

## GI News—July 2008



- Are goji berries really a superfood?
- Inflammation, blood glucose and heart health. What you need to know.
- Do you have the sweet tooth gene?
- Tight glucose control and heart disease. Some questions answered.
- *The Low GI Handbook* – all the latest research in one book.
- Does milk make mucus?

This month we welcome Catherine Saxelby to the *GI News* team to write our Food of the Month column. From fast food to vitamins, Catherine has researched, written and talked about virtually every aspect of healthy eating. She is one of Australia's best known nutritionists and food commentators. Her book, *Nutrition for Life*, has clocked up sales of over 400 000, making it one of the most enduring and popular nutrition books in the marketplace . As ever in *GI News* there are our usual features including Kate Hemphill's delicious recipes, the ever-popular success stories, feedback where we answer your curly questions and our regular columns with Dr David and Prof. Trim.

Good eating, good health and good reading.

**GI News Editor:** [Philippa Sandall](#)

**Web Design and Management:** [Scott Dickinson, PhD](#)

## Food for Thought

### **Quench inflammation and protect your heart**

The statistics for heart disease are pretty much the same everywhere in the developed world. It's the biggest killer. Often the cause is atherosclerosis or 'hardening of the arteries' which develops slowly and quietly for years until bingo, it suddenly produces the stabbing pain of angina or a heart attack. Today, it's affecting younger and younger

people and the beginnings of blood vessel damage are even being seen in children!



Most people are aware of the key diet and lifestyle messages to reduce the likelihood of becoming a heart disease statistic: stopping smoking, getting more exercise and eating a healthy diet – especially cutting back on saturated fats and choosing the good fats. Fewer appreciate that high blood glucose levels are a red flag risk factor for heart disease, too.

A recent review (<http://www.ncbi.nlm.nih.gov/pubmed/18377788>) in *Current Atherosclerosis Reports* that looked at the latest studies of links between blood glucose and heart disease risk found that high blood glucose levels after eating plays a greater role than is generally acknowledged. Dr Scott Dickinson, one of the authors, told *GI News* that: ‘The present evidence suggests that even non-diabetic levels of high blood glucose levels after meals likely plays a key role in developing atherosclerosis, especially in people with a higher BMI, insulin resistance or impaired glucose tolerance.’

What’s the link between blood glucose and atherosclerosis? Inflammation. For some time now, heart disease researchers have suspected that the blockages in coronary arteries that can lead to a heart attack, aren’t just caused by the build up of cholesterol and other fats, but an inflammatory process in the arteries, similar to what happens when you get a bacterial infection, also plays a part. It’s thought that high blood glucose after meals contributes to chronic low inflammation by increasing oxidative stress (see below).

There’s already considerable evidence that hyperglycemia drives the development of complications of the blood vessels in people with diabetes. But a new study (<http://www.ncbi.nlm.nih.gov/pubmed/18469238>) published in the *American Journal of Clinical Nutrition* suggests that even in healthy, young people, high glucose levels

after eating are associated with the kind of oxidative stress that may increase risk of heart disease.

Lead researcher Dr Scott Dickinson explained that they wanted to compare the effects of eating high and low GI carbs on an inflammatory marker called NF-kB that's part of the body's defence system against oxidative stress. To do this they gave 10 healthy, lean volunteers 'meals' of white bread (GI 70), cooked pasta (GI 35), or a glucose drink (GI 100). They found that the quickly digested white bread had the same capacity to acutely activate NF-kB as the glucose. By contrast, the slowly digested pasta had an almost negligible effect on NF-kB activation. In addition, the changes in NF-kB were on par with changes in blood glucose concentrations which suggests that slower rates of digestion and absorption reduce oxidative stress.

They conclude: 'our findings are novel and have important implications. High GI carbohydrates including potatoes, wholegrain breads, and many varieties of breads and breakfast cereals dominate modern diets. Although antioxidants and phytonutrients in whole grains may quench free radicals and help to protect cells from oxidative damage, it may be prudent to also reduce the source of oxidative stress (i.e., reduce postprandial hyperglycemia). Longer term studies comparing conventional and low GI diets on the development of both type 2 diabetes and CVD in high-risk groups are warranted.'

### ***What's oxidative stress?***

Your body constantly reacts with oxygen as you breathe and your cells produce energy. As a consequence, highly reactive molecules are produced known as free radicals. Free radicals interact with other molecules within cells and can cause oxidative damage to proteins, membranes and genes. It's the imbalance between the production of reactive oxygen and a biological system's ability to readily detoxify the reactive intermediates or easily repair the resulting damage that causes oxidative stress.)

## News Briefs

### GI News special report

#### Tight glucose control and heart disease

Earlier this year, we reported that part of a major US clinical trial (ACCORD) had been halted when researchers checking interim results found that more people receiving intensive glucose lowering therapy died (257 deaths) compared with those getting the standard treatment (203 deaths). Half of the deaths in the intensive-control group were from heart disease – what the treatment was intended to prevent.



What happened next? The first papers on the ACCORD trial and an Australian study (ADVANCE) have now been published in the *New England Journal of Medicine*.

ACCORD (<http://content.nejm.org/cgi/reprint/358/24/2545.pdf>) and ADVANCE (<http://content.nejm.org/cgi/reprint/358/24/2560.pdf>) were both big trials (over 10,000 and 11,000 participants respectively) and long term (3.5–5 years). The researchers wanted to see whether intensive blood glucose control (with drugs not diet and lifestyle) would dramatically reduce the number of heart attacks and stroke in high risk people with long established type 2 diabetes. The studies were designed to bring the participants' average A1c down to 6% or even less (the average A1c level in people without diabetes falls between 3.5 and 5.5%).

Although the ADVANCE study shows clear benefits of intensive blood glucose control in reducing kidney disease risk, the 'most compelling message from both studies is that near normal glycemic control for a median of 3.5 to 5 years does not reduce cardiovascular events within that timeframe' report Drs Dluhy and McMahon writing in an editorial (<http://content.nejm.org/cgi/reprint/358/24/2630.pdf>) in the same issue of the journal.

A couple of big differences in the two studies stand out. Participants in ACCORD had a very rapid rate of decline in their blood glucose levels (1.4% within 4 months in their A1c). In ADVANCE, the decline was a gradual one – 0.5% at 6 months and 0.6% at 12 months.

There were also differences in weight gain. ACCORD volunteers gained an average of 3.5 kg and more than 27% of them piled on over 10 kg. Average weight gain in the ADVANCE trial compared with the standard therapy group was much less – 0.7 kg. ‘The weight gain may not be a trivial point, since achieving glycemic control with such an aggressive drug strategy is clearly not equivalent to achieving such control through lifestyle changes (i.e. nutritional therapy and increased physical activity)’ writes Dr William Cefalu in an accompanying editorial (<http://content.nejm.org/cgi/reprint/358/24/2633.pdf>).

So, what’s the take-home message for health professionals and people with type 2 diabetes?

Drs Dluhy and McMahon conclude: ‘The most appropriate target for glycated hemoglobin (A1c) should remain 7%, though lower individualized targets may be appropriate when the focus is primary prevention of macrovascular (heart) disease ... Clinicians caring for patients with diabetes should continue to focus on smoking cessation, dietary and exercise counseling, blood-pressure control, and providing aspirin and a statin to a greater extent than achieved even in the ADVANCE and ACCORD studies. **For now, rather than changing our current glycemic target, we may best serve our patients with type 2 diabetes by implementing programs to help more of them reach the currently recommended goals.**’

In the last decade, research has yielded overwhelming evidence that lifestyle changes such as a healthy eating plan and increasing exercise make a real difference in the risk of developing type 2 diabetes and in the quality of health of those who already have it. In addition, mounting evidence shows that reducing your post-meal glucose rises is at least as important as hitting your target A1c when it comes to avoiding complications of type 2 diabetes including heart attacks. That’s why the International Diabetes Federation now urges people with type 2 diabetes to focus on healthy eating, physical activity and weight control to manage their diabetes and to keep their 2-hour post-meal blood glucose levels under 7.8 mmol/L (140 mg/dL).

Perspective – H.M. Krumholz and T.H. Lee: Redefining Quality – Implications of Recent Clinical Trials (<http://content.nejm.org/cgi/reprint/358/24/2537.pdf>).

### **Preventing diabetes – how long do lifestyle interventions last?**

Several studies around the world have shown that three out of five people with pre-diabetes (impaired glucose tolerance) can prevent or at least delay getting type 2 diabetes by making lifestyle changes such as increasing their activity level, eating a healthier diet and achieving a modest weight loss (5–10 kg). Major clinical trials in USA, China, India, Finland and Japan have shown that ‘lifestyle interventions’ with group or individual counseling are very effective in helping people change their diet and get more exercise. The question is, how long do the ‘intervention’ benefits last when the professional support ends and you are on your own? A recent report in the *Lancet* suggests that a period of active lifestyle intervention can produce a significant reduction in the incidence of diabetes over the long term.

(<http://www.thelancet.com/journals/lancet/article/PIIS0140673608607667/abstract>)

In 1986, 577 adults with impaired glucose tolerance from 33 clinics in China were randomly assigned to either a control group or to one of three lifestyle intervention groups (diet, exercise, or diet plus exercise). The study participants who followed a healthy diet (drinking less alcohol, eating more vegetables and losing weight if they were overweight or obese) and exercise (increasing leisure time physical activity) regime significantly delayed the development of diabetes for the six years of the ‘active intervention’ period compared with those in the control group. What about the long term? When researchers followed up 568 of the original 577 study participants in 2006 they found that:

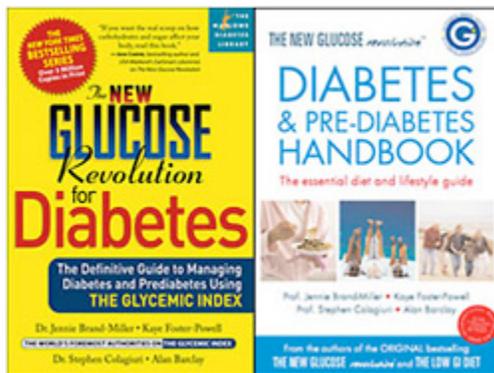
- 435 people had developed type 2 diabetes – including 93% of the control group and 80% of the combined intervention groups.
  - The onset of diabetes was significantly delayed among those who had been in the intervention groups, they had spent an average of 3.6 fewer years with diabetes than those in the control group.
  - Fewer people from the intervention groups who had diabetes were on insulin.
- ‘There were 33.2 million people with impaired glucose tolerance in China in 2003,’ write the researchers, ‘and this is expected to increase to 54.3 million by 2025. Small group and lifestyle counseling in high-risk individuals at community facilities is likely to be

effective if aimed more broadly at the Chinese population ... at a more global level, widespread adoption of such interventions offers the prospect that projected increases in type 2 diabetes could be attenuated.’

**GI Group:** For tips on turning back the clock, check out:

Australia/New Zealand: The Diabetes & Pre-Diabetes Handbook

USA/Canada: New Glucose Revolution for Diabetes



### The ‘sweet tooth’ gene

A new study by University of Toronto researchers published in *Physiological Genomics* reports that people with a specific genetic variation in the GLUT2 (glucose transporter type 2) gene which controls glucose entry into the cells consistently consume more sugary foods. ‘Certainly environmental factors can influence the foods that we like and dislike,’ says lead researcher Ahmed El-Sohemy. ‘But what this line of research demonstrates is that there is also a biological or a genetic basis for some of our likes and dislikes.’ El-Sohemy and his colleagues studied two large groups of volunteers, who completed detailed records of their daily diet. Analyzing blood samples, they found that people with a different form of GLUT2 consumed ‘between 20 and 30 grams of sugar extra ... every day’ he says. ‘It was about the equivalent amount of sugar that you would find in a regular sweetened can of soda.’

The GLUT2 gene is known to work in the pancreas. Other researchers have studied it in the brains of mice and ‘it turns out this gene is also turned on in regions of the brain that control appetite,’ says El-Sohemy. ‘Taken together, our findings show that a genetic variation in GLUT2 is associated with habitual consumption of sugars, suggesting an underlying glucose-sensing mechanism that regulates food intake.’

**GI Group:** For more detailed findings, check out the University of Toronto press release.

(<http://www.news.utoronto.ca/health-and-medicine/u-of-t-researchers-find-sweet-tooth-linked-to-genetic-variation.html>)

### **What's new?**

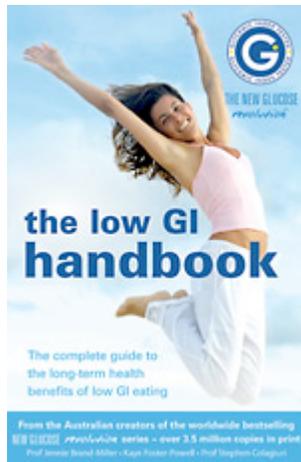
#### ***The Low GI Handbook***

by Prof. Jennie Brand-Miller, Kaye Foster-Powell and Prof. Stephen Colagiuri (Hachette Australia 2008)

This definitive guide to the long-term health benefits of low GI eating is grounded in some 30 years of research. Nearly two years in the making, this fully revised, updated and expanded edition of *The New Glucose Revolution* clearly summarises the relationship between carb quality and blood glucose levels and why opting for low GI carbs can make a real difference to your health, now and later in life.

The authors explain how a low GI diet aids in weight control and helps to manage type 1 diabetes, type 2 diabetes, pre-diabetes, gestational diabetes, hypoglycaemia, non-alcoholic fatty liver disease, polycystic ovarian syndrome (PCOS), heart disease and the metabolic syndrome. They also discuss how the GI applies to healthy eating for children, sports performance and exercise and they bring the reader up to date with the latest findings about carbs, blood glucose and brain function, dementia, acne, eyesight, cancer, sleep and gum disease.

The authors set out ten easy steps to following a healthy low GI diet and provide 50 simple and delicious recipes. The book includes the GI tables (with more than 900 foods) and comprehensive references to the scientific research that underpins the book.



**[www.greatideas.net.au](http://www.greatideas.net.au)**

Great Ideas in Nutrition is the specialist online bookshop founded by Amanda Clark, an Advanced Accredited Practising Dietitian with 20 years experience and a busy private practice. One of the frustrations Amanda found when she became a dietitian was that when she visited bookshops, they knew what the best sellers were, but they rarely, if ever, had staff with any idea about the quality of advice given in the books they carried in their health and diet sections. She was determined to provide a solution. In 2006 she received one of her profession's highest accolades, the National "Innovation Award" from the Dietitian's Association of Australia in recognition of the unique and valuable international resource she provides for dietitians and the general community by stocking the best and most useful nutrition resources from around the world at Great Ideas in Nutrition.

## Food of the Month

We read the marketing blurb for book recently that boldly stated: 'Superfruits are the product of a strategy, not something you find growing on a tree.' So, we have asked dietitian and nutritionist Catherine Saxelby to put some of those much touted 'superfoods' including 'superfruits' under the spotlight for *GI News* readers in the coming months and report on how 'miraculous' or 'super' they really are.

## Goji

Goji (wolfberry) is the latest ‘superfood’ to attract health-food evangelists and multi-level marketers. Small, pink-red, dried and a little like a sultana without the sweetness, you hear all sorts of claims – high antioxidant concentration to help fight everything from premature aging to chronic disease (heart disease, Alzheimers) and boosting your immune system, energy and metabolism. It’s hard to know whether it’s true or just marketing overkill. Reliable independent nutrition information on goji is hard to source – even what you see on pack varies wildly – so what follows are only average figures. If you add a tablespoon (10 g or 15 dried goji) to your cereal and you’ll add 30 calories, around 1 g protein, a little fat and 6 g carbohydrate. Compared with dried fruits like sultanas or cranberries, they have more protein (due to their tiny seeds), a little fat and a much lower sugar content which explains the taste.



**Antioxidants and vitamins:** Goji have a high nutrient density – in other words, they pack in a lot of vitamins and antioxidants. But again not a lot of analyses have been done by reputable sources. You’d expect them to be rich in vitamin C, fibre and antioxidants with their many anti-ageing effects. And you’d expect to find small amounts of many essential minerals, such as potassium, iron, magnesium and phosphorus. What we don’t accept is the hype about “500 times more vitamin C than orange juice” or “more protein than whole wheat” which is simply not true – goji may be on a par but not that much more.

Goji are being promoted as having the “highest antioxidant concentration of any fruit or vegetable” and “an antioxidant rating more than 10 times that of blueberries”. Antioxidant levels will depend on how fresh the goji were when tested and which antioxidant test was used. Some tests put tea at the top as the highest in antioxidants, others put blueberries at the top. You can’t compare them – they measure different things.

Most of the medical claims about goji are difficult if not impossible to substantiate. While there are more than 70 published studies on goji and health, most are animal trials. So it's hard to give an accurate opinion about their role in cancer or heart problems. I haven't seen a human clinical trial published in peer-reviewed journals. Maybe there's some coming out soon which would be helpful.

**Unique polysaccharides:** Then there's the 'four unique polysaccharides' in goji which marketing material harps on about. No-one knows much about these but they are a major constituent – around 50% – of goji. Polysaccharides are a form of carbohydrate. Most – like the starch in potato – are digested in the body; some pass through like fibre. There's nothing miraculous about this even if they are 'unique'.

### **The take-home messages**

- Basically, goji is an over-priced superfood that's getting lots of hype and helping health food stores do good business. You can get goji's nutrients from other foods much more cheaply.
- Eat them if you like them and don't mind paying their hefty price. If you prefer the juice, be aware that it is usually a blend of 10% goji with apple or grape juice concentrate. This not only improves the taste, it adds sugar – between 10 and 13% – the same as in a soft drink! So read the list of ingredients and make sure you check how much sugar you are going to get in a glass before you part with your money.
- As for the miracle claims – that's what they are: claims. No single food can cure cancer, enhance male sexual performance or halt Alzheimer's disease.

For more information on goji, check out Catherine's website: [www.foodwatch.com.au](http://www.foodwatch.com.au). Catherine Saxelby is the author of *Zest* and *Nutrition for Life* available online.

## **Low GI Recipes of the Month**

Our chef Kate Hemphill develops deliciously simple recipes for *GI News* that showcase seasonal ingredients and make it easy for you to cook healthy, low GI meals and snacks. For more of Kate's fabulous fare, check out her website: [www.lovetocook.co.uk](http://www.lovetocook.co.uk). For now, prepare and share good food with family and friends.

## **Chakchouka**

Try this tangy Middle-Eastern dish for a special brunch or an easy-to-prepare light meal with a green salad on the side. You can make individual ones. Spoon the tomato mixture into four ovenproof dishes, add an egg to each and bake at 180C (350F) for about 15 or 20 minutes or until set. Sprinkle with chopped chives and serve.

Serves 4

1 tbsp olive oil

2 small red capsicum (pepper), seeded and thinly sliced

2 small green capsicum (pepper), seeded and thinly sliced

2 garlic cloves, finely chopped

1–2 small chillies, seeded and finely chopped

400 g (14 oz) can peeled chopped tomatoes

1 tsp harissa paste

¼ tsp salt (optional)

1 tsp caraway seeds, ground

½ tsp sweet paprika

½ tsp ground cumin seeds

4 large free-range organic eggs

4 slices grainy bread

- Heat the oil in a large frying pan and cook the sliced capsicum for 10 minutes or until soft. Add the garlic and chilli and cook for a further 1–2 minutes, stirring to combine. Add the tomatoes, harissa, salt and spices. Leave to simmer gently for 10–15 minutes, it should be reasonably thick.
- Make four indentations in the mixture using the back of a spoon and break one egg into each. Cover and leave to simmer for about 5 minutes or until whites are cooked and yolks are soft. Serve immediately with grainy bread.

### *Per serving*

1145 kJ/ 265 calories; 13 g protein; 12 g fat (includes 2 g saturated fat and 244mg cholesterol); 24 g carbohydrate; 4 g fibre



### **Smoked chicken, chickpeas & carrot**

Smoked chicken is available from supermarkets, delis and butchers pre-cooked and vacuum packed. It is a great addition to salads, and if serving hot, just requires a little heating through. If you can't get smoked chicken, use a grilled or poached chicken breast. This dish can be made into a salad by cutting the chicken into smaller pieces and serving at room temperature or chilled.

Serves 4–6

1 large garlic clove, crushed

1/2 tsp ground cumin

1/2 tsp cumin seeds

1/4 tsp smoked paprika

2 x 400 g (14 oz) cans of chickpeas, drained and rinsed

2 medium carrots, peeled and cut into 7 cm (2-inch) pieces, then into thin matchsticks

1 cup (250ml) chicken stock

juice of 1 lemon

large handful of roughly chopped parsley

2 smoked chicken breasts, sliced

- Cook the garlic in a little olive oil in a frypan over low heat for 2 minutes. Add the spices and cook for another 2 minutes, then add chickpeas, carrots and stock. Bring to a simmer and stir occasionally until carrots are just tender (around 10 minutes). Stir in the parsley, season to taste and turn off heat.
- In another pan, add sliced chicken pieces and some olive oil and toss over high heat until heated through. Serve chicken pieces on top of chickpeas.

*Per serving (6 serves)*

1400 kJ/ 330 calories; 36 g protein; 11 g fat (includes 2.5 g saturated fat and 80 mg cholesterol); 20 g carbohydrate; 7 g fibre

## Busting Food Myths with Nicole Senior

### ***Myth: Milk causes mucus (and other dairy myths)***

**Fact:** Milk seems to attract more than its fair share of myths. This is unfortunate as it puts people off eating enough dairy foods when we know they are an important part of a healthy diet. One of the most common myths is that drinking milk causes mucus. When this has been studied in controlled conditions it has not stood up to scientific scrutiny. The thin coating you feel in your mouth is temporary and a result of the creamy texture. By the same faulty logic, chocolate and shortbread are “mucus-forming” yet no-one is blaming them. The other old chestnut is milk causes asthma, yet diet only affects 2.5% of people with asthma and milk is rarely the cause. The real triggers are allergens such as house pollen and dust-mite, respiratory infections and exercise.

It is also commonly believed that lactose intolerance is very common. In fact, an Australian review estimated that lactose maldigestion affects as few as few as 4% of adult Caucasians. But figures are thought to be higher among people of Chinese or Asian origin and Aboriginal people. African-Americans are also thought to have a greater prevalence. However even people with lactose intolerance can digest small amounts of lactose (like the amount in a glass of milk) without symptoms, especially if consumed as part of a meal. The amount of lactose in yoghurt is much lower because the bacterial cultures break-down the lactose. Hard cheese has negligible lactose. For the super-sensitive there are lactose-free milks and yoghurts available. Having said all this, there are those with milk allergy who must stay well-away from anything dairy-based or they become ill, however this unfortunate group makes up less than 1% of the adult population.

Milk and dairy foods are considered a core food – they even have their own food group. This is because they are nutrient dense and provide a package of nutrients that are not found in the same amounts in other foods. Dairy foods provide a bunch of essential nutrients including protein, calcium, phosphorous, magnesium, riboflavin and vitamin

B12. They have a low GI and help lower blood pressure when consumed in a diet with plenty of vegetables and fruits. While whole milk, yoghurt, ice cream and cheese contain quite a whack of saturated fat, choosing reduced-fat and low-fat options gives you all the nutritional benefits without the clogged arteries. Most of us should aim for 2-3 serves a day as part of a healthy diet.

Nicole Senior is author of *Heart Food* and *Eat to Beat Cholesterol* available from [www.greatideas.net.au](http://www.greatideas.net.au)

For more information on nutrition and heart health visit [www.eattobeatcholesterol.com.au](http://www.eattobeatcholesterol.com.au)

## Dr David's Tips for Raising Healthy Kids

### **Out of sight out of mind**

Parents often ask me what's the simplest thing to do to help their kids to a healthy weight in a fast food/fake food world? My answer: turn your home into a nutritional safe zone. Purge the pantry and fridge of junk foods that are high in calories and low in nutrients and replace them with healthy alternatives. Why? It's the easy availability of junk food can trigger overeating.

In fact, the tendency to eat simply because food is present was very clearly demonstrated in a study by Brian Wansink and colleagues at Cornell University involving 40 secretaries. Over a 4-week period, the researchers placed chocolate candies in clear or opaque bowls either next to or 6 feet away from their desks. After work hours each day, the researchers filled the bowls and tallied how many candies the secretaries had eaten. The bowls were rotated so that each secretary spent an equal amount of time with clear or opaque bowls, as well as next to the candy and 6 feet away from it. The result: the secretaries ate an extra 2.2 pieces of candy a day when the chocolate was visible through a clear bowl, and an extra 1.8 pieces when the bowl was on their desks.

– Dr David Ludwig is Director of the Optimal Weight for Life (OWL) program at Children's Hospital Boston and author of [\*Ending the Food Fight\*](#)

## Move It & Lose It with Prof Trim

### **Lift it and shift it**

‘While I regularly go for a walk, and even sometimes go the gym for a light aerobics class, my gym instructor keeps trying to talk me into lifting weights. Is there any real reason why I should do this when all I’m after is some weight loss.’

Sounds like you might already be doing the weight lifting, with the extra weight you’ve been carrying around (no offence meant). However, putting that aside for a minute, let’s look at any possible advantages you may get from doing resistance training (which, incidentally, doesn’t have to mean lifting weights).

There’s little doubt that the best type of exercise for long-term weight loss is endurance (aerobic) exercise. This is where most fat energy is likely to be burned over the least amount of time. Endurance exercise where you are carrying your own body weight (such as walking), is also better than that where the body weight is supported (such as swimming or cycling). However, once you get to a certain level, it may be appropriate to look to something different.

Put it this way: Let’s say you start at around 100 kg and walk for 1 km. You might burn up let’s say 100 kcals of energy doing this. If you do it daily for several weeks, your weight might begin to drop, for example to down around 90 kg. Now, not only because you are lighter, but because you are fitter, it takes less effort to carry your body frame over the said 1 km. In fact it may only require 80 kcals, making the energy loss disproportionate to the effort involved. You would then plateau and stop losing weight.

You can do a number of things to break through this: You can go back up to 100 kg by carrying a 10 kg back pack, adding more energy to the effort. Or, you might change the type of activity to introduce some resistance exercise. This not only changes the effort, but can help maintain metabolic rate while your total body mass decreases (through decreased body fat). Hence you maintain muscle while losing fat.

So, while resistance training may not be recommended while you are still big (you’ll want to lose total mass as well as fat), your instructor might be providing some useful advice to get you to try some resistance work as you start to slim down. It can also make you stronger, which may be of value in normal daily living.

## Your Questions Answered

**‘I’ve been attempting to use the glycemic index to help me consume the correct foods after intense workouts. But, I’m terribly confused as various articles on the subject sometime seems to contradict one another. Should I be having high or low GI carbs?’**



Dr Emma Stevenson

*GI News* invited Dr Emma Stevenson from Northumbria University’s School of Psychology and Sports Sciences to answer this one: ‘The available literature is confusing and there are surprisingly few well controlled, scientific studies investigating the effects of high GI and low GI carbs on recovery from intense exercise. The early studies showed that consuming high GI carbs during recovery from exercise increased muscle glycogen resynthesis (over both a short recovery period of about 4 hours and over 22 hours) compared to consuming low GI carbs during recovery. This is not surprising as rapid muscle glycogen resynthesis requires a high insulin concentration and a high glucose concentration – both of which are observed following consumption of high GI carbs. More recently, my colleagues and I have shown in our studies that exercise capacity was improved in endurance athletes and following a low GI recovery diet over 24 hours as the low GI carbs allowed the athletes to burn more fat as a fuel and therefore possibly spare muscle glycogen. The same group also showed no differences in intermittent exercise performance in sports/games played when they consumed a high GI or low GI diet over 24 hours.

My advice based on our studies would be that if your recovery time between sessions is greater than a few hours then the most important thing is to consume sufficient carbohydrate and low GI carbs may provide the additional benefit of allowing your body to use fat as an energy source for a longer period after exercise. If your recovery time between sessions is short (i.e. less than 4 hours) then high GI carbs can provide a rapid

source of glucose and result in a rapid insulin response that can speed the recovery of muscle glycogen. I would also recommend consuming a source of protein (milk, yogurt) during recovery to aid muscle recovery and reduce soreness.'

**'I am keen to bake my own low GI bread. I have found a recipe (it is one of Anthony Worrall Thompson's) that says: 'This bread has an extremely low GI as the tough outer coating of the seeds makes them harder to break down.'** It has: **'325 g strong wholegrain flour, 25 g wheatbran, 1 sachet fast action yeast (6 or 7g), 25 g sunflower seeds, 25 g sesame seeds, 25 g pumpkin seeds, 25g linseeds, 12.5 g muscovado sugar, half teaspoon salt, 1 tablespoon vegetable oil'. This is cooked at 200°C for 40 minutes or so. How can I be sure it is low GI?'**



'We are often asked about low GI bread recipes. Sadly, we don't have one ourselves,' says dietitian and co-author of *The Low GI Diet*, Kaye Foster-Powell. 'In fact it's impossible to predict the GI of a recipe for baked goods because of the way the starches can change with cooking and other ingredients in the recipe will exert an influence on its glycemic impact well. A recent study published in the *European Journal of Clinical Nutrition* showed that homemade breads that were proofed for shorter times had a lower final volume as well as a lower GI than those that were proofed for longer. Lower degrees of starch gelatinisation may explain this effect. Some early tests of the GI of specially manufactured breads suggested that at least half the "bulk" needed to be whole grains to effectively lower the GI. This would mean a recipe with for example, 250 g flour (wholemeal or white) plus 250 g whole cereal grains like rolled oats, rolled barley, kibbled wheat or seeds. These days, manufacturers use more novel ingredients like guar gum to lower the GI without using whole grains. With a staple, 'everyday' food like

bread, testing is essential as it's these foods (along with breakfast cereals) that can make a real difference to the overall GI of your diet.'

**'I only have a week to get into tip-top shape before a big, glamorous event. What can I do to reduce bloating and fluid retention and look and feel great?'**



Prof Jennie Brand-Miller

Here's what Prof Jennie Brand-Miller suggests.

- Do two 30-minute walks every day for a week (a total of 60 minutes a day), including one first thing in the morning to set your body clock.
- Up your fruit and veggie (bar potatoes) intake. Eat nine serves of veggies and fruit everyday (at least six serves of veggies), and the more colourful the better.
- Eat for flavour, enjoyment and wellness, not weight loss.
- Cut back on salt and salty foods.
- Buy some magic underwear

## Your Success Stories

**'I have just started my sister on eating low GI food, hopefully she'll have as much success as myself.' – Vicki**

'I am a 50 year old female who had VERY unhealthy eating habits. I had spinal fusion in my neck in 2003, as a result my thyroid went haywire! Then in 2005 I had to quit my fast-paced job of 17 years because of four more herniated disks in my back. I weighed 130 lb. in 2003, as of July 2007 I weighed in at 192 lb. I had awful heartburn day and night, food cravings 24 hours a day, no energy, and just felt awful and bloated the whole time. I came across a story on GI and weight loss in a copy of *Reader's Digest* at my

doctor's, and I went straight to the bookstore.

In the first six months I lost 49 lb, have energy to exercise AT LEAST every other day, the cravings are gone, the bloating and heartburn are gone, my back is not in constant pain because of the weight loss, and my thyroid has stabilized. I still take synthroid, but the dose does not increase every four months. My skin and hair are much healthier too. Best of all I am now able to take full time care of my 87 year old aunt with Alzheimer's, who can no longer live alone! The six months of eating low GI foods has made me feel 30 again. I do not even call it a diet, it's eating good, healthy food for my body. Going to restaurants is not difficult either if you know what foods to eat, and what to stay away from.'

**'I am over 73 years old and have not felt this good in years.'** – Robert

'On my last visit to the VA in July, 2007, they informed me that I was pre-diabetic and issued me a glucose meter to monitor my blood sugar. My wife had heard about *The New Glucose Revolution* and purchased the book for me. The attached detailed chart is a progress report that shows when I implemented the low GI eating habits. I use the glucose meter every other morning. Most interesting, to me, is how small the glucose levels became when I added a 5 day exercise program. Note the notes on the chart, i.e. trouser size and weight. The detailed record was requested by my VA health care provider.



Full size: ([http://www.glycemicindex.com/blog/2008/july08/graph\\_large1157.gif](http://www.glycemicindex.com/blog/2008/july08/graph_large1157.gif))

**‘Thanks to all those researchers for discovering the information about the GI for us.’ –Sue**

‘After spending most of my life overweight and trying every weight loss program there is, I finally found low GI. What a revelation. The program of eating was simple, I enjoyed finding out the GI values of foods and couldn’t believe how easy it has been to lose 19 kg, feel terrific, not hungry at all and have far more energy than before.’

## **GI Symbol News with Alan Barclay**

### **Why do most dairy products have a low GI?**

The unique combination of proteins and sugars that occur naturally in dairy foods that contain carbohydrates (cheese doesn't) are the reason that most have a low GI. In case you didn't know, the primary source of carbohydrate in dairy food is lactose, which in its pure form has a GI of 46.

We are often asked about dairy goods stimulating insulin secretion. First of all, it's important to note that all protein foods (yes that includes meat, fish and eggs) stimulate insulin secretion – that's why you may see them described as being 'insulinogenic' to use the technical term. However, the proteins in milk may be more insulinogenic than other protein foods because they are meant to help young mammals grow and develop. One of insulin’s many functions is to act as a growth hormone designed to drive nutrients into cells – not just glucose but also amino acids, the building blocks of new tissue. It is thought that milk may contain a unique combination of amino acids that in combination are more insulin stimulating than any others alone. There is no evidence that this either increases the risk of weight gain or lifestyle-related diseases like type 2 diabetes.

Milk and yoghurt offer us a a wide variety of convenient and calcium-rich foods and drinks for meals, snacks and drinks that are also low GI. Adding fruits and sweeteners often raises the GI of the final product. However, provided low or lower GI ingredients are used, the end product usually still has a low GI. There are now a large range of delicious and nutritious milks and yoghurts that meet the GI Symbol Program's strict nutrient criteria for kilojoules, saturated fat and calcium.

## **Milks**

Just Natural Malt, Honey and Chocolate (99% fat free milk)

Dairy Farmers Skim Milk

Dairy Farmers Lite White Milk

Dairy Farmers Take Care Milk

Kids Selection Milk - 300 ml, 1 litre, 2 litre

## **Yoghurts**

Nestle Diet Yoghurt range

Nestle All Natural 99% Fat Free Yoghurt range

Nestle Milo Energy Dairy Snack

Nestle Milo Mousse

Brownes Diet Yoghurt range

Dairy Farmers Thick & Creamy Light range

Brooklea light sensation range

## **Contact**

Dr Alan W Barclay, PhD

CEO, Glycemic Index Ltd

Phone: +61 2 9785 1037

Mob: +61 (0)416 111 046

Fax: +61 2 9785 1037

Email: [alan@gisymbol.com](mailto:alan@gisymbol.com)

Website: [www.gisymbol.com.au](http://www.gisymbol.com.au)

## **The Latest GI Values**

### **Canned soups**

Soups are great for light meals and lunches. Even as a snack in wintry weather. Over the years SUGiRS has tested a number of convenient canned and packet soups. Fiona has just completed testing another:

Campbells Country Ladle Chicken and Vegetable with Wholegrain Pasta canned soup.

Here are the details:

GI 45; Serve size 1 cup (250 ml); Carbs per serving 11g; Glycemic load 5

## **Where can I get more information on GI testing?**

### **North America**

Dr Alexandra Jenkins  
Glycemic Index Laboratories  
36 Lombard Street, Suite 100  
Toronto, Ontario M5C 2X3 Canada  
Phone +1 416 861 0506  
Email [info@gilabs.com](mailto:info@gilabs.com)  
Web <http://www.gilabs.com/>

### **Australia**

Fiona Atkinson  
Research Manager, Sydney University Glycemic Index Research Service (SUGiRS)  
Human Nutrition Unit, School of Molecular and Microbial Biosciences  
Sydney University  
NSW 2006 Australia  
Phone + 61 2 9351 6018  
Fax: + 61 2 9351 6022  
Email [sugirs@mmb.usyd.edu.au](mailto:sugirs@mmb.usyd.edu.au)  
Web <http://www.glycemicindex.com/>

### **New Zealand**

Dr Tracy Perry  
The Glycemic Research Group, Dept of Human Nutrition  
University of Otago  
PO Box 56 Dunedin New Zealand  
Phone +64 3 479 7508  
Email [tracy.perry@stonebow.otago.ac.nz](mailto:tracy.perry@stonebow.otago.ac.nz)  
Web [glycemicindex.otago.ac.nz](http://glycemicindex.otago.ac.nz)