

Protein Quality



A Key Issue in Nutrition



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Note: Those with health problems should consult a physician for proper diagnosis and treatment (including dietary aspects) of diseases.

The Primacy of Protein

Protein is one of the most important (the word means "to come first") nutrients. When we look in the mirror, most of what we see is protein. This includes hair and nails, muscle, and skin. The amino acids which are the building blocks of protein are essential for virtually all body structure from the matrix for bone, cell membrane structure, and immune fighting chemicals like protein complement and interferon. Without proper protein intake metabolism slows down and the body becomes susceptible to infectious disease and chronic fatigue.

The Complexity of Protein

The complexity of protein structures of the body is nowhere better described than by molecular biologist Michael Denton. Denton asks us to imagine a simple cell increased in size to the dimensions of a modern city. He then turns to look at the protein molecules:

"We would notice that the simplest of the functional components of the cell, the protein molecules, were astonishingly, complex pieces of molecular machinery, each one consisting of about three thousand atoms arranged in highly organized 3-D spatial conformation. We would wonder even more as we watched the strangely purposeful activities of these weird molecular machines, particularly when we realized that, despite all our accumulated knowledge of physics and chemistry, the task of designing one such molecular machine -- that is one single functional protein molecule -- would be completely beyond our capacity at present and will probably not be achieved until at least the beginning of the next century. Yet the life of the cell depends on the integrated activities of thousands, certainly tens, and probably hundreds of thousands of different protein molecules."

Reference:

Denton, Michael, *Evolution: Theory in Crisis*, Bethesda, Maryland: Alder and Alder, 1985, p. 329.

Protein Presents Problems

Protein is a problematic substance for the body to handle. It is extremely complex. It must be completely broken down before it enters the body. If this does not take place, the body can respond to undigested protein particles with a very strong immune response.

The tendency to respond to large protein molecules with a strong immune response exists because many of the body's worst enemies are largely protein. Bacteria, viruses, and protozoa are largely protein. The body is programmed to initiate a very strong attack against these enemies consisting of foreign protein molecules.

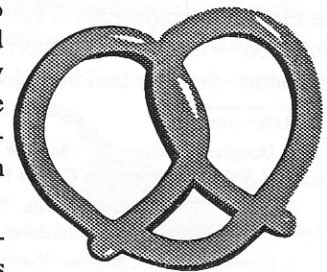
The problem the modern American poses is that many of our foods can elicit the same response as foreign invaders. The fault lies with *either altering foods so that they can not be efficiently digested or loss of the ability to produce adequate digestants.*

The Protection of Protein

The very nature of protein foods is altered by the cooking process. This is readily evident by observing the cooking of an egg. A raw egg blends well in water. A cooked egg will not. The egg has changed from a water loving substance (hydrophillic colloid) to a water fearing substance (hydrophobic colloid). Evidence suggests that even this change can make the protein more difficult to digest. Unfortunately, we do even more serious damage than this to the proteins in our foods.

When a boxed cereal, pretzel, or a cracker is made, the food often turns brown. This is referred to by scientists as the Maillard effect or browning effect. When a food turns brown, the amino acid lysine forms a strong and indigestible bond with sugars in foods. As much as 30% of the protein in a boxed cereal can be affected by this reaction. Indigestible protein poses a toxicological disposal problem for the body.

The most serious denaturing of protein takes place when it is black-



ened in the cooking process. Numerous carcinogens are introduced at this point. Blackened protein foods are an outright health risk.

Unusable Proteins

Cooked foods, especially overheated proteins, have been observed to promote a phenomena called *digestive leukocytosis*. This refers to the *accumulation of large numbers of white blood cells in the region of the digestive tract after a meal*. Leukocytosis is an indication that immune activation has taken place. Dr. Paul Kouchakoff reported this phenomena in 1930.¹

Another indication that consumption of cooked proteins may be a problem is a physiological reaction called *hypertrophy*. Hypertrophy is the growth and adaptation of a tissue in response to stress. This process is analogous to the growth in an arm or leg muscle when it is exercised.

Professor Jackson of the Department of Anatomy at the University of Minnesota conducted an interesting study. He fed rats 80% cooked food and the pancreas of the animals increased 20-30% in weight within 155 days.² Laboratory mice given heat processed foods develop a pancreas which can weigh as much as twice that of wild cousins.³ This indicates overworking of the digestive apparatus, specifically the pancreas, in digestion of cooked food.

Cooked foods may put such demands on the pancreas for digestion that they rob other tissues of the products produced by this important gland. Some feel this may contribute to later development of diabetes or arthritis.

Philpott feels that an exhausted pancreas is a key factor in many degenerative diseases, "Reduced pancreatic function based on stress factors such as addictions, chemical toxins, and allergies, as well as established nutritional deficiencies, should be considered as the foundation on which many different degenerative diseases are built."⁴ Overcooked protein foods could be added to his list of stress factors.

Reduced pancreatic function then leads to a deficiency of amino acids. Philpott clearly states the problem, "It is important to remember that when the pancreas is functioning poorly...there is always an accompanying amino acid deficiency. An amino acid deficiency is a very serious problem because the central nervous system, as well as many other biochemical systems within the body, malfunction when there is a short supply of these necessary nutrients--the very building blocks of life."⁵

References:

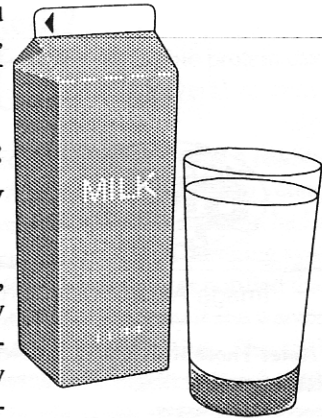
1. Douglass, William C., *The Milk of Human Kindness is Not Pasteurized*, Lakemont, Georgia: Cople House Books, 1985, p. 121.
2. Philpott, William and Kalita, Dwight, *Victory Over Diabetes*, New Canaan, Conn.: Keats Publishing, 1983, p. 63.
3. Howell, Edward, *Enzyme Nutrition*, Wayne, New Jersey: Avery Publishing Group, Inc., p. 82.

4. Philpott, William, and Kalita, Dwight, *Brain Allergies*, New Canaan, Conn., Keats Publishing, 1980, p. 99.

5. *Ibid.*, p. 100.

The Past: More Quality Protein

Until fairly recently, Americans had a quality source of raw, easily digestible protein in the raw milk which they consumed. Unfortunately, the raw milk was not always fresh and bacterial contamination increased infant mortality rates in large cities. In 1889 pasteurized milk was introduced into the United States. The process was developed by a German named Soxhlat who applied Pasteur's work to treatment of milk for infant feeding.



The heat treated milk was introduced in New York which had some of the worst milk. Death rates of children declined. The introduction of heat treated milk led to what this writer likes to call the pasteurization wars.

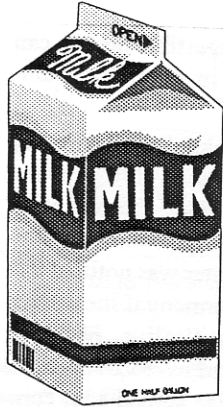
Realizing the bacterial problem, some milk producers wanted to certify raw milk, while others wanted to pasteurize. Heat treating of milk offered obvious economic advantages. Standards of cleanliness were not important and milk could keep much longer.

Vigorous efforts to remove all certified raw milk from the market began just prior to World War II. Most scientists at this time recognized that raw milk was nutritionally superior. Court cases noted that pasteurization caused constipation and indigestion. One judge summarized a case as follows:

"It was shown that doctors generally require raw milk for ailing babies and children; that children who could not flourish on pasteurized milk usually improved in health and flourished on raw milk. There was other evidence to show that one reason for the satisfactory healthfulness of raw milk is that it increases the vitality and resistance of a child because it is easier to assimilate; that the destruction of pathogenic germs by pasteurization was more than counterbalanced by the superior quality of raw milk."

"In addition to the professional evidence offered, the relators offered the testimony of a number of mothers and other raisers of children, and they uniformly testified that children who were not healthful when fed on pasteurized milk were healthful when fed raw milk. The respondents made no attempt to counteract that testimony..."¹

The producers of certified raw milk won this court battle in 1926. With the economic incentive on the side of



pasteurized milk, however, it took over the marketplace. Douglass sums up what has happened,

“Pasteurization was a crime at the turn of the century and the pasteurizer had to lurk in the dark to kill milk. Although all of the sophisticated biochemical knowledge that we have today was not available to them, milk experts knew that heating milk, as in the pasteurization process, was

changing a live food into a dead food and was simply a cop-out for the dairy farmer. It's much cheaper to make dirty milk and then kill most of the bacteria by heating than to maintain a clean dairy with clean cows and clean milk.”²

The issues we face have not changed today. Heating protein foods does destroy many disease causing organisms. It also decreases the digestibility of the protein contributing to digestive problems and inability to obtain total nutrition from protein foods.

References:

1. Douglass, William C., *The Milk of Human Kindness is Not Pasteurized*, Lakemont, Georgia: Copple House Books, 1985, p. 19-20.
2. Douglass, p. 23.

Francis Pottenger's Perspective

The observed changes in the health of people when heated milks were substituted for raw ones is supported by the scientific work of Dr. Francis M. Pottenger, Jr. Pottenger conducted a ten year study in which he fed one group of animals raw protein foods and another heated proteins (2/3 of the diet). Animals consuming heated meat or milk deteriorated physically.

Pottenger noted a number of types of degeneration in his animals given the heated foods. These included osteoporosis, birth defects, changes in disposition, lethargy and fatigue, elongation of the bones, allergies, asthma, and arthritis.

The creation of an allergic state was most interesting. Feeding 2/3 cooked foods resulted in deterioration of the digestive tract. The length increased from 48 inches to 72-80 inches. The loss of tone of the digestive tract was often accompanied by development of allergic responses to milk and other foods.¹

Pottenger concluded that the heating of foods did serious damage in many ways to the nutrient value. Not the least of these was the denaturing of proteins. He concludes one research paper with the following quote in italics in the original, “*It is our impression that the dena-*

*turing of proteins by heat is one factor responsible (for rendering heated foods as imperfect for the maintenance of health).”*²

Other researchers feel that inability to handle protein foods can promote degenerative disease. Dr. Arnold Renshaw of Manchester, England after many years work concluded that “rheumatoid arthritis might be a deficiency disease arising from an inability to deal adequately with protein digestion and metabolism.”³

References:

1. Pottenger, Francis M., *Pottenger's Cats*, La Mesa, Ca.: Price Pottenger Nutrition Foundation, 1983, p. 35.
2. Pottenger, Francis M., “The Effect of Heat Processed Foods and Metabolized Vitamin D Milk on the Dentofacial Structures of Experimental Animals,” *American Journal of Orthodontics and Oral Surgery*, August 1946, pp. 467-485.
3. Howell, Edward, *Enzyme Nutrition*, Wayne, New Jersey: Avery Publishing Group, Inc., p. 134.

Poor Protein = Digestive Problems

Most of the protein foods in the American diet today are very difficult to digest because of the high temperatures applied to them. This both stresses and wears out the digestive tract.

It is small wonder that one of the most rapidly increasing categories of diseases is digestive disorders. One out of three surgeries in the United States are associated with digestive problems. One in ten deaths is due to digestive disease. The problem is a very real one.

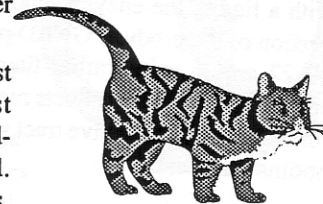
Eating raw meat and fish products is not really the answer. These foods often contain parasites. Exceptions might be certified raw milk products and leafy greens which do have some protein content.

Plunging Digestive Substances

Easily digestible protein becomes increasingly important with age. We know that the ability to produce digestants declines with age. Measurements taken on amylase, a starch digestant found in the saliva have been shown to be thirty times less abundant at the age of eighty than at the age of 25. There is also a marked tendency for production of hydrochloric acid to decrease as one gets older.

Without adequate digestants, foods are not broken down into non allergenic components. The immune system becomes activated against any undigested food particles. The immune system exhausts itself, making the body vulnerable to invasion by viruses and other pathogens.

Indeed, one of the first lines of defense against many invaders is the acidity of the stomach acid. When this acidity declines, the system is opened up to



invasion by pathogens as well as to allergic responses to foods which can not be broken down because of the stomach acid.

Antacids do not resolve digestive problems in most instances. They tend to make the blood alkaline. As a consequence, the blood can not release hydrogen ions necessary to produce hydrochloric acid. With low hydrochloric acid, poor protein digestion takes place and the alkaline secretions of the pancreas are not stimulated. Digestion fails at every step.

The decline of digestive substances with age often means that even with quality protein foods in the diet digestion is not assured. Illness also tends to take its toll on digestive capacity, decreasing the ability to utilize tissue building and repairing amino acids (the building blocks of protein).

Golden Neo-Life Diamite Protein

GNLD protein products are produced with a unique Protogard Process. This process was developed by Dr. Arthur Furst, the founder of the American College of Toxicology. Dr. Furst realized that much of the protein in the modern diet is quite difficult to digest due to heat processing. This difficult to digest protein robs the body of readily available building and repair protein materials.

The solution to this problem was to develop a quality protein supplement which is broken down with three protein digesting enzymes at body temperature. This technology is available in all GNLD protein products. It is important to realize that this is not just addition of enzymes to the product, but rather an actual action of enzymes on the protein raw materials to predigest the product.

The official protein quality assessment method connected with the Nutrition Labeling and Education Act (NLEA) and associated with food labeling regulations is called the Protein Digestibility Corrected Amino Acid Score (PDCAAS). A perfect PDCAAS score would be 1.0. GNLD's exclusive Protogard Process contributed to an extremely high quality protein with a PDCAAS of 1.3!

The enzymatic breakdown of the product is such that a time release effect of the energy from the protein raw materials is available. Some of the protein is completely broken down, some is partially broken down, and some is hardly broken down at all. When the protein is mixed with a liquid, the enzymes are reactivated aiding the digestion of the product. GNLD protein products also have all 22 amino acids rather than just the eight essential amino acids. These products may be particularly valuable for those with a digestive tract which is not functioning at optimal efficiency.

Who Might Benefit?

Supplementation with an easily digestible protein can prove to be a tremendous benefit in several circumstances:

1. **Those with impaired digestion** will find a readily usable source of nutrition. A number of years ago a young man named Reinhardt developed bowel cancer and had a colostomy. After the surgery he developed dumping syndrome and lost weight rapidly. His sister was notified that she should return to his bedside in Germany if she wanted to see her brother while he was still alive. She took GNLD Premium Protein with her and asked Reinhardt's doctor to give it to him. The physician agreed after commenting that he was already receiving the nutrients in the product. Within two hours, Reinhardt's health turned around and he completely recovered.

Digestion of protein foods is often compromised in **old age**, among those who are **ill**, or those with **digestive tract disorders**, particularly **pancreatic or stomach acid problems**.

2. The GNLD protein is of particular value for those with an **addiction to sugars and carbohydrates**. Some studies suggest that high sugar diets are much more damaging if they are unaccompanied by protein. Such diets are common among children and teen-agers in the United States. John Yudkin demonstrated serious damage to eyesight in both animals and human beings when high sugar diets were low in protein.¹ A combination of protein and carbohydrate in the same meal may decrease the quantity of insulin release, decreasing health problems associated with high carbohydrate diets.

The work of Michael Eades suggests that large segments of the American population could obtain benefit from an easily digestible protein product such as we have discussed.² Many of these people comment on how well they feel and how much more energy they have after using a protein supplement for a few days. Groups with large numbers of people addicted to carbohydrates include the **obese, teens, young children, and the criminal population**.

Footnote:

1. Yudkin, John, *Sweet and Dangerous*, New York: Bantam Books, 1972, pp. 132-134.

2. Eades, Michael, and Eades, Mary, *Protein Power*, New York: Bantam Books, 1996.



Toxicologist Dr. Arthur Furst, developer of GNLD's exclusive Protogard Process for handling protein raw materials at a low temperature and making them easier to digest by breakdown with protein-digesting enzymes..