

The Diabetic Double Whammy

Reversing Diabetes Type II, Glucose-Ascorbate Antagonism, and their Impact on Reversing Heart Disease

Excerpt from the Pauling-therapy Handbook

"If you are an American diabetic, your physician will never tell you that most cases of diabetes are curable. In fact, if you even mention the "cure" word around him, he will likely become upset and irrational" - Thomas Smith

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Medical doctors often call to ask, "*If Linus Pauling was correct that a chronic vitamin C deficiency causes cardiovascular disease, why then do patients respond so well after we put them on Omega-3 fish oils?*" There was no definitive answer to this question until I read and understood the writing of Mr. Thomas Smith (HealingMatters.com). Mr. Smith was a Type II diabetic who cured himself in three months.

All Nutrients Enter Cells Through Cell Membranes.

Thomas Smith wrote that his cure was the result of his personal independent research of the history and science of diabetes. Smith began reviewing the scientific literature after conventional medicine failed him. His investigations led him to the conclusion that man-made, highly processed trans fatty acids (e.g. hydrogenated oils) are the root cause of the most common form of diabetes. Smith cites research showing that these toxins in the diet disturb cellular membranes. Cells begin to have trouble absorbing nutrients, particularly the sugar glucose, which remain in the blood. The most noticeable symptoms of this condition are elevated blood and urine sugar levels. Patients are diagnosed Non-Insulin Dependent (Type II) diabetes. (*Note: The disease condition is sometimes*

(called Syndrome X and metabolic syndrome. Conventional medicine claims that the cause is unknown and medical doctors do not accept Smith's etiology.)

Even more astonishing, Smith asserts that the damage to cell membrane caused by a poor diet can be repaired and the diabetic syndrome cured. He recommends eliminating all processed fats and oils. The protocol calls for supplementing high-dose Omega-3 fatty acids. As blood sugar levels begin to decline, healthful natural fats and oils are slowly added to the diet.

Smith writes that after he adopted this protocol his blood sugar dropped from 385 mg/dl to 85 mg/dl in 103 days. He claims that such reversals are possible in Type II diabetics because the body is continuously repairing cell membranes by using the fats and oils available in the diet. However, he says that the speed of recovery is related to the length of the illness (i.e., the number of damaged cell membranes). Some Type II diabetics may require up to one year for dramatic reductions in blood sugar.

Vitamin C Competes with Glucose For Insulin Pumps

Diabetics are probably not absorbing other nutrients from the blood as well. Vitamin C is structurally similar to glucose and the vitamin has a short half-life in the blood stream. It should concern medical professionals that vitamin C and glucose molecules share the same insulin-mediated tunneling mechanism into cells through the membrane.

In the 1970s, Emeritus Professor John T. A. Ely, University of Washington, proposed his Glucose-Ascorbate Antagonism (GAA) theory that predicts high glucose levels hinder vitamin C entry into cells. Animals which make their own vitamin C use dietary glucose as the raw material and the ascorbate and glucose molecules are similar. The similarity extends past molecular structure to the way they are attracted to, and enter, cells. Both molecules require help from the pancreatic hormone insulin before they can penetrate cell membranes using special "pumps." The name for the process that propels glucose and Vitamin C (the reduced form) through cell membranes is Insulin-mediated uptake.

Ely studied the insulin-mediated uptake of glucose and vitamin C using white blood cells. White blood cells have more insulin pumps and they may contain 20 times the amount of vitamin C as ordinary cells. Dr. Ely explains that both glucose and vitamin C molecules compete, but all things are not equal. The evolutionary "fight-or-flight" response favors glucose entry into cells at the expense of vitamin C. Because of this antagonism between sugar and Vitamin C, Ely recommends a low-carbohydrate, low-processed sugar diet.

Professor Ely told this author that he had advised Linus Pauling of the GAA theory and its prediction that Vitamin C would be less effective fighting colds in those who did not restrict their sugar intake. Recently, Ely and associates conducted a study on the common cold to test the GAA theory. Sugar and refined carbohydrates were restricted in the subjects. According to Dr. Ely, the remarkable (soon to be published) results showed an overwhelming preventive and curative property of vitamin C against the common cold in subjects with reduced sugar intake. (*Presumably these subjects did not suffer the cellular membrane malfunction commonly diagnosed as Diabetes Type II*).

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Combining these ideas, we postulate that cells that can't absorb glucose are not absorbing vitamin C either. As blood glucose levels rise, the GAA theory predicts that vitamin C uptake is greatly diminished throughout the body, even in cells with undamaged insulin pumps. Our conjecture is that the serious health consequences of prolonged Type II diabetes, e.g. blindness, wounds that won't heal, limb amputation, etc., are the result of the lack of vitamin C inside cells.

We may now more intelligently answer the question as to why heart patients do well on high-dose Omega-3 oil supplementation. Healthful omega-3 fatty acids, such as those found in flax seed and fish oils, promote healthy cell membranes allowing more nutrients to pass into cells. Theoretically, there would be more benefit from Omega-3 supplementation after the primary cause of membrane damage, trans fatty acids, are eliminated from the diet. As cell membranes become permeable, sugar molecules leave the blood stream lowering blood sugar, making vitamin C more bioavailable. Finally, we postulate that the cellular membrane problem hindering the uptake of glucose in diabetics also hinders their cells from obtaining vitamin C.

Heart patients, whose condition improves on Omega-3 oils, will improve even more as they eliminate processed foods, and follow Linus Pauling's [recommendation](#) to increase their vitamin C dosage to individual [bowel tolerance](#).