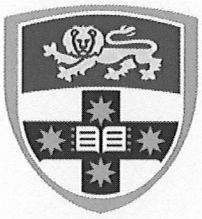
Glycemic Index Research Report #1802

For GRDG Sciences LLC

February 2018



Sydney University's

Glycemic Index Research Service (SUGiRS)

School of Life and Environmental Sciences

Charles Perkins Centre, D17

University of Sydney, NSW, 2006

AUSTRALIA

Ph: +61 2 9351 6018

A study to measure the Glycemic Index value of one sugar product

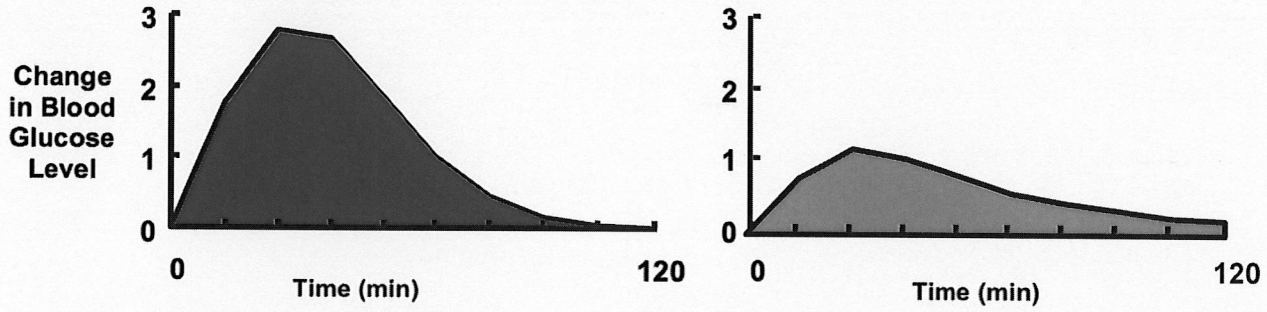
Background Information: The Glycemic Index

Nutrition research conducted in the 1970's showed that different carbohydrates did not have the same effects on blood glucose (sugar) levels after eating. These findings challenged the general assumption that all 'complex' carbohydrates (starches) produce lower blood glucose responses than 'simple' sugars, and questioned the clinical significance of carbohydrate exchange lists that have regulated the diets of people with diabetes for over three decades. These exchange lists are based on the assumption that portions of different foods containing equal amounts of carbohydrate will produce the same blood glucose response.

Consequently, the **glycemic index (GI)** was developed in order to rank equal carbohydrate portions of different foods according to the extent to which they increase blood glucose levels after being eaten (1). Foods with a high GI value contain rapidly digested carbohydrate, which produces a rapid and large rise and fall in the level of blood glucose. In contrast, foods with a low GI value contain slowly digested carbohydrate, which produces a gradual, relatively low rise in the level of blood glucose (Figure 1).

Figure 1. The two-hour blood glucose response curves for a high-GI food (white bread: GI value = 70) and a low-GI food (lentils: GI value = 30).

a. High GI - White bread **b. Low GI - Lentils**



Over two decades of research has confirmed that a food's glycemic effect cannot be accurately predicted from the type and amount of carbohydrate it contains. This is because the rate at which carbohydrate is digested and released into the bloodstream is influenced by many factors, such as the food's physical form, its fat, protein and fibre content, and the chemical structure of its carbohydrate (2). For these reasons, apparently similar foods within the same food group and different flavours of the same food can have quite different effects on blood glucose levels.

GI research has important implications for the food industry and people's health. Scientists now agree that the terms 'complex carbohydrate' and 'sugars', which commonly appear on food labels, have little nutritional or physiological significance. The World Health Organisation released a consensus report stating that these terms should be removed from food labels and replaced with the food's total digestible carbohydrate content and its GI value, in order to help people select foods that will reduce the overall glycemic impact of their diet (3). Currently, many dietitians refer to the glycemic index when planning more flexible diets for people with diabetes. In addition, GI values are being used in scientific research studies to examine the relationship between the overall glycemic effect of people's habitual diets and their risk of developing certain diseases over time. Results from large-scale epidemiological studies have shown that the long-term consumption of a diet with a high glycemic impact, which induces high and recurrent surges in blood glucose and insulin levels, increases the risk of developing diabetes, heart disease and certain cancers (3, 4). In contrast, results from both epidemiological and experimental studies show that low-GI diets can reduce the risk of these diseases, improve blood glucose control and insulin sensitivity in people with diabetes, reduce high blood fat levels, and can be useful for weight control (3, 5-7). Recently, high-GI diets have been shown to enhance body fat storage to a greater extent than equal-calorie low-GI diets in healthy people, which is likely to reflect the greater insulin secretion and lower satiety associated with high-GI foods (8).

Type 2 diabetes and coronary heart disease continue to be the major causes of illness and death in industrialised countries. Therefore, food manufacturers should be encouraged to develop more low-GI foods to assist with the prevention and treatment of these diseases.

Aim of the study

The aim of this study was to measure the glycemic index (GI) value of one sugar product, Laetose/Crushed Candy sugar (70% sucrose and 30% inositol blend), using pure glucose as the reference food (GI of glucose sugar fixed at 100).

Methods

This study was conducted using internationally recognised GI methodology (3, 9, 10), which has been validated by results obtained from small experimental studies and large multi-centre research trials (11). The experimental procedures used in this study were in accordance with international standards for conducting ethical research with humans and were approved by the Human Research Ethics Committee of the University of Sydney.

Subjects

A power-based (90%) sample size calculation using data from many published GI studies indicated that a group of at least 10 people would be needed for this study in order to find a significant difference among the GI values of the reference and test foods, if a significant difference truly exists (a difference of 1.0 standard deviation units in GI). A group of 10 healthy, non-smoking people, aged between 18-65 years, were recruited from the staff and student population of the University of Sydney.

People volunteering to participate in the study were excluded if they: were over- or underweight; were dieting; had impaired glucose tolerance; were suffering from any illness or food allergy; or were regularly taking prescription medication other than standard contraceptive medication. The group that participated in the study consisted of five males and five females. Their average age was 25.8 years (range: 20.7 – 46.5 years) and the group's average body mass index (BMI) was 22.0 kg/m^2 (range: 18.5 – 24.5 kg/m^2). The BMI score is a measure of a person's weight in relation to their height, values between 18 – 25 kg/m^2 are within the healthy weight range.

Test foods

The reference food and the sugar sample were served to the subjects in fixed test portions containing 25-grams of digestible (available) carbohydrate. Pure glucose sugar (Glucodin® powder, Valeant Pharmaceuticals, NSW) dissolved in water was used as the reference food and was consumed by each subject on three separate occasions. The subjects consumed the test sugar on one occasion. The nutritional contents of the equal-carbohydrate portions of the reference food and test sugar sample are listed in Table 1 below, and were calculated using manufacturers' data.

Table 1. The weights and carbohydrate contents of the test portions of the reference food and the sugar sample, calculated using manufacturers' data.

Test food	Available Carbohydrate per 100 grams (g)	Portion Size (g)	Available Carbohydrate (g) in test portion
Reference Food (glucose sugar)	97.3	25.7 g glucose 250 mL water	25.0
Laetose/Crushed Candy	70.0*	35.7 g sugar 250 mL water	25.0

* Only the sucrose content of the product was included as part of the available carbohydrate content. The inositol content was excluded from the available carbohydrate.

Each reference food portion or sugar sample test portion was prepared the day before required by dissolving 25.7 grams of glucose (reference food) or 35.7 grams of Laetose sugar (test food) in 250 mL of warm water in a heatproof glass, which was covered with airtight plastic wrap, labelled and stored overnight in a refrigerator. The next morning, a prepared reference food portion or test sugar portion was taken from the refrigerator shortly before being served to a subject with a glass of 250 mL of plain water. Subjects were required to consume all fluid served.

Experimental procedures

Using standard methodology to determine a food's GI value, a portion of the food containing 25 or 50 grams of available carbohydrate is fed to at least 10 healthy people the morning after they have fasted overnight. A fasting blood sample is obtained and then the test food is consumed, after which additional blood samples are obtained at regular intervals during the next two hours. In this way, it's possible to measure the total increase in blood sugar (glucose) produced by that food or drink over a two-hour period. The same procedure is repeated in the same group of people on another day after they have consumed a portion of the reference food (pure glucose sugar dissolved in water) containing an equal amount of available carbohydrate.

A GI value for the test food can then be calculated by expressing the two-hour blood glucose response to the test food as a percentage of the response produced by the reference food (GI value of glucose = 100). Therefore, GI values for foods are relative measures. They indicate how high blood sugar levels rise after eating a particular food compared to the high response produced by the same amount of carbohydrate from glucose sugar. Equal-carbohydrate portions of the test and reference food are used in GI studies, because carbohydrate is the main nutrient in food that directly causes glucose levels to rise.

Typically, portions of foods containing 50 grams of available carbohydrate are used in GI studies to maximise the blood glucose responses produced by the foods, but in this study it was necessary to use a smaller portion of digestible carbohydrate (25 grams). A portion of the Laetose sugar containing 50 grams of available carbohydrate would have contained a relatively large dose of inositol, which may have caused gastrointestinal side effects in the participants (12). It is valid to use portions of test foods for GI testing that contain less than 50 grams of digestible carbohydrate, as long as the reference food and the test food portions all contain the same amount of digestible carbohydrate.

In this study, 10 healthy people consumed the reference food on three separate occasions and the test product on one occasion only. Therefore, each subject completed four test sessions. The reference food was consumed on the first, third and fourth test sessions, and the Laetose sugar was consumed on the second test session. Each test session was completed on a separate morning with at least a day in between consecutive sessions.

The night before each test session, the subjects ate a regular evening meal based on a carbohydrate-rich food, other than legumes, and then fasted for at least 10 hours overnight. The subjects were also required to avoid alcohol and unusual levels of food intake and physical activity for the whole day before each session. The next morning, the subjects reported to the research centre in a fasting condition. On arrival, the investigators checked that the subjects had complied with the preceding experimental conditions. The subjects then warmed a hand in hot water, after which two fasting finger-prick blood samples (-5 and 0 min) were obtained (≥ 0.5 mL blood) using a non-reusable lancet (Accu-Chek® Safe-T-Pro Plus, Roche Diabetes Care GmbH, Germany). After the second fasting sample (0 min) was obtained, the subjects were given a fixed portion of the test food or reference food, which they consumed with 250 mL of water within 12 minutes. A stopwatch was started for each subject once they began eating.

The subjects remained at the research centre for the next two hours during which additional blood samples were collected at 15, 30, 45, 60, 90 and 120 minutes after eating had commenced. Therefore, a total of eight blood samples were collected from each subject during each two-hour test session. The subjects were required to remain seated during their test sessions and only minimal movement was allowed. Each blood sample was centrifuged for 45 seconds immediately after collection. The plasma layer of the sample was then transferred into a labelled, uncoated tube, and was then immediately placed in a freezer. All plasma samples were stored in the freezer until their glucose concentrations were analysed.

Measurement of plasma glucose concentrations and GI values

The glucose concentration of each subject's eight plasma samples collected during each two-hour test session was analysed in duplicate using a glucose hexokinase enzymatic assay (Beckman Coulter Inc.) and an automatic centrifugal spectrophotometric clinical chemistry analyser (Beckman Coulter AU480®, Beckman Instruments Inc., USA) with internal controls. A two-hour plasma glucose response curve was constructed for each subject's test sessions using the average glucose concentrations for each of their plasma samples. The two fasting plasma samples of each test session were averaged to provide one baseline glucose concentration.

The incremental area under each two-hour plasma glucose response curve (iAUC) was then calculated in order to obtain a single number, which expresses the total increase in blood glucose in that subject as a result of ingesting that food or drink during the two-hour test session. A glycemic index (GI) value for the Laetose/Crushed Candy sugar was then calculated for each subject by dividing their two-hour glucose iAUC value for the test product by their average two-hour plasma glucose iAUC value for the reference food and multiplying by 100.

GI value for test product = Plasma glucose iAUC value for test product x 100

Average iAUC value for the equal-carbohydrate portion of the reference food

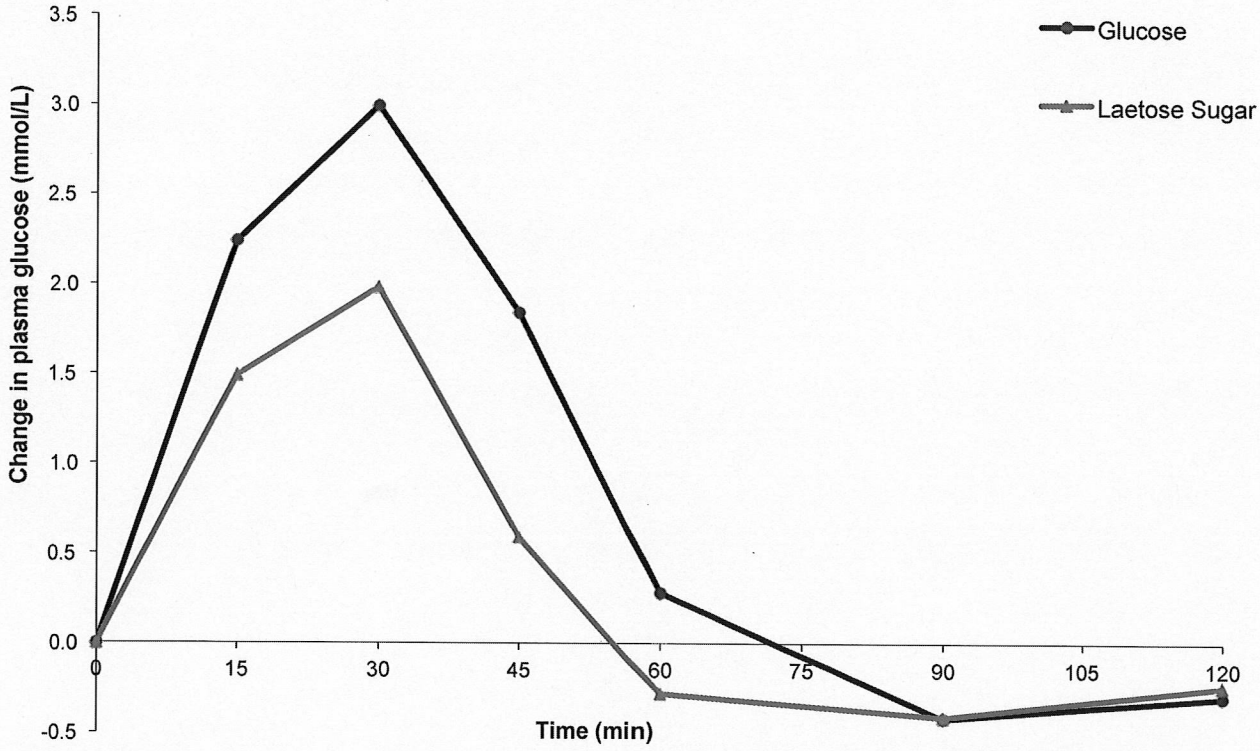
Due to differences in body weight and metabolism, blood glucose responses to the same food can vary between different people. The use of the reference food to calculate GI values reduces the variation between the subjects' blood glucose results to the same food arising from these natural differences. Therefore, the GI value for the same food varies less between subjects than their glucose iAUC values for this food. The subjects' average plasma glucose concentrations for the reference food and the test product are shown in Appendix A.

Results

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

The average two-hour plasma glucose response curves for the 25-gram carbohydrate portions of the reference food and the Laetose sugar are shown in Figure 2 below. The reference food (glucose sugar) produced a rapid rise in plasma glucose to a high peak glucose concentration at 30 minutes and the greater overall glycemic response. The Laetose sugar produced a moderate peak plasma glucose concentration at 30 minutes followed by a steady decline in glycemia down to the baseline response by 60 minutes.

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



The foods' glycemic index values

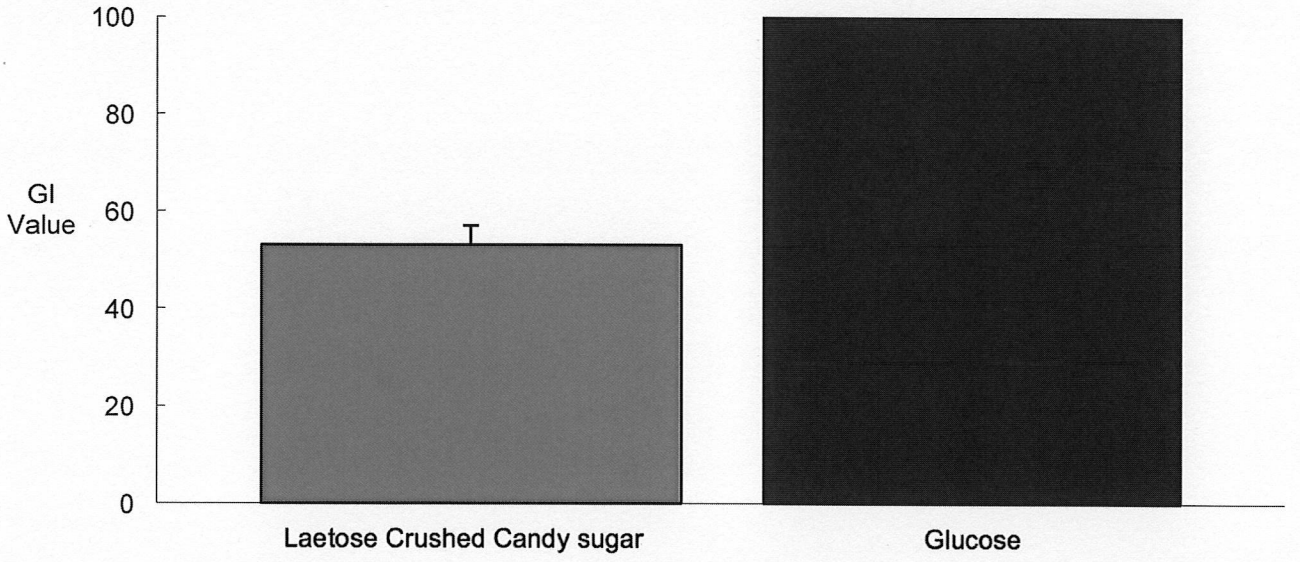
The differences in the glycemic responses produced by the reference food and the test product are more clearly reflected by their GI values than their plasma glucose response curves. The GI values for the Laetose sugar varied among the subjects that participated in the study (Appendix A). This variation between different peoples' responses to the same food is normal and is due to a number of factors, such as different rates at which the subjects ingested the food, differences in the nutrient content of the individual test food portions, differences in the subjects' carbohydrate metabolism, and lifestyle and genetic factors.

It is standard scientific practice that if any individual subject's GI value for a particular food is either greater than the group mean (average) value plus two standard deviations or less than the group mean value minus two standard deviations then that value is classified as an outlier and is removed from the dataset. No outlier GI values were observed amongst the subjects' individual responses for the test product. Therefore the final GI value for the Laetose/Crushed Candy sugar is the average of 10 subjects' data. The mean ± standard error of the mean (SEM) GI values for the test product and the reference food are listed in Table 2 and illustrated in Figure 3.

Table 2. The mean ± SEM GI values for the test product and the reference food.

Test Food	GI value	GI Category
Laetose/Crushed Candy sugar	53 ± 4	Low GI
Reference food (glucose sugar)	100 ± 0	High GI

Figure 3. The mean GI values for the test sugar and the reference food.



Significant differences among the foods' average GI values

Standard parametric statistical tests (Analysis of Variance) was performed using IBM® SPSS® Statistics software (version 24) were used to determine whether there was a significant difference between the GI values of the Laetose sugar and the reference food. The smaller the p value, the more significant the difference, with $p<0.001$ being the most significant difference. The results of these statistical analyses are shown in Appendix B.

The reference food's GI value was significantly greater than the average GI value produced by the Laetose Crushed candy sugar sample ($p<0.001$).

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 (13, 14). 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 Laetose Crushed Candy sugar sample tested in this study produced an average GI value of 53, which places this product within the low GI category.

GI values are measured using portions of foods and drinks that contain between either 25 or 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 serve (i.e. 5 grams) of the Laetose sugar contains a total of 3.5 grams of digestible carbohydrate. Therefore, the GL of an average serve of the sugar is (3.5 x 53)/100 = 2. 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 (14).

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 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 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.

References

1. Jenkins DJA, Wolever TMS, *et al.* Glycemic index of foods: a physiological basis for carbohydrate exchange. *American Journal of Clinical Nutrition* 1981; 34: 362-6.
2. Truswell AS. Glycemic index of foods. *European Journal of Clinical Nutrition* 1992; 46 (Suppl 2): S 91 – S 101.
3. Joint FAO/WHO Report. Carbohydrates in Human Nutrition. FAO Food and Nutrition, Paper 66. Rome: FAO, 1998.
4. Favero A, Parpinel M & Montella M. Energy sources and risk of cancer of the breast and colon-rectum in Italy. *Advances in Experimental Medical Biology* 1999; 472: 51-5.
5. Brand-Miller JC. The importance of glycemic index in diabetes. *American Journal of Clinical Nutrition* 1994; 59 (Suppl): 747 S – 752 S.
6. Slabber M, Barnard HC, *et al.* Effects of low-insulin-response, energy-restricted diet on weight loss and plasma insulin concentrations in hyperinsulinemic obese females. *American Journal of Clinical Nutrition* 1994; 54: 846-54.
7. Holt S, Brand-Miller J, *et al.* A satiety index of common foods. *European Journal of Clinical Nutrition* 1995; 49: 675 - 690.
8. Bouché C, Rizkalla SW, *et al.* Five week, low-glycemic index diet decreases fat mass and improves plasma lipid profile in overweight nondiabetic men. *Diabetes Care* 2002; 25: 822-8.
9. Australian Standard®; AS 4694:2007. Glycemic index of foods.
10. International Standard®; ISO/FDIS 26642:2010. Food products – Determination of the glycaemic index (GI) and recommendation for food classification.
11. Wolever TMS, Vorster HH, *et al.* Determination of the glycemic index values of foods: an interlaboratory study. *European Journal of Clinical Nutrition* 2003; 57: 475-82.
12. Carlomagno G, Unfer V. Inositol safety: clinical evidences. *European Review for Medical and Pharmacological Sciences* 2011; 15: 931-6.
13. Brand-Miller J, Foster-Powell K, & Colagiuri S. The New Glucose Revolution (revised edition). Sydney: Hodder Headline publishers, 2002.
14. Atkinson FS, Foster-Powell K, & Brand-Miller JC. International tables of glycemic index and glycemic load: 2008. *Diabetes Care* 2008; 31: 2281-3.

Appendix A

The individual subjects' plasma glucose results

GRDG Sugar Study 2018

Reference Food: Glucodin glucose solution - 25 grams

Time (min)	Subjects 1 S1326	2 S1332	3 S1329	4 S1170	5 S1177	6 S1334	7 S1337	8 S1335	9 S1254	10 S1265	MEAN
0	5.43	5.38	5.25	4.96	5.28	5.17	5.38	5.38	5.26	5.53	**5.30**
15	7.17	7.06	8.82	7.57	8.25	7.96	7.11	7.08	7.34	6.20	**7.45**
30	8.70	8.00	9.22	8.74	7.53	9.10	9.79	8.03	8.68	6.59	**8.44**
45	8.29	6.23	3.85	7.70	6.26	7.20	8.99	5.60	8.13	7.61	**6.98**
60	7.37	5.11	4.08	5.84	5.76	4.70	5.35	4.91	7.12	6.64	**5.69**
90	4.92	5.34	5.37	4.38	5.34	4.26	4.32	5.15	4.44	5.22	**4.87**
120	5.03	5.30	5.08	4.68	5.26	4.71	4.86	5.24	4.21	5.37	**4.97**
iAUC	**156**	**76**	**106**	**151**	**105**	**128**	**146**	**67**	**159**	**78**	**117**
Mean iAUC of reference foods	**169**	**69**	**89**	**152**	**118**	**116**	**152**	**71**	**165**	**85**	

GRDG Sugar Study 2018

Reference Food: Glucodin glucose solution - 25 grams

	Subjects										
Time (min)	1 S1326	2 S1332	3 S1329	4 S1170	5 S1177	6 S1334	7 S1337	8 S1335	9 S1254	10 S1265	MEAN
0	5.36	5.40	5.13	5.00	5.25	5.16	5.15	5.26	5.44	5.36	**5.25**
15	7.65	7.67	8.51	7.23	8.66	8.13	8.25	7.00	7.80	6.87	**7.77**
30	8.67	7.79	6.86	7.87	9.30	8.32	9.79	7.43	8.22	7.73	**8.20**
45	8.34	5.80	4.75	7.15	7.98	6.53	9.03	5.44	7.06	6.88	**6.89**
60	6.41	4.26	4.22	5.38	5.15	4.40	4.97	5.02	6.70	5.31	**5.18**
90	5.01	4.95	5.13	4.54	4.69	4.52	3.81	5.46	4.20	5.54	**4.78**
120	5.53	4.98	5.22	4.90	5.03	4.70	4.34	5.49	4.56	5.45	**5.02**
iAUC	**149**	**74**	**76**	**114**	**152**	**109**	**173**	**68**	**120**	**86**	**112**
/lean iAUC of eference foods	**169**	**69**	**89**	**152**	**118**	**116**	**152**	**71**	**165**	**85**	

GRDG Sugar Study 2018

Reference Food: Glucodin glucose solution - 25 grams

Time (min)	Subjects 1 S1326	2 S1332	3 S1329	4 S1170	5 S1177	6 S1334	7 S1337	8 S1335	9 S1254	10 S1265	MEAN
0	5.41	5.21	5.37	4.73	5.16	5.04	4.85	5.51	5.38	5.54	**5.22**
15	5.70	7.29	8.35	7.88	7.18	6.54	8.79	7.64	7.36	6.04	**7.28**
30	7.44	6.68	8.29	9.51	7.88	7.93	8.97	7.77	9.78	6.63	**8.09**
45	10.65	5.63	5.11	8.40	6.82	7.72	6.22	6.46	9.48	7.86	**7.43**
60	8.38	4.93	3.68	5.72	5.26	5.57	3.97	4.57	8.19	7.09	**5.73**
90	6.33	4.79	5.11	3.78	4.71	3.96	4.11	5.22	5.03	5.45	**4.85**
120	4.94	5.09	5.27	4.84	4.74	4.67	4.68	5.29	3.98	5.31	**4.88**
iAUC	**203**	**58**	**87**	**190**	**97**	**112**	**137**	**76**	**216**	**92**	**127**
Mean iAUC of reference foods	**169**	**69**	**89**	**152**	**118**	**116**	**152**	**71**	**165**	**85**	

GRDG Sugar Study 2018

Laetose Sugar (Sucrose + Inositol): Crushed Candy

	Subjects										
Time (min)	1 S1326	2 S1332	3 S1329	4 S1170	5 S1177	6 S1334	7 S1337	8 S1335	9 S1254	10 S1265	MEAN
0	5.46	5.38	5.39	4.99	5.06	5.35	5.32	5.47	5.32	5.38	**5.31**
15	6.54	6.73	7.02	7.00	6.79	6.80	7.08	5.98	8.42	5.66	**6.80**
30	8.22	5.63	7.51	8.21	6.44	7.99	8.10	6.53	7.73	6.54	**7.29**
45	7.13	4.54	5.17	6.19	5.89	6.33	6.83	5.51	5.32	6.13	**5.90**
60	6.62	4.61	4.08	4.86	4.68	5.38	4.87	4.80	4.54	5.84	**5.03**
90	5.22	5.01	4.86	4.50	4.90	4.50	4.58	5.27	4.83	5.40	**4.90**
120	5.27	5.25	5.21	4.89	4.99	4.71	4.81	5.16	5.06	5.32	**5.07**
iAUC	**106**	**23**	**55**	**96**	**58**	**76**	**89**	**24**	**84**	**44**	**65**
(by subject)	**63**	**33**	**62**	**63**	**49**	**65**	**58**	**34**	**51**	**51**	**53**

FINAL GI = 53 **n = 10** **SEM = 4**

GRDG Sugar Study 2018

Subject Characteristics

Subject	Gender	Age	BMI	Ethnicity
S1326	F	20.8	23.5	Caucasian
S1332	F	21.2	22.4	Caucasian
S1329	M	21.0	22.4	Caucasian
S1170	F	22.9	22.3	Chinese
S1177	F	22.4	19.6	Caucasian
S1334	M	25.0	21.6	Caucasian
S1337	M	20.7	22.5	Caucasian
S1335	M	21.8	22.7	Caucasian
S1254	F	35.7	18.5	Chinese
S1265	M	46.5	24.5	Caucasian
MEAN	**5 F**	**25.8**	**22.0**	
StDev	**5 M**	**8.6**	**1.8**	
min		20.7	18.5	
max		46.5	24.5	

Appendix B

Statistical analyses of the foods' GI values

These analyses were performed using IBM® SPSS® Statistics software (version 24). The first part of the analysis (Analysis of Variance (ANOVA)) indicated that a significant difference existed between the GI values of the reference food and the test product. A value of $p<0.05$ indicates a significant difference.

Oneway

Descriptives

GI

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Ref Food	10	100.000	.0000	.0000	100.000	100.000
Laetose sugar	10	52.810	11.8109	3.7349	44.361	61.259
Total	20	76.405	25.5363	5.7101	64.454	88.356

Descriptives

GI

	Minimum	Maximum
Ref Food	100.0	100.0
Laetose sugar	32.6	65.4
Total	32.6	100.0

ANOVA

GI

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11134.481	1	11134.481	159.638	.000
Within Groups	1255.469	18	69.748		
Total	12389.950	19			