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To evaluate the compositional value of Diawell and its effects on diabetic patients

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Aim- To evaluate the compositional value of Diawell and its effects on diabetic patients.
Method -This study was done to find the beneficial effects of ingredients in Diawell on cancer patients based on the analysis of the studies already done on the ingredients.
Results -Every constituent of Diawell has some anticancer and nutritional properties.
Conclusions- Diawell can be consumed safely because of its nutritional and antidiabetic properties

ABSTRACT-

The term "nutraceuticals"1 is derived from the combination of two words, "nutrition" and "pharmaceuticals," indicating that they are organically derived from traditional foods but are consumed in the form of pills, capsules, or liquids. Diawell is a nutraceutical that has been proven to be a dietary supplement beneficial for diabetic patients. It is a multivitamin supplement that can help fight against diabetes.

Recent epidemiological research has shown that food is a powerful means of maintaining good health and preventing disease. Diabetes is a global pandemic, with a prevalence of 10.5% in 20-79-year-olds in 2021 (536.6 million people) and is projected to reach 12.2% (783.2 million) in 2045. Individuals with type 2 diabetes are at high risk for microvascular complications, such as retinopathy, nephropathy, and neuropathy, as well as macrovascular issues caused by hyperglycemia and insulin resistance. Diabetes and hypertension share similar risk factors, including dyslipidemia, obesity, endothelial dysfunction, and vascular inflammation, which can lead to atherosclerosis.

Nutrition plays a crucial role in many degenerative, autoimmune, and neoplastic disorders, and the interaction between nutrients and the body can determine the balance between health and sickness. Food and dietary components can influence an individual's susceptibility to disease and their potential therapeutic response by impacting epigenetic processes and modifying medication response. The use of nutraceutical supplements in diabetes patients is a topic of ongoing debate and research. With this in mind, the research and development team at Divit nutraceuticals created a protein powder for diabetic patients called Diawell.

Introduction-

Nutraceuticals are dietary supplements derived from conventional foods, such as pills, capsules, or liquids, that can be added to a regular diet to improve nutritional intake and metabolism. There are two types of nutraceuticals: potential nutraceuticals, which have the potential to prove the benefits of dietary supplements, and established nutraceuticals, which have already been proven to be beneficial in dietary supplements. Diawell is an example of a nutraceutical that is a useful dietary supplement for diabetic patients. It comes in powder form and is a multivitamin supplement that boosts consumers' nutrient intake. The term "nutraceuticals" is derived from the combination of the words "nutrition" and "pharmaceuticals." These dietary supplements are derived naturally from conventional foods and are taken as pills, capsules,powder or liquids . They are beneficial in enhancing the benefits that come with a regular diet.

Benefits of Whey Protein in Diabetes-

Consuming 15 grams of whey protein before each main meal can decrease daily hyperglycemia by 8% ($p < 0.05$), which helps maintain the body for longer periods (≈2 h/day, $p < 0.05$) in an euglycemic area, especially for people with T2DM [2]. Although recent systematic reviews and meta-analyses have shown beneficial effects of whey protein supplementation on postprandial and short-term glycemic response, as well as blood lipid profile, other long-term clinical data are needed for a better understanding of the benefits of whey intake on postprandial and baseline glycemia after several weeks/months . Increasingly more studies have investigated the effects of whey and its bioactive peptides and biochemical and biological pathways, especially on longer periods, on glucose and lipid metabolism, hypertension, oxidative stress and inflammation, and vascular health[2]. Some studies suggest that regular whey intake may positively affect long-term glycemic control [2]. Whey may also consolidate arterial walls, which can prevent and improve cardiovascular diseases . Altogether, these results indicate a potential for whey in preventing and improving pre-diabetic and diabetic conditions, as well as hypertension and cardiovascular diseases.

Dairy proteins, particularly the branched-chain amino acids (BCAAs), have been found to have an insulinotropic effect, with leucine being the most vital, as it induces insulin secretion . Leucine activates glutamate dehydrogenase activity in β-cells, resulting in increased Krebs cycle activity, oxygen consumption, and insulin production . Leucine and high protein intake also seem to modulate AMP-activated protein kinase (AMPK) and mTOR and influence hypothalamic neuropeptides, reducing the expression of orexigenic neuropeptides (NPY) and AgRP (Agouti-related peptide) and increasing anorexigenic neuropeptide pro-opiomelanocortin (POMC).

Whey protein is an exceptional source of BCAAs, which are easily and quickly digested, leading to a rapid increase in BCAA leads in the circulation and insulin release, which may improve postprandial hyperglycemia . Glutamate and alanine can also participate in insulin secretion coupling, not alone but by amplifying the stimulation by glucose . Cysteine could also be implicated in this process .

Chromium picolinate-

Chromium is a trace metal, and is an essential micronutrient, used as a supplement to treat insulin resistance. When used in appropriate amount, it enhances the glucose tolerance in human beings and is known as glucose tolerance factor for that reason . Chromium appears in various valance states in the earth crust, among them Trivalent Chromium (Cr III) is biologically active[3]. Among many trivalent chromium studied, Chromium Picolinate, Chromium Chloride and Niacin Bound Chromium (NBC) present in baker's yeast are among the few which have been studied elaborately and the advantages and disadvantages of the micronutrients mentioned above have been documented[4]. A chromium compound, Chromium Picolinate has been known to decrease hyperinsulinemia and in experiments conducted on rodents.

L Carnitine-

L-carnitine is necessary for mitochondrial transport metabolism of long-chain fatty acids, thus for myocardial energetic metabolism. Fatty acids cross mitochondrial membranes as acylcarnitine derivatives to enter pathways for oxidation, acylation, chain shortening or chain elongation- desaturation. Therefore, L-carnitine-dependent fatty acid transfer is central to lipid metabolism; dietary supplementation of L-carnitine improves the utilization of fat providing marked reduction in plasma levels of TG [5]. Despite the little information on the effect of oral administration of L-carnitine on human glucose homeostasis [6], some experimental studies indicated that the rate of glucose oxidation and L-carnitine concentration of plasma is low in patients with type II diabetes [7]. Derosa et al. reported that L-carnitine significantly lowered the plasma lipoprotein (a) level in comparison with placebo in selected patients with hypercholesterolemia in newly diagnosed type II diabetes mellitus [8]. Cuturic et al. reported that serum carnitine levels (acylcarnitine/free carnitine ratios) has a negative correlation with lipid levels, but positive correlation with fasting plasma glucose levels that is suggesting undesirable secondary effects of carnitine insufficiency resolved by carnitine supplementation [9].

Inositol-

Inositol, also called myo-inositol, D-chiro-inositol, or hexaphosphate (IP6), plays a critical role in the body's cellular growth[10]. Though it used to be referred to as Vitamin B8, inositol is not actually a vitamin, It's a type of sugar that helps your body process insulin.Inositol used to be thought of as an essential nutrient, which is any nutrient that must be obtained from your diet. However, observations have shown that the liver and kidneys make inositol from glucose, so it's not an essential nutrient[11].In addition to being produced by your body, inositol is also found in a wide range of healthy foods. Though inositol is a sugar that your body produces from glucose, diets high in sugar can inhibit inositol availability[11].

Gestational diabetes is a type of diabetes that occurs only during pregnancy. In one study, women at high risk for gestational diabetes were treated with inositol and compared with a group of women who were given a placebo[12]. The women treated with inositol were less likely to develop gestational diabetes and require insulin.

A type of inositol, D-chiro-inositol, combined with folic acid also increased insulin sensitivity in people with type 1 diabetes[13]. People treated with inositol and folic acid had lower average blood sugar levels, known as HbA1c, than the people in the control group.

L Taurine-

Taurine may reduce the risk or severity of diabetes by suppressing the secretion of cytokines that are related to diabetes, such as TNF-α and MCP-1.Taurine may improve insulin resistance and decrease leptin secretion in diabetic animals.Taurine may increase insulin availability by activating hepatic glucose accumulation as glycogen and inhibiting gluconeogenesis[14].Taurine may help with diabetes and liver injury by improving the liver's antioxidant capacity and inhibiting the inflammatory response.Taurine may reduce systolic and diastolic blood pressure levels.

Result and Conclusion-

Every constituent of Diawell has some antidiabetic and nutritional value. These formulations have been made after undergoing vast research and experimentations with different natural substances to obtain the ideal diabetes nutraceutical composition ,that is Diawell. It does not have any side effects in any circumstances and this is why it is completely safe to consume. The nutritional and antidiabetic property is the epitome of this product. Diawell can also be consumed generally due to its high nutritional values and bearing no side effects.

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