GI News—November 2011

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Prof David Jenkin's *Glycemic index of foods: a physiological basis for carbohydrate exchange* published in 1981 dramatically changed our understanding of carbohydrates and their effect on our bodies. Since then, research around the world has highlighted that the GI has implications for everybody including helping people maintain weight loss. To celebrate the 30th anniversary of its publication in *AJCN*, Fiona Atkinson, Manager of SUGiRS spoke with Prof Jenkins about the background to publishing the original paper and his current thoughts on GI, diet and health in general and Dr Alan Barclay reports on the incredible GI research journey.

Good eating, good health and good reading.

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Food for Thought

Fiona Atkinson talks to Prof David Jenkins on GI, diet and longterm health
'I recently had a great opportunity to talk to Professor David Jenkins (a professor in the Departments of Medicine and Nutritional Sciences, Faculty of Medicine, University of Toronto, a staff physician in the Division of Endocrinology and Metabolism, and the Director of the Clinical Nutrition and Risk Factor Modification Center, St. Michael's Hospital) to find out where the science of GI started. But we didn't just cover GI but also other hot topics in nutrition such as vegetarian/vegan diets!'

FA: *Did you have any idea at the time that the implications of your research and the paper Glycaemic index of foods: a physiological basis for carbohydrate exchange* (www.ajcn.org/content/34/3/362.long) *would be so far reaching?*
DJ: We thought it would be broad because diabetes was linked with heart disease, renal disease, and with blindness. We didn't want to even speculate how far this was going to go. We thought it was important because it was looking at diet from the physiological point of view and not simply from the chemical point of view.
FA: *These days it typically takes 6 months for a paper to be reviewed/amended and then accepted for publication. Were there any challenges getting the study published at the time?*
DJ: You'd be surprised, really surprised but Ted Van Itallie, who was editor of *AJCN*, a really nice guy and well known in terms of his work on obesity accepted the paper we sent

him without revision and published it! Never before nor since have I had that treatment. The next surprise was that we got no requests for reprints, it was absolutely unnoticed for the next year. It was accepted without comment and without criticism, it was published and it was ignored.

FA: *What did you do to follow up?*

DJ: The data in the original publication included many studies, so we broke out many of the things already imbedded in it and started showing that pulses (beans, peas and lentils), were low GI foods; that cereal fibre didn't necessarily make a difference and wheat fibre only made a small difference, which was again a surprise; and that pasta was different from bread. We must have done some self promotion and we referenced the original paper to make people aware that we made these discoveries before. I think people started to become interested in fibre or pasta or beans and I think that meant that there was a general interest. Out of all the papers that I've written and published, it's had the slowest generation of interest but on the other hand it's had the most sustained [interest].

FA: *What do you see as the short term and long term benefits of adopting a low GI diet to prevent or treat disease*.

DJ: I think that keeping glycemia under control stops you from stressing your pancreas, stops you from getting too much free radical damage and stops you from oxidising LDL [cholesterol], and stops you from glycating your haemoglobin. All these things may in the end have adverse consequences. Do I think that it matters that sleek, lean athletes who haven't got an ounce of fat on their body, who's blood glucose profile is flat and rarely raises above baseline are people on low GI diets. No – I think they can have high GI foods all the time and they can do what they like in life but in fact they don't because by definition they're trained athletes, by definition they're incredibly disciplined, by definition they eat regularly and they exercise hard – they burn all their calories. So by definition they're not slouches. But for the rest of us, mere mortals who don't take any exercise and eat too much, watch too much television and do too much in front of computers and perhaps are driven to smoke – we really need to start thinking about how we are going to look after ourselves. We are becoming increasingly the norm, in fact we are the norm – the human greyhound is the abnormal person now.

FA: *If you were going to give someone tips for the best things they could do for their longterm health, reducing disease risk even for the health of the planet and sustainability*?

DJ: I think the first tip is focus on plant foods. The next tip is look at higher protein plus or minus the higher vegetable oil/vegetable protein foods such as nuts and legumes. Leafy vegetables are actually high in protein with very little fat and carbohydrate so these are useful. I think fruit is … should be the pleasure in life. Temperate climate fruit have a low GI so if you're a little more overweight or a little insulin resistant you may have to forgo too many mangoes or too many bananas. Stick to apples, pears, peaches, blueberries, blackberries, raspberries, strawberries – the berries – are generally good, I think that's important. Obviously if you're eating well, you must exercise well to the best of your ability – that's important and often overlooked.

FA: *What do you see as the benefit of going meatless*?

DJ: I think the benefits are basically on an humanitarian perspective – I used to put that as a sort of rider at the end but I think now it's becoming the first issue as human beings. Second, I think one has to think of the environmental issues. They always say it's a ten to one ratio for plant based diet versus an animal based diet in terms of land consumption, water usage, which is obviously a problem in many places, and basically environmental impact and environmental degradation. We cannot afford to have the whole planet geared to feeding cattle that feed us, this seems to be an insanity that we accept because it's palatable. I think those are really strong reasons. I think that if one is sensible and one watches B12 and one's

diet, one can live very well on a vegetarian or vegan diet.

News Briefs

Babies and blood glucose
In a review in *The British Journal of Nutrition* (www.ncbi.nlm.nih.gov/pubmed/20307352) of the current literature on maternal glycemia and the role of the dietary GI and its impact on pregnancy outcomes, the authors conclude: 'Data from clinical studies in healthy pregnant women have documented that consuming a low-GI diet during pregnancy reduces peaks in postprandial glucose levels and normalises infant birth weight. Pregnancy is a physiological condition where the GI may be of particular relevance as glucose is the primary fuel for fetal growth.'

Prof Jennie Brand-Miller explains. 'A woman's body changes during pregnancy to ensure a steady supply of glucose to her baby,' she says. 'Glucose is the main fuel the baby uses to grow and it crosses freely from mother to baby through the placenta. How much glucose the baby receives depends directly on the mother's blood glucose level and the rate of placental blood flow. If a woman's blood glucose level is high, then higher levels of glucose will also be transferred to her baby. Babies make their own insulin from about 15 weeks to handle glucose. So the extra glucose stimulates the baby's pancreas to make extra insulin. The extra glucose is metabolised and stored, making the baby grow bigger and fatter than normal. The good news for pregnant women is that by treating elevated glucose levels during pregnancy, the risk of any problems drops considerably. And this is where the GI comes to the fore. Foods with a low GI typically evoke a lower rise in blood glucose levels, making maintenance of normal glucose levels easier.'

Physical activity matters for managing BGLs
When healthy young people cut back their physical activity by about half for three days, they doubled their postprandial glucose responses to their meals according to findings of a study in *Medicine & Science in Sports & Exercise* (www.ncbi.nlm.nih.gov/pubmed/21716152). 'We now have evidence that physical activity is an important part of the daily maintenance of glucose levels,' says author Professor John Thyfault. 'Even in the short term, reducing daily activity and ceasing regular exercise causes acute changes in the body associated with diabetes that can occur before weight gain and the development of obesity.' Thyfault monitored the activity levels and diets of 12 healthy and moderately active young adults. When the participants reduced their physical activity by 50% for three days while continuing to enjoy the same diet, the continuous glucose monitors that they wore showed significantly increased levels in BGLs after meals. 'This study shows that physical activity directly impacts health issues that are preventable,' says Thyfault. 'It is recommended that people take about 10,000 steps each day,' 'Recent evidence shows that most Americans are only taking about half of that, or 5000 steps a day. This chronic inactivity leads to impaired glucose control and increases the risk of developing diabetes.'

What's New?
Event: World Diabetes Day is held on November 14. Each year WDD features a theme chosen by the International Diabetes Federation. The slogan chosen for this year's campaign is: Act on Diabetes. Now. Check the website (www.idf.org/worlddiabetesday) to find out what's happening.

Get the Scoop with Emma Stirling

The scoop on sugar-free foods

For many years people with diabetes were told to cut out sugar completely. So it's not surprising that we saw a huge increase in the number of products, from chewing gum to yoghurt, sweetened with alternatives. But in recent times 'sugar free' has come under the spotlight and the story for good health, may turn out to not be as sweet.

Sugar free does not mean calorie free. Just because your chocolate bar says 'sugar free' doesn't mean that it is necessarily low in calories or will miraculously help you melt that fat away. Be careful to look at the total profile of a food by reading the nutrition information panel. If you bypass this step, you may be falling into the trap of a health halo – latching on to one prominent message and giving yourself permission to overeat or over compensate. Just because you were 'good' and had a diet cola does not automatically make way for a 'sugar-free' chocolate brownie indulgence.

Other concerns over sugar-free foods have surfaced. Some researchers have suggested that foods with artificial sweeteners may trigger hunger and cravings, but more studies are needed. And nutritionists have reported caffeine addictions when people get into the habit of swilling down large quantities of diet cola beverages all day. But it's the new insights into dental health and that 'sugar free' label that's got everyone talking.

Sugar-free foods are not all tooth friendly. We know that dental cavities can form when bacteria in your mouth convert sugars into acid, which then breaks down tooth enamel. So it would make sense that sugar-free foods would be a top choice for dental health. Indeed, some alternative sweeteners like xylitol have been shown in clinical trials to be 'tooth friendly'. The problem is that you can't make this same assumption for all sweeteners as a group. You see another sweetener sorbitol may be converted by bacteria in your mouth to acid. Furthermore, a recent study published in the *British Dental Journal* (www.nature.com/bdj/journal/v211/n7/full/sj.bdj.2011.823.html) has shown that many sugar-free foods may in fact have a high acid content to start with. The presence of flavours, preservatives and other additives may make the food or drink highly acidic, which would cancel out the sugar-free benefits and could still lead to dental erosion.

The scoop Don't panic if you enjoy sugar-free foods, these are just some new insights to keep in mind when balancing your healthy choices. Enjoying a sugar-free treat with a meal, rather than on its own and regularly brushing and flossing your teeth can minimise acid contact with your teeth.

Or perhaps you can satisfy your sweet tooth with a little sugar? Many studies in the past 20 years show that a moderate amount of sugar (e.g. 30–50 grams or 6–10 teaspoons a day) does not adversely affect BGLs (if you have diabetes) nor lead to unwanted weight gain. Keep in mind, however, that this moderate amount includes all sources of refined sugar you consume over the day – white, brown, raw, treacle, golden syrup, soft drinks, desserts, cookies, breakfast cereals or a teaspoon of sugar added to a cup of tea or coffee. For a sweet, icy treat with a healthy twist, try my recipe for Yogurt Pavlova Popsicles (www.scoopnutrition.com/2011/08/recipe-redux-greek-yogurt-pavlova-popsicles)!

Emma Stirling is an Accredited Practising Dietitian and health writer with over ten years

experience writing for major publications. She is editor of The Scoop on Nutrition (www.scoopnutrition.com) – a blog by expert dietitians. Check it out for hot news bites and a healthy serve of what's in flavour.

In the GI News Kitchen

American dietitian and author of *Good Carbs, Bad Carbs*, **Johanna Burani**, shares favourite recipes with a low or moderate GI from her Italian kitchen. For more information, check out Johanna's website at www.eatgoodcarbs.com. The photographs are by Sergio Burani. His food, travel and wine photography website is photosbysergio.com.

Broccoli rabe tricolore
'Tricolore' is how the Italians refer to their national flag. It has three colors: green white and red. And those are the colors you will see looking at you from this dish. Broccoli rabe is more popular in the US than it is in northern Italy so when I find it and make it for my friends in Friuli, they devour it! And don't be fooled: the simplicity of this recipe belies its full-bodied taste. To clean broccoli rabe, cut away about 2cm (1in) from the bottom of the stems and remove any discolored leaves Makes 4 servings.

1 bunch broccoli rabe, cleaned
4–5 sun-dried tomatoes, cut in thin strips
¼ tsp salt
1½ tbsp good quality olive oil
30g/1oz ricotta salata, shredded

Place the broccoli rabe in a large sauté pan, add 1 cup water, cover and let simmer for approximately 8 minutes, or until stems are tender. Drain off all the water.
Add the tomatoes, salt and oil. Mix well in the pan. Transfer to serving dish. Top with prepared cheese. May be served warm or at room temperature.

Per serve
Energy: 530kJ/112cals; Protein 6g; Fat 7g (includes 1g saturated fat and 4mg cholesterol); Available carbohydrate 7g; Fibre 4g

Cut back on the food bills and enjoy fresh-tasting, easily prepared, seasonal, satisfying and delicious low or moderate GI meals that don't compromise on quality and flavour one little bit with this **Money Saving Meals** recipe from *The New York Times* best-seller, *Forks Over Knives*. For more recipes check out the Money Saving Meal website at www.moneysavingmeals.com.au.

Vanilla pannacotta with strawberry salsa
If you have a sweet tooth, you'll enjoy the light and healthy sweet endings Foodwatch's Catherine Saxelby and Woman's Day Food Director Jennene Plummer have created in their *Zest* cookbook. Jennene says: 'If you don't use gelatine very often in your cooking, remember to let it cool to the same temperature as the yoghurt mix. This minimises the risk of lumps forming and ensures you achieve that desirable creamy smoothness.' Serves 6

2 x 200g (7oz) tubs no-fat vanilla yoghurt
2 tbsp honey (or to taste)
½ teaspoon vanilla paste or pure vanilla extract
3 tsp gelatine
1/4 cup (60ml) just boiled water

Strawberry salsa
250g/9oz (1 punnet) strawberries, hulled and chopped
1 tbsp icing sugar
1 tbsp Grand Marnier or orange juice

Chill six 80ml (1/3 cup) moulds. Combine the yoghurt, honey and vanilla in a large mixing bowl. **Dissolve** the gelatine by whisking vigorously in hot water in a small jug. Allow to cool slightly.
Beat a little of the yoghurt mixture into the gelatine to equalise the temperature, then whisk this back into the yoghurt mixture until well combined. Pour into the prepared moulds and chill until almost set. Cover with plastic wrap and chill overnight.
Combine the strawberries, icing sugar and Grand Marnier (or orange juice) in a mixing bowl and toss together gently to make the salsa. Cover and chill until required.
Unmould the pannacottas by carefully running a blunt knife around the rim of each mould and then dipping them into hot water for a few seconds. Invert onto serving plates and shake firmly. Carefully lift away the moulds. Serve the pannacottas with a spoonful of strawberry salsa.

Per serve
Energy: 435kJ/104cals; Protein 6g; Negligible fat; Available carbohydrate 17g; Fibre 1g

Zest is available from Catherine's website, Foodwatch (http://foodwatch.com.au/books/zest-cookbook.html).

Busting Food Myths with Nicole Senior

Myth: Taking vitamin supplements make you healthier
Fact: Supplements are only helpful to cover deficiencies and only paper over the cracks of a poor diet. There are some health risks attached to popping nutrient pills.
This month's topic came about after a study was published in the well-respected journal *Archives of Internal Medicine* (http://archinte.ama-assn.org/cgi/content/abstract/171/18/1625) that found women who took multivitamins were actually at increased risk of dying compared to those who didn't. The researchers followed 39,000 older American women participating in the US Women's Health Study between 1986 and 2008, and arrived at this startling conclusion after accounting for the usual lifestyle factors such as body weight, smoking, alcohol and exercise levels. They also found taking some individual nutrient supplements was risky, namely vitamin B6, folic acid, iron, magnesium, zinc and copper. On the plus side, they found taking calcium reduced risk. This is not the first study to find that taking vitamins and minerals in supplement form is not as healthy as it seems: a meta-analysis and systematic review of 68 randomised trials in *JAMA* (http://jama.ama-assn.org/content/297/8/842.full) found increased risk of dying from supplemental beta-carotene, vitamin A, and vitamin E.

Vitamins and mineral supplements are a massive global business and have a done a great job in convincing those of us concerned about our health that popping vitamins daily is a good

idea, just in case. However research has demonstrated that people who regularly take nutrient supplements are least likely to need them. It's the 'worried well' who are filling the coffers of supplement marketers. As many vitamins are water-soluble and excess is excreted: they are simply creating brightly coloured, nutrient-charged urine. Fat-soluble nutrients (e.g. vitamins A, D, E) can actually build up in the body to toxic levels.

But supplements are not all bad. Sometimes they are a good idea: for example taking folate if planning a pregnancy, calcium if don't eat dairy, iron if you are female and vegetarian, vitamin D if you're deficient, or fish oil if you don't eat seafood. Supplements can be very beneficial for vulnerable groups such as the frail elderly and others who for medical reasons struggle to eat a nutritious diet. But as a general health tonic, forget it: you're better off spending money on eating better.

Food is complex: there are thousands of phytochemicals in plant foods we haven't even named yet, and more bio-active substances in animal foods being discovered all the time. No doubt there are synergies between nutrients and other substances in food we can only speculate about at this point in time. It really is rather arrogant of us to expect we can replicate the goodness in food and sell it in a bottle. So if you're keen to boost your health and wellbeing, skip the vitamin store and head straight to the food market. You can get all you need and more from two fruit, five veggies, legumes, wholegrain and low GI grain foods, lean meat, eggs, poultry and seafood, reduced fat dairy, oils, spreads, nuts and seeds. If you feel you're diet is inadequate see a dietitian (APD/RD) to find out if you need to take supplements, which ones, and how much to reduce the risk of harm and wasted money.

Nicole Senior is an Accredited Practising Dietitian and Nutritionist and author of *Eat to Beat Cholesterol*, *Heart Food* and *Belly Busting for Blokes(*www.bellybusting.com.au*)*.

GI Symbol News with Dr Alan Barclay

The incredible GI journey
Research on the GI started a world-wide glucose revolution as it clearly showed that carbs didn't affect our BGLs the way we thought they did at all. Initially freeing people with diabetes from overly restrictive diets, using the GI as a dietary tool has moved on to weight management and prevention of diabetes and heart disease. Today it's also being linked to inflammatory diseases, birth defects, memory, different types of cancer and healthy eyes. There's even research that suggests that food 'addiction' is related to high blood glucose spikes. Prof Jennie Brand-Miller is currently involved in research applying low GI diets to pregnancy. Here are the some milestones in this new glucose revolution.

1977: Dr Phyllis Crapo and colleagues look at the effect of a range of different starchy foods on blood glucose and insulin levels in a group of 16 adults. When they compared the effect of a portion of food calculated to contain 50g available carbohydrate on the total area under the blood glucose and insulin curve for a period of 3 hours after eating, they found that corn and rice produced the lowest glucose and insulin response curves, and potato the highest, with bread in between.

1978: Using a similar methodology, Dr Mark Wahlqvist investigates the effect of 50g of glucose and a range of different starches on the total area under the blood glucose and insulin response curves in a group of 6 adults, for a period of 5 hours. Surprisingly to scientists and health professionals at that time, they found no differences in the glucose or insulin response

between glucose and the different sized starches.

1981: Dr David Jenkins, Dr Tom Wolever and colleagues develop the concept of the glycemic index (GI). They fed groups of 5–10 healthy fasting adults, 62 commonly eaten foods each containing 50g available carbohydrate. BGLs were measured over 2 hours and expressed as a percentage of the area under the glucose response curve and compared with the same amount of carbohydrate consumed as pure glucose. Starchy vegetables like potatoes had the highest GI values (70%), followed by breakfast cereals (65%), cereal grains and biscuits (60%). Fruit (50%), dairy products (35%) and legumes (31%) had a relatively small affect on blood glucose in comparison. Despite controversial beginnings, the GI is now widely recognized as a reliable, physiologically based classification of foods according to their postprandial glycemic effect.

1994: American Diabetes Association guidelines drop specific recommendations for people with diabetes to limit the amount of 'simple sugars' – and most of the diabetes associations around the world quickly followed suit.

1995: Kaye Foster-Powell and Prof Jennie Brand-Miller publish the first *International tables of glycemic index* in the *American Journal of Clinical Nutrition* (www.ncbi.nlm.nih.gov/pubmed/7572722), bringing together all of the published data on the GIs of individual foods (almost 600). The tables show the GI according to the glucose and white bread standards, the type and number of subjects tested and the source of the data.

1997: WHO/FAO (www.fao.org/docrep/W8079E/W8079E00.htm) recommend that the terms 'simple sugar' and 'complex carbohydrate' no longer be used to describe carbohydrate foods. They recommend the use of the GI and total carbohydrate as the best guides to the effect of carbohydrate foods on blood glucose levels.

2002: Kaye Foster-Powell, Dr Susanna HA Holt and Professor Jennie Brand-Miller publish the revised *International table of glycemic index and glycemic load values* (www.ncbi.nlm.nih.gov/pubmed/12081815) with almost 3 times the number of foods listed in the original table.

2007: The *Cochrane Review* (www.ncbi.nlm.nih.gov/pubmed/17636786) of the evidence from randomised controlled trials on GI in the management of overweight and obesity finds that overweight or obese people on low GI diets lost more weight (measured in body mass, total fat mass and BMI) and improved their cholesterol profiles (total and LDL 'bad' cholesterol) more than those receiving conventional 'healthy' diets.

2008: The first systematic review and meta-analysis (www.ncbi.nlm.nih.gov/pubmed/18326601) of all valid studies investigating the role of GI in the prevention of type 2 diabetes finds that high GI diets increase the risk of developing type 2 diabetes by 40%. This is comparable to the increase in the risk of developing heart disease when people consume a high saturated fat diet.

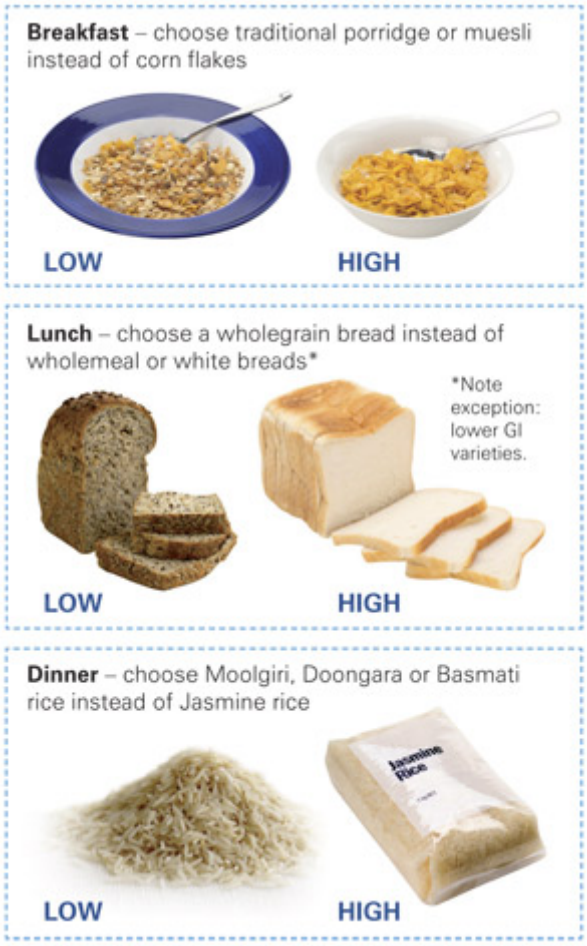
To improve the quality and quantity of GI data available for research and clinical practice, Fiona Atkinson, Kaye Foster-Powell and Prof Jennie Brand-Miller publish the *International tables of glycemic index and glycemic load values: 2008* (www.ncbi.nlm.nih.gov/pubmed/18835944) in *Diabetes Care* listing the GI of over 2480 individual food items.

2009: The *Cochrane Review* (www.ncbi.nlm.nih.gov/pubmed/19160276) of all of the evidence from randomised controlled trials on the GI in the management of diabetes finds that the use of the GI by people with diabetes leads to a 0.5% point decrease in glycated haemoglobin, or HbA1c, above and beyond that achieved by regular healthy diets, plus it reduces the risk of hypoglycaemia. A 0.5% point decrease in HbA1c is equivalent to what many diabetic medications and insulin's can achieve, and will reduce the risk of common diabetic complications by 10%–20%.

2010: The International Standard (www.ncbi.nlm.nih.gov/pubmed/19160276) designed to measure the glycemic index (GI) of foods (ISO 26642:2010) sets out the internationally recognised scientific method to determine the GI of foods to ensure nutrition and health claims made on food labels can be trusted and to assist food producers formulate healthier low GI products.

The DioGenes (www.ncbi.nlm.nih.gov/pubmed/21105792) study determined that a healthy low GI diet, moderately high in protein, is the best eating plan for long-term weight management.

But while the science of GI is ongoing and can be complex, lowering the GI of your diet today isn't. It's really simple – you swap a high GI food for a low GI food from within food categories – a low GI bread instead of a high GI one, a low GI breakfast cereal for a high GI one. Here's how:



The GI Symbol, making healthy low GI choices easy choices

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GI Update

Prof Jennie Brand-Miller answers your questions

Can the GI be applied to everyday meals?
Criticism of the GI has focused on unpredictable outcomes of blood glucose values after meals because of variations in fat, protein and fibre content. Most of our meals consist of a variety of foods – not just a single food. Even though GI values are derived from testing single foods in isolation, we and other scientists have found that it is possible to predict the ranking of blood glucose responses among meals that consist of several foods with different GI values.

Concerned about the methodology of recent studies showing unpredictable responses, we and our co-researchers at the University of Toronto's Department of Nutritional Sciences conducted studies with mixed meals on two groups of healthy subjects in Toronto and Sydney. We had previously done smaller studies, but we wanted to revisit the question, using more meals and variety in two different centres with judiciously selected foods. This time, 14 different test meals were used in Sydney and Toronto, and the food combinations reflected a range of typical breakfast choices.

Despite the variations in food factors, relative blood glucose responses remained consistent with GI measures. In fact, we were startled by the degree of predictability. The carbohydrate, fat and protein composition of the meals varied over a wide spectrum. The glucose responses varied over a fivefold range, and yet 90 per cent of that variation was explained by the amount of carbohydrate in the meal and the GI values of the foods as given in published GI

tables. We found that the GI works just as predictably whether subjects consume a single portion of one item or a normal meal; we reported these findings in the *American Journal of Clinical Nutrition* (www.ncbi.nlm.nih.gov/pubmed/16762941).

More recently, we systematically tested 121 single foods in 1000 kJ portions and 13 mixed meals in 2000 kJ servings. There were wide variations in carbohydrate, fat, protein and fibre content. We found that the GI and/or glycemic load were best predictors of the magnitude of hyperglycaemia and insulinemia, outstripping carbohydrate content in every instance. Indeed, among the mixed meals, carbohydrate was not even a significant predictor. These findings were also published in the *American Journal of Clinical Nutrition* (www.ncbi.nlm.nih.gov/pubmed/21325437).

Another study in a recent issue of the *American Journal of Clinical Nutrition* (www.ncbi.nlm.nih.gov/pubmed/21831990) concluded that there is substantial uncertainty in predicting the GI of mixed meals. The limitation with this study, however, is that the investigators chose to study just 3 mixed meals with a very narrow range in predicted GI (51, 53 and 63). Not surprisingly, they found that they couldn't distinguish between the two lower GI meals. The potato meal produced the highest response as we might expect. Ideally, in studies such as this, it makes sense to study more meals across a wider spectrum of predicted GI.

New GI Values from SUGiRS

Arnott's Vita-Weat Lunch Slices

These crispy slices make a great base for your favourite toppings for lunch or a snack. You'll find them in supermarkets in Australia. Here are the GI values for the two flavours we tested:

- Soy Linseed and Sesame: GI 52 – 1 slice provides 19g available carbohydrate. The GL of this size serving is 11
- Sunflower Pumpkin and Canola – GI 59 – 1 slice provides 19g available carbohydrate. The GL of this size serving is 13.

If you want to compare these crispy slices with similar products – or a slice of bread or piece of toast – here's the nutrition information product data per 100 grams from the packaging (it wasn't on their website when we checked just before posting this issue online):

- Soy, Linseed & Sesame per 100 grams – Energy: 1720kJ; Protein: 14.5g; Fat: 11g (includes 1.3g saturated fat); Available carbohydrate: 57.1g; Fibre: 11.7g; Sodium 465mg
- Sunflower, Pumpkin and Canola per 100 grams – Energy: 1720kJ; Protein: 14.3g; Fat: 11g (includes 1.4g saturated fat); Available carbohydrate: 58.1g; Fibre: 10.9g; Sodium 473mg

Sanitarium Up&Go Breakfast Yoghurt

Available in a 200g 'squeezie pack,' it's a convenient way to grab a healthy yoghurt for breakfast when you are on the go. You'll find this product in the chilled section in your supermarket and convenience outlets (Victoria Australia only). The nutrition and ingredient information is on the Sanitarium website at www.sanitarium.com.au/products/breakfast/up-and-go-yoghurt/up-and-go-yoghurt-vanilla.

- Strawberry and Vanilla flavours: GI: 44 (both) 1 serve (200g) provides 35g available carbohydrate. The GL of this size serving is 15

New GI Values from GI Labs
Hollywood Foods More Than Pasta
More Than Pasta is fresh pasta produced artisan style with an original Italian pasta machine to give you that 'homemade' pasta experience. Co-owner Gabriella Micallef says that: 'it's a unique product as it has been specifically developed to be significantly higher in protein (15g per 60g serving) and fibre than traditional pastas.' Available fresh or frozen, you can buy it in Toronto and selected outlets in Canada. Visit www.hollywood-foods.com for availability and nutritional analysis. More Than Pasta:

- Fettuccine: GI 31 – a 60g (2oz/1/3 cup) serving provides 17g available carbohydrate, 5g fibre and 15g protein. The GL of this sized serving is 5.
- Linguine: GI 31 – a 60g (2oz/1/3 cup) serving provides 17g available carbohydrate, 5g fibre and 15g protein. The GL of this sized serving is 5.