THIS MONTH Key “new nutrition” lessons for health and wellbeing; America’s new food label puts added sugar in the crosshairs; Why meerkats eat to compete (big is better); Dr Alan Barclay on stopping the nutrient blame game; Prof Jennie Brand-Miller on why glucose tolerance can vary from day to day; Nicole Senior on matters of the healthy heart; Keep good carbs and carry on eating low GI chickpeas; Doctor meets chef with Hit 100’s Corn fritters & tomato salsa; Raising food smart kids who are full of beans.

FOOD FOR THOUGHT

TRUST ME I’M A … DOCTOR … A CELEBRITY… AN INDEPENDENT NUTRITIONIST … A PERSONAL TRAINER …

With so many “experts” on food, diet and health grabbing the headlines and twittersphere with their dictats, reveals and PJs (personal journeys), it’s no wonder there’s a whole world of confused consumers wondering what to put into their shopping baskets and into their mouths.

Some health professionals are also confused – they have to discard the old nutrition’s dietary dogmas that they learned at college, took to heart and have been preaching for decades and take on board the latest advances in nutrition science based on high quality evidence from randomised controlled trials (RCTs) and epidemiological studies published in leading peer-reviewed journals.

For our eleventh birthday issue, we asked Prof Jennie Brand-Miller to summarise how the nutrition landscape has changed in the past twenty years and to set out what she sees as some of the key “new nutrition” lessons for health and wellbeing we have learned that will help us achieve and maintain a healthy weight and reduce our risk of chronic disease.

The “new nutrition”: Jennie Brand-Miller’s six key lessons

Lesson 1. There are lots of ways to skin a cat. And there are lots of healthy eating patterns that can add years to our life and life to our years. Higher fat-Mediterranean diets, traditional higher carbohydrate Asian diets (rich in rice and vegetables), higher protein diets and low GI diets can all be accommodated and give people plenty of choice. This approach also takes into account the diversity of our cultural and ethnic backgrounds and at the individual level, it is more sustainable over the longer term.

Lesson 2. The low fat strategy failed. The findings of large, long-term randomized controlled trials (RCTs) have shown that it did not have the desired outcome. It did not prevent people from getting heart disease, stroke, type 2 diabetes, breast cancer, and colorectal (bowel) cancer etc. In fact, the prevalence of obesity and type 2 diabetes just continued to increase. It is consistently associated with weight re-gain. It does not reduce the risk of chronic disease.
Lesson 3. We need to pay more attention to protein sources (whether it's beef, pork, lamb, poultry, dairy, eggs, seafood or plant protein) because protein is the most satiating of the three macronutrients. The quality of those sources is important for our health and for the planet. All of them can be prepared in healthy or unhealthy ways.

Lesson 4. We need to pay much more attention to carbohydrate quality – both the good everyday carbs and the traditional staples made from them and the occasional treats. What we discovered was that some carbs were worse for us than saturated fat – carbs with high glycemic index (GI) values, in particular, were linked to higher risk of cardiovascular disease, type 2 diabetes and some cancers. We also found that eating healthy low GI carbs is a short cut to a healthy diet.

Lesson 5. Head to head in high quality RCTs, we found that:
- Energy-dense, high protein-very low carb diets were associated with faster weight loss and better cardiovascular disease risk factors than low fat diets.
- Higher fat, Mediterranean style diets produced better weight control and cardiovascular outcomes than low fat diets.
- Low GI/low glycemic load diets were associated with improved diabetes control, prevention of weight re-gain and reduced risk of type 2 diabetes.

These alternate diets share an underlying, unifying mechanism:
- They reduce postprandial glycemia and insulinemia.
- They reduce oxidative stress and inflammatory markers, not just (bad) LDL-cholesterol and triglycerides.
- They rely on the naturally satiating qualities of individual foods to control appetite, not on counting calories or grams of fat or carbs.
- They focus on real foods rather than macronutrients.

Lesson 6. Appetite matters. Appetite is what drives our energy intake. It is not possible to balance energy intake and energy expenditure by counting calories because:
- Firstly, no one knows how many calories they expend each day. Even if you could, the calories (kilojoules) on food labels are not precise enough – they are at best good guesses.
- Secondly, mathematical modelling shows that a small but persistent excess of only 7 calories (30 kilojoules) per day over and above energy requirements for 10 years underlies the current epidemic of obesity.

The best way to balance calories in and calories out is to weigh yourself regularly (on accurate scales), say monthly, or use the belt test.

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NEWS BRIEFS

America’s new food label and why the focus on 50 grams added sugars; Non-nutritive sweeteners and weight gain (rat study); New GI values: Van der Meulen Pumpernickel Wholegrain Rye; Biggest sister wins: meerkats and competitive eating.

AMERICA’S NEW FOOD LABEL

“The new nutrition facts label is now final, putting added sugar in the crosshairs for consumers who are paying attention” writes Ted Kyle in Conscienhealth “FDA notes eight changes to the label, but the real action has been focused on sugar all along. Companies have up to three years to make
the changes. Until now, consumers have had no way to know how much sugar was added to a processed food product. Now it will not only be called out on the label, consumers will have a reference daily value for how much they should consume – 50 grams … Now the experiment starts. Makers of products with a lot of added sugar will face pressure to reformulate. The food supply and food consumption patterns will change in ways that are not totally predictable. It’s a reasonable experiment, but make no mistake. It is an experiment. Hopefully, it will turn out better than the low-fat experiment of the 1980s.”

Of course, what consumers really want is something simple on the front of the pack that sums up the nutritional quality of a packaged or processed food. And there’s no such thing because it’s not that easy to do. Traffic lights and health stars for example both ignore micronutrients (vitamins, minerals and phytochemicals) and two key attributes – a food’s protein content and the glycemic potential of the carbs.

Why 50 grams? In its latest guidelines published in 2015, the World Health Organization recommended that adults and children reduce their daily intake of free sugars (that means added sugars not the sugars naturally in foods like fruit or milk) – including glucose, fructose, and sucrose (table sugar) – to less than 10 per cent of their total energy intake. (For a typical adult consuming 2000 calories a day, for example, this is equal to around 50 grams or 12 teaspoons or 200 calories.). A further reduction to below 5 per cent or roughly 25 grams (6 teaspoons) per day may provide some additional health benefits (further reductions in risk of tooth decay) the authors conclude, but note that this is based on low quality evidence. In his Perspectives piece in April 2015, Dr Alan Barclay shows what 5 per cent and 10 per cent added sugars look like in an overall healthy 2000-calorie (8400kJ) diet.

RUN RODENT:

“Sweetening yoghurt with glucose, but not with saccharin, promotes weight gain and increased fat pad mass in rats” is the name of the paper. Readers could be forgiven for having a “Doh!” moment. After all the sugar glucose (also known as dextrose) is a source of calories and saccharin isn’t. But there’s been a lot of academic argy-bargy about non-nutritive sweeteners and weight gain with some researchers claiming they accelerate it by disrupting sweet-calorie associations. The Sydney University researchers led by Prof Bob Boakes modelled their experiments on a key study from a series of experiments reporting greater body weight gain in rats fed yoghurt sweetened with saccharin, compared to those sweetened with glucose (Swithers & Davidson, 2008). But contrary to the earlier study, they found consumption of the non-nutritive sweetener saccharin had no effect on weight while glucose did. In a parallel study, the researchers report that individual differences in saccharin acceptance by rats predict their food intake. Spoiler alert for downloaders: These studies don’t have a happy ending for the rats.

A scientific statement from the American Heart Association and the American Diabetes Association concludes that “When used judiciously, NNS (non-nutritive sweeteners) could facilitate reductions in added sugars intake, thereby resulting in decreased total energy and weight loss/weight control, and promoting beneficial effects on related metabolic parameters. However, these potential benefits will not be fully realized if there is a compensatory increase in energy intake from other sources.”
When looking to cut calories, Dr Alan Barclay in *The Ultimate Guide to Sugars & Sweeteners* says “it’s important to remember that “sugar-free” isn’t code for low-calorie. When regular sugar is replaced by non-nutritive sweeteners in energy-dense starchy or fatty foods, you may not save very many calories at all.

What about safety? Despite rigorous approval processes, controversy continues to swirl around non-nutritive sweeteners. If you have concerns, we suggest you visit the appropriate government websites such as the FDA and FSANZ, which are not only responsible for the rigorous approval process but continue to closely monitor and review new evidence about these additives on an ongoing basis.

- USA: [FDA website](#)
- Canada: [Health Canada website](#)
- Australia and New Zealand: [FSANZ website](#)
- Europe (including the UK): [EFSA website](#)

There is strong evidence that, for most people, non-nutritive sweeteners are safe when consumed in the amounts permitted by government regulators. However, this doesn’t mean that some sensitive people won’t have adverse reactions to some of the non-nutritive sweeteners in foods.

Food intolerance is relatively common (up to one in five people), and people can react to a broad range of naturally occurring food chemicals such as salicylates, amines, and glutamates as well as to food additives including non-nutritive sweeteners. If you think you may have a food intolerance, look before you leap: see an Accredited / Registered Dietitian (one who qualifies for the credential RD or RDN or, in Australia, APD) for further advice on the best alternative sweeteners.”

**LOW GI LOWERS DAY-LONG GLYCEMIA**

A randomized, controlled crossover study looking at the effect of high GI and low GI meals on blood glucose and fat oxidation found that low GI meals minimized large blood glucose fluctuations throughout the day in 12 healthy Asian men. Additionally, the low GI mixed meals promoted fat oxidation over carbohydrate oxidation when compared to high GI mixed meals. The authors conclude that: “The consumption of low GI meals may be a strategic approach in improving overall glycaemia and increasing fat oxidation in Asians consuming a high carbohydrate diet.”

“This is one more quality study in a long list” says Prof Jennie Brand-Miller “highlighting the importance and relevance of the GI for good health and reducing the risk of chronic disease. It clearly demonstrates that a diet based on choosing low GI in place of high GI carbohydrate sources, lowers glycaemia throughout the day, even in the context of mixed meals, additional protein and fat and the ups and downs of everyday life.”

**NEW GI VALUES FROM SUGIRLS**

Whole kernel rye is used to make bread, including pumpernickel and some crispbreads. It’s an excellent source of fibre and also a good source of vitamins and minerals. It is more usually sold as rye flakes, which are the hulled, steamed and rolled rye grains. Like rolled oats, you can eat the flakes as a porridge or sprinkle them over bread before you bake it.

Rye kernels have a low GI – ¼ cup cooked rye kernels: GI 34 (average), carbs 21g, GL 7.
Van der Meulen Pumpernickel Wholegrain Rye bread

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<th>Per 50g (1 slice)</th>
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<tr>
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<td></td>
<td>426 kilojoules</td>
<td>852 kilojoules</td>
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<td><strong>Protein</strong></td>
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<td><strong>Fat</strong></td>
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<td>(Includes saturated fat)</td>
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<td><strong>Carbohydrate</strong></td>
<td>18.4g</td>
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<td><strong>Fibre (grams)</strong></td>
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<td><strong>GL (glycemic load)</strong></td>
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In 1910 Hessel van der Meulen established a small bakery to make biscuit rusks in the traditional way. In 1985 the range of products that now included biscuit rusks and Melba toast was expanded with the addition of rye bread when Van der Meulen took over Van der Veer's rye bread bakery in Broeksterwoude. The ingredients in Van der Meulen Pumpernickel Wholegrain Rye bread are: Wholegrain Rye (50%), Water, Iodised Salt, Wheat Bran (0.7%), Acidity Regulators (270, 262), Preservatives (282, 200).

MEERKATS: BIG WINS

Meerkats live in groups of up to 50 individuals, yet a single dominant pair will almost completely monopolise reproduction. "Size really does matter and it is important to stay on top," says Professor Tim Clutton-Brock. Competition for the breeding role is intense and weight is the decider. The dominant female is the heaviest with subordinates forming a “reproductive queue” ranked by age and weight: when a dominant female dies, she is usually replaced by her oldest and heaviest daughter. But it's highly competitive. Subordinate females keep tabs on those nearest them in the breeding queue and make concerted efforts to ensure they are not overtaken in size and social status by younger and heavier upstarts.

The University of Cambridge scientists working on wild Kalahari meerkats identified pairs of sisters and artificially increased the growth of the younger member of each pair by feeding them three times a day with hard-boiled egg. The scientists weighed them and their (unfed) older sisters daily for three months. The results, published in the journal *Nature*, show that the increased growth of younger females stimulated their older sisters to increase their daily food intake and weight gain in an attempt to outgrow their rivals. Tellingly, the extent to which the older sister increased her weight was greater when her younger sister's weight gain was relatively large than when it was slight.

But competitive growth does not stop there. If a female meerkat gets to be a dominant breeder, her period in the role (and her total breeding success) is longer if she is substantially heavier than the heaviest subordinate in her group. During the three months after acquiring their new status, dominant females gain further weight to reduce the risk of being usurped.

Male meerkats leave the group of their birth around the age of sexual maturity and attempt to
displace males in other groups, and here, too, the heaviest male often becomes dominant. The researchers found a similar strategy of competitive weight-gain in subordinate males.

In many human cultures even today, bigger is considered more beautiful and is a marker of success.

Prof Tim Clutton-Brock: Director of Research at University of Cambridge and formerly Prince Philip Professor of Ecology and Evolutionary Biology

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PERSPECTIVES WITH DR ALAN BARCLAY

STOP THE NUTRIENT BLAME GAME

Rates of overweight, obesity and associated conditions like type 2 diabetes are increasing around the world. There are literally hundreds of potential reasons why we are gaining weight as a species, but the quality and amount of foods and drinks that we consume habitually tend to be scrutinised the most, perhaps because we think we understand them the most, or possibly more importantly we think we have some control over them.

In recent years, it is becoming increasingly clear that focusing on single nutrients, ingredients, foods or even food groups is not a recipe for long-term health and well-being, because overall dietary patterns are more important in the long run. For example, there is strong evidence that both the traditional Mediterranean diet and certain traditional Asian cuisines like traditional Japanese diets are associated with longevity and a lower risk of developing chronic diseases like type 2 diabetes, despite being composed of very different ingredients and foods, with very different macronutrient profiles – Mediterranean diets are relatively high in fat whereas most Asian diets are very high in carbohydrate and low in fat. Principles from these tried-and-true dietary patterns like eating minimally refined vegetables, fruits, grains, nuts, seeds, legumes, lean meats/fish, yoghurt and other fermented dairy products, and oils (olive/peanut) can be adapted to suit most people’s personal, familial and cultural backgrounds.

Despite this, most purveyors of popular diets continue to focus on single nutrients or ingredients (e.g., fats/oils or carbohydrates (starches and sugars)) as the cause of all our current lifestyle-related ailments, and most state of course that all you need to do to solve the problem is to avoid them. If only it was that simple…

We have a really good example of the lack of success of the one-nutrient-at-a-time approach – the vast variety of low-fat diets contrived in the latter half of the 20th century. As Prof. Jennie Brand-Miller discusses in this month’s Food for Thought, these “new” low-fat diets (in contrast to traditional low-fat eating patterns as enjoyed by certain ethnic groups for hundreds of years) have not delivered the improvements in health that were expected by their original proponents.

Present day narrative suggests that in an academic showdown spanning several decades and both sides of the Atlantic, “anti-fat” scientist Dr Ancel Keys defeated “anti-sugar” scientist Dr John Yudkin, and the low fat message got enshrined in Dietary Guidelines around the globe, paving the way for low-fat variants of all of our favourite foods for the next quarter of a century. In the meantime we all gained more weight and developed type 2 diabetes. Again, if only it was that simple…
Despite the current narrative, not everyone agreed with Dr Keys hypotheses, and as characteristic of scientific research, academic debate continued. Mindful of this, the very first edition of the Dietary Guidelines for Americans published in 1980 included a range of practical advice to help people choose a healthful pattern of eating. There were chapters on how to “Avoid too much fat, saturated fat, and cholesterol" and how to “Avoid too much sugar” addressing both Keys and Yudkin’s concerns. Dietary Guidelines from 1980 onwards have always included practical advice on reducing saturated fat and added sugars. The problem is, the average American would not likely have known about the Dietary Guidelines as they were a government publication in a pre-internet world. Needless to say, they would not have been on the best seller list in the local bookstore…

However, low-fat diet books were. One of the best sellers at this time in the USA was Nathan Pritikin’s The Pritikin Promise: 28 days to a longer healthier life, and in Australia Ross Horne’s The Health Revolution. Notably, these very popular authors were not scientists, but well-meaning laypeople who personally experienced dramatic health improvements when they started consuming a low-fat diet. Sound familiar?

Devout followers of these and similar authors sought low fat foods in their local supermarkets and food industry quickly caught on, producing low-fat versions of all of our favourite foods, often replacing the fat with dietary fibres (e.g., gums), maltodextrins, starches, sugars and refined proteins. The rest, as they say, is history…

Sadly, history has a bad habit of repeating itself. Carbohydrates (in particular sugars) have replaced fats as the nutritional bad-guy, and low-carb (starches and sugars) books are selling well. The current rationale is that high carbohydrate foods stimulate insulin more, leading to fat gain – unfortunately it’s not quite as simple as that – fats and proteins also have an effect on insulin levels. But never let the facts get in the way of a good story – low carb foods brimming with refined fats, refined proteins and refined fibres are filling our supermarket shelves, covered with low-carb/sugar, high protein/fat claims providing them with that all important health halo. The diet industry is once again rubbing its hands with glee – when it comes to sales; any fad is a good fad after all.

It’s time we stopped the nutrient blame game – it will only make matters worse. Diets don’t work in the long run. Enjoy a healthful pattern of eating that suits your cultural, familial and personal food preferences. One size does not fit all.

Alan Barclay PhD (LinkedIn) is a consultant dietitian and Chief Scientific Officer at the Glycemic Index Foundation. He worked for Diabetes Australia (NSW) from 1998–2014 and is a member of the editorial board of Diabetes Australia’s health professional magazine, Diabetes Management Journal. Alan has authored or co-authored over 30 scientific publications, is co-author of The Low GI Diet: Managing Type 2 Diabetes (Hachette Australia) and The Ultimate Guide to Sugars and Sweeteners (The Experiment, New York) His latest book is Reversing Diabetes (Murdoch Books Australia). Contact: alan.barclay@gisymbol.com
Q&A WITH PROF JENNIE BRAND-MILLER

I have heard that a person’s glucose tolerance may vary from day to day by as much as two-fold. How come? Is the GI still relevant?

Why a person’s glucose tolerance varies is not clear, but we can point to varying pancreatic beta-cell responsiveness and insulin sensitivity, factors that are beyond anyone’s control. The beta cells just work better on some days than on others. This variability among and within people must be managed carefully in order to detect true differences in the glycemic potential of the carbohydrates in different foods. In people with diabetes, this variability is actually less than in those without.

A person with diabetes however can be confident that a high GI food (GI value of 70 or more) will produce a significantly higher glycemic response than a low GI food (GI value of 55 or less) 95 percent of the time. Just as the height of high tide and low tide varies from day to day and place to place, we still know that high tide will be higher than low tide on any one day at any one place. It’s not the absolute level, but the difference, that’s important.

That’s why GI testing has such a strict protocol. Ten subjects are used, each of whom is given the reference food (glucose) on three separate days. Each time, the overall fluctuation in their blood glucose is determined by measuring it eight times over a period of two hours.

The findings from those three days of testing are averaged to find each person’s usual response to the reference food, glucose. Next, his or her glycemic response to the test food is measured once, using the same two-hour testing protocol. Then each person’s response to the test food is expressed as a percentage of their average response to the reference food. Finally, the relative responses of all ten subjects to the test food are averaged. This is the published GI value. The GI value of bread (70) means that the overall fluctuation in blood glucose after eating an exchange of white bread will be about 70 per cent of the effect of pure glucose (GI value of 100).

By taking the average of ten subjects, each of whom has undergone this painstaking process, we are simultaneously compensating for both within-subject and between-subject variability. If we were to test white bread over and over again using this protocol, we’d get the same result: a GI of 70.

The decision behind the cut-offs for rating high GI (70 or higher) and low GI (55 or less) foods, was based on the spread of GI values among the single foods that had been GI tested.

Professor Jennie Brand-Miller (AM, PhD, FAIFST, FNSA, MAICD) is an internationally recognised authority on carbohydrates and the glycemic index with over 250 scientific publications. She holds a Personal Chair in Human Nutrition in the Boden Institute of Obesity, Nutrition, Exercise and Eating Disorders and Charles Perkins Centre at the University of Sydney. She is the co-author of many books for the consumer on the glycemic index and health.
HEARTFELT HEALTH WITH NICOLE SENIOR

Here, I’ll be focusing on good food and good living for heart health throughout 2016. Each month, I’ll bring you news you can use and ideas to inspire you to look after your heart. Whether it’s high cholesterol, high blood pressure, high blood glucose, a big belly or the whole darn lot, you’ll find advice, hints, tips and tricks to help you and your family get back to whole-hearted health.

In matters of the heart, who can you trust?

It’s no surprise that many people find the science of nutrition confusing. They hear conflicting advice and take the easiest path of switching off altogether. Or worse, they are led down the garden path by people that seem believable, trustworthy and nice. And they’re on the TV and maybe they’re even a doctor so they must be right, right? Unfortunately, not always. Some gurus and fad diet zealots are well meaning but misinformed; others seem to be out to make a buck and take no responsibility for their advice and products, even when they cause financial loss, frustration, despair or harm. It truly is a case of ‘buyer beware’. Sadly, too many people are at a disadvantage because they can’t tell the difference between a real expert and a fake, or the difference between real science and pseudoscience. They are charmed by the snake oil salesmen and women with their fake tan, skinny frame and perfect oh-so-bright-white teeth.

Nutrition for a healthy heart has been a rich vein for nutrition hobbyists to tap, primarily because it is such a large market and there’s good money to be made. Cardiovascular disease is still our biggest killer and many people are affected by risk factors such as high cholesterol, high blood pressure and high blood glucose. Right now the paleo and low-carb diets are having their moment in the sunshine with hoards of believers following advice to tuck into butter, lard, meat, coconut oil and bacon and spurn grains, fruit, legumes and dairy. Savvy social media, YouTube clips and TV shows enable them to become a cultural and marketing phenomenon virtually overnight snowballing through our consciousness and influencing what we put into our shopping trolleys without the need for scientific evidence and peer-reviewed journal publications.

So if you can’t trust TV doctors, celebrities or the media, who can you trust on heart health? You can trust the scientific experts in heart associations such as the American Heart Association and the Heart Foundations in Australia, New Zealand, the UK and Canada. They examine the body of scientific evidence and develop practical advice around the conclusions arising from the scientific evidence. Unlike the media, they don’t jump on the bandwagon of single studies (which can be of poor quality) but look at the totality of evidence. They see the forest whereas the media (and therefore us) just see the trees. While people often say they’re sick of experts changing their minds, in fact the core advice around preventing heart disease given by real experts has changed very little.

Here are a couple of recent scientific articles that are consistent with the body of scientific evidence around diet for a healthy heart but against the current fads of paleo and low-carb. (These are a lengthy scientific papers so don’t feel you need to read them thoroughly – just know they are credible sources)

- *Circulation* journal article: Higher whole grain intake associated with lower risk of death from all causes and especially risk of death from cardiovascular disease.
- Dietary fat recommendations journal article: a panel of experts conclude it is important to reduce saturated and trans fats and replace them with polyunsaturated and monounsaturated fats. However, there is more to food than nutrients so talking about dietary patterns is important. Diets rich in vegetables, fruits, nuts, whole grain cereals, fish, lower fat dairy
products and vegetable oils reduce the risk of chronic diseases including coronary heart disease

Of course these will be ignored by fad-ists as inconvenient truths but they’ll help us feel good about walking the path of evidence-based nutrition, and help us enjoy our dense, grainy, low GI bread!

Zalt... it’s not salt!

One thing we do know is too much salt (or more accurately sodium) is not great for blood pressure and if you have high blood pressure you would benefit from eating less. Salt substitutes have been around for a while and most are salts based on potassium rather than sodium and they do the job but they also come with an undesirable bitter flavour.

So I was excited to receive a newsletter from Ian ‘Herbie’ Hemphill from Herbie’s Spices about a new salt replacer made from herbs and spices called Zalt (great name, don’t you think?). It is a zingy blend of black lime, amchur (green mango powder), paprika, onion, bay leaves and ginger that Ian says add interest and flavour to your food and works on everything from boiled eggs to French fries. As well as tasting better, Zalt is likely to have additional health benefits from the natural phytochemicals in the natural plant-based ingredients. What a clever idea. You can order Zalt online from herbies.com.au.

Nicole Senior is an Accredited Nutritionist, author, consultant, cook, food enthusiast and mother who strives to make sense of nutrition science and delights in making healthy food delicious. You can follow her on Twitter, Facebook, Pinterest, Instagram or check out her website.

KEEP GOOD CARBS AND CARRY ON

CHICKPEAS

Chickpeas are the chameleons of the food world blending into the background in a smorgasbord of dishes says chickpea fan Nicole Senior. They’re great in curries, soups, stews and salads. They are probably most famously used to make hummus, a dip that is great with fresh vegetable sticks (crudités) and used as a sauce/topping in the popular Middle Eastern fast food, doner or falafel kebabs. They also make a healthy, crunchy and more-ish snack when dry roasted, and available in bulk from Middle Eastern shops and nut roasters.

Like other legumes/pulses, chickpeas are high in protein (6%) compared to grains, making them popular in vegetarian dishes and cuisines. They are rich in fibre, an excellent source of manganese and folate, and a good source of iron, phosphorous, copper and zinc. And they’re gluten free and thus suitable for people with coeliac disease.

Another plus for chickpeas is their low glycemic index (39). When you add them to meals and snacks you reduce the overall GI of your diet because your body digests them slowly – primarily because their starch breaks down relatively slowly (or incompletely) during cooking and they contain tannins and enzyme inhibitors that also slow digestion.
Dried chickpeas are an excellent store cupboard basic with a long shelf life of up to a year. To cook, soak chickpeas overnight before simmering in plenty of salted water until tender, usually about 1 hour (or quicker if you use a pressure cooker), then drain. At this point you can add them to cooked dishes or salads. If you cook a large amount, simply freeze the leftovers in meal size amounts ready to use another day. You could also use canned chickpeas for convenience but rinse and drain well to remove the canning liquid.

Legumes are renowned for producing flatulence (and jokes). It’s the indigestible sugars called raffinose, stachyose and verbascose that are responsible for this state of affairs as they reach the large bowel intact and are fermented there by the resident flora. Believe it or not, this is good for bowel health. However, not all legumes will make you windy, and not everyone has the problem to the same extent. If you are worried about the social implications, cooking legumes in fresh water (not the water you soaked them in) reduces the problem, as does eating small amounts regularly – your body becomes used to them.

Countdown: Half a cup (about 85g or 3oz) of cooked chickpeas has about 490 kilojoules (117 calories), 7g protein, 2g fat, 14g carbs (1g sugars/ 13g starches), 5g fibre, 9mg sodium, 171mg potassium.

**KALE, CHICKPEA, MINT AND PRESERVED LEMON SALAD**

Serves: 2 as a main and 4 as a side • Preparation time: 20–25 minutes

Fresh ingredients: 1 garlic clove, finely crushed • ½ tsp finely shredded mint leaves • 2 tsp lemon juice • 150g (5oz) kale, finely shredded • 1 tbsp preserved lemon rind, thinly sliced • Spices: ¼ tsp cumin seeds and ¼ tsp fennel seeds, lightly toasted and crushed • ¼ tsp red chilli flakes (optional) • Pantry/larder ingredients: 1 tbsp oil • salt to taste •180g (6oz) cooked chickpeas, lightly crushed with the back of a fork

Method: Whisk together the oil, crushed spices, garlic, mint, red chilli flakes, if using, lemon juice and salt to taste. • Place the chickpeas and kale together in a large bowl. • Pour over the dressing and scatter with the preserved lemon.

*Per side serving*

Energy: 425 kJ/100 cals; Protein 3.5g; Fat 6g (includes 1g saturated fat; saturated : unsaturated fat ratio 0.16); Available carbohydrate 8g; Fibre 3.5g; sodium 120mg

Recipe courtesy Amandip Uppal’s *Indian Made Easy* (Murdoch Books), available from bookshops and online.

**IN THE GI NEWS KITCHEN THIS MONTH**

Check out Hit100’s Doctor Meets Chef Corn fritters and tomato salsa and two recipes from The Low GI Family Cookbook Anneka Manning’s Chicken curry with chickpeas, pumpkin and spinach and Full-of-fruit muffins in GI Foundation News with Dianna Crisp.

**GOOD FAMILY FOOD**

Tasty, nourishing, sustaining, easy to prepare and not hard on the wallet: Anneka’s family fare ticks all the right boxes.
CHICKEN CURRY WITH CHICKPEAS, PUMPKIN AND SPINACH

This recipe is gluten-free if you choose a gluten-free curry paste. We made this with light coconut milk but you could substitute coconut flavoured evaporated milk if you prefer to reduce the fat (and calories). For a vegetarian version, replace the chicken with extra pumpkin and chickpeas.

Serves: 4
Preparation time: 15 minutes
Cooking time: 20-25 minutes

1 brown onion, finely diced
¼ cup water
¼ cup red curry paste, or to taste
500g (1lb 2oz) chicken thigh fillets, fat trimmed and flesh cut into 2.5cm (1in) pieces
½ butternut pumpkin, peeled, deseeded and cut into 2.5cm (1in) pieces
400g (14oz) can no added salt tomatoes
1 cup salt-reduced chicken stock
½ cup light coconut milk
400g (14oz) can chickpeas, drained and rinsed
100g (3½oz) baby spinach leaves

Combine the onion and water in a medium-sized saucepan and cook, covered, over medium heat, stirring occasionally, for 8–10 minutes or until the onion is soft. Add the curry paste and cook, stirring, for 2–3 minutes or until aromatic. • Add the chicken and pumpkin and stir to coat with the curry paste. Add the tomatoes, stock and coconut milk and bring to a simmer over medium heat. Reduce heat and simmer gently for 20 minutes or until the pumpkin is just tender. • Stir in the chickpeas and spinach and simmer for 2 minutes, stirring occasionally or until the spinach is just wilted. Serve immediately accompanied by basmati rice (brown if it is available) and steamed beans.

Tip: To make ahead, store in an airtight container in the refrigerator for up to 2 days. Reheat, in a saucepan over medium heat, stirring frequently, until just heated through.

Per serving (recipe only without the rice or beans)
Energy: 300 kJ/70 cals; Protein 6g; Fat 3g (includes 0.5g saturated fat; saturated : unsaturated fat ratio 0.2); Available carbohydrate 6g; Fibre 2g; sodium 160mg

BakeClub founder Anneka Manning shares her delicious better-for-you recipes for snacks, desserts and treats the whole family will love. Through both her writing and cooking school, Anneka teaches home cooks to bake in practical and approachable yet inspiring ways that assure success in the kitchen. You can follow her on Twitter, Facebook or check out her website.

DOCTOR MEETS CHEF

Hit 100’s nutritionally balanced, portion controlled meals and recipes are designed for people living with diabetes or pre-diabetes – or anyone looking to eat a healthy diet.
CORN FRITTERS AND TOMATO SALSA

• Preparation time: 10 minutes
• Cooking time: approx. 20 minutes
• Makes: 8 fritters

2 small capsicums (peppers), diced
1 cup corn kernels
1 brown onion, diced
5 tbsp flat-leaf parsley, chopped
2 tbsp Cajun spice mix
5 large eggs
½ cup skim milk
1⅓ cups wholemeal flour
⅓ tsp baking powder
1 tbsp olive oil

In a large mixing bowl, lightly beat the eggs. Stir in milk then whisk in the flour and baking powder until smooth. • Add capsicum, onion, parsley, corn kernels and Cajun spice to the bowl and mix until the vegetables are evenly dispersed in the mixture. Leave mixture to rest. • In the meantime make the salsa dip by combining the tomato, onion, parsley and lemon juice in a bowl. Set aside while you cook your fritters. • Heat enough oil in a large non-stick frying pan to thinly cover the surface over medium to high heat. • Add a large spoon of batter to the pan and cook for 2-3 minutes on each side, or until they are cooked through. Repeat until all the mixture is cooked. You may need to add the remaining olive oil between batches. • When the corn fritters are cooked, serve with up the tomato salsa and enjoy!

Per serving (2 fritters and salsa)
Energy 879kJ, Protein 9.4g, Fat 6.8g (Saturated 1.7g; saturated : unsaturated fat ratio 0.33), Carbohydrate 24.8g (Sugars 4.8g; starches 20g), Sodium 196mg

RAISING FOOD SMART KIDS - ROUND 2

The age old question (one of them) what do children need to eat? With the seemingly vast amounts of energy kids use up during the day that is often only replaced with a small amount of food, you need to ensure that what they do eat is nutrient dense. But what does that mean?
“Nutrient density is about quality over quantity” says Prof Jennie Brand-Miller “Nutrient-dense foods are those which contribute greater amounts of beneficial nutrients (vitamins and minerals) per calorie (kilojoule) to your overall diet.” The Low GI Family Cookbook has a good example to explain this: “Compare a couple of plain sweet biscuits with a slice of mixed grain bread. Both provide about the same amount of kilojoules, carbohydrate, protein and fat. The difference lies in the little things: the bread contains at least twice as much iron, zinc, calcium and magnesium, and five times more fibre than the biscuits.”

How much food a child needs depends on their age, gender and activity levels. Other factors when you will notice an increase in food intake include those growth spurts and puberty. These recommendations from The Low GI Family Cookbook should be seen as a guide. In terms of drinks, first preference should be water with milk (dairy or calcium enriched soy) the second choice.

**Fruit & Vegetables**: Choose a rainbow of colours as each fruit and vegetable has a unique complement of vitamins, minerals and fibre.

How much each day?

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Fruit</th>
<th>Vegetables</th>
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<tbody>
<tr>
<td>2–3 years</td>
<td>1 serve</td>
<td>2 serves</td>
</tr>
<tr>
<td>4–8 years</td>
<td>1–2 serves</td>
<td>3 serves</td>
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<tr>
<td>9–13 years</td>
<td>2–3 serves</td>
<td>4–5 serves</td>
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<tr>
<td>14–18 years</td>
<td>2–4 serves</td>
<td>5–6 serves</td>
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Examples of a serve:
- 1 small-to-medium piece of fruit such as an apple, peach, pear or banana or a handful of grapes
- ½ cup cooked vegetables such as carrot, pumpkin, corn peas etc.

**Low GI grains, preferably wholegrain foods**: These will provide more nutrients and fibre than highly processed, refined grains. Think traditional oats, whole-wheat pasta, low GI, high fibre breakfast cereals or dense wholegrain breads.

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Recommended Minimum</th>
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<tbody>
<tr>
<td>2–3 years</td>
<td>3 serves</td>
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<tr>
<td>4–8 years</td>
<td>4–5 serves</td>
</tr>
<tr>
<td>9–13 years</td>
<td>5–6 serves</td>
</tr>
<tr>
<td>14–18 years</td>
<td>6–7 serves</td>
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Example of a serve:
- 1 slice (30g/1oz) bread (sandwich thickness)
- ½ cup breakfast cereal, rolled oats or muesli
- ½ cup cooked rice or cooked pasta or noodles.

**Lean protein foods and legumes**: Lean meats, poultry, fish, seafood, tofu, legumes and eggs supply important vitamins and minerals including iron, zinc, vitamin B12 (animal products only) and omega-3 fats (fish and seafood) in addition to protein.
Example of a serve:
- 100g (3½oz) raw lean meat or chicken
- 2 medium eggs
- ½ cup cooked lean mince
- ½ small skinless chicken breast
- 100g (3½oz) canned fish (drained)
- 1 cup cooked beans, lentils, chickpeas

**Dairy or soy products or alternatives:** Milk, soy milk and yoghurt provide protein and all important calcium. If choosing soy milk or other milk alternatives such as rice or oat milk (these latter two have high GI values), make sure you choose brands with added calcium, and if you are vegetarian look for one with added vitamin B12.

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Recommended Minimum</th>
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<tbody>
<tr>
<td>2–3 years</td>
<td>1–2 half serves</td>
</tr>
<tr>
<td>4–8 years</td>
<td>1–2 half serves</td>
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<tr>
<td>9–13 years</td>
<td>1–2 serves</td>
</tr>
<tr>
<td>14–18 years</td>
<td>1–2 serves</td>
</tr>
</tbody>
</table>

Example of a serve:
- 1 cup milk – choose fat free, skim or low fat milk most often (for children over 2)
- 1 cup low fat yoghurt
- 40g (1½oz) hard cheese

Below is an easy muffin recipe makes an ideal snack or a breakfast served with a small glass of juice or milk. Home-baking often has a high GI because flour is estimated to have a high GI (around 70). In this recipe, Anneka Manning used a low GI pure floral honey (Yellowbox honey GI 35) and added lots of fruit (banana average GI 51, apple GI GI 38, Blueberries GI 53) and unprocessed oat bran GI 55) to help reduce the overall GI.

**FULL-OF-FRUIT MUFFINS**

**Preparation time:** 20 minutes • **Cooking time:** 20–25 minutes • **Makes:** 24

**Ingredients:** 2 cups self-raising flour • 1 tsp baking powder • 1½ tsp ground cinnamon
½ cup unprocessed oat bran • 1 large ripe banana • 1 apple, unpeeled • 150g (5oz) fresh or thawed frozen mixed berries or blueberries • ½ cup pure floral honey • 2 eggs, lightly whisked • ¼ cup buttermilk • 100ml (3½fl oz) canola oil

**Method:** Preheat oven to 190°C (375°F/Gas 5). Line 2 x 12-hole patty pan trays with paper cases. • Sift together the flour, baking powder and cinnamon into a large mixing bowl. Stir in the oat bran. Make a well in the centre and set aside. • Use a fork to mash the banana in a medium sized bowl. Core and coarsely grate the apple and add to the banana. Add the berries, honey,
eggs, buttermilk and oil and stir well to combine. Add the fruit to the flour mixture and fold together with a large metal spoon until just combined. • Spoon the mixture evenly into the lined patty pans and bake for 20–25 minutes or until a skewer inserted into one of the muffins comes out clean. Remove from oven and transfer to a wire rack. Serve warm or at room temperature.

**Tips:** These muffins will keep in an airtight container at room temperature for up to 2 days. • To freeze, wrap the muffins individually in plastic wrap and then freeze in sealed freezer bags or an airtight container for up to a month. Thaw at room temperature.

**Per Serve:** Energy 538kJ, Protein 3g, Fat 5g (includes 0.5g saturated fat; saturated : unsaturated fat ratio 0.11), Available carbohydrate 19g, (includes 9g sugar; starch 10 g), Fibre 2g, Sodium 172mg. GI estimate: 60 (Medium)

**DIABETES NSW JOINS THE GLYCEMIC INDEX FOUNDATION BOARD**

We are very excited to announce that Diabetes NSW has joined the GI Foundation Board as a Member Partner of our organisation. Diabetes NSW are the largest member based Diabetes organisation in Australia.

One in four Australian adults now has either diabetes or impaired glucose intolerance with the total number of people with diabetes and pre-diabetes at present being 3.61 million. Amongst all diabetes cases nationwide, Type 2 diabetes represents over 1.2 million or 85-90 percent, yet it is largely manageable through exercise and healthy eating.

The Board of Diabetes NSW approved to become a Member Partner of GIF as a direct outcome from a strategic review conducted at the end of 2015. At the workshop, there was a clear consensus from the GIF Advisory Board that the main area of focus for our organisation was to target and focus our impact on people with Diabetes (improving management of the disease) and people at risk of Diabetes (improving health and reducing the rate of progression of Diabetes).

Diabetes NSW have been a long standing supporter of the GI Foundation and we are looking forward to working closely with the team to raise awareness of and promote the benefits of low GI foods and certified GI Symbol products to health care professionals and those living with Diabetes.

**Dianna Crisp** is the Communications and Partnership Manager at the Glycemic Index Foundation, a not-for-profit, health promotions charity. Email on info@gisymbol.com

For more on the GI Foundation go to [www.gisymbol.com](http://www.gisymbol.com), like us on [Facebook](http://facebook.com) or follow us on [Twitter](http://twitter.com).

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**THE UNIVERSITY OF SYDNEY**

In this section we will be covering all you need to know about GI Testing, the partnership with the Glycemic Index Foundation and their initiatives including the GI Symbol Program and CSIRO Total Wellbeing Diet. We have also included links to The Boden Institute at the University of Sydney for any readers who are based in Sydney and are interested in taking part in clinical trials.
GLYCEMIC INDEX TESTING

The Sydney University GI Research Service (SUGiRS) has provided a reliable commercial GI testing service for over 20 years. Food samples are tested in healthy volunteers according to international standardised methods. Testing of foods for their glycemic index, insulin index, satiety response, and other metabolic parameters can be assessed simultaneously. SUGiRS also works with companies to help them develop new low GI products or help lower the GI of existing products. Other analyses such as in vitro GI testing and siaclic acid measurement are available.

- Principal researchers/consultants: Professor Jennie Brand-Miller, SUGiRS Manager Fiona Atkinson, PhD.
- Email: sugirs.manager@sydney.edu.au

BODEN INSTITUTE UNIVERSITY OF SYDNEY CLINICAL TRIALS

The Boden Institute, a joint initiative of the Faculties of Health Sciences, Medicine, and Science at the University of Sydney, regularly recruits participants for a range of clinical trials. If you live in the Sydney (Australia) metropolitan area and would like to find out about participating in clinical research, please visit:

- Website: http://sydney.edu.au/medicine/research/units/boden/clinical-trials.php
- Email: boden@sydney.edu.au
- Telephone: (02) 8627 0101

GLYCEMIC INDEX FOUNDATION

The Glycemic Index Foundation (GIF), a not-for-profit health promotion charity supported by the University of Sydney and JDRF (Australia), provides a range of health education materials and tools. Key programs include the GI Symbol program, GI News and the CSIRO Total Wellbeing Diet.

THE GI SYMBOL PROGRAM

This certified symbol identifies foods that have been GI tested following the international standardised method. Manufacturers pay the GI Foundation a licence fee to use the symbol on their products and this income is channelled back to education and research. To earn certification, foods must be a good source of carbohydrate and meet a host of other nutrient criteria including total carbohydrate (to limit glycemic load), kilojoules (calories), total and saturated fat, sodium (salt), and when appropriate, dietary fibre and calcium. You can download the Product Eligibility and Nutrient Criteria here.

If you are a food company or retailer and you have a product that you think may be eligible to carry the GI Symbol, we’d love to hear from you.

- Email Dianna Crisp on info@gisymbol.com
- Website: www.gisymbol.com
- Facebook
- Twitter
THE TOTAL WELLBEING DIET ONLINE

The GI Foundation has partnered with the CSIRO to provide the new, personalised 12-week online Total Wellbeing Diet weight-loss program that includes a wide range of low GI carbohydrate foods and meals. The program offers:

- 12 weeks of membership
- Over 1000 delicious and family-friendly recipes
- Online tools to help track your progress
- Weekly tutorials from CSIRO and Glycemic Index Foundation experts
- Step-by-step exercise programs
- Optional home delivery of your meal plan groceries with Woolworths online

For more information, visit: Total Wellbeing Diet.

The CSIRO Healthy Diet Score is back for 2016. This national survey assesses your diet against Australia’s healthy eating guidelines. The survey only takes 10 minutes and at the end you’ll receive your Healthy Diet Score – a score between 1 and 100 – and personalised feedback on how you can improve your diet.

Go to: www.csirodietscore.com and find out what your score is.