

Nutritional Improvement of Metabolic Syndrome Parameters in Immature Fructose Fed Wild Type Mice

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Fructose is a type of sugar that is abundantly present in processed foods such as, cereals, bakery products, soft drinks, lunchmeats, salad dressings, ketchup and so on. The liver converts fructose into fat. It is shown that as little as 4-weeks of moderate fructose diet can increase blood cholesterol and blood glucose. Collectively, increased blood pressure along with high cholesterol and high blood glucose are called metabolic syndrome.

In this in vivo study, we compared the effects of a specific micronutrient mixture and metformin ((a common anti-diabetic prescription drug) on immature mice fed with high fructose diet. At the end of the 7-weeks study period the group of mice receiving the micronutrient mixture had a 4% decrease in serum fructosamine concentration, while the metformin receiving group had 15% increase in fructosamine. Serum fructosamine concentration reflects changes in blood glucose in the prior 1-2 weeks.

In addition, the mice in the metformin group had reduced insulin levels while the micronutrient supplemented group showed a restoration of insulin levels to normal. The micronutrient supplementation also showed additional benefits by reducing blood pressure, total cholesterol and counteracting the effects of high fructosamine, thus reducing the possibility of cardiovascular disease.

The results suggest that the micronutrient mixture exerts many beneficial metabolic effects in high fructose diets, which are superior to metformin.