

Effect of Glucose and Sucrose Feeding on post-prandial Serum Triglyceride, Cholesterol and Glucose

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Abstract

High sugar intake has been always associated with cardiovascular diseases, diabetes and obesity. However every sugar has its own ability to affect the body so that each sugar has a different effect on blood contents.

We aimed in our study to study the different effect of glucose and sucrose on post-prandial cholesterol, triglyceride and glucose blood levels in mice. Fifteen mice (8 males and 7 females) were grouped into three groups: control group, glucose-fed group and sucrose-fed group and kept for twelve weeks under stable conditions with free access to food and the prepared sugar solutions. Glucose tolerance and fasting blood glucose tests were performed three times after which cholesterol and triglyceride tests were performed beside the weight which was taken on the first and final day of the experiment.

The results showed a significant drop in weight in sucrose-fed males whereas sucrose-fed females showed no significant difference. Neither fasting blood glucose nor blood glucose levels after intraperitoneal glucose injection were significantly changed in all mice. A significant increase in blood triglyceride was found in both glucose and sucrose-fed males. However, no such results were found in the females. A significant increase in plasma cholesterol and triglyceride levels in sucrose-fed males compared to sucrose-fed females was noticed.

The conclusion is that 12-week of 20% glucose and 20% sucrose feeding do not affect fasting blood glucose neither post-prandial glucose and sucrose decreases weight in males but it causes increased triglyceride in sucrose-fed males. It also affects the cholesterol level in males more than females so that males are at higher risk to develop cardiovascular diseases compared to females.