

Case #1036: A Case Study Evaluating the Effects of a Phytosterol and Soy Protein Functional Food Program and Dietary Supplement for Glucose Metabolism Support in an Overweight Patient with Type 2 Diabetes

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PURPOSE

The purpose of this study was to assess the effectiveness of a phytosterol and soy protein functional food (provided in powdered beverage form) used in combination with a dietary supplement for glucose metabolism support and lifestyle modifications in an overweight patient with type 2 diabetes.

PATIENT'S PRESENTATION AND HISTORY

A 44-year-old overweight female presented with a history of type 2 diabetes mellitus (DM) and concerns about her weight. She had developed gestational diabetes 10 years earlier during pregnancy, and her weight had increased considerably after childbirth. She was diagnosed with DM 5 years later and placed on metformin. During the 3 years before presentation she had made substantial lifestyle changes—including dietary and exercise modifications—and lost about 50 lb.

The patient's medical history and other symptoms included recurrent hidradenitis suppurativa, chronic vaginal yeast infections, athlete's foot, and heavy menstrual cycles. Previous surgeries included tonsillectomy at age 12, ovarian cyst at age 21, appendectomy at age 27, and hemorrhoidectomy at age 28. She had a family history of diabetes, heart disease, and hypertension.

Patient's Objective Information

- HT: 63.5"; WT: 190.25 lb; BP: 132/80
- BMI: 33.7 kg/m²; body fat: 37.6%; lean mass: 62.4%
- Prescriptive medication: metformin, 500 mg qd
- Significant laboratory findings: elevated cholesterol (tChol), triglycerides (TG), and LDL-Cholesterol (LDL-C); depressed HDL cholesterol (HDL-C); elevated glucose; elevated Hb-A1C

PLAN AND RESULTS

The patient was instructed to:

- Start phytosterol and soy protein functional food beverage, 2 servings/day
- Begin combination supplement including chromium, green tea, cinnamon, and alpha-lipoic acid for support of healthy glucose and insulin metabolism, 2 tablets bid
- Start low-glycemic-index diet with no caloric restrictions
- Increase aerobic activity to 5 times/week
- Continue medication

3 Weeks After Starting the Program

The patient reported some initial constipation with the program, even though she had increased her water and fruit intake. She was exercising on the treadmill 40-45 min 3 times/week. Her sleep had improved. She was advised to continue on the plan and add a 1:1 soluble/insoluble fiber supplement (1 scoop 1-2 times/day) for constipation. She was told to switch to a 2:8 soluble/insoluble fiber supplement (2 scoops bid) if the prior formula did not offer improvement. Her weight was 186 lb and BP was 138/80.

7 Weeks After Starting the Program

The patient reported resolved constipation with the 2:8 soluble/insoluble fiber supplement. She noted having more energy, sleeping well, and exercising 120 min/week on the treadmill. She reported having some muscle cramping following exercise. At-home glucometer readings showed improved glucose control, but not yet normalized. Her weight had decreased to 182.25 and her BP was 130/82. She was instructed to continue on the program—increasing exercise to 150 minutes weekly—and add:

- Alpha lipoic acid supplement, 100 mg bid for glucose clearance support
- Highly-absorbable magnesium supplement, 2 tablets before bed for leg cramping

13 Weeks After Starting the Program

The patient had notable improvements in weight, body fat, blood sugar, and blood lipids. Her weight was 177 lb, BP was 120/80, and body fat was 33.4%. She was instructed to stay on the plan and decrease the magnesium supplement to once daily.

Figure 1. After 13 weeks, the patient's total cholesterol decreased from 262 mg/dL to 202 mg/dL (reference range: 110-200 mg/dL). This result suggests a noteworthy improvement in the patient's total cholesterol after 13 weeks with the inclusion of the phytosterol and soy protein functional food and dietary supplement for glucose metabolism support.

23% Decrease in Total Cholesterol

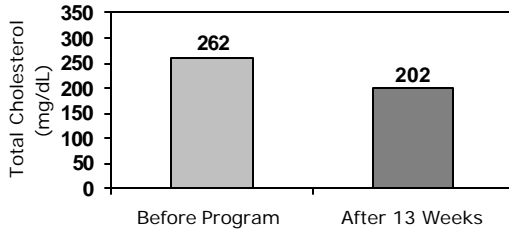


Figure 2. The patient's LDL cholesterol was decreased from 170 mg/dL to 141 mg/dL (reference range: 95-130 mg/dL) after 13 weeks. The result suggests a notable improvement in the patient's LDL cholesterol with the phytosterol and soy protein functional food and dietary supplement for glucose metabolism support program.

17% Decrease in LDL Cholesterol

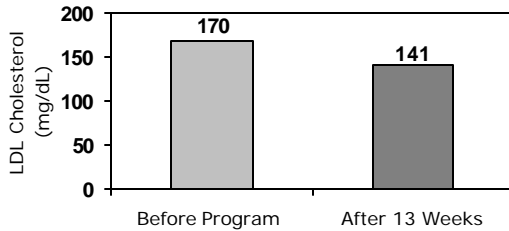
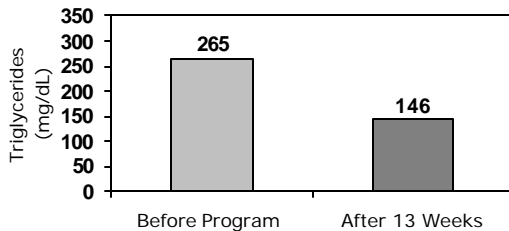


Figure 3. After 13 weeks, the patient's triglyceride level was reduced from 265 mg/dL to within reference range at 146 mg/dL (reference range: 10-175). This result indicates a substantial improvement in the patient's triglyceride levels after 13 weeks on the targeted nutritional support program.

45% Decrease in Triglycerides



SUMMARY

This case study suggests that a targeted nutritional support program that incorporates a phytosterol and soy protein functional food, dietary supplement for glucose metabolism support, and lifestyle modifications can improve blood lipid levels and other aspects of health associated with type 2 diabetes.

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. The phytosterol and soy protein functional food discussed in this study is to be used under the supervision of a physician or other licensed healthcare practitioner.

Financial support for this study was provided by Metagenics, Inc. This study was conducted at the Functional Medicine Research Center (FMRC), the clinical research arm of Metagenics, Inc. Dan Lukaczer, ND, is the Director of Clinical Research at the FMRC.

[†]Body Mass Index (BMI) is computed by the weight (kg) divided by the square of the height (m).

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