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## NUTRITIONAL SUPPORT INCLUDING THE ULTRAGLYCEM X PLUS 360° MEDICAL FOOD PROGRAM IN A PATIENT WITH TYPE 2 DIABETES

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**Purpose**

To show how targeted nutritional support featuring UltraGlycemX (with barley beta-glucans and chlorogenic acid) and UltraGlycemX PLUS 360° (with SKRMs\*) may be useful in patients with type 2 diabetes.

**Patient's Presentation and History**

A 57-year-old Caucasian female presented with a previous diagnosis of type 2 diabetes. She had a lifelong challenge with food cravings, late-night eating, and portion control, struggling with weight in high school and further after 2 pregnancies (gestational diabetes during both managed with diet). Weight loss trials had been unsuccessful; a loss of ~40 lb on a commercial meeting-centered program was regained within a year. A routine exam 2 years earlier revealed elevated blood glucose (~170 mg/dL) and she was placed on metformin. The dose was doubled in 6 months, at which time she noted increased tiredness/sluggishness.

The patient also complained of migraines and joint pain in her knees, hands, low back, and shoulder. Her medical history included recurrent kidney stones, ear infections, sinusitis (severe), hoarseness, dry mouth, ringing in ears, bronchitis, and irritable bowel syndrome (IBS). Surgeries included removal of polyps, 2 stereotactic breast surgeries (fibrocystic breasts), and an adenotonsillectomy. She had a family history of heart failure, hypertension, type 2 diabetes, thyroid problems, osteoporosis, and arthritis.

**Patient's Objective Information**

- HT: 66"; WT: 224 lb; BP 116/67; BMI: 36.2 kg/m<sup>2</sup>
- Diet: portion control issues
- Exercise: yoga 2 times/week; aerobics 2 times/week
- Prescription medications and supplements included: levothyroxine sodium (thyroid), 0.50 mg daily; ezetimibe/simvastatin (cholesterol) 10/20 mg daily; triamterene (hypertension), 50 mg daily; lisinopril (hypertension), 5 mg daily; calcium/magnesium/zinc; fish oil; multivitamin/mineral; glucosamine/chondroitin sulfate

**Plan**

The patient was instructed to:

- Stop current calcium/magnesium/zinc and multivitamin/mineral supplements
- Begin UltraGlycemX Medical Food, 2 scoops twice daily
- Begin a Mediterranean-style, low-glycemic-load diet (LGLD)

- Initiate exercise plan at 150 minutes/week and increase to 30 to 60 minutes/day
- Follow-up with FMRC nutritionist to report progress and adjust dietary/exercise program
- Measure morning/evening glucose at home

**4-Week Results**

The patient reported doing well with the LGLD. She was eating smaller, more frequent meals and exercising 1 hour 5 days/week, plus swimming and yoga 2 to 3 times/week. Fasting blood glucose was still around 120 to 128 mg/dL, with 105 to 110 mg/dL at night. She felt better with more energy, but exercise had increased her arthritis symptoms. Lab tests revealed positive anti-nuclear antibodies.

**8- through 14-Week Results**

*At the 8-week visit*, the patient was doing extremely well on the LGLD with a total weight loss of 12 lb. *After 9 weeks*, her fasting blood glucose was ranging 107 to 120 mg/dL. She reported a lot more energy and no migraines since starting the program. Lab tests were positive for stool gluten sensitivity, and the patient was counseled on gluten elimination. *At the 14-week visit*, the patient had lost a total of 17 lb and reported sustained energy and absence of headaches. Evening glucose measurements continued to improve at ~105 mg/dL. A fall had injured her back and triggered some IBS-type symptoms. Laboratory tests indicated an increase of hsCRP. The patient was advised to continue on UltraGlycemX and the gluten-free diet and to add a soluble/insoluble fiber blend supplement at 1 scoop daily, along with a high potency *L. acidophilus/B. lactis* combination probiotic, 1 capsule twice daily.

**18- through 30-Week Results**

*At 18 weeks*, the patient had lost a total of ~21 lb. *At the 23-week visit*, she noted more energy. Her fasting glucose had been high at 107 to 127 mg/dL, with 2-hour postprandial at 105 to 110 mg/dL. She was instructed to replace UltraGlycemX with UltraGlycemX PLUS 360° Medical Food, 2 scoops twice daily, and continue the other prescribed nutraceuticals. *At 25 weeks*, her fasting glucose had improved with a maximum of 110 mg/dL. *After 30 weeks*, these values had sustained.

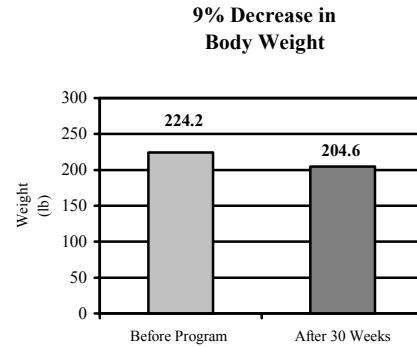
**Conclusion**

This case study suggests that targeted nutritional support that combines UltraGlycemX medical foods with LGLD and aerobic exercise may help show improvement in clinical symptoms associated with type 2 diabetes.

**Figure 1**

After 30 weeks, the patient had a total loss of approximately 20 lb.

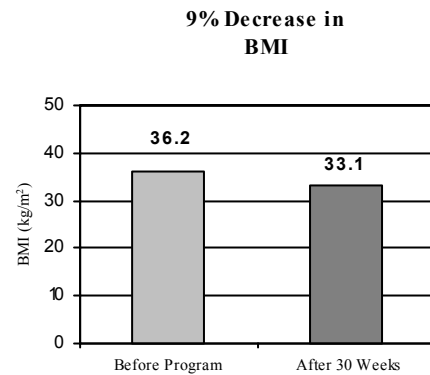
A body composition analysis at 14 weeks confirmed an increase in lean muscle mass and decrease in fat mass. Excess body fat is associated with an increase in risk to insulin-related disorders and cardiovascular disease.



**Figure 2**

The patient's body mass index (BMI)<sup>†</sup> was decreased from 36.2 (severely obese) to 33.1 (obese) in 30 weeks on the program.

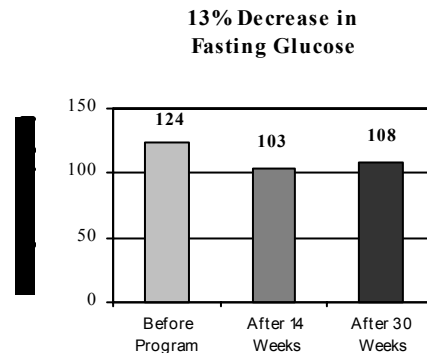
This result suggests a reduction in risk to lifestyle-related conditions.



**Figure 3**

Fasting glucose levels for the patient decreased 17% in 14 weeks to within a normal reference range (65 to 120 mg/dL) and remained comparable at the 30-week follow-up visit.

These results suggest improved glucose metabolism.



\* Selective kinase response modulators—or SKRMs—are nutritional substances that can work to modulate kinase signaling and may help restore healthy signaling to genes, favorably affecting genetic expression, and thus helping to reverse some of the effects of chronic illness.

<sup>†</sup>Body Mass Index (BMI) is computed by the weight (kg) divided by the square of the height (m).

Note: The information provided in this case study describes the results of one patient under the care of a licensed healthcare practitioner and may not be a typical response. UltraGlycemX and UltraGlycemX PLUS 360<sup>°</sup> Medical Foods are to be used under the supervision of a physician or other licensed healthcare practitioner.

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Case Study: Nutritional Support Including the UltraGlycemX PLUS 360<sup>°</sup> Medical Food Program in a Patient with Type 2 Diabetes. Metagenics, Inc.; 121DM507