continue digestion. The cow has four stomachs, the first three are food stomach or rumen, while the fourth is the smallest and the only one making enzymes.

In ruminating animals the food enzymes stomach harbours protozoa, which are tiny animals that supply enzymes to help food enzymes to digest the bulky herbivorous diet. Plant enzymes are important because they are capable to digest food before body's own digestive process begin. Some doctors give vitamin C with medicines for cold, vitamins A with medicines for viruses infection and a laxative for constipation, while this treatment may relieve patient symptoms, the relief is only temporary because the underlying problem of faulty digestion is ignored.

Conclusion

Thousands of different enzymes – metabolic enzymes are involved in everything going on in the heart, lungs, liver, arteries, blood, muscles – in all organs and tissues.

Enzymes take absorbed food products with their minerals and vitamin and build them into tissues. They repair the body and aim to keep the organs healthy. Metabolic enzymes remove worn out materials from the cells, keeping everything in repair. It can be recognized that this is a far bigger job for enzymes than merely digesting food in the food canal. Which enzymes are more important in our body, digestive enzymes or metabolic enzymes? Let us beware about permitting a metabolic enzyme labor shortage to form, which can induce our problem diseases.

Once enzymes are exposed to heat, they are no longer able to provide the function for which they were designed. Cooked foods contribute to chronic illness. Because their enzyme content is damaged and thus requires us to make our own enzymes to process the food. Digestion of cooked food demands much more energy than the digestion of raw food. In general, raw food is so much more easily digested that it passes through the digestive tract in 1/2 to 1/3 of the time it takes for cooked food.

Each plant, animal and human being can make the enzymes needed to do that which needs to be done in the organism. We know that the human digestive glands can make the enzymes needed to digest our food human saliva and pancreatic juice are fabulously rich in enzymes.

The uninitiated and perplexed reader may reasonably ask why we need the enzymes in the food when our digestive enzymes can do the job so well. "Are not food enzymes superfluous and nonessential". The vast difference between vitamins, fats, proteins, carbohydrates and enzymes and the unique quality that separates enzymes from all other food factors and establishes food enzymes as very special food ingredients, it is fact that the enzymes are extremely vulnerable to destruction by heat. Vitamins are less vulnerable to destruction by heat, during cooking time vitamins also damaged considerably leaving cooked food empty of enzymes and marginal amount of vitamins which leads to the non-repairing of cells or organ's tissues which further leads to the decreased immunity system of the body and thus the unhealthy body becomes the house of pathogens and diseases. Only after the digestive enzymes and catheptic enzymes of the prey have performed the ritual of predigestion, and liquefied the body of the prey, can the snake's enzymes find room in its own stomach to enter in the body of prey, answer is no, it is enzymes of the prey predigest and liquefy it then only enzyme of the snake come into action and digest it.

Anything lowering the efficiency of metabolic enzymes, impairs their ability to keep the organ systems healthy which leads to cardiovascular disease, diabetes, liver, constipation, indigestion, heart and lung diseases etc. The fact that health of people and their domesticated animals does not measure up to the high standards of wild animal's health.

Domesticated and laboratory animals eating a human type diet of cooked food are plagued with several human type serious diseases after they pass the middle of their life span.

On the other hand wild animals are immune to our daily problem disease, cardiovascular disease, diabetes, liver, constipation, indigestion, blood pressure, heart and lung diseases etc. Unless wild animals are exposed to toxic influences, or fed at our garbage dumps.

References

1. *Enzyme Nutrition: The food Enzyme Concept. Executive book summary by Nicholas Calvino, DC of Dr Edward Howell : MD Food enzymes concepts, Woodinville WA -98072 . Pages 01 to 07*
2. *Lopez D A, R M Williams and K Miehke-Author. Enzymes, the fountain of life. Salem , NAQ The Neville Press :1994 pages 51 to 109*
3. *Suzuki H (2015). "Chapter 8: Control of Enzyme Activity". How Enzymes Work: From Structure to Function. Boca Raton, FL: CRC Press. pp. 141–69. ISBN 978-981-4463-92-8.*
4. *Encyclopedia Britannica : Catalase : Enzymes (Biochemistry) written by editors .Pages 01 to 06*

5. Peterson M. E., Eiseenthal R., Danson M. J., Spence A., Daniel R. M. A new, intrinsic, thermal parameter for enzymes reveals true temperature optima. *J. Biol. Chem.* 2004;279:20717–20722. [PubMed]
6. Eiseenthal R., Peterson M. E., Daniel R. M., Danson M. J. The thermal behaviour of enzymes: implications for biotechnology. *Trends Biotechnol.* 2006;24:289–292. [PubMed]
7. Hollander V. P. Acid phosphatases. In: Boyer P. D., editor. *The Enzymes*, vol. 4. New York: Academic Press; 1971. pp. 449–498.
8. Daniel R. M., Danson M. J., Eiseenthal R. The temperature optima of enzymes: a new perspective on an old phenomenon. *Trends Biochem. Sci.* 2001;26:223–225. [PubMed]
9. *Enzymes ,Function and structure RSC Advancing the chemical sciences online contents pages 01 to 04*