

Diabetes mellitus: Nutritional protocol and analysis

Most of our patients are familiar with the basic dietary recommendations and supplement protocols for diabetes mellitus. However, fine-tuning dosages and an explanation of how these supplements work can promote nutritional compliance.

Good glycemic control generally requires elimination of all refined sugars and other carbohydrates. There are various refinements that will optimize glycemic control that need to be tailored to specific patient profiles. For example, avoidance or elimination of high fiber in patients with hyperkalemia or renal failure and elimination of dairy in insulin-dependent diabetics may prevent further destruction of islet cells.

Here's the basic diabetes protocol with an explanation of possible mechanisms of action:

- **Alpha-lipoic acid:** Antioxidant that has the ability to penetrate deeply into tissues. It's been studied and shown some success in the treatment of diabetic neuropathy. It should be supplemented with B vitamins.
- **Chromium:** Component of glucose tolerance factor enhances the cellular activity of insulin. It's been shown to reduce blood glucose and HgbA1C levels in diabetics at a dose of 1,000 mcg per day. (Interestingly, it has been shown to have no effect on blood sugar stabilization in non-diabetic patients.)
- **Gymnema sylvestre:** Reduces blood glucose levels in diabetic patients and may promote regeneration of pancreatic islet cells.
- **L-carnitine:** Facilitates the transport of fatty acids into cells. (Good fats). Carnitine will promote better energy and is used in all of our cardiovascular treatment protocols. It's been shown to improve exercise tolerance in angina patients, improve walking ability in intermittent claudication and show clinical improvement in CHF patients.
- **Vitamin E:** Antioxidant that may improve glucose tolerance. It's part of the cardiovascular disease protocols.
- **Taurine:** Decreases platelet aggregation. Taurine deficiency, which is common in diabetes, may contribute to diabetic retinopathy and cardiovascular disease. It's also a natural diuretic.
- **Thiamine:** B vitamin involved in energy metabolism and proper functioning of the nervous system. Deficiencies can result in neuropathic pain. It may improve cardiac function and is therefore an integral part of the cardiovascular protocol. The level is typically depleted in patients who use diuretics.
- **Pyridoxine:** Inhibits glycosylation of proteins. This may prevent some of the micro and macrovascular organ damage associated with diabetes.
- **Niacin:** May enhance the effects of chromium. Liver function tests must be monitored. Helps optimize lipid profile.
- **Niacinamide:** Preserves beta-cell function in newly diagnosed insulin-dependent diabetics. Increases insulin release in certain type 2 diabetics who are not able to control blood glucose levels with only sulfonylureas.
- **Biotin:** Reduces blood glucose levels.
- **Magnesium:** May decrease insulin resistance. Levels are typically low in diabetes.

- **CoQ10:** Promotes increased energy. Part of electron transport chain. Integral to cardiovascular protocols.
- **Vitamin C:** Inhibits glycosylation of proteins. Prevents accumulation of sorbitol in tissues. Both of these inhibitory mechanisms may prevent end organ damage.
- **Quercetin:** Antioxidant. Vitamin C sparing effect. Stabilizes cell membranes.
- **Milk thistle (silymarin):** Antioxidant. Group of flavonoid compounds. Prevents depletion of glutathione, enhances the liver's ability to detoxify. Makes liver cells less susceptible to damage.
- **Multi-mineral supplement:** Zinc, copper and manganese help stabilize blood glucose.

All of these supplements should be properly dosed and reviewed in relation to each patient's history and medication list. They all have potential interactions with certain medications and with one another and should be administered under the supervision of a health care practitioner.