Addition of fat reduces glycemic index

Health & Medicine

DISCUSSION Research on dietary intake and blood glucose has important implications in society today. In current statistical data, obesity and related diseases are the leading causes of mortality. With the ongoing popularity of processed and fast foods, it is safe to assume that more and more people will suffer from the health implications of unbalanced diet.

In this experiment, it was found that addition of fat to diet did not significantly change the glycemic index or blood glucose levels. This hypothesis was based on the assumption that when same caloric levels are taken in, food with higher fat/carbohydrate ratio does not significantly change blood glucose levels compared to meals with lower fat/carbohydrate ratio, because fats are of a different biomolecular type than carbohydrates. The findings in the current study are different from that detected by Volek et al. (2009), which, upon testing several metabolic markers on subjects with atherogenic dyslipidemia exposed to hypo caloric, low-carbohydrate or low-fat diets. According to this study, decreased fat intake decreased blood sugar levels by 17%. This is due to the biochemical process through which fats, especially when at abnormally high levels, may be converted to sugars, thus affecting blood glucose levels of the subject.

Significant differences were not observed in this particular study probably due to the physiological state of the subjects. Specifically, they have normal insulin levels and response. This means that at food intake, the body responds by absorbing these biomolecules to maintain normal levels of glucose in blood. Therefore, even at increased levels of fat, blood glucose remained unchanged at 6 and 12 hours after eating. In addition, the effects of lipid and/or carbohydrate intake on blood sugar levels may have already wore off at 6 and 12 hours after meals.

What is quite striking, however, is the high standard deviation of blood glucose values measured. Standard deviations calculated were at least 45% to as much as 133% of their corresponding mean values. This means that the obtained values were different among subjects, even if they were exposed to the same treatment. Great variations in the measured blood glucose levels may have resulted from differences in age, since older people tend to respond to caloric intake less efficiently than younger people do. In addition, physiological differences among male and female. Specifically, the inherent high muscle mass of males allow them to greater amounts of calories in the same amount of work than females do. Thus, at the same amount of food taken in, blood glucose response may tend to be greater among females than males.

This study, when compared to the findings of other previous studies, thus, does not conclusively resolve whether or not increase in fat intake decreases blood glucose levels. Among subjects with normal insulin levels and response, changes in blood sugar levels may not result from changes in percent lipid intake. However, for those with abnormal insulin response such as diabetic patients, lipid intake, or caloric intake for that matter, has a direct, lasting, and potentially debilitating relationship with blood glucose levels.

In this part of the study, the researchers now suggest future steps through which better assessment may be performed. First, a random sampling in a specified population may be done instead of the currently performed convenience sampling. This will ensure that all subjects are exposed to almost exact similar conditions except to the treatment conditions: 1) carbohydrate only, 2) carbohydrate + 1 unit lipid, 3) carbohydrate + 2 unit

lipid, and 4) carbohydrate + 3 unit lipid. Second, the effects of lipid intake on blood glucose levels of narrower age range of the subjects may be explored. Third, more frequent blood glucose measurement may be performed instead of the two measurements done in this experiment.

References

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