



Part 3 of a Three-Part Series: New Nutritional Agents for People With Diabetes and Prediabetes

By Melissa Diane Smith

So far in this series, you've read about essential nutrients and key antioxidants that play important roles in nutritional therapy for diabetes and prediabetes. This article focuses on some "new" kids on the block— a newly developed nutrient combination and two antioxidant supplements that aren't exactly new but aren't well-known household names like vitamins C and E.

A New Product: Chromium + Biotin

As you learned in Part 1, chromium picolinate by itself is very effective for reversing insulin resistance. However, a new product that seems to be even more therapeutic for those with diabetes is now available. It's a patented composition of chromium picolinate plus biotin called Diachrome™ . It comes in the form of a convenient capsule that contains 600 mcg chromium (as chromium picolinate) and 2 mg biotin and is taken just once a day. As with chromium picolinate, supplementation with Diachrome may reduce the need for insulin or hypoglycemic drugs.

The product was developed after researchers tried to find nutrients that worked synergistically with chromium to improve glucose and fat metabolism. They investigated several different nutrients, including biotin, a B-family vitamin that had been found in other experiments to aid in managing blood sugar. Researchers found that biotin worked best with chromium picolinate for improved effects.

Muscle cell culture studies and Syndrome X animal model studies conducted at the University of Vermont College of Medicine and the Chicago Center for Clinical Research have found that the chromium picolinate-plus-biotin combination leads to enhanced blood sugar control and improvements in cholesterol profiles. **View Results**

Early human studies also have been encouraging. One double-blind, placebo-controlled (DBPC) study involved people with diabetes who drank a high-carbohydrate, meal-replacement-type drink twice daily. In the control group of diabetic patients who did not receive Diachrome, fasting blood glucose levels and glycated hemoglobin levels skyrocketed. However, these levels did not significantly change in the group of diabetic patients who took the nutrient

combination. This means that Diachrome significantly controlled some of the negative effects of sugar intake in those with diabetes. In addition to glucose improvements, there was also a significant improvement in blood lipid profiles in the group who took Diachrome. **View Results**

A nutrition intervention program, called the Diachrome Patient Experience Program (PEP), involved more than 100 participants. Patients worked with their diabetes educators and received educational literature, the Diachrome nutritional supplement, and a home blood glucose monitor. At the end of 12-weeks, fasting and postprandial blood sugar levels, as well as HbA1c levels, were significantly improved. The first PEP data have been accepted for poster presentation at the International Diabetes Federation in August.

Several other controlled human studies using Diachrome – such as a 600-patient DBPC study with Diabetex, the nation's fifth largest diabetes disease management company, and a DBPC study at Oakland Children's Hospital involving 90 adult and pediatric patients with type 2 diabetes -- are currently being conducted. Results will be presented in 2003 and 2004. In total, 25 published clinical studies involving more than 1,650 patients with diabetes support the ability of Diachrome's active nutrients, alone and in combination, to stabilize blood sugars safely and effectively.

The Antioxidants Lutein and Coenzyme Q10

In Part 1 of my article series, I discussed the beneficial effects of the antioxidants vitamin C, vitamin E and alpha-lipoic acid. The effects of two less-well-known antioxidants, lutein and coenzyme Q₁₀, also deserve mention.

Lutein

Carotenoids are plant pigments in fruits and vegetables that do double duty as antioxidants. The carotenoid you're most familiar with is probably beta-carotene, which can be converted in the body to vitamin A. But lutein and zeaxanthin (which the body converts from lutein) deserve special attention. Found in kale, spinach, other leafy green vegetables and egg yolks, these nutrients are the dominant carotenoids that protect our eyes. If consumed regularly from food, the two carotenoids protect against cataracts and significantly cut the risk for macular degeneration, a deterioration of central vision that's responsible for about one-third of all new cases of blindness every year.

Studies have shown improvements in vision from supplementation with lutein in patients with macular degeneration and in patients with cataracts. People who have diabetes are at higher risk for developing cataracts and macular

degeneration, so they may get extra benefit from supplementation with lutein (in addition to eating a diet rich in vegetables and fruits). Lutein can be found as a stand-alone supplement or in some antioxidant formulas and once-a-day multivitamin/mineral formulas. The standard dosage is 5 to 20 mg per day.

Coenzyme Q₁₀

Coenzyme Q₁₀, also known as CoQ₁₀, is a free-radical-quenching antioxidant that also plays a key role in the creation of energy in cells. All organs with high energy demands need a lot of CoQ₁₀, and first among these is the heart. CoQ₁₀ is particularly well-researched as an effective nutritional therapy for cardiomyopathy and congestive heart failure. But studies have shown that supplementation with CoQ₁₀ (120 to 200 mcg per day) also significantly decreases systolic and diastolic blood pressure in both hypertensive and type 2 diabetic patients. The researchers of one of these studies suggested that CoQ₁₀ works by quenching free radicals and normalizing the insulin response to glucose.

Though our cells manufacture CoQ₁₀, they don't always do this very efficiently, especially as we age. People who are at special risk for CoQ₁₀ deficiency are patients who take statins, one of the most popular classes of cholesterol-lowering drugs. Statin drugs inhibit the body's production of cholesterol at a point that also blocks the body's production of coenzyme Q₁₀. A lack of CoQ₁₀ appears to be a primary cause of heart failure. Therefore, people who take statin drugs to lower blood cholesterol are in special need of CoQ₁₀ supplementation.

Like lutein, most CoQ₁₀ supplements are best absorbed with a little fat or oil -- in other words, take them with a meal or a teaspoon of sugar- and salt-free almond butter or peanut butter. A small percentage of CoQ₁₀ supplements are water-soluble, and these are well absorbed with or without food. Dosages commonly range from 30 mg to 200 mg daily, with the higher amounts most appropriate for people with heart disease. CoQ₁₀ is extraordinarily safe, but it can reduce the need for heart medications or diabetes medications. Be sure to be mindful of this when working with your diabetes patients and their doctors.

Parts of this article were excerpted and adapted from Chapters 5 and 6 in User's Guide to Preventing and Reversing Diabetes Naturally (Basic Health Books, June 2003) by Melissa Diane Smith and from Chapter 9 in User's Guide to Chromium (Basic Health Books, 2002) by Melissa Diane Smith.

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