Reversal of Metabolic Syndrome Through Lifestyle Changes

Combating Metabolic Syndrome

Type 2 diabetes has reached epidemic proportions in the United States and other industrialized countries. However, recent research has shown that the disease is highly preventable, and that lifestyle changes in diet and physical activity are effective in preventing this condition. These lifestyle changes are thought to be especially effective in people with metabolic syndrome, a pre-diabetic state that involves multiple symptoms, including overweight and central obesity, insulin resistance, elevated blood lipids, elevated blood glucose, and elevated blood pressure.

For these reasons, USANA Health Sciences and Dr. Ray Strand, a family practice physician and an expert in nutritional medicine, conducted a clinical trial to determine whether a 12-week lifestyle modification program of low-glycemic foods, modest exercise, and nutritional supplementation could reverse symptoms of metabolic syndrome.

Trial Methods

This 12-week study recruited 25 people, aged 20 to 65, who were at risk for developing metabolic syndrome. Men who participated in the study had a waist measurement of 40 inches or more; women had a waist measurement of 34.5 inches or more. All participants also had two or more of the following symptoms: elevated blood pressure, elevated triglycerides, elevated fasting glucose, and low HDL cholesterol levels.

The first four weeks of the program consisted of the following:
- Drinking a low-glycemic shake for breakfast and lunch
- Eating one low-glycemic nutrition bar for a snack
- Eating one regular, low-glycemic snack
- Eating a regular, low-glycemic dinner
- Taking a multivitamin-mineral supplement each day
- Exercising 20 to 30 minutes, five days per week

The final eight weeks of the program consisted of the following:
- Drinking a low-glycemic shake for breakfast
- Eating one low-glycemic nutrition bar for a snack
- Eating a regular, low-glycemic lunch and dinner
- Eating one regular, low-glycemic snack
- Taking a multivitamin-mineral supplement each day
- Exercising at least 45 minutes a day, five days a week

Study Results

Twenty-one of the 25 participants closely followed the dietary and exercise requirements of the 12-week study. Nevertheless, all data is included in the following study results, which show the program had a dramatic impact.
On average, participants lost 13 pounds of body weight. Four subjects lost 25 pounds or more. Participants also saw significant declines in BMI and waist circumference. Even more impressive, however, were the changes to participants’ cardiovascular and metabolic health. On average, study participants achieved the following results:

- Systolic blood pressure dropped nearly 8 percent; diastolic blood pressure dropped 6 percent.
- Total cholesterol levels dropped 15 percent.
- LDL cholesterol levels dropped 17 percent.
- Insulin sensitivity significantly increased by 14 percent.
- Fasting blood glucose levels declined slightly.

All of these changes are consistent with a reversal of Metabolic Syndrome and with significant improvements in cardiovascular and metabolic health. They are also consistent with a dramatic reduction in the risk of developing type 2 diabetes. The continuous health changes observed during the study also suggest that if the lifestyle program were extended, further health improvements could be expected.

USANA scientists and Dr. Ray Strand concluded that the lifestyle changes employed in this study, including low-glycemic foods, nutritional supplements, and modest increases in physical activity, offer a valuable approach for reversing Metabolic Syndrome and reducing the risk of developing type 2 diabetes and heart disease in at-risk people.

References


Results for the changes in systolic blood pressure, body weight, and total cholesterol are shown in the three graphs below. In all cases, the changes from Baseline to Week 12 are statistically significant at the $p \leq 0.05$ level.

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