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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\* from RIAA and acacia) may be useful in patients with type 2 diabetes.

**Patient's Presentation and History**

A 62-year-old Caucasian female presented with obesity and previous diagnoses of hypertension and type 2 diabetes. She had complaints of severe daytime sleepiness/fatigue and sleeping difficulties since onset of type 2 diabetes. She had been on metformin for the past 2 to 3 years. The patient had not measured her blood sugar in the past year, but it had previously been about 160 mg/dL.

Her medical history included kidney stones and multiple malignancies with status post thyroidectomy, status post parathyroidectomy, and status post hysterectomy. She also had a family history of heart disease.

**Patient's Objective Information**

- HT: 66"; WT: 236.6 lb; BP: 180/108
- Markedly elevated glucose at 295 mg/dL
- Elevated liver enzymes: ALT of 100 IU/L; AST of 82 IU/L
- Elevated cholesterol (tChol) at 217 mg/dL
- Elevated triglycerides (TG) at 193 mg/dL
- Markedly elevated HbA1c at 11.3 %
- Depressed 25(OH) Vit D at 16 ng/mL
- Negative anti-nuclear Ab
- Lifestyle: standard American diet; craved and binged on carbohydrates, mainly chocolate; no smoking or alcohol; no exercise
- Prescription medications: levothyroxine sodium (thyroid), 0.112 mg once daily; metformin, 1,000 mg twice daily

**Plan**

The patient was instructed to continue current medications and begin monitoring fingerstick glucose at least 1 to 2 times daily and blood pressure once daily. After 1 day of glucose monitoring, she was instructed to begin:

- UltraGlycemX Medical Food at 1 scoop twice daily, increasing to 2 scoops twice daily over a period of 4 days
- Mediterranean-style, low-glycemic-load diet (LGLD) with no caloric restriction

**2-Week Follow-Up**

Two weeks after starting the protocol, the patient was instructed to discontinue UltraGlycemX Medical Food and begin:

- UltraGlycemX PLUS 360°, 2 scoops twice daily
- Isoflavone/vitamin D<sub>3</sub> supplement, 1 tablet twice daily
- Aerobic exercise in the form of regular walks

**6-Week Results**

*At the 6-week visit*, the patient was thrilled about having lost almost 10 lb since the initial visit and reported having more energy. She was doing "pretty good" with the LGLD and was walking for 20 minutes twice daily. She was still craving carbohydrates but had not submitted to these cravings. Her fasting fingerstick glucose in the previous 10 days had ranged from 125 to 156 mg/dL. The patient was instructed to continue on prescribed plan.

**10-Week Results**

*After 10 weeks*, the patient reported feeling much better and having a lot more energy. She was not as tired on awakening, and her sleeping had improved. She had stopped metformin about 3 weeks earlier. Fasting glucose range before stopping metformin was between 136 and 160 mg/dL, and evening glucose range was 97 to 116 mg/dL. After stopping metformin, the evening range was 92 to 168 mg/dL. She had continued walking 20 minutes twice daily. She had lost 12 lb total and reported cravings mainly for potatoes and bread.

Laboratory tests revealed significantly improved glucose (from initial 295 mg/dL down to 148 mg/dL), normalized tChol and TG, markedly improved HbA1c, and normalized vitamin D and liver enzymes. The patient was instructed to continue with UltraGlycemX PLUS 360° and isoflavone/vitamin D<sub>3</sub> supplement at current dosing. She was also advised to:

- Add arginine/magnesium supplement, 2 scoops twice daily
- Add fish oil supplement (EPA 300 mg, DHA 200 mg), 3 softgels twice daily
- Increase walking to 20 minutes, 3 times daily

**Conclusion**

This case study suggests that targeted nutritional support that combines UltraGlycemX Medical Foods with a LGLD and aerobic exercise may help show improvement in clinical symptoms associated with type 2 diabetes, such as HbA1c, fasting blood glucose, and liver enzyme panels.

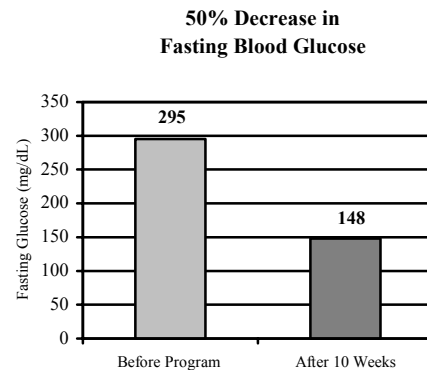
## RESULTS

# UltraGlycemX<sup>®</sup> PLUS 360<sup>°</sup>

**Figure 1**

After 10 weeks, the patient's fasting blood glucose decreased from 295 mg/dL to 148 mg/dL (reference range: 70 to 115 mg/dL).

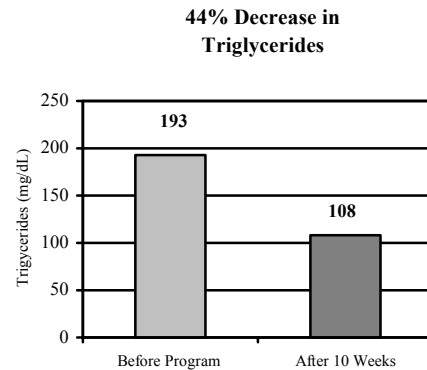
These results suggest a remarkable improvement in fasting blood glucose.



**Figure 2**

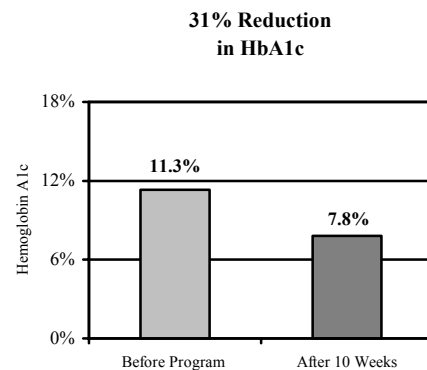
The patient's triglyceride level was decreased from 193 mg/dL to within a normal range at 108 mg/dL in 10 weeks on the program (reference range: 10 to 175 mg/dL).

This result suggests a notable improvement in triglyceride levels.



**Figure 3**

The patient experienced a notable reduction in the % of HbA1c during the first 10 weeks on the program—approaching non-diabetic numbers. (Hemoglobin A1c is often measured to demonstrate management of type 2 diabetes. It reveals the percentage of glycosylated hemoglobin—circulating glucose that has attached to hemoglobin molecules in red blood cells—and is a good indicator of glucose control for the past few months. Non-diabetic individuals have an HbA1c value of less than 6%.)



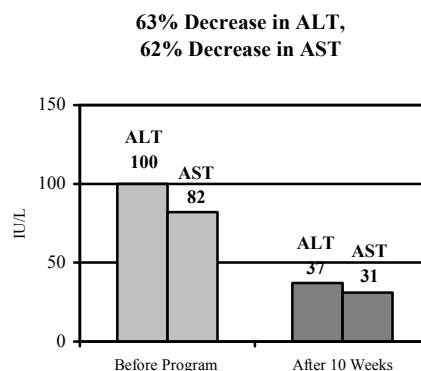
These results suggest a noteworthy improvement in glucose metabolism and type 2 diabetes management.

**Figure 4**

Serum alanine aminotransferase (ALT) and aspartate aminotransferase (AST) levels for the patient decreased 63% and 62%, respectively, in 10 weeks to within a normal reference range for each (ALT: 5 to 60 IU/L; AST: 5 to 40 IU/L).

ALT (formerly known as serum glutamic pyruvic transaminase, or SGPT) and AST (formerly known as serum glutamic oxaloacetic transaminase, or SGOT) are enzymes found in the liver (and other organs) that are released into the bloodstream when the liver (or other organ) is damaged. Liver damage has been associated with type 2 diabetes, and some scientific studies suggest that ALT and AST can be used as an early diagnostic marker for the disease.

These results suggest improved liver function associated with type 2 diabetes management.

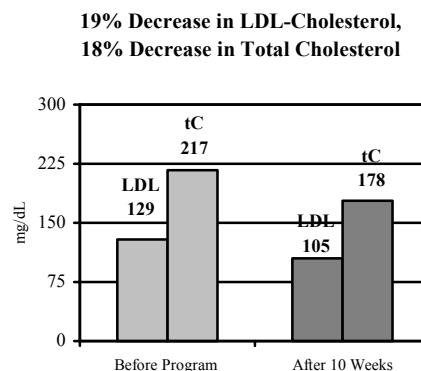


**Figure 5**

In 10 weeks, the patient's LDL-cholesterol level was decreased from 129 mg/dL (borderline elevated, reference range 95 to 130 mg/dL) to 105 mg/dL.

The patient's total cholesterol level was decreased from an elevated level of 217 mg/dL to within a normal range at 178 mg/dL in 10 weeks on the program (reference range: 110 to 200 mg/dL).

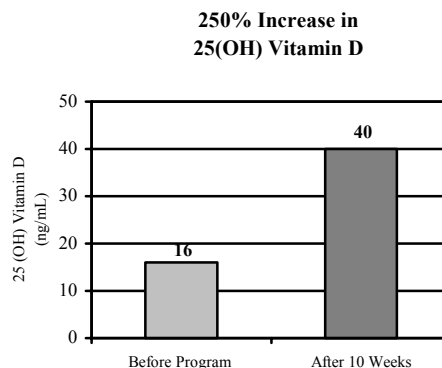
These results suggest an improvement in both LDL-cholesterol and total cholesterol levels.



**Figure 6**

After 10 weeks on the program, the patient's 25 (OH) vitamin D level increased from 16 ng/mL (borderline low) to 40 ng/mL (reference range: 16 to 91 ng/mL).

This result suggests a noteworthy improvement in the level of 25 (OH) vitamin D.



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\* 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.

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.; 128DM1007