

Death and the Sugar-coated Proteins

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Scientists have now come to realize that one of the most deadly processes in the human body responsible for disease, death and aging is called **glycation**. Glycation is when sugar molecules stick onto proteins where they are not supposed to be.

The structure of proteins determines their function. The protein collagen is like twisted cables of steel which provide strength to tissues. Another protein's crystalline structure becomes the lens in the eye. Proteins provide the motor fibers for muscle contraction. Enzymes are protein tools for high speed chemical reactions – and all of life's processes are chemical reactions. What we are and do is defined by the proteins we are made of.

When sugar molecules become attached to a protein they change the shape or structure of the protein. And changing the structure of a protein makes it unable to fulfill its function as God designed it to.

The amount of sugar in the diet has increased several thousand percent over the last century compared to what it has been throughout the history of the world. Sucrose from sugar cane first produced by slave labor and exported around the world by wind powered ships – is now produced in even more massive amounts in huge factories and added to most foods. The "average" 5 year old today ate over 50 pounds of sugar last year. Then in the 1970s they developed high fructose corn syrup which is cheaper and even more harmful to the human body than sucrose and it has now become the major ingredient of sodas and most other sweetened foods – further increasing the massive sugar load which flows through our arteries to every cell in our body.

As the amount of sugar in the diet increased so did the incidence of hypertension, diabetes, heart attacks, strokes, cataracts, neurodegenerative disorders and much much more. And now we are beginning to understand why this is so. Some of the sugar attaches itself onto a protein molecule, this attachment becomes permanent and then the protein is forever ruined. We call these permanently ruined proteins **advanced glycation end products** or AGEs. This same glycation process can also affect fats in the body and we call this process lipid glycation and it is just as devastating.

Cataract development in the lens of the eye is due to this process. The sagging wrinkled skin of aging is due to glycation of the collagen of the skin. The delicate endothelial layer lining our blood vessels is very susceptible to this process and we now know that the major factor in the development of atherosclerosis (which will result in hypertension, heart attacks and strokes) is a major inflammatory response by the body's immune system reacting to these AGEs in the artery walls. 50% of people who have a heart attack have a normal cholesterol level – but they all have this inflammatory process going on in their artery walls. AGEs in the microscopic filters of the kidneys are responsible for renal failure. In the retina of the eye they can produce

retinopathy and blindness. When proteins inside of neurons become glycated painful neuropathy is the result. In the brain age-related dementias show evidence of AGE accumulations and cellular disintegration.

Understanding this mechanism explains why diabetics have an even more accelerated progression of these disease processes. Doctors often check a hemoglobin-A1c to know the extent of this glycation process in diabetics. Hemoglobin-A1c is hemoglobin which has been glycated (glycated hemoglobin is nonfunctional and cannot carry oxygen). Non-diabetics often have a level of 5% while a diabetic in good control of their sugars may have level of 7% and an out of control diabetic may be 15% or more.

As discerning Christians begin to understand this glycation process they realize that much of the misery and disease in our land today is the result of our having departed from the simple dietary instructions given to the human race on the day that God created Adam and Eve. The fruits and seeds of the plants God made eaten in the form which God provided is the key to the prevention of disease and the regaining of health.

God understood the chemistry of glycation and besides giving us a perfect diet he also provided many protective agents to help prevent glycation of our body's proteins. Vitamin B6 found in whole grains nuts and seeds and many other whole plant foods is probably the most powerful antiglycating agent known. So effective in preventing the progression of diabetes complications like renal failure, retinopathy, and neuropathy that in January of this year the FDA declared that it is now illegal for vitamin pills to contain the most effective form of this vitamin (pyridoxamine) – it is now considered an investigation drug – so maybe after a decade of clinical trials it will become available again as an expensive prescription only drug.

Many are outraged that Americans should be deprived of the most effective treatment for so many devastating conditions in order to preserve the profits of a pharmaceutical company. But the activated form of Vitamin B6 in the body (pyridoxal-5'-phosphate) is still available as a supplement for those who need a supplement. But consider that even the now banned pyridoxamine form is freely available in walnuts, carrots and many more foods. And for those with extensive glycation complications who need antiglycation supplementation the following are also effective and often taken together with B6 as they act on different aspects of glycation: carnosine, acetyl-L-carnitine, alpha-lipoic acid and benfotiamine.

The only people who will be deficient in B6 are those who eat the processed, refined diet of the world we live in. God is calling out a people to prepare for heaven and part of that preparation is learning to appreciate and live on the diet of heaven. The following advice given over a century ago is even more applicable today:

“Grains and fruits prepared free from grease, and in as natural a condition as possible, should be the food for the tables of all who claim to be preparing for translation to heaven. Far too much sugar is ordinarily used in food.” *EGW Counsels for the Church p.223*