CONTROL

Supporting Glucose Metabolism & Insulin Sensitivity*

Control is a cutting-edge supplement meticulously formulated to optimize health and metabolic function. Within its innovative blend of ingredients, Control harnesses the power of scientific research to unlock the potential of the body's intricate biochemistry. The synergistic blend combines MitoBurn®, GlucoVantage®, Factor21® Bitter Melon Extract, InnoSlim®, Actiponin®, and CaloriBurn GP®, Control to revolutionize your patients' well-being. Boasting Brown Adipose Tissue (BAT) conversion, thermogenesis activation, heightened insulin sensitivity and glucose utilization, enhanced glucose uptake, and AMPK activation, Control is designed to enhance energy expenditure, well-being, and vitality.

DEMOGRAPHIC & CLINICAL APPLICATIONS

MEN & WOMEN





PATIENTS REQUIRING

- · Metabolic/blood sugar protocols
- · Weight management programs
- · Cardiovascular protocols
- Protocols for long term brain health and/or longevity

BENEFITS



Encourages Calorie Burn



Supports **Healthy Blood** Glucose Levels



Promotes Leaner Body Composition



Assists in Preventing Weight Re-gain



Helps Regulate Metabolism



Reinforces Carbohydrate Tolerance

























NON

DIRECTIONS:

* Daily Value Not Established

Take 3 capsules daily or as directed by your healthcare practitioner.

SUPPLEMENT FACTS

Serving Size: 3 Capsules | Servings Per Container: 30 Amount Per Serving MitoBurn® β-aminoisobutyric acid (L-BAIBA) 500 mg Factor21® (Momordica charantia) extract (fruit) 500 mg Berberine HCL 300 mg InnoSlim® (Astragalus membranaceus and Panax 250 mg notoginseng) Root Extracts Actiponin® gynostemma pentaphyllum 225 mg extract (leaf) 200 mg GlucoVantage® (Dihydroberberine) CaloriBurn GP® Grains of Paradise seed 40 mg extract (6-Paradol 12.5%)

Other Ingredients: Vegetable Capsule (Hypromellose, Gellan Gum), Rice Powder, Microcrystalline Cellulose



INGREDIENTS

MITOBURN

MitoBurn® (B-aminoisobuytric acid, L-BAIBA) known for activation of BAT via the same genetic influence as bitter melon extract and also for energy expenditure. It accomplishes this by activating the peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PGC-la). a transcriptional coactivator that plays a key role in regulating energy metabolism and mitochondrial biogenesis.¹ This activation occurs by way of AMPK. one of the various signaling pathways that regulate the shift from white to brown adipose tissue.

FACTOR 21°

Factor21® Bitter Melon Extract (Momordica charantia), is derived from bitter melon's effect on a hormone called Fibroblast growth factor 21 (FGF21). Specifically, bitter melon extract has been shown to activate the nuclear receptor peroxisome proliferator-activated receptor alpha (PPARa), which in turn leads to the activation of FGF21. Benefits of this activation include supporting insulin sensitivity and glucose tolerance. It has also been shown to support insulin sensitivity by increasing glucose uptake and utilization in cells. This is accomplished by activating AMP-activated protein kinase (AMPK) as well as by increasing the translocation of glucose transporter 4 (GLUT4) to the cell membrane. GLUT4 is responsible for transporting glucose from the blood into cells, and increasing its translocation to the cell membrane.

GLUCO VANTAGE®

GlucoVantage® (Dihydroberberine), a chemical analog of berberine. has also been shown to support healthy insulin sensitivity levels by activating AMPK and supporting glucose uptake and utilization in muscle cells. Dihydroberberine is a new version of traditional berberine that is up to Sx more bioavailable/absorbable and 2x longer lasting (8 hours vs. 4 hours).⁵ It can also help with advanced glycation end products correlated with aging while supporting blood glucose disposal and improving insulin sensitivity and body composition. Plus, berberine in itself holds potential in supporting metabolism via its effect on the microbiota.⁶

InnoSlim

InnoSlim®, a combination of Astragalus membranaceus and Panax notoginseng, has also been shown to activate AMPK as well as increase the level of a key hormone called adiponectin, which is linked to higher levels of insulin sensitivity and supporting healthy glucose metabolism.7 Additionally, it was found that InnoSlim® reduces glucose absorption in the intestine by 42% by down regulating the SGLT1 transporter and increases glucose absorption in muscle and fat cells by 50% and 68% by up regulating GLUT4 transporter.^{8,9}

Actiponin®

Actiponin®, activates the AMP-activated protein kinase (AMPK), an important intracellular sensor and regulator of glucose metabolism, lipid metabolism, and energy metabolism throughout the body. When activated, this powerful enzyme switches on catabolic ATP-generating pathways like fatty acid 13-oxidation, glycolysis. and glucose uptake (processes that normally occur during intensive exercise or prolonged starvation) and switches off anabolic ATP-consuming pathways like fatty acid and cholesterol synthesis.¹⁰

CALORIBURN

CaloriBurn GP®, a grains of paradise extract containing 6-paradol, has been shown to activate BAT and promote thermogenesis, leading to increased energy expenditure and imp roved metabolic health. Brown adipose tissue (BAT) is a specialized type of fat tissue that is involved in thermogenesis, or the generation of heat. leading to increased energy expenditure and improved glucose and lipid metabolism.



REFERENCES -

- Tanianskii DA, Jarzebska N, Birkenfeld AL, O'Sullivan JF, Rodionov RN. Beta-Aminoisobutyric Acid as a Novel Regulator of Carbohydrate and Lipid Metabolism. Nutrients. 2019 Feb 28;11(3):524.
- 2. Tan MJ, Ye JM, Turner N, Hohnen-Behrens C, Ke CQ, et al. (2008) Antidiabetic activities of triterpenoids isolated from bitter melon associated with activation of the AMPK pathway. Chem Biol 15: 263–273.
- 3. Joseph B, Jini D. Antidiabetic effects of Momordica charantia (bitter melon) and its medicinal potency, Asian Pac J Trop Dis. 2013 Apr;3(2):93-102.
- 4. Turner N, Li JY, Gosby A, To SW, Cheng Z, Miyoshi H, Taketo MM, Cooney GJ, Kraegen EW, James DE, Hu LH, Li J, Ye JM. Berberine and its more biologically available derivative, dihydroberberine, inhibit mitochondrial respiratory complex I: a mechanism for the action of berberine to activate AMP-activated protein kinase and improve insulin action. Diabetes. 2008 May;57(5):1414-8.
- 5. Feng R, Shou JW, Zhao ZX, He CY, Ma C, Huang M, Fu J, Tan XS, Li XY, Wen BY, Chen X, Yang XY, Ren G, Lin Y, Chen Y, You XF, Wang Y, Jiang JD.

 Transforming berberine into its intestine-absorbable form by the gut microbiota. Sci Rep. 2015 Jul 15;5:12155. doi: 10.1038/srep12155. PMID: 26174047;
 PMCID: PMC4502414.
- 6. Och A, Och M, Nowak R, Podgórska D, Podgórski R. Berberine, a Herbal Metabolite in the Metabolic Syndrome: The Risk Factors, Course, and Consequences of the Disease. Molecules. 2022 Feb 17;27(4):1351. doi: 10.3390/molecules.27041351. PMID: 35209140; PMCID: PMC8874997.
- S.C. Huang, etc. Radix Astragali and Notoginseng saponins improve glucose and fatty acid metabolism through upregulated adiponectin and its downstream signaling. J of Biochemistry and Biotechnology, August 2021.
- 8. T.C. Chang, et al. Effect of ginsenosides on glucose uptake in human Caco-2 Cells is mediated through altered Na+/glucose cotransporter 1 expression. Journal of Agricultural Food Chemistry. 2007, 55, 1993-1998.
- 9. Y.C. Huang, et al. Effect and mechanism of ginsenosides CK and Rg1 on stimulation of glucose uptake in 3T3-L1 Adipocytes. Journal of Agricultural Food Chemistry. 2010, 58, 6039–6047. DOI:10.1021/jf9034755.
- 10. Park SH, Huh TL, Kim SY, Oh MR, Tirupathi Pichiah PB, Chae SW, Cha YS. Antiobesity effect of Gynostemma pentaphyllum extract (actiponin): a randomized, double-blind, placebo-controlled trial. Obesity (Silver Spring). 2014 Jan;22(1):63-71.
- 11. Sugita J, Yoneshiro T, Sugishima Y, Ikemoto T, Uchiwa H, Suzuki I, Saito M. Daily ingestion of grains of paradise (Aframomum melegueta) extract increases whole-body energy expenditure and decreases visceral fat in humans. J Nutr Sci Vitaminol (Tokyo). 2014;60(1):22-7.