

PUGOS nutrition for prevention & control of diabetes

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ABSTRACT

Diabetes is a multifactorial disease leading to several complications, and therefore demands a multiple therapeutic approach. Patients of diabetes either do not make enough insulin or their cells do not respond to insulin. In case of total lack of insulin, patients are given insulin injections. Whereas in case of those where cells do not respond to insulin many different drugs are developed taking into consideration possible disturbances in carbohydrate-metabolism. For example, to manage post-prandial hyper-glycaemia at digestive level, glycosidase inhibitors such as acarbose, miglitol and voglibose are used. These inhibit degradation of carbohydrates there by reducing the glucose absorption by the cells. To enhance glucose uptake by peripheral cells biguanide such as metformin is used. Sulphonylureas, like glibenclamide, is insulin tropic and work as secretogogue for pancreatic cells. Although several therapies are in use for treatment, there are certain limitations due to high cost and side effects such as development of hypoglycemia, weight gain, gastrointestinal disturbances, liver toxicity etc. Based on recent advances and involvement of oxidative stress in complicating diabetes mellitus, efforts are on to find suitable antidiabetic and antioxidant therapy.

Medicinal plants are being looked upon once again for the treatment of diabetes. Many conventional drugs have been derived from prototypic molecules in medicinal plants. Metformin exemplifies an efficacious oral glucose-lowering agent. To date, over 400 traditional plant treatments for diabetes have been reported, although only a small number of these have received scientific and medical evaluation to assess their efficacy. The hypoglycemic effect of some herbal extracts has been confirmed in human and animal models of type 2 diabetes. The World Health Organization Expert Committee on diabetes has recommended that traditional medicinal herbs be further investigated. The present paper reviews the role of Pugos Nutrition for prevention & treatment of Diabetes.

Keywords: Diabetes, Herbal neutraceuticals

INTRODUCTION

Phenotypic Nutrition, A powerful strategy called phenotypic nutrition can help modulate the expression of your unique code, thus dramatically reducing your risk of developing disease. Phenotypic nutrition uses specific nutrients with the biochemical & genetic effects to help protects the body from Diseases.

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multiple therapeutic approach. Patients of diabetes either do not make enough insulin or their cells do not respond to insulin. In case of total lack of insulin, patients are given insulin injections. Whereas in case of those where cells do not respond to insulin many different drugs are developed taking into consideration possible disturbances in carbohydratemetabolism. For example, to manage post-prandial hyper-glycaemia at digestive level, glycosidase inhibitors such as acarbose, miglitol and voglibose are used. These inhibit degradation of carbohydrates there by reducing the glucose absorption by the cells. To enhance glucose uptake by peripheral cells biguanide such as metformin is used. Sulphonylureas, like glibenclamide, is insulin tropic and work as secretogogue for pancreatic cells. Although several therapies are in use for treatment, there are certain limitations due to high cost and side effects such as development of hypoglycemia, weight gain, gastrointestinal disturbances, liver toxicity etc. Based on recent advances and involvement of oxidative stress in complicating diabetes mellitus, efforts are on to find suitable antidiabetic and antioxidant therapy. Medicinal plants are being looked upon once again for the treatment of diabetes. Many conventional drugs have been derived from prototypic molecules in medicinal plants. Metformin exemplifies an efficacious oral glucose-lowering agent. To date, over 400 traditional plant treatments for diabetes have been reported, although only a small number of these have received scientific and medical evaluation to assess their efficacy. The hypoglycemic effect of some herbal extracts has been confirmed in human and animal models of type 2 diabetes. The World Health Organization Expert Committee on diabetes has recommended that traditional medicinal herbs be further investigated.

DIABETES MELLITUS -PATHOPHYSIOLOGY

It is a disorder of carbohydrate metabolism wherein there is abnormal rise in blood glucose due to lack of insulin or lack of insulin resistance or a combination of both factors.

Diabetes mellitus is of two types

Type-1

Insulin Dependent Diabetes Mellitus (IDDM)-In this condition, there is no production of insulin by the pancreas and the patient is totally dependent upon externally administered insulin. Type 1 diabetes is primarily due to autoimmune-mediated destruction of pancreatic β -cell islets, resulting in absolute insulin deficiency. People with type 1 diabetes must take exogenous insulin for the survival to prevent the development of ketoacidosis. Its frequency is low related to type 2 diabetes, which accounts for 90% of the case globally.

Type-2

Non-Insulin Dependent Diabetes Mellitus (NIDDM)-This condition is caused by the following factors:-

- a. Insufficient production of insulin from pancreas.
- b. Peripheral resistance by the cells to the action of available insulin.
- c. Both a and b.

Type 2 diabetes is characterized by insulin resistance and/or abnormal insulin secretion, either of which may predominate. People of type 2 diabetes are not dependent on exogenous insulin, but may require it for controlled blood glucose levels if this is not achieved with diet alone or with oral hypoglycemic agents.The epidemic diabetes relates particularly to type 2 diabetes.

EPIDEMIOLOGICAL FACTS

Diabetes mellitus is caused by pronounced changes in human environment, and in human behavior and lifestyle, which have been a part and parcel of globalization, and these have resulted in escalating rates of both obesity and diabetes. Hence the recent adoption of the term "diadesity" was first suggested by Shafrir several decades ago.

	Year-2000	Year-2010	% Increase
World	15.1	22.1	46%
North America	14.2	17.5	23%
South America	15.6	22.5	44%
Africa	9.4	14.1	50%
Europe	26.5	32.9	24%
Asia	84.5	132.3	57%
Australia	1.0	1.3	33%

TABLE: Number of people with diabetes (in millions) and the percentage increase over last 10 years.

The global figure of people with diabetes is set to rise from current estimate of 150 million to 220 million in 2010, and 300 million in 2025. Most cases will be on type 2 diabetes, which is strongly associated with sedentary lifestyle and obesity.

AETIOLOGICAL DETERMINANTS AND RISK FACTORS OF TYPE 2 DIABETES

Genetic factors

• Genetic markers, Family history, "Thrifty gene(s)".

Demographic characteristics

• Sex, Age, Ethnicity.

Behavioral -lifestyle-related risk factors

- Obesity (including distribution of obesity and duration).
- Physical inactivity.
- Diet.
- Stress.
- "Westernization, urbanization, modernization".

Metabolic determinants and intermediate risk categories of type 2 diabetes

- Impaired glucose tolerance.
- Insulin resistance.
- Pregnancy-related determinants (parity, gestational diabetes, diabetes in offspring of women with diabetes during pregnancy).

Diabetes is a chronic disease where the body does not make enough insulin, or becomes insensitive (resistant) to the insulin that is produced.

When we consume food, it is broken down into glucose, which causes a rise in blood glucose levels. Insulin is a hormone secreted by the pancreas in response to that rise in blood sugar. Insulin's role is to transport glucose from the bloodstream into the cells to be used for energy.

There are three main types of diabetes

Type 1 diabetes is responsible for approximately10 percent of cases and occurs when the pancreas produces little or no insulin. The exact cause of type 1 diabetes is unknown, but it is thought that the immune system attacks and destroys the insulin-producing cells of the pancreas. Genetics may also play a role. Type 1 diabetes was previously known as juvenile diabetes or insulindependent diabetes because it typically appears during childhood or adolescence, and people who get this form require insulin injections to manage their blood sugar.

Type 2 diabetes is the most common form, accounting for about 90 percent of people with diabetes. This form occurs when the pancreas does not produce enough insulin or when your cells become resistant to the action of insulin. Obesity, inactivity, and poor diet (eating too many highglycemic foods) are some of the causes of type 2 diabetes.

In the past, type 2 diabetes affected primarily adults. However, a growing number of children and adolescents are being diagnosed today.

The third type of diabetes is gestational diabetes, a temporary condition that occurs during pregnancy. It affects approximately 3.5 percent of all pregnancies and involves an increased risk of developing diabetes for both mother and child.

All forms of diabetes can have serious consequences if left untreated. There is nocure for diabetes, but there is much that can be done from a lifestyle perspective to improve blood sugar control and prevent potentially life-threatening complications.

Blurred vision

High blood sugar causes fluid to be pulled from all tissues, including the lenses of the eyes, which can affect vision.

- Fatigue and irritability
- Hunger

Your muscles and organs become energy depleted because insulin is not able to move glucose into your cells, which can trigger persistent hunger.

Impaired wound healing or frequent infections.Increased thirst and frequent urination

As excess sugar builds up in your bloodstream, fluid is pulled from our tissues, which can make you thirsty, so we may drink and urinate more than usual.

Weight loss

Even though food intake may be increased, weight loss can occur because your muscles and fat stores may shrink because they are not getting the necessary glucose.

Dietary Recommendations

Foods to include

• Cinnamon contains compounds that work synergistically with insulin, helping to reduce blood sugar levels. One study found benefits with

just ¹/₂ tsp daily. Add cinnamon to your cereal, oatmeal, or breakfast shakes.

- Chromium is essential for blood glucose regulation. It is found in brewer's yeast, whole grains (especially wheat germ), onions, and garlic.
- For a natural and healthy sugar substitute, try stevia or xylitol.
- High-fibre, low-glycemic (slow-release) carbohydrates such as whole grains (whole wheat, oats, brown rice, spelt), vegetables, fruits, and legumes help to balance blood sugar.
- Protein (lean poultry, meat, and fish) and healthy fats (nuts, seeds, olive oil, and flaxseedoil) in each meal will slow carbohydrate digestion and promote better blood sugar control.
- To promote steady blood sugar levels, eat small, frequent meals (every three hours).

Foods to avoid

- Alcohol can cause either high or low blood sugar depending on how much you drink and if you are eating while drinking. Limit alcohol intake to no more than two drinks daily.
- High-glycemic (quick-release) carbohydrates such as white bread and baked goods, refined cereals, potatoes, white rice, and sugar (candy, cookies, soda) cause rapid and profound increases in blood sugar, creating a problem for diabetics. Studies have also found that those who eat high-glycemic diets are also at increased risk of developing type 2 diabetes.
- Saturated fat (animal products such as meat and dairy) can worsen blood glucose control.

Lifestyle Suggestions

- Lose excess weight. Being overweight can impair insulin sensitivity.
- Get regular physical activity. Aim for 30 minutes to one hour of moderate intensity activity each day, such as brisk walking, cycling, or swimming. Exercise helps with weight management and also improves blood glucose control and insulin sensitivity.
- Don't smoke. People with diabetes who smoke are at greater risk for heart, kidney and eye disease, and nerve damage.
- Manage your stress. Stress triggers the release of hormones that impair insulin sensitivity. Try yoga, meditation, and other relaxation techniques.

- Practice good oral hygiene. Brush your teeth at least twice a day and floss daily to reduce the risk of gum infection.
- Take care of your feet. Diabetics are prone to nerve damage, which can make sores on the feet unnoticeable and delay wound healing. Inspect your feet daily for blisters or cuts. Apply moisturizer particularly to your heels.
- Have regular physicals and eye exams to screen for potential complications.

Top Recommended Supplements

Antioxidants

A powerful antioxidant that can help improve insulin sensitivity and reduce the risk of diabetic complications such as neuropathy and nephropathy (kidney disease). Dosage: 600–1,200 mg daily.

Chromium

An essential trace mineral that plays a role in sugar metabolism. It helps improve insulin sensitivity and glucose tolerance. Some studies have found that diabetics are deficient in chromium, and that supplements can help improve blood sugar management. chromiumpicolinate as this is the most widely studied form of chromium. Dosage: 400–1,000 mcg daily.

Fibre

Helps improve blood glucose control and weight management. Studies involving fibre supplements of phylum, oat bran, and glucomannan have shown benefits for diabetics.

B-vitamins

Essential for proper nerve function and energy metabolism. Take a B-complex or a multivitamin that contains at least 50 mg of the B-vitamins.

Fenugreek

Seeds and supplements containing this herb have been shown to lower blood sugar and improve insulin sensitivity. Dosage: 15 g of powdered seeds with a meal or 1 or 2 g of an extract daily.

Omega fatty Acids

Helps improve glucose tolerance, reduce triglycerides and cholesterol levels, and may help improve diabetic complications (neuropathy and nephropathy). Dosage: 400 mg EPA and 200 mg DHA daily.

Gymnema

Preliminary research shows that this herb can help stimulate insulin secretion and improve blood glucose control in those with both Type 1 and Type 2 diabetes. Dosage: 400 mg once or twice daily of a product standardized to 25 percent gymnemic acid.

Magnesium

Required for energy metabolism and nerve function. People with diabetes tend to have low magnesium levels and a deficiency is associated with insulin resistance. Supplements can help improve insulin sensitivity and glucose control. Dosage: 200– 600 mg daily.

Vitamin E

Helps to improve glucose tolerance and reduce glycosylation (binding of sugar to proteins in blood vessels). Many studies have found that it can prevent and reverse nerve damage and help protect against retinopathy and nephropathy. Dosage: 800 IU daily.

Recommended Pugos Supplements

A Synergestic effect Astashine or Astashine silver (In obese person) in morning liquimegaAfternoon ,Optigision gold in evening , curcumet in night with milk is recommended

Nutrease shake also recommended as it contains blend of natural fibres, natural sweetener stevia & Antioxidants to support perfect nutrition for diabetics.

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