

GI News—August 2010



- Don't sweat the small stuff when counting carbs
- Should I count up my GI values each day?
- So you think you can dance? So what should you eat?
- Do calories on menus help us make better food choices?
- How accurate are calorie and carb counts on labels?
- Low GI diet improves insulin sensitivity in women with PCOS

Most of us have great **faith in numbers**, especially ones that are boldly printed in black and white on labels and in books. But a number of studies suggest that if you want to count calories (kilojoules) or need to count your carbs, you also need to be aware that the numbers you see printed aren't precise figures at all. They are just ballpark figures. 'It's a fact of life that even the most processed of foods **never** contain the exact amount of carbohydrate in a serve that the label says while the figures given in food tables will be average or typical not precise amounts. So, don't get too carried away thinking that by counting every gram of carbohydrate you eat or drink and every 0.05 of a unit of insulin you take your blood glucose levels will be perfect,' writes Dr Alan Barclay in Food for Thought. 'It just doesn't happen like this.'

Good eating, good health and good reading.

Editor: Philippa Sandall

Web management and design: Alan Barclay, PhD

Food for Thought

Don't sweat the small stuff when counting carbs

Most people with type 1 diabetes on conventional insulin regimens (twice daily injections) need to eat similar amounts of carbohydrate-containing foods, at regular times over the day. For those on intensive insulin regimens, while it is still important to maintain a regular eating pattern, the days of matching foods to a rigid insulin regime are long gone.

One way or another, most people with type 1 diabetes still count carbs, especially those on multiple daily injections and pumps. They typically count their carbs in 1 gram increments, 10g portions or 15g exchanges to adjust their mealtime insulin dose to carbohydrate intake.

The question then arises as to how precise their carb counts need to be, as many clinicians believe that counting in gram increments is necessary to achieve optimal glycemic control, particularly for people on insulin pump therapy.

According to pediatric dietitian Carmel Smart and researchers from the University of Newcastle and John Hunter Children's Hospital, there's no need to sweat the small stuff as there's room for 10 grams error either way. In a study published in *Diabetic Medicine* (www.ncbi.nlm.nih.gov/pubmed/19317823), they found that with children using intensive insulin therapy, a single mealtime insulin dose calculated for 60g carbohydrate maintained postprandial blood glucose levels for meals containing between 50–70g carbs. The authors concluded a single mealtime insulin dose will cover a range of carbohydrate amounts without deterioration in postprandial control.

Which is just as well, as the latest study from this team in *Diabetic Medicine* (www.ncbi.nlm.nih.gov/pubmed/20536499) reports that although children with type 1 diabetes and their caregivers (usually Mum) can estimate the carbohydrate content of meals with reasonable accuracy, large meals tended to be underestimated and snacks overestimated. 'Very little is actually known about the ability of children to count carbs and whether one particular method (grams, portions or exchanges) for assessing carbs is better in this age group than others,' writes Smart. 'So we thought we would find out what they really know.'

The researchers asked 102 children and teenagers (aged 8–18 years) on intensive insulin therapy and 110 caregivers to independently estimate the carb content of 17 standardized meals using whichever method of method they had been taught (gram increments, 10g portions or 15g exchanges). 'We found that teaching children and their caregivers carb counting in gram increments did not improve accuracy compared with carb portions or exchanges. The longer children had been carb counting the greater the mean percentage error. Core foods in non-standard quantities were most frequently inaccurately estimated, while individually labelled foods were most often accurately estimated,' they write.

Of course, as *GI News* readers know, it's not just the quantity of carbs that counts, it's the quality. Smart's study published in *Diabetes Care* (www.ncbi.nlm.nih.gov/pubmed/18458138) reported that substituting healthy low GI foods for high GI choices helps reduce post-meal hyperglycemia and is good for the whole family. 'In addition, young people with diabetes should try to always inject before they eat as this assists blood glucose control,' says Smart.

Reality check on carb amounts in food. 'Don't get too carried away thinking that by counting every gram of carbohydrate you eat and every 0.05 of a unit of insulin you take

your blood glucose levels will be perfect,' writes Dr Alan Barclay in *The Diabetes and Pre-diabetes Handbook*. 'It just doesn't happen like this. It's a fact of life that even the most processed of foods never contain exactly the same amount of carbohydrate in a serve as the label says.'

How does this happen? Well, what's printed on the label is actually an average amount of carbohydrate per serving or per 100g for that food. There are small and completely natural variations in the amount of carbohydrate in food depending on where it is grown and the actual crop variety (different wheats and rices, for example, can have a different carb quantity and quality). Manufacturing and processing techniques produce small variations, too. This, along with the small differences you introduce each time you prepare yourself a 'serve' all adds up. So you can see how easily a 10–20% variation in the carbohydrate content of a food from what is printed on a food label can happen.

It's not illegal either: food regulators such as Food Standards Australia and New Zealand recognise the natural variability of foods and allow for this with a 20-45% variation acceptable under the labelling regulations (www.foodstandards.gov.au/foodstandards/foodstandardscode). This further highlights the impracticalities of 'precisely' counting carbs in 1 gram increments.

And for low carbers, there is international agreement that carbohydrate should not be restricted in children and adolescents with type 1 diabetes as it may have seriously harmful effects on their growth and development.

For more information contact: carmel.smart@hnehealth.nsw.gov.au

Get the Scoop on Nutrition with Emma Stirling

The scoop on supersizes

It's easy to blame our supersized food supply (think jumbo muffins and whopping burgers like the 'Quad Stacker') for our supersized waistlines. But when was the last time you had a good look at the portion sizes you serve up at home?

It's been estimated that we typically make around 200 decisions about food each day and many of them, sub-consciously, encourage us to overeat. Dr Brian Wansink, Director of the Cornell University Food and Brand Lab is a lead researcher in the area of eating cues and author of *Mindless Eating: Why we eat more than we think*. According to Wansink portion sizes have increased with time. But he's quick to point out that a key driver is the

size of our crockery. His research estimates that an oversized plate can cause you to take an extra 20% or more without knowing it. Did you know that:

- dinner plates are about 30% bigger than they were 50 years ago?
- we serve ourselves more on big plates?
- if you switch from a 12in (30cm) plate back to a 10in (25cm) plate you could lose 18 pounds (a bit over 8kg) in a year?

You see a standard cup of cooked rice fits perfectly in an individual blue and white Chinese bowl, but it can look like a tiny amount when plated in a glazed, modern stir-fry bowl.

But surely people are just taking more food because they feel hungry? Think again. One simple but startling study by the Cornell University team involved a bottomless soup bowl that secretly refilled from under the table as people ate. Study participants were brought in for what they thought was a free lunch of soup. According to Wansink, those with re-fillable bowls ate over 70% more soup, but did not report feeling any more full or satisfied. The more startling finding was that only two out of 62 participants realised the soup was being refilled. The majority responded with – how could they feel full when they still had half a bowl of soup left? It seems that many of us have lost the art of eating to appetite satisfaction or intuitively. So what's the solution to this modern day dilemma?

'Change your plate first. Change your habits later,' says Wansink: In other words, start by assessing and changing your portion and crockery sizes at home, while you work at re-harnessing your hunger cues, slowing down your eating habits and eating mindfully. Here are some great tips to get you started tackling portion distortion:

- Downsize your dinner plates from (rim to rim) 12in (30cm) to 10 in (25cm) tops. Plates with a colorful rim shrink the space to be plated with food.
- Keep a measuring cup in your breakfast cereal canister so you are not tempted to over pour.
- Switch to tall, thin glasses rather than squat glasses to give the illusion of more volume.
- Use a retractable spaghetti measure to cook just the right amount for each person.
- Pay extra attention when pouring drinks too. Such as drawing an imaginary line on that 5fl oz (150ml) mark on your wine glass.

Find out how to take the small plate challenge at the small plate movement (<http://smallplatemovement.org>).

To further illustrate how you need to take caution with portions, check out this video of my crockery and glassware at home at www.scoopnutrition.com/2010/07/downsize-your-crockery-and-save-big-time

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 or subscribe for hot news bites and a healthy serve of what's in flavour.

News Briefs

Faith in numbers

When it comes to calorie or kilojoule counting, it's the same story – even the most processed of foods never contain exactly the same amount of calories in a serve as the label says. Food regulators in Australia for example recognise the natural variability of foods and allow for this with up to a **45%** variation when they make the labelling regulations.

Researchers from Tufts writing in the *Journal of the American Dietetic Association* (www.ncbi.nlm.nih.gov/pubmed/20102837) report that reduced-calorie packaged food and restaurant meals may contain significantly more calories than stated on the label. The researchers analysed the calorie content of 18 side dishes and entrees from national sit-down chain restaurants, 11 side dishes and entrees from national fast-food restaurants and 10 frozen meals purchased from supermarkets and compared their results to the calorie content information provided to the public by the restaurants and food companies. The frozen foods were tested straight out of their packages and restaurant foods on the portions served.

On average, the researchers found the restaurant dishes contained 18% more calories than stated (and two side dishes exceeded the reported calorie information by nearly 200% percent). The frozen meals had on average 8% more calories than listed. In their conclusion the writers say: 'On a public scale, the emerging policy initiatives on requiring energy information at the point of purchase may not translate into improved dietary intake if foods typically contain more energy than stated.'

Low GI diet improves insulin sensitivity in women with PCOS

Polycystic Ovary Syndrome (PCOS) is one of the most common hormonal disorders affecting pre-menopausal women and the leading cause of female infertility. Symptoms include irregular or absent periods, infertility or reduced fertility, hirsutism (excess hair growth on the face, chest and abdomen), alopecia (scalp hair loss), acne, obesity and difficulty losing weight and increased risk of miscarriage. Many women also complain of excessive tiredness and fatigue, hypoglycaemia (low blood sugar), and poor memory and

concentration.

We don't know why PCOS develops, but we do know that there are a number of different causes and that most women with PCOS are insulin resistant and thus at risk of heart disease and diabetes. Reducing insulin resistance is not only vital for improving PCOS symptoms (regulating menstrual cycles, reducing acne and excessive hair growth and achieving and maintaining a healthier weight), but reducing complications that often follow including heart disease and diabetes.

A recent report published in the *American Journal of Clinical Nutrition* (www.ncbi.nlm.nih.gov/pubmed/20484445) investigated the most effective diet for women with PCOS, and found that while both a conventional healthy diet and a low GI diet led to weight loss in the study, the low GI diet also led to improved insulin sensitivity. In addition, more women had improvements in their menstrual cycle regularity on the low GI diet. Lead author Dr Kate Marsh says: 'While low GI diets are commonly recommended for women with PCOS based on research findings in other populations such as people with diabetes, this is the first study to show that a low GI diet does have definite benefits for women with PCOS.'

So you think you can dance? So what should you eat?

If you are one of the thousands auditioning for the next series of 'So You think You Can Dance' (or the parent or grandparent of a hopeful contestant), you may be interested in checking out a new blog for dancers on diet. The first posts look at carbs and protein and dehydration and focus on what dancers need to be energised, strong and healthy, able to pick up steps and learn new choreography really fast and to perform at their best. 'A fascination/obsession for many dancers and dance followers is nutrition and how it affects us as performers and athletes. I am definitely one such dancer,' writes Emma Sandall, 'I have always been interested in what I eat and what it does to me once I have eaten it – whether that be to give me energy, give me a 'high', build muscle, put on weight, etc. There is a lot of misleading information out there as well as a lot of good research. But how do people work out which is which?'

- Protein or carbs – what's best for dancers? (<http://ludwig.com.au/on-carbohydrates-and-protein>)
- On dehydration (<http://ludwig.com.au/on-dehydration>)

How friendly are 'diabetes friendly' recipes?

Have you noticed that many magazine recipe sections now have labels for their recipes – 'gluten free', 'dairy free', 'vegetarian', 'diabetes friendly'? 'Gluten-free' is a useful one and is

a clearly defined term. We know if a food label says 'gluten free', the product will contain no wheat, rye, barley, oats (in Australia), and triticale or foods made from them or foods (e.g. sauces, dressings, stocks and spreads) that include them as an ingredient.

'Diabetes friendly' isn't a clearly defined term at all and potentially rather misleading – we have just seen it applied to a fish pie recipe made with mashed ultra high GI desiree potatoes.

FISH AND POTATO PIE WITH MASH

SERVES 4

Prep: 20min Cook: 35min

Cost per serve: \$10.30

Diabetes-friendly

600g desiree potatoes,
peeled, chopped

Two quick points: People with diabetes don't actually need a special diet. And there isn't one diet for everybody with diabetes. 'If you have diabetes,' says dietitian Kaye Foster-Powell, 'you actually have a great deal of flexibility in the overall make-up of your eating plan. It's a matter of discovering what suits you best while fitting within these 10 key dietary recommendations:

1. Choose nutritious carbohydrate foods with a low GI as your staples
2. Be aware of how much carbohydrate you eat
3. Get plenty of fibre in your diet
4. Limit foods that are high in saturated fat
5. Eat lean protein foods to suit your appetite
6. Eat fish once or twice a week: if you are vegetarian, make sure you focus on including foods that contain quality proteins and are good sources of omega-3 fats
7. Use monounsaturated fats (such as olive oil)
8. Eat plenty of fruit and vegetables every day
9. Limit your salt intake, and
10. Limit your alcohol intake.'

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 (www.eatgoodcarbs.com). The photographs are by Sergio Burani. His food, travel and wine photography website is photosbysergio.com.

Summer green beans

Fresh green beans are an excellent source of potassium and folic acid. They are fibrous and have diuretic qualities too. These nutritional virtues may not mean as much to Italian cooks, however, as their fresh and wholesome summery taste. Every Italian vegetable garden has a designated spot for the much-loved 'fagiolini'. This recipe is unbelievably easy and quick – less than 15 minutes from garden to table! Serves 8 (about 1 cup each)

450g (1lb) fresh green beans

450g (1lb) ripe plum tomatoes

½ small red onion, thinly sliced

2 tablespoons. pesto

Coarse sea salt (optional)

- Wash the beans, cut off the tips and steam until tender (about 12 minutes). Set aside to cool.
- Wash the tomatoes and halve them horizontally. Holding each half, use your index finger to remove the seeds under running water. Drain and cut into long, thin slices.
- Place the beans, the tomatoes and the onion in a serving dish. Add the pesto and mix thoroughly. Add salt to taste. Serve at room temperature.

Per serving (1 cup)

Energy: 239kJ/57cal; Protein 2g; Fat 2g (includes less than 1g saturated fat); Available carbs 6g; Fibre 3g

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 **Money Saving Meals** author Diane Temple. For more recipes check out the Money Saving Meals website (www.moneysavingmeals.com.au).

Leek, silver beet (Swiss chard) and feta slice

Everyone says that children and veggies don't go together. TV ads promote sauces to smother vegetables so the children will eat them, magazines feature stories on helping anxious parents get veggies into their children and there are best-selling cookbooks based entirely on being a sneaky chef and hiding vegetables in meals. And I have to confess to hiding grated zucchini in spaghetti Bolognese and burger patties. But my views have totally changed since I have been teaching children how to cook as part of the Stephanie Alexander Kitchen Garden Program at Bondi Public School. The children grow the vegetables in our school garden, they look after them, they harvest them and prepare and

cook them in our kitchen. So we can't hide them – they know they are there because they put them there, and they happily eat them. The week I made a silver beet tart there was nearly a stampede for seconds, and this slice – an adaptation of a zucchini slice – made with silver beet, leeks and herbs the children picked from the garden disappeared just as quickly. Makes 10 slices

2 tablespoons oil

1 leek, halved lengthwise, washed, dried, sliced

10 silver beet (Swiss chard) leaves, remove stems, washed, dried, shredded

1 carrot, grated

3 tablespoons chopped parsley

1 teaspoon chopped spearmint leaves or 2 tablespoons chopped mint

$\frac{3}{4}$ cup (60g) finely grated parmesan cheese

60g (2oz) feta cheese, crumbled

1 $\frac{1}{4}$ cups (180g) self-raising flour

5 eggs, lightly beaten

$\frac{1}{3}$ cup (80ml) milk

- Preheat the oven to 180°C (350°F) and grease and line a 16 x 26cm/6 x 10in (base measurement) slice pan.
- Heat 1 tablespoon of the oil in a frying pan and cook leek for 4–5 minutes until soft. Stir in shredded silver beet and cook for 3–4 minutes until silver beet has wilted. Spoon the mixture into a heatproof bowl and leave to cool. Add the carrot, herbs and both cheeses to the silver beet bowl and stir to combine. Sift in the flour and mix well.
- In another bowl, whisk the eggs, remaining oil and milk together and pour into silver beet mixture and stir to combine. Spoon into the prepared slice pan, smooth the surface and bake for 25–30 minutes, until set and the top is starting to brown. Stand 10 minutes and then serve at room temperature.

Per serving (1 piece)

Energy: kJ/ cal; Protein 9g; Fat 9g (includes 3g saturated fat and 101mg cholesterol);

Available carbs 15g; Fibre 3.5g

Busting Food Myths with Nicole Senior

Myth: *Nutrition labels on fast foods improve choices.*

Fact: *Knowledge doesn't always lead to behavior change.*

The Victorian State Government in Australia recently decided to make displaying kilojoule (calorie) content and percentage Daily Intake (%DI) compulsory on fast food chain menus. And where you can see it when you order, not hidden away in a brochure, on the website or

in small print on the packaging. It is hoped that customers will use this information to make healthier choices. To help them think twice about ordering a meal containing 50% of their daily kilojoule requirements, and ultimately reduce obesity rates. It sounds like a great idea, but will it work?

New York City has a similar program which came into full swing last year. While it's too early to say it's been a flop, initial research results have been disappointing. A study by New York University (www.ncbi.nlm.nih.gov/pubmed/19808705) compared fast food purchases in New York City (with calorie counts on menus) and neighbouring Newark without and found there was no difference between calorie content of what customers bought in stores with calorie counts compared to those without calorie counts. This, despite the fact that 28% customers said calorie counts had influenced them to order better: a classic case of saying one thing and doing another. Worthy of note is that the stores were in poor neighbourhoods. Could it be that the socially disadvantaged benefit less from the 'information is power' approach?

Another question about effectiveness of such a move is: Do people really care whether fast food is healthy or not? Obviously the majority (72%) in the New York study didn't. Or do people purchase for other reasons such as taste, price and convenience?

Young men are big consumers of fast food and well known for their risk-taking behaviour. I've heard stories of young men daring each other to eat the unhealthiest item on fast food menus, and gain the respect of their peers when they manage to stuff down two or three 'meals' ... plus dessert! Some socially unaware fast food companies depend on such 'extreme-eating'. You know, the ones that have 72oz (2kg) steaks on the menu: free to those who can finish it. Obscene.

Information may be empowering but when it comes to what we eat, information only goes so far. Is there anyone left who believes a burger and fries or deep fried chicken and fries are healthy meals? We know it, but we are apparently helpless to take meaningful action. Nutrition information is everywhere (albeit much of it is unreliable) but the world is just getting fatter.

There is a lot to be said for improving all fast food. What about requiring nutritional standards for kilojoule (calorie), saturated fat, salt and vegetable content? The Heart Foundation Tick program for fast food in Australia has made good progress in this area, but participation is not compulsory and relies on companies opting in.

Fast food is a reality in a busy world but can local planning laws help to correct the situation that there are more fast food joints and less fresh food stores in poor areas?

I support knowledge to empower people to choose healthier food, but should it be so hard? And should it be hardest for those with the least resources to resist the pull of cheap, convenient and fast food?

Nicole Senior MSc (Nut&Diet) BSc (Nut) is an Accredited Practising Dietitian and Nutritionist and author of *Eat to Beat Cholesterol* and *Heart Food*. Check out her website (www.eattobeatcholesterol.com).

GI Symbol News with Dr Alan Barclay

Why you don't need to keep count of the GI values of your meals and snacks

With the current trend to count each and every gram of carbohydrate (or every calorie/kilojoule) in a food or beverage, it is easy to understand that some people feel that they should be adding up the GI values of their meals or even keep count of the total GI value of all the meals and snacks they have in a day.

Relax. You absolutely don't need a calculator nor a pen a paper when you eat the low GI way. It's not necessary, nor is it a good idea for a number of reasons.

Firstly, unlike grams of carbohydrate and other nutrients or calorie (kilojoule) counts, the GI is a measure of quality – not quantity. A useful analogy is that of mixing paints – the final colour will reflect the dominant colour used, not simply the sum of its parts.

It's true that researchers sometimes calculate what is called the average dietary GI, or to be more precise, the weighted average GI – where the weighting is a percentage value representing the proportion of total carbohydrate contributed by each individual food and beverage. But this is for studies to be published in peer-reviewed scientific journals. For everyday use, this is simply not necessary as we know from what's called 'dietary modelling' that simply replacing most of the high GI carbs you eat with with medium or low GI ones will lower the GI of the average person's diet sufficiently to reduce their risk of developing type 2 diabetes and will also help them achieve and maintain a healthier weight.

In addition, numerous studies have shown that people with diabetes can improve their glycated hemoglobin (a measure of their average blood glucose level over a 3–4 month period) simply by lowering the GI of their diet. In these studies, the people did not have to calculate their daily GI values– it was not necessary: they just used the substitution model (look how easy it is):



Secondly, we also know that you don't have to sweat over making sure every meal you eat is low GI. This is due to what's known as the second meal effect: if you eat a low GI meal, you reduce the glycemic impact of the carbohydrates eaten at the following meal. Research has found this applies to a high GI breakfast eaten after a low GI dinner the night before, or a high GI lunch, after tucking into a low GI breakfast.

Finally, like grams of carbohydrate and other nutrients and calories/kilojoules, GI values aren't 100% accurate – for all of the same reasons: foods are grown in different soils, under different weather conditions, and consequently, all have a slightly different nutrient composition – so it is pointless to try and be too precise with GI (or any other nutrient) values.

So 'don't sweat the small stuff' and add stress to your life. Simply swap the high GI carbs you eat at most meals for low or moderate GI counterparts and you will achieve a low(or lower) GI diet overall. And don't forget about the total calories/kilojoules, type of fat and sodium content of your meals – GI is only one part of healthy eating.

For more information on GI values and why you don't need to keep count, please feel free to contact me: alan@gisymbol.com



For more information about the GI Symbol Program

Dr Alan W Barclay, PhD

Chief Scientific Officer

Glycemic Index Foundation (Ltd)

Phone: +61 (0)2 9785 1037

Mob: +61 (0)416 111 046

Fax: +61 (0)2 9785 1037

Email: alan@gisymbol.com

Website: www.gisymbol.com

GI Update

GI Q&A with Prof Jennie Brand-Miller

What's 'available' carbohydrate?

When we talk about available carbohydrate (also called glycemic, net or usable carbohydrate), we mean the carbohydrate that is absorbed into the bloodstream and directly affects blood glucose levels. It excludes the escapees like fibre, and some sugar alcohols, that are not completely digested in the small intestine.

How is carbohydrate measured?

The carb content of foods can be calculated in a couple of ways. Many countries including the US and Canada determine it indirectly or 'by difference'. First they measure the amount of protein, fat, water and ash in 100 grams of a food, they then tot up the numbers and subtract the total from 100. What's left over is called carbohydrate. This means that the carbohydrate content figures on their food labels and in their food tables includes both available and unavailable carbs (the ones which cannot be absorbed into the bloodstream). In Europe, Australia and New Zealand on the other hand, the food labels and food tables only includes available carbs (the ones that are absorbed into the bloodstream).