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Blood Sugar Support

Template by Fullscript

Updated Nov 18th, 2024

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Overview

Blood sugar dysregulation is a common problem in the United States with more than 29 million people having diabetes, and 86 million people having prediabetes. (16) Type 1 diabetes is due to an autoimmune condition that attacks pancreas beta cells and requires insulin to be managed. Type 2 diabetes mellitus (T2DM) is due to a combination of insulin resistance and insufficiency resulting in high blood glucose levels. (5) Prediabetes describes people with high or poorly controlled blood glucose levels, but not at the point of having type 2 diabetes. (16) When looking at the breakdown between type 1 and type 2 diabetes, type 2 is more prevalent with a study from 2018 citing between 90.4% to 92.1% of diabetes cases to be type 2.

Dysfunctional blood glucose levels impact other aspects of health as well. People with type 2 diabetes have higher risk for vision loss, heart disease, stroke, kidney failure, circulatory issues, and decreased life expectancy. (16) Additionally, of those with

prediabetes, 15-30% progress into type 2 diabetes within five years. (16) Ameliorating blood glucose dysregulation helps to prevent progression and the need for insulin dependence.

The protocol below presents ingredients based on current research findings that might help regulate blood sugar.

Berberine

Berberine

500 mg, three times per day, minimum 12 weeks (7)

- Meta-analysis of patients with T2DM given berberine exhibited better reduction in fasting plasma glucose (FPG), postprandial plasma glucose (PPG) and HbA1c levels compared to control; additionally, treatment was found to be more effective when combined with hypoglycemic medication or when given for less than 90 days with a dose less than 2 grams per day (13)
- Meta-analysis of 27 randomized controlled trials found berberine combined with hypoglycemics was more effective than hypoglycemic medications alone, and as equally effective as hypoglycemics when used for T2DM, hyperlipidemia and/or hypertension (12)
- Systematic review and meta-analysis of 14 randomized trials found berberine combined with lifestyle alterations to be more effective than lifestyle alterations alone; furthermore, berberine enhanced performance of hypoglycemic drugs (7)
- T2DM patients with dyslipidemia given one gram per day of berberine decreased FPG and postload plasma glucose, as well as improved lipid profile demonstrated by decreases in triglycerides, total cholesterol and LDL compared to placebo (27)

Chromium picolinate

Chromium picolinate

500 µg, two times per day, minimum four weeks (4)

- Current literature confirms a minor reduction in blood glucose when supplemented consistently for four weeks or longer (4)
- Chromium supplements should be taken with a carbohydrate-containing meal (8)
- Meta-analysis of 13 trials found chromium picolinate supplementation to help with glycemic control in diabetics shown by improvements in FPG and cholesterol (23)
- When given 600 mcg per day of chromium picolinate, patients with T2DM experienced improved glycemic control demonstrated by a decrease in fasting

glucose concentration by -31.0 mg/dL compared to -14.0 mg/dL in control group (20)

- When combined with sulfonylurea, chromium picolinate improved anthropometric markers for body weight, body fat percentage and abdominal fat; additionally, insulin sensitivity improved compared to placebo (15)
- 63% of T2DM patients responded to chromium picolinate treatment with improved insulin sensitivity compared to 30% in placebo (25)

Cinnamon

Cinnamon

120-360 mg, total per day, minimum 3 months (14)

- Systematic review and meta-analysis of 18 studies found cinnamon to be effective in improving glucose as shown by a decrease fasting blood sugar by -19.26 mg/dL compared to placebo (17)
- Meta-analysis of 16 randomized controlled trials found cinnamon supplementation to decreased FBG and improve HOMA-IR in patients with T2DM and pre-diabetes (6)
- 500 mg of cinnamon bark given twice per day improved BMI, body fat, visceral fat, glycemic control, and lipid profile in patients with T2DM; more pronounced benefits were found in patients with higher baseline BMI (26)
- When comparing low dose (120 mg/d), high dose(360 mg/d), and placebo, cinnamon supplementation improved hemoglobic H(1c) and FBG in both low and high dose compared to placebo (14)
- Systematic review and meta-analysis of 10 randomized controlled trials found cinnamon to decrease levels of fasting plasma glucose and improve cholesterol levels when supplementing doses from 120 mg/day to 6 mg/day for 4 to 18 weeks (3)

Psyllium husk

Psyllium husk

5 g, three times per day, minimum 6 weeks (21)

- In diabetic patients, demonstrated minor to moderate reduction in blood glucose levels (24)
- 15 g daily is a minimum dose and can be titrated up gradually to patient tolerance with no current literature pointing towards an increased benefit of using more than 15 g daily (22)
- Meta-analysis of 35 randomized controlled trials found psyllium to be efficacious lifestyle treatment of patients with T2DM; additionally patients with less glycemic

control benefited the most significantly (9)

- Improved constipation, body weight, glucose and lipid in patients with type 2 diabetes and chronic constipation with (BMI) 20-47 kg/m2 (18)
- Insulin sensitivity improved as demonstrated by decrease in FBS, HbA1c, insulin level, C-peptide, HOMA-IR and HOMA-β % compared to control (1)

Probiotics

Probiotics

Probiotic with mixed strains, as directed on bottle (2)(10)

- Meta-analysis of 8 randomized controlled trials found probiotics to be effective in improving metabolic control in patients with T2DM, as shown by a reduction in HbA1c and HOMA-IR (10)
- When given a mixed probiotic of seven strains of Lactobacillus, Bifidobacterium and Streptococcus for five weeks, patients with T2DM experienced decreased FPG and increased HDL-C (21)
- Patients with T2DM experienced decreased HOMA-IR and HbA1c by 0.39% and improved insulin resistance when given a mixed probiotic for 8 weeks (11)
- Systematic review and meta-analysis of 13 clinical trials found probiotics to decrease fasting blood glucose and A1c (2)
- A 12-week parallel, double-blind, placebo-controlled trial including 76 patients with T2DM found that supplementation with *C. beijerinckii, C. butyricum, B. infantis, A. muciniphila*, and *A. hallii* significantly improved glucose total area under the curve (-36.1 mg/dL/180 min), HbA1c (-0.6%), and glucose incremental-AUC (-28.6 mg/dL/180 min) (20)

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