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FOOD FOR THOUGHT
GOING WITH THE GRAIN

We have just written The Good Carbs Cookbook to share our enthusiasm for the plant foods the natural world provides us with: fruits, vegetables, beans, peas, lentils, seeds, nuts and grains, and to try and answer the many questions we have received over the years from our readers.

*Homo sapiens* has been going with the grain for a long time. No one kept food diaries, so we can’t put a date on when our forebears began pounding and grinding the tough little seeds they gathered, adding a bit of water and making gruel or porridge or kneading dough to bake bread. But it was long before they became farmers.

How do we know? Our genes provide evidence for this. “We have evolved multiple copies of the salivary amylase gene, AMY1, which kicks off the digestion of starch in cooked foods. AMY1 has no other function. Amylase cannot act on raw starch, only starch that has been gelatinised by the action of heat and water,” Prof Jennie Brand-Miller reminds us in her foreword to *The Good Carbs Cookbook*.

Digging around in buried villages gives us an idea of the range of foods our forebears ate. For example, in the remains of the 23,000-year-old lakeshore camp now submerged under the Sea of Galilee (Ohalo II, in present-day Israel), scientists found charred seeds and bones revealing that the people who spent much of the year there hunted gazelle and fallow deer,
and occasionally fox, hare and wild pig; fished in the lake and caught migratory birds – the great crested grebe a great favourite if bone count is any indication. And they gathered grains including wild barley, wheat and oats, as the scientists found these seeds all over the campsite along with a grinding stone with starchy traces of barley. They also ate acorns, legumes and wild fruit, and they may have used their hearth to bake bread.

“Seeds are our most durable and concentrated foods. They are the rugged lifeboats designed to carry a plant’s offspring to the shore of an uncertain future. Tease apart a whole grain, or bean, or nut, and inside you find a tiny embryonic shoot,” says Harold McGhee. Which explains why they are so nourishing: they are a baby plant’s healthy pantry.

Grains are at their most nourishing when we eat them as whole as possible or as the minimally processed staples our forebears enjoyed. Milling and refining grains to separate and remove the bran and germ does give us a more shelf-stable and quicker-cooking product, but it lacks many of the vitamins, minerals, fats and fibre of the original grain.

Minimally processed wholegrains figure prominently in the diets of the long-living Blue Zones folks, and observational studies around the world suggest that eating plenty of these staples may reduce the risk of developing certain types of cancer, heart disease and type 2 diabetes, which is why health professionals tend to worship at the altar of wholegrains and “consume more wholegrains” features prominently in dietary guidelines worldwide.

So, if we really want to “go paleo”, we should probably eat a much wider variety of seeds than we currently do. To help you do this, try a spiced grain salad like the one from Drake’s at Bondi Beach shown in the photograph above made with quinoa, farro, freekeh, popped wild rice, pomegranate seeds, labneh, coriander leaves and secret ingredients.

Studies:
- **Composite Sickles and Cereal Harvesting Methods at 23,000-Years-Old Ohalo II, Israel**
- **Small-grained wild grasses as staple food at the 23,000-year-old Site of Ohalo II, Israel**
- **The Origin of Cultivation and Proto-Weeds, Long Before Neolithic Farming**

**The Good Carbs Cookbook:** Available online and in store in Australia now. Publishes 13 July in the UK and can be ordered online from Amazon and Book Depository. We believe it will also be available on Amazon.com for US readers from June 1.

**WHAT’S NEW?**

**GLUTEN FREE AND HEART HEALTH**

In April, ConscienHealth’s Ted Kyle reported on research that found that people who ate less gluten had a slightly higher risk of developing type 2 diabetes. Now a new study from Harvard finds that avoiding gluten won’t lower your risk of heart disease. In fact, the researchers conclude from their findings that going gluten-free if you don’t have celiac disease could pose health concerns because “the avoidance of gluten may result in reduced consumption of beneficial whole grains, which may affect cardiovascular risk. The promotion of gluten-free diets among people without celiac disease should not be encouraged.”
As Ted Kyle says, “a gluten-free diet is a no-brainer for someone with celiac disease or confirmed non-celiac gluten sensitivity (gluten intolerance). But gluten-free fad diets have reached far beyond folks with actual gluten sensitivity or celiac disease. Some people falsely believe it will help them lose weight or magically give them better health. This new data is a useful reminder that food fads can have a downside and becoming fixated on demonizing a particular food or nutrient can lead to surprises down the road.”

Study: Long term gluten consumption in adults without celiac disease and risk of coronary heart disease: prospective cohort study
Contact: A T Chan ACHAN@mgh.harvard.edu

YOUR BRAIN REALLY DOES WANT YOU TO EAT MORE VEGGIES
Prof. Felice Jacka is a psychiatric epidemiologist with a strong interest in the prevention of mental disorders. Her research relates to the possible influence of diet on common mental disorders, depression and anxiety. In The Conversation, she reports on a trial to examine whether diet improves depression. This edited extract is published with permission.

As well as our physical health, the quality of our diet matters for our mental and brain health. Observational studies across countries, cultures and age groups show that better-quality diets – those high in vegetables, fruits, other plant foods (such as nuts and legumes), as well as good-quality proteins (such as fish and lean meat) – are consistently associated with reduced depression. Unhealthy dietary patterns – higher in processed meat, refined grains, sweets and snack foods – are associated with increased depression and often anxiety.

Our recent trial was the first intervention study to examine the common question of whether diet will improve depression. We recruited adults with major depressive disorder and randomly assigned them to receive either social support (which is known to be helpful for people with depression), or support from a clinical dietitian, over a three-month period. The dietary group received information and assistance to improve the quality of their current diets. The focus was on increasing the consumption of vegetables, fruits, wholegrains, legumes, fish, lean red meats, olive oil and nuts, while reducing their consumption of unhealthy “extra” foods, such as sweets, refined cereals, fried food, fast food, processed meats and sugary drinks.

The results of the study showed that participants in the dietary intervention group had a much greater reduction in their depressive symptoms over the three months, compared to those in the social support group. At the end of the trial, 32% of those in the dietary support group, compared to 8% of those in the social support group, met criteria for remission of major depression. These results were not explained by changes in physical activity or body weight, but were closely related to the extent of dietary change. Those who adhered more closely to the dietary program experienced the greatest benefit to their depression symptoms. While this study now needs to be replicated, it provides preliminary evidence that dietary improvement may be a useful strategy for treating depression.
**Depression is a whole-body disorder.** It’s important to understand researchers now believe depression is not just a brain disorder, but rather a whole-body disorder, with chronic inflammation being an important risk factor. This inflammation is the result of many environmental stressors common in our lives: poor diet, lack of exercise, smoking, overweight and obesity, lack of sleep, lack of vitamin D, as well as stress.

Many of these factors influence gut microbiota (the bacteria and other microorganisms that live in your bowel, also referred to as your “microbiome”), which in turn influence the immune system and – we believe – mood and behaviour. In fact, gut microbiota affect more than the immune system. New evidence in this field suggests they are important to almost every aspect of health including our metabolism and body weight, and brain function and health. Each of these factors is relevant to depression risk, reinforcing the idea of depression as a whole-body disorder. If we do not consume enough nutrient-dense foods such as fruits, vegetables, fish and lean meats, this can lead to insufficiencies in nutrients, antioxidants and fibre. This has a detrimental impact on our immune system, gut microbiota and other aspects of physical and mental health.

Gut microbiota are particularly reliant on an adequate intake of dietary fibre, while the health of the gut may be compromised by added sugars, fats, emulsifiers and artificial sugars found in processed foods. A diet high in added fats and refined sugars also has a potent negative impact on brain proteins that we know are important in depression: proteins called neurotrophins. These protect the brain against oxidative stress and promote the growth of new brain cells in our hippocampus (a part of the brain critical for learning and memory, and important to mental health). In older adults, we have shown that diet quality is related to the size of the hippocampus.

Now we know diet is important to mental and brain health as well as physical health, we need to make healthy eating the easiest, cheapest and most socially acceptable option for people, no matter where they live.


**Study:** [A randomised controlled trial of dietary improvement for adults with major depression (the ‘SMILES’ trial)](https://theconversation.com/food-as-medicine-your-brain-really-does-want-you-to-eat-more-veggies-74685)

**Contact:** f.jacka@deakin.edu.au

**ALTERNATE DAY FASTING HYPE SHOULD BE FADING FAST**

As a spiritual practice, fasting has deep roots in many religions, but when spiritual practices try to make the leap into health practices, look out. For a prime example, it now looks like the hype about the alternate day miracle fast should be fading fast reports ConscienHealth’s Ted Kyle. A new randomized, controlled study published in *JAMA Internal Medicine* finds no benefit for alternate day fasting compared to daily caloric restriction.

Researchers randomized 100 people with obesity to an alternate day fast, a standard reduced-calorie diet, or a control group making no change in dietary habits. They followed
the participants for six months of weight loss, and six months of weight maintenance. At the end of 12 months, both of the treatment groups had lost about five percent of their starting weight – virtually identical outcomes. And the control group of course had no change in weight. Likewise, the researchers found no difference in markers of heart or metabolic health. For two treatment groups, blood pressure, heart rate, cholesterol, insulin resistance, cholesterol, and a number of other measures were the same at the end of 12 months.

Hopefully, this will put a capstone on years of hype about the health benefits of fasting. We’ve seen claims that it will “reboot your body” and “slow aging.” Health reporters have hyped animal studies to suggest that it will prevent cancer, improve brain function, and cure diabetes. Enough. Fasting is a fine spiritual practice. It’s not a bad way to lose weight. But don’t count on it for miraculous health benefits. – Thanks to Ted Kyle of ConscienHealth for this report

Study: Effect of Alternate-Day Fasting on Weight Loss, Weight Maintenance, and Cardioprotection Among Metabolically Healthy Obese Adults. A Randomized Clinical Trial

**PERSPECTIVES WITH DR ALAN BARCLAY**

**A GRAIN OF SALT**

For nearly four decades, dietary guidelines around the world have advised us to avoid consuming too much salt, or words to that effect. The salt they are talking about is sodium chloride, which has been used by humans for millennia, and is still the most common source of sodium today accounting for around 90% of all sodium consumed in developed nations. The guidelines are based on the relatively large body of evidence from randomised controlled trials (RCTs) that provides compelling evidence that reducing sodium consumption decreases blood pressure, which is a major risk factor for heart disease, stroke and other cardiovascular diseases.

Long-term observational studies also indicate that increased sodium consumption is associated with an increased risk of developing cardiovascular diseases. However, emerging evidence from observational studies is also indicating that excessive restriction of sodium is associated with an increased risk of cardiovascular disease, suggesting that there is a U shaped relationship between sodium and cardiovascular health.

While consuming less sodium does lower blood pressure, the combination of a lower-sodium, high-potassium diet is even more beneficial, with greater reductions in both systolic and diastolic blood pressure demonstrated in systematic reviews of RCTs, compared to low sodium diets alone, without any potential negative effects. Indeed, systematic reviews of RCTs now provide level 1 evidence that balancing the sodium : potassium ratio is effective in lowering blood pressure in people with and without high blood pressure, and is also associated with decreased risk of cardiovascular diseases in observational studies.

The WHO recommends a sodium : potassium ratio of no greater than 1 : 1. In other words, each day we should be aiming to consume at least as much potassium in our diet as sodium, to counter-balance any potential negative effects on blood pressure and cardiovascular disease risk. So keep up the fruit and veg!
This key recommendation is not well known perhaps because government regulatory food bodies don’t require potassium to be included in mandatory nutrition facts / information panels, and because public health campaigns focus very much on reducing salt intake rather than increasing potassium intake. However, in Australia and New Zealand, FSANZ requires the manufacturer to list the potassium content in the Nutrition Information Panel if they make a marketing claim about the salt / sodium content of a food or beverage. In this case, all you need to do is look for products that have more potassium than sodium – it’s as simple as that.

To help you follow WHO guidelines for sodium and potassium, the recipes in *GI News* include the sodium : potassium ratio in the nutritional analysis. Our recent books (*Reversing Diabetes* and *The Good Carbs Cookbook*, both published by Murdoch Books) also include the sodium : potassium ratio. Of course, recipes are rarely the complete meal, but if you see that sodium is higher than potassium, you know it’s important to up the potassium with a salad, some leafy greens, a piece of pumpkin or some sweet potato. It’s as easy as that.

But few cookbook recipes come with a nutritional analysis, and fewer the sodium : potassium ratio. So, here are some top sources of potassium to help you up your intake.

- leafy green vegetables, such as bok choy (pak choy), silverbeet (Swiss chard) and English spinach
- vine fruits, such as tomatoes, cucumbers, zucchini (courgette), eggplant (aubergine) and pumpkin (winter squash)
- root vegetables, such as potatoes, sweet potatoes and carrots.
- unprocessed bran

Moderately good sources of potassium include:

- beans (for example, baked beans, kidney beans, black beans)
- green peas
- dried fruits
- fresh fruits, such as apples, oranges and bananas.

Milk, yoghurt, wholegrains and meat (beef, lamb, pork, chicken) also contain some potassium as does good old canned salmon, although not as much as vegetables and fruits.

The take-home: It is more important to balance out your sodium and potassium intake than to focus on the salt content alone. As usual, the one-nutrient-at-a-time approach will not ensure optimal nutrition.

Alan Barclay PhD is a consultant dietitian. He worked for Diabetes Australia (NSW) from 1998–2014 and is a member of the editorial board of *Diabetes Management Journal* (Diabetes Australia) He is author/co-author of more than 30 scientific publications, and 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). You can read a review of his latest book, *Reversing Diabetes* (Murdoch Books), in *Glycosmedia Diabetes News*.
Wholegrain or wholewheat products have everything that’s in the original grain
Most consumers seeing “wholegrain” or “wholewheat” on a packaged food assume it has everything that’s in the original grain – all the vitamins, minerals and dietary fibre that make traditional grains such a healthy choice. That assumption is wrong. Products labelled “wholegrain” are rarely the whole grain that came in nature’s packaging (Why ‘whole grain’ is not always healthy). In many cases, the finished product has been soaked, ground, milled, cooked, flaked, toasted, puffed and/or popped beyond recognition. Indeed, this is why most breakfast cereals whether highly refined or not are fortified with certain vitamins and minerals.

Substituting refined grains with unrefined grains improves your health
Advice to consume “wholegrain foods” is enshrined in dietary guidelines around the globe. To put it simply, that means they are telling us we should consume most of our cereal products as wholegrains aka eat a “brown” diet (no white bread, not even sourdough, no white rice and no golden yellow durum wheat pasta). In my book, that’s quite a sacrifice. And there’s a question: does brown diet science convincingly show that substituting refined grains (a white diet) with less refined (brown) grains improve our health? Not yet.

It’s true that many observational studies report that consuming wholegrain products is associated with lower risk of cardiovascular disease. The Nurses’ Health Study showed women who ate the most wholegrains (an average of 2.5 servings per day), generally as wholegrain breakfast cereals, brown rice and wholewheat bread – were 30% less likely to develop heart disease than women eating next to none.

But such observational studies don’t actually prove wholegrains are responsible for the good health outcomes. It’s just an association. It’s probable people who choose to eat wholegrain foods are health conscious in all sorts of ways. They don’t smoke, they try to be active, they eat less red meat and more oily fish, fruit, vegetables and legumes. Of course, good studies statistically adjust for known confounders. But residual confounding may still be present. For example, to my knowledge, they never adjust for salt intake. And perhaps the person who chooses brown rice over white looks after their health in ways that having nothing to do with food at all, e.g. they breathe deeply, sleep better, and get less stressed.

The best test of the wholegrain hypothesis is whether wholegrain products produce improved outcomes when we switch from refined to wholegrain cereals as part of a randomized, controlled trial. You’ll find surprisingly few trials that have directly compared a brown diet with a white diet that was otherwise identical.

In the largest clinical trial of its sort to date, UK researchers provided 316 overweight men and women with a range of wholegrain foods and asked them to substitute them like-for-like for refined grain foods. Over a period of 2–4 months, there was not even a hint of
difference in cardiovascular risk. In other words, there was no difference in blood cholesterol, triglycerides, insulin sensitivity and a range of common inflammatory markers between those who substituted wholegrain foods, and those who didn’t (the control group).

More recently, a very small American study in 33 participants found that wholegrain foods improved diastolic blood pressure but it had absolutely no effect on body weight, fat loss, systolic blood pressure, total cholesterol, or LDL cholesterol compared to the control diet.

**Consuming wholegrain products reduces your risk of heart disease**

So where does that leave the consumer wanting to make better food choices and reduce intake of saturated fat? What should replace those saturated fat calories? Foods with more carbs, or more good fats, or more protein, or a combination of all three? First of all, the nutritional attributes of the replacement foods are critical.

- The carbs should be good carbs: slowly digested and absorbed foods such as beans, peas, lentils, pasta, cracked wheat, couscous, minimally processed grains and the traditional foods made from them. Have at least 5 serves of fruit and vegetables every day.
- The fats should be good fats: avocado, nuts, olive oil, canola oil and rice bran oil.
- The proteins should come from a combination of sources: fish and seafood, lean red meat, pork, poultry, eggs and legumes.

Secondly, don’t make the mistake of thinking any wholegrain product will be a good replacement for saturated fat. I say this because several studies have reported that replacing saturated fat with high GI carbohydrates (wholegrain or otherwise) was likely to increase future risk of heart attack. In contrast, replacing saturated fat with low GI carbs or polyunsaturated fats (e.g. safflower oil) appears to be protective. Low GI diets and low glycemic load diets have been associated with good health outcomes in scores of observational studies and clinical trials. Here are three useful studies to look at.

- *Intake of carbohydrates compared with intake of saturated fatty acids and risk of myocardial infarction: importance of the glycemic index*
- *Glycemic index, glycemic load, and chronic disease risk—a meta-analysis of observational studies*
- *Glycemic response and health—a systematic review and meta-analysis: relations between dietary glycemic properties and health outcomes*

**SOME LESS PROCESSED STAPLES WE HAPPILY CALL WHOLEGRAIN**

<table>
<thead>
<tr>
<th>Cooked following instructions</th>
<th>GI</th>
<th>Available CARBS</th>
<th>GL</th>
<th>Available CARBS</th>
<th>GL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley, pearl</td>
<td>25</td>
<td>15g</td>
<td>4</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Bulgar (Coles Fine Grit Bourghal)</td>
<td>47</td>
<td>23g</td>
<td>11</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>Buckwheat groats</td>
<td>48</td>
<td>17g</td>
<td>8</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Couscous, pearl or Israeli (Blu Gourmet Wholemeal Pearl)</td>
<td>53</td>
<td>20g</td>
<td>11</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Quinoa</td>
<td>53</td>
<td>20g</td>
<td>11</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>Rice, brown (Sunrice Low GI Brown Rice)</td>
<td>51</td>
<td>33g</td>
<td>17</td>
<td>32</td>
<td>16</td>
</tr>
<tr>
<td>Rye kernels</td>
<td>39</td>
<td>64g</td>
<td>25</td>
<td>76</td>
<td>39</td>
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<tr>
<td>Whole wheat kernels</td>
<td>52</td>
<td>68g</td>
<td>35</td>
<td>71</td>
<td>37</td>
</tr>
<tr>
<td>Wild rice</td>
<td>57</td>
<td>13g</td>
<td>7</td>
<td>19</td>
<td>11</td>
</tr>
</tbody>
</table>
**FAQ: Are all wholegrains low GI?** No. People assume wholegrains are low GI because they have more fibre. But this is wishful thinking. The reality is most processed cereal products today, white or brown, have a high GI. Nor is it correct to imply that all low GI carbs are less processed and refined. White pasta (al dente) has a low GI, as do some varieties of white rice. Where does that leave the consumer? Choose those proven to be low GI, preferably whole grains, which contain more micronutrients. The table above includes less processed staples we happily call wholegrain. The barley salad is from the *Low GI Vegetarian Cookbook* (Hachette Australia).

**Professor Jennie Brand-Miller** (AM, PhD, FAIFST, FNSA, MAICD) is an internationally recognised authority on carbohydrates and the glycemic index. 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. Her latest book (with Professor Arne Astrup and Dietitian Christian Bitz) is *The Nordic Way* (Pam Krauss Books).

**FOOD UN-PLUGGED**

**ARE ANCIENT GRAINS BETTER?**

Ancient grains lost popularity in the 1700s following the surge in wheat, oats and barley cultivation. Nowadays we can thank novelty-seeking, health conscious consumers for the revival of grains such as spelt, chia, amaranth and quinoa, and their often premium pricing. Clever marketing aims to convince us that these ancient grains are nutritionally superior to more modern variants but it begs the question: are ancient grains superfoods or just super expensive?

**What are ancient grains?**

While many spell-checks still think ‘quinoa’ is a typo, many people are now familiar with these retro grains. They are added to a growing array of foods – you may have eaten them without even realising it.

- **Spelt** is an older variety of wheat; therefore it contains gluten and can be used to make pasta or a nice loaf of sourdough bread. You can buy spelt flour in many supermarkets nowadays.

- **Chia** is a type of seed; therefore similarly to other seeds, it is gluten-free, rich in healthy omega-3 and omega-6 fats, protein and fibre. It has the remarkable ability to absorb water and swells to form a gel, therefore making it a popular ingredient for jams and tapioca-style puddings. If you can get over the fact that chia gel looks like frog eggs, it is quite fun to eat. We quite like it mixed with oats in Bircher muesli.
• **Amaranth** is a gluten-free grain that can be popped like corn. Popped amaranth has a high GI therefore for people with diabetes (and others) it is best eaten in combination with lower GI foods such as oats and nuts for a lower glycemic impact. This combination also makes delicious homemade muesli.

• **Quinoa** is a gluten-free grain that is high in carbohydrate (68%), low in fat (4.8%) moderate in protein (12%) and low GI. Quinoa works well as a substitute for couscous or rice and can be found at your local supermarket, although the flavour is quite different so don’t think you can get away with a sneaky swap – try it in combination with rice for the more steadfast members of the household.

**How do modern grains compare?**
You can meet your nutritional needs with ancient or modern grains and seeds. The nutritional profiles are quite similar, including protein content (which many ancient grains claim to be high in). It’s sometimes said that modern crops aren’t as nutritious as they used to be but I have put together a table (it’s at the end of this piece) that shows this isn’t true. There are many environmental (and ethical) issues with modern intensive agriculture but loss of nutritional value isn’t one of them.

The standout difference is the folate content of quinoa – it is higher than many other grains. **Folate is a B-group vitamin** involved in DNA synthesis and it can help prevent neural tube defects in unborn babies and so is of benefit to women around conception and during pregnancy. In Australia and New Zealand most conventional wheat-based bread has folate added so there’s no need to switch to quinoa on that basis. (The photo is quinoa porridge from *The Low GI Vegetarian Cookbook*, Hachette Australia).

**What’s good about ancient grains?**
Ancient grains are great because they add variety to the diet, giving us additional healthy food options. Instead of rotating between potatoes, rice and pasta at dinner, we now have more choices. These ancient grains also increase the biodiversity of ecosystems, which enhances crop survival and recovery during droughts or disease epidemics. It’s not ideal having most of the world’s food supply provided by a handful of crops if the unthinkable happens and one or several get wiped out by a new disease.

**The unplugged truth**

- Ancient grains are becoming more popular but are often more expensive.
- Ancient grains are nutritionally similar to modern grains.

**Bottom line:** old and new grains are equally good for you; whole grains are best because they are packed with vitamin, minerals and dietary fibre.

Thanks to Rachel Ananin aka [TheSeasonalDietitian.com](http://TheSeasonalDietitian.com) for her assistance with this article.
Nicole Senior pulls the plug on hype and marketing spin to provide reliable, practical advice on food for health and enjoyment. She 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.

**Contact:** You can follow her on [Twitter](#), [Facebook](#), [Pinterest](#), [Instagram](#) or check out her [website](#).

### NUTRITIONAL PROFILES OF ANCIENT AND MODERN GRAINS AND SEEDS

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Wheat (100g)</th>
<th>Oats (100g)</th>
<th>Rice (100g)</th>
<th>Barley (100g)</th>
<th>Quinoa (100g)</th>
<th>Spelt (100g)</th>
<th>Amaranth (100g)</th>
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<td><strong>Energy - kilojoules</strong></td>
<td>1418kJ</td>
<td>1628kJ</td>
<td>1536kJ</td>
<td>1481kJ</td>
<td>1540kJ</td>
<td>1414kJ</td>
<td>1552kJ</td>
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<tr>
<td><strong>Energy - calories</strong></td>
<td>339kcal</td>
<td>389kcal</td>
<td>367kcal</td>
<td>354kcal</td>
<td>368kcal</td>
<td>338kcal</td>
<td>371kcal</td>
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<tr>
<td><strong>Protein</strong></td>
<td>13.7g</td>
<td>16.9g</td>
<td>7.5g</td>
<td>12.5g</td>
<td>14.1g</td>
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<td><strong>Fat</strong></td>
<td>2.5g</td>
<td>6.9g</td>
<td>0.6g</td>
<td>2.3g</td>
<td>6.1g</td>
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<tr>
<td><strong>- Includes sat fats</strong></td>
<td>0.5g</td>
<td>1.2g</td>
<td>0.6g</td>
<td>0.5g</td>
<td>0.7g</td>
<td>0.4g</td>
<td>1.5g</td>
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<tr>
<td><strong>Carbohydrates</strong></td>
<td>71g</td>
<td>66g</td>
<td>75.8g</td>
<td>73g</td>
<td>64g</td>
<td>70g</td>
<td>65g</td>
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<tr>
<td><strong>- Includes sugar</strong></td>
<td>0.9g</td>
<td>0g</td>
<td>0.7g</td>
<td>0.8g</td>
<td>0.9g</td>
<td>3.0g</td>
<td>4.2g</td>
</tr>
<tr>
<td><strong>- Includes starches</strong></td>
<td>64.4g</td>
<td>58.1g</td>
<td>75.8g</td>
<td>73g</td>
<td>64g</td>
<td>62.1g</td>
<td>57.0g</td>
</tr>
<tr>
<td><strong>Dietary Fibre</strong></td>
<td>12.2g</td>
<td>10.6g</td>
<td>3.6g</td>
<td>17.3g</td>
<td>7.0g</td>
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<tr>
<td><strong>Sodium</strong></td>
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Data from USDA; sugar and starches data from AusFoods 2012 database

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<th>Nutrient</th>
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It’s hard to imagine a dinner time when the spotlight wasn’t on “eat your veggies”. But it wasn’t long ago – a bit over 100 years. The discovery of vitamins and minerals in the early years of the twentieth century was the wakeup call, and “Dr Vitamin” (Elmer Verner McCollum, 1879–1967) was a key player. He claimed veggies were “protective foods” because “they were so constituted to make good the deficiencies of whatever else we liked to eat”. He wasn’t wrong because, as Harvard’s Professor Walter Willett says, “so far, no one has found a magic bullet that works against heart disease, cancer and a host of other chronic diseases as well as fruits and vegetables seem to do”.

Today, we are spoiled for choice. This is perhaps because “vegetable” is a culinary term, not a botanical one. So, we can take our pick from fruits such as avocado, cucumber, marrow, tomato, capsicum (peppers) and green beans; bulbs such as onion and globe artichoke; stalks such as celery and asparagus; flower stalks and buds such as broccoli and cauliflower; roots and tubers such as carrot, potato and sweet potato; as well as the proverbial leafy greens, including spinach, lettuce and cabbage. And there’s more. There are the edible dried seeds from the legume family: beans, peas and lentils.

In the Sapiens story, cooking was the game changer. Cooking starchy roots, tubers, and legumes was central to the dietary change that triggered and sustained the growth of the human brain for our ancestors. “It’s hard to imagine the leap to Homo erectus without cooking’s nutritional benefits,” says primatologist Prof. Richard Wrangham, author of Catching Fire: How Cooking Made Us Human. He believes we have been cooking for a long time because about 1.8 million years ago our teeth and our gut became small, a change that can only be explained, he says, by our ancestors getting softer foods and more nutrition, and “this could only have happened because they were cooking. It’s what made our human diet ‘human’ and is the most logical explanation for our advances in brain and body size over our ape ancestors.”

Our ancestors weren’t boiling their veg, they were roasting the roots and tubers gathered over the day on the embers of the fire to soften them. Anyone who has tried Yotam Ottolenghi’s Roasted Sweet Potatoes and Fresh Figs (GI News, September 2014) will certainly agree that roasting does a lot more than mere softening. It transforms. The dry oven heat caramelises any natural sugars on the surface, evaporates some of the water and concentrates the flavour. There is an art to roasting if you want veg crisp on the outside, hot and steamy on the inside and with deep, delicious sweetness says chef and food writer Kate McGhie.

- Cut potatoes, and sweet potato into pieces of about the same size. Roast for 15 minutes or so before adding quicker cooking carrots, parsnips, pumpkin, turnips or beetroot (whole or halved).
- Make sure veggies are dry before roasting.
• Lightly brush them with a thin layer of oil.
• Arrange in a roasting pan in a single layer. No cramming, they need good airflow.
• Season lightly to taste.

IN THE GI NEWS KITCHEN
GO SLOW TO WARM UP
As the weather turns cooler, thoughts turn to slow cooking, baked dinners, pot roasts and casseroles. In this issue, we have come up with recipes for three (almost) one-pot wonders to feed the family and warm the heart. Serve with salad or steamed greens and your favourite starchy veg or grains to round out the meal, up the potassium and fill hollow legs.

POT-ROASTED CHICKEN AND APPLES IN CIDER
In this simple pot roast from Apple Blossom Pie (Murdoch Books) Kate McGhie uses the fruit itself and apple cider which, added at different stages, builds the depth of flavour. Adding the slightly tart crème fraîche at the end blends the juices into a silky sauce. It’s delicious with mashed orange sweet potato and steamed beans. Serves 6 • Cook: 1½ hours.

3 tbsp butter
4 granny smith apples, cored and sliced
200g (7oz) button mushrooms, halved
1 tbsp olive oil
1 medium onion, sliced
3 bacon rashers, sliced into matchsticks
1 free-range chicken (1.3kg/3lb)
2 cups dry apple cider (cloudy is best)
1½ cups chicken stock
salt flakes and freshly ground white pepper
4 tbsp crème fraîche or light crème fraîche
2 tbsp finely chopped parsley

Preheat the oven to 180°C (350°F). • Heat 2 tablespoons of the butter in a large sturdy ovenproof casserole. Add the apples, cook until golden and then remove them and set aside. Add the remaining butter with the mushrooms to the casserole and cook until they release their juice. Remove them and put with the apples. • Add the olive oil to the casserole with the onions and bacon and cook for 3–4 minutes until softened, then remove from the dish and put aside. • Tie the chicken legs together, put it in the casserole and brown all over. (Brown on the sides first then the back and just lightly on the breast which will brown towards the end of cooking.) • Pour in the cider, scraping up any crispy bits then return the onions and bacon to the casserole. Add the stock. Cover with a lid and cook in the oven for 50 minutes. • Add the apples and mushrooms with salt and pepper to taste and cook uncovered for 20 minutes, or until the juices of the chicken run clear when a skewer is inserted. Stir in the crème fraîche and sprinkle over the parsley.

Per serve (using light crème fraîche)
1585kJ/ 380 calories; 34g protein; 15g fat (includes 8g saturated fat; saturated : unsaturated fat ratio 1.1); 19g available carbs (includes 12g sugars and 7g starch); 3g fibre; 1768mg sodium; 826mg potassium; sodium : potassium ratio 2.1.
**BEEF AND BEAN NACHOS**

Don’t need to wait for winter to enjoy this low GI family favourite that’s high in fibre and potassium from Alan Barclay’s *Reversing Diabetes (Murdoch Books)*. Use no-added-salt kidney beans. Serves 4 • Prep: 30 minutes • Cook: 1 hour

4 jalapeños, thinly sliced  
2 tbsp malt vinegar  
4 low-sodium white corn tortillas  
olive oil spray  
1 brown onion, finely chopped  
2 celery stalks, finely chopped  
1 green capsicum (pepper), finely chopped  
300g (10oz) extra-lean minced beef  
1 tbsp smoked paprika  
2 teaspoons ground cumin  
2 teaspoons dried oregano  
400g (14oz) canned diced tomatoes  
800g (1lb 12oz) canned kidney beans, rinsed and drained  
1 small avocado  
2 teaspoons lemon juice  
1 small handful coriander (cilantro) leaves, finely chopped, plus extra sprigs to serve

Put the jalapeños in a small bowl with the vinegar and set aside to marinate. • Preheat the oven to 180°C (350°F/Gas 4). Lightly spray both sides of the tortillas with olive oil. Cut each tortilla into 10 wedges and arrange on a large baking tray. Bake, turning once, for 10–12 minutes or until golden and crisp. Set aside until needed. • While the tortilla crisps are cooking, spray a large saucepan with olive oil and place over medium heat. Cook the onion, stirring, for 2 minutes or until softened. Add the celery and capsicum, and stir for 6–7 minutes or until browned and softened. Add the beef and cook, stirring and breaking up any lumps, for 5 minutes or until browned. • Stir in the paprika, cumin and oregano, and cook for 2 minutes or until fragrant. Stir in the tomatoes and ¾ cup water. Reduce the heat to low, cover and simmer for 25–30 minutes or until the sauce has thickened. Add the beans and cook for 10 minutes. • Meanwhile, mash the avocado with a fork, then stir in the lemon juice and chopped coriander. Season with freshly ground black pepper. • Spoon the beef mixture into bowls and top with the extra coriander. Serve with the avocado, jalapeños and tortilla crisps

*Per serve*  
2850kJ/ 679 calories; 48g protein; 24g fat (includes 6g saturated fat; saturated : unsaturated fat ratio 0 : 33); 51g available carbs (includes 14g sugars and 37g starch); 28g fibre; 400mg sodium; 1845mg potassium; sodium : potassium ratio 0 : 22.

**STICKS, SEEDS, PODS & LEAVES**

Kate Hemphill is a trained chef. She contributed the recipes to Ian Hemphill’s best-selling Spice and Herb Bible. You will find more of her recipes on the [Herbies spices website](#). Kate’s recipes are made with Herbies spices and blends, but you can use whatever you have in your pantry or that’s available locally.
Lamb Rogan Josh

This “tomatoey” rogan josh is a great winter warm up with brown basmati rice. Make it the day before and enjoy the flavour boost. Serves: 6 • Prep: 20 mins • Cook: 3½ hours.

1kg (2lb 4oz) lamb shoulder off the bone, excess fat removed, cut into 5cm (2in) pieces
400g (14oz) plain low fat yoghurt
2 tbsp (30ml) rogan josh blend
3 tbsp (45ml) vegetable oil
6 brown onions, peeled and finely diced
6 cloves garlic, crushed
¼ cup tomato paste/puree
½ tsp salt (optional)
½ cup fresh coriander leaves
2 ripe tomatoes, diced

Preheat oven to 120°C/250°F. • Combine lamb, yoghurt and spice mix in a bowl and leave for at least 15 minutes. • Heat the oil and cook onions over medium heat for 20–30 minutes until softened and golden. • Add garlic and cook gently for 5 minutes, then stir in the yoghurt coated lamb plus all the marinade. Add tomato paste and salt (if using), and bring to a simmer, while stirring. Place lid on the cooking pot and cook in the oven for 2½–3 hours until meat is very tender. • Serve with fresh coriander leaves and diced fresh tomatoes to garnish.

Per serve (without rice)
1785kJ/ 425 calories; 36.5g protein; 23g fat (includes 7g saturated fat; saturated : unsaturated fat ratio 0.44); 15g available carbs (includes 14g sugars and 1g starch); 6g fibre; 370mg sodium; 1345mg potassium; sodium : potassium ratio 0.28.
NUTRITIONAL ANALYSIS
To analyse Australian foods, beverages, processed products and recipes, we use FoodWorks which contains the AusNut and Nuttab databases. If necessary, this is supplemented with data from www.calorieking.com.au and http://ndb.nal.usda.gov/ndb/search.

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