

Glycemic Index Research Report #1347

For Hermanbrot Pty Ltd.

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Sydney University's

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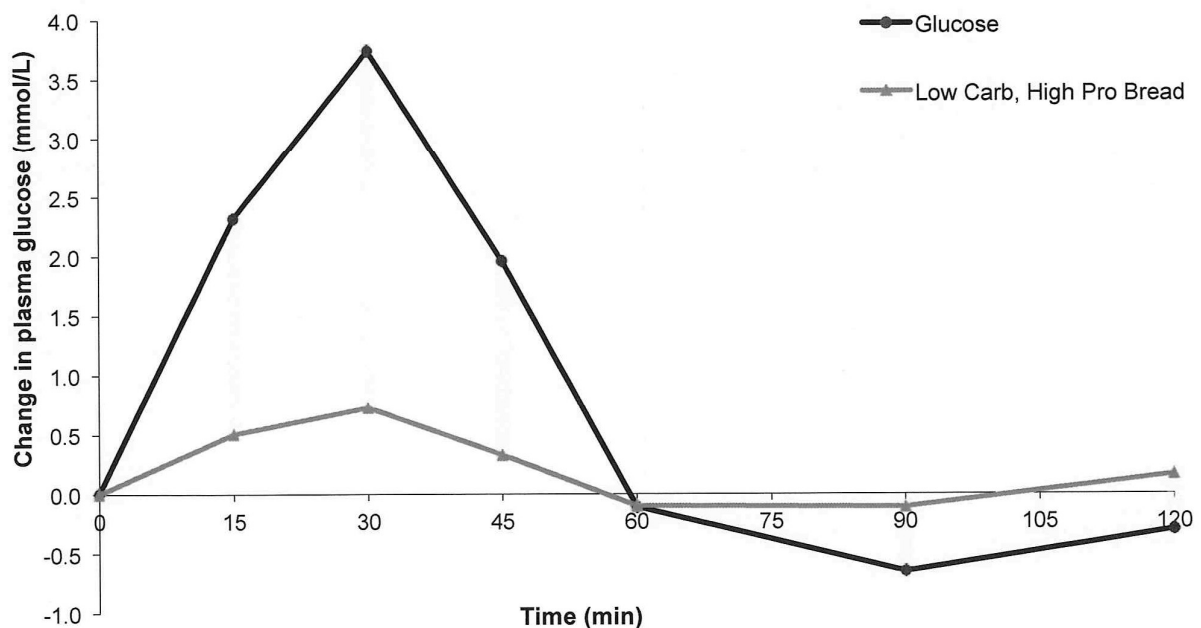
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Results

The average glycemic response curves for the reference food and the test bread

The average two-hour plasma glucose response curves for the 25-gram carbohydrate portions of the reference food and the Low Carb, High Protein Bread are shown in Figure 2 below. The reference food produced a high peak plasma glucose concentration at 30 minutes and the greater overall glycemic response. The test bread produced a small rise in plasma glucose to a low peak concentration at 30 minutes followed by a steady decline in glucose response down to the baseline level by 60 minutes. The plasma glucose response produced by the Low Carb, High Protein Bread remained close to the baseline concentration throughout the second hour of the experimental session.

Figure 2. The average plasma glucose response curves for the equal-carbohydrate portions of the reference food and the test bread, shown as the change in plasma glucose from the fasting baseline level.



Conclusions

Using glucose as the reference food (GI = 100), foods with a GI value less than 55 are currently considered to be low-GI foods (12, 13). Foods with a GI value between 56-69 are medium- or moderate-GI foods, and foods with a GI value of 70 or more are high-GI foods. The Hermanbrot Low Carb, High Protein Bread tested in this study produced an average GI value of 24, which places this bread well within the low GI category. Therefore, the bread would be suitable for consumption by people with diabetes in controlled amounts in line with their individual dietary requirements.

Results obtained from more than 30 different studies conducted by SUGiRS and other research groups have shown that postprandial insulin responses produced by low-fat, carbohydrate-rich foods are directly proportional to the corresponding blood glucose responses, resulting in GI and II values of similar magnitude. However, insulin secretion is not only stimulated by the rise in blood glucose following carbohydrate consumption. Insulin release is also stimulated by fat and protein consumed together with carbohydrate, and by foods that taste exceptionally good, like chocolate. The II value produced by the Low Carb, High Protein Bread was found to be higher than the corresponding glycemic response. This indicates that the glycemic response produced by the test product is not the only factor governing the corresponding postprandial insulin response. These findings are similar to the results of previous studies conducted by SUGiRS and other research groups which have shown that carbohydrate foods that also contain high amounts of protein and fat are particularly effective at enhancing insulin secretion in response to a rise in blood glucose, possibly due to the stimulatory effects of certain amino acids and gut hormones (14 – 17).

GI values are measured using portions of foods and drinks that contain between 25 – 50 grams of digestible carbohydrate, but these may not be similar to the amounts of these products typically consumed by people in normal environments. It is possible to calculate a glycemic load (GL) value for any sized portion of a carbohydrate-containing food, as long as you know its GI value. The GL value for a food or drink is calculated by multiplying the amount of available carbohydrate in the portion of the food or drink by its GI value and then dividing by 100.

Similar to GI values, GL values are useful for helping people identify which types and amounts of foods will produce relatively lower blood glucose responses after consumption – an important consideration for people with diabetes and those at risk of developing it. An average 70-gram serve (i.e. 2 slices) of the Low Carb, High Protein Bread contains a total of 5.2 grams of digestible carbohydrate. Therefore, the GL of an average serve of the bread is $(5.2 \times 24)/100 = 1$. Currently, the consensus is that GL values of 10 or less are low GL; GL values between 11 – 19 are medium GL values; and GL values of 20 or more are high GL values (13).

Sydney University's Glycemic Index Research Service

SUGiRS

The GI values of foods must be tested scientifically. At this stage, only a few research groups around the world currently provide a legitimate testing service. The Human Nutrition Unit at the University of Sydney has been at the forefront of glycemic index research for over a decade and has determined GI values for more than 2500 foods. In 1999, the Human Nutrition Unit established a commercial GI testing unit called 'Sydney University's Glycemic Index Research Service' (SUGiRS) to meet the increasing demand for GI research by local and international food manufacturers and pharmaceutical companies.

Fiona Atkinson and Professor Jennie Brand-Miller are co-authors of *The International Tables of Glycemic Index* published by the scientific journal, *Diabetes Care*, in 2008. Previous editions of the International Tables (published in 1995 and 2002) have proven to be an important reference for health professionals when planning therapeutic diets for people with diabetes. Dr Brand-Miller's books, *The GI Factor* and related pocket books on diabetes, heart disease and weight reduction, are aimed at lay people and health professionals, and have sold more than 150,000 copies in Australia since 1996. A British edition of *The GI Factor* was released in 1997 and a North American edition (*The Glucose Revolution*) was released in July 1999. Each edition of the book includes tables listing the GI values of more than 350 different foods, many of which were tested at the University of Sydney. The glycemic index has been discussed in a number of best-selling books and in magazine articles in relation to a range of health topics such as diabetes, breast cancer and weight control. Publications such as these and ongoing research promoting the healthy nature of low-GI foods have generated an increasing demand for GI research.