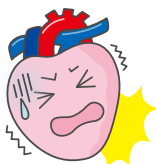


Nutraceuticals in the management of Diabetes

As a complex metabolic disorder, Diabetes Mellitus (DM) associations include the development of insulin resistance, the impairment of insulin signaling and β -cell dysfunction, abnormal glucose and lipid metabolism, chronic inflammation and increased oxidative stress. The most detrimental complications of poor blood sugar control in DM include heart disease, blindness, kidney failure, and lower-extremity amputations.

Stroke & heart disease: People with diabetes are two to four times more likely to have a stroke than non-diabetic patients. They also tend to develop heart disease, or have strokes at an earlier age than people without diabetes. People with diabetes usually have significantly elevated blood glucose levels, which their energy starved cells are unable to utilize. Over time, this excess



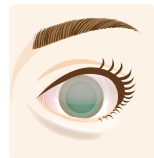
glucose can lead to increases in fatty deposits or clots on interior blood vessel walls. These clots can develop locally and directly restrict the circulation (called ischemia) in the brain or neck (thrombotic stroke), or originate from a breakaway clot that may flow from another region (embolic stroke), cutting off the blood supply, preventing oxygen delivery and resulting in a stroke.

Kidney disease: The kidneys possess millions of tiny blood vessels with many tinier holes. Acting as filters the kidneys strain out the waste products and retain useful substances. Diabetes can damage this blood filtration system. High levels of blood sugar make the kidney work extra hard. After many years, the kidneys begin to leak and useful protein is lost in the urine (proteinuria). In time,



the stress of overwork causes the kidneys to lose their filtering ability. Waste products then start to accumulate in the blood. Finally, the kidneys fail.

Eye complications: You may have heard that diabetes causes eye problems and may lead to blindness. Diabetic retinopathy (DR) is a chronic progressive, potentially sight-threatening disease of the retinal microvasculature, associated with the prolonged hyperglycemia of diabetes and with other diabetes-linked conditions, such as hypertension.



Other conditions associated with diabetes and the eyes include cataracts, glaucoma, and ocular motor nerve palsies.

Foot complications: Diabetics can develop many different foot problems which left untreated tend to worsen and lead to serious complications. Most frequently, foot problems occur when nerve damage or neuropathy. The resultant tingling, burning or stinging and weakness in the foot can also cause loss of feeling in the foot, so people with diabetes can injure it and not know it. Poor blood flow or changes in the shape of your feet or toes may also cause problems.

Even though a low-fat diet, lower-glycemic-index diets, exercise, and weight control can help to prevent diabetes, further treatment seems to be necessary for people who will not follow the above measures. For most of the drugs in use to prevent or treat diabetes

there are effective equivalent nutraceuticals which have no side effects. Research indicates that natural and safe nutraceutical supplements, in combination with a healthy life style including exercise can greatly reduce or prevent the health damage from diabetes and its risk of occurrence.



Nutraceuticals formula for diabetes management-GlucoHealth

Chromium yeast: An essential mineral, chromium plays a necessary role in glucose metabolism and lipid homeostasis. Any chromium deficiency will result in impaired glucose tolerance and an elevated blood glucose level. Findings from a current study demonstrate a direct correlation between chromium consumption and statistically significant

decreases in levels of fasting blood glucose, HbA1C, triglyceride, with a simultaneous increase in HDL cholesterol. Generally, a daily supplementation of approximately 200 mcg provides beneficial results for people with impaired glucose tolerance. However, people with more overt impairments in glucose tolerance and diabetes usually require more than 200 mcg.

Bitter melon extract: Bitter melon functions as an alternative therapy for diabetes since components of bitter melon extract have structural similarities to insulin. Some evidence indicates that bitter melon may decrease hepatic gluconeogenesis, and increase hepatic glycogen synthesis. Bitter melon also increases insulin secretion of the pancreas, decreases intestinal glucose uptake, and increases uptake and utilization of glucose in peripheral tissues.

Antioxidant of vitamins & minerals: The cumulative effects of diabetes are system-wide, and cause both vascular and neurological damage. Oxidative stress is believed to play a critical role in diabetic complications since documented increased levels of oxidative stress markers occur concomitantly with decreased antioxidant levels. Researches show that antioxidant nutrients such as vitamin C, E and zinc are able to reduce oxidative damage caused by free radicals and thus decrease the risk of complications like retinopathy, nephropathy, diabetic cataract, and neuropathy. Improved endothelial function, retinal blood flow and reduced atherosclerosis provide further evidence for the benefit of these antioxidant nutrients. Therefore, people with diabetes may have greater antioxidant requirements making additional appropriate, nutrient supplementation critical in counteracting excessive free radical production.

Bilberry: Bilberry has beneficial effects in microvascular abnormalities of diabetes, particularly for retinopathy with anthocyanosides the most important constituent, in its critical role in the prevention of diabetic cataracts.

Evening primrose oil (EPO): The potential therapeutic effects of evening primrose concentrate are revealed in the prevention of diabetic microvascular complications. EPO also might aid in stabilizing neural transmission in diabetic patients. Both Bilberry and EPO help improve capillary fragility and reduce inflammation.