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FOOD FOR THOUGHT

INTRODUCING NEW FOODS TO BABIES: WHEN AND WHAT

Recently, the Trump administration angered health experts around the world with its attempt to weaken a UN resolution encouraging breastfeeding. The US bid to promote the use of formula was unsuccessful and has prompted discussions about the importance of exclusively breastfeeding (if possible) for the baby's first six months of life, before other foods are introduced. In this edited version of their article in *The Conversation*, [Clare Collins](#) and [Jenna Hollis](#) look at current recommendations on introducing new foods to babies.

“Guidelines recommend exclusive breastfeeding for the first six months of a baby's life. But our 2017 study of new mothers in Australia found many were unsure what exclusive breastfeeding meant. The World Health Organisation defines exclusive breastfeeding as feeding only breastmilk and no other foods or drinks, not even water. The definition does allow inclusion of oral rehydration solutions, or drops or syrups for vitamins, minerals, and medicines prescribed by a doctor. Preterm or underweight babies may need extra nutritious fluids, which are administered in consultation between parents and paediatricians.

Some mothers may not be able to breastfeed. Others may choose to move on from breastfeeding. If a baby isn't breastfed, or is partially breastfed, commercial infant formula should be the only other food given until six months. Breast (or infant formula) feeding is

recommended alongside other foods until the baby is 12 months and, for breastfeeding, for as long as the mother and her infant want to keep it going.

Introducing other foods Parents can start introducing other foods from around six months of age. At this age, the baby's iron stores obtained from their mother will have started to deplete. Pureed meat or legumes and iron-fortified rice cereal, are good sources of iron and are recommended first foods. Next, parents can introduce a variety of vegetables, fruit, and other foods. New foods should be added one at a time. Gradually increase the texture from pureed initially at six months, then to lumpy, and to family food textures at 12 months of age. Take care to still avoid hard foods that don't break up easily to prevent choking, such as nuts and small, hard pieces of vegetables and fruit.

Cow's milk products can be introduced, including full-fat yoghurt and cheese, but cow's milk shouldn't be given as the main drink until after 12 months (this is because it contains too much protein and salts). Boiled then cooled tap water can be given from six months and tap water should continue to be boiled first and cooled before given to baby until 12 months.

By 12 months, babies can be offered a variety of nutritious foods that are enjoyed by the rest of the family, except for choking hazards such as nuts.

Why does timing matter? Breastfeeding has many benefits for the mother and baby. It protects babies against infection, obesity, and chronic diseases such as type 2 diabetes later in life. Breastmilk has all the energy and nutrients babies need in the first months of life. Even when exclusive breastfeeding doesn't work out as planned, every extra day a baby receives any breastmilk is beneficial. Breastmilk contains antibodies and helps to mature the infant's gut.

At six months, babies also need semi-solid foods to help meet their energy needs for growth and development, and specific nutrient requirements. Iron deficiency anaemia is common in infants, mainly due to a low intake of iron-rich foods after six months of age. By six months, babies usually show signs they're ready for food. These include sitting up, controlling their head, eyeing your food when you eat, and reaching out for food. In the 2016 study of mothers and their children we published, we found babies introduced to semi-solid foods at six months were less likely to experience feeding difficulties than babies who were given them between four and six months of age."

Nutrition tips for baby's first year

- Seek advice on breastfeeding when you need it.
- If at first you don't succeed, try, try again.
- Focus on developing healthy eating habits as a family.

Read more about breastfeeding in The Conversation:

- [Breastmilk alone is best for the first six months – here's what to do next](#)
- [Breastfeeding is not 'easy' – stop telling new mothers that it is](#)
- [Giving your baby solid food early won't help them sleep better](#)
- [Breastfeeding dictator or breastfeeding enabler? Midwives' support styles can make a difference](#)

WHAT'S NEW?

YOUR BABY'S THYROID GLAND PLAYS A CRITICAL ROLE IN BRAIN DEVELOPMENT

Adequate concentrations of maternal and neonatal thyroid hormones are essential for fetal neural development and play a key part in regulating fetal growth, brain development, and metabolism. Fetal thyroid function begins at 12–14 weeks gestation; however, maternal transfer of thyroid hormones continues until full-term and has a protective role in fetal neurodevelopment until the first few days of life.

Thyroid hormone concentrations in newborn babies are affected by neonatal, maternal, and pregnancy-related factors, including maternal thyroid function and iodine status. Congenital hypothyroidism is defined as inadequate thyroid function in newborn infants and is one of the most readily preventable causes of intellectual disability in children.

A world-first University of Sydney study in *The Lancet Diabetes & Endocrinology* reveals Australian babies born with moderately high concentrations of a hormone called thyroid stimulating hormone (TSH) have a higher risk of poor educational and development outcomes at school age. It suggests that the mother is not consuming enough iodine. This is the first population-based study demonstrating the association between moderately high TSH in infants and their later school age neurodevelopmental outcomes.

Congenital hypothyroidism refers to abnormal thyroid function in newborn infants. Globally, about one in 2000 children are born with congenital hypothyroidism each year and the incidence of subclinical thyroid disease is at least ten times higher than overt thyroid disease. If untreated for several months after birth, severe congenital hypothyroidism can lead to growth failure and permanent intellectual disability.

Screening for congenital hypothyroidism in the first days of life, done usually by testing concentrations of neonatal thyroid-stimulating hormone in baby's blood, provides an opportunity to identify infants with abnormal thyroid hormone concentrations. In developed countries, newborn screening of TSH levels and early treatment for congenital hypothyroidism has nearly eliminated intellectual disabilities associated with congenital hypothyroidism. Currently, only newborns with TSH concentrations at the 99.95th percentile of the population range, are diagnosed with congenital hypothyroidism and treated with the hormone thyroxine. At this percentile, blood concentration of TSH usually exceeds 20 mU per litre of whole blood.

The researchers found that infants with a neonatal TSH concentration just lower than the cut-off (20 mU/L blood, a near miss) have an increased likelihood of poor neurodevelopmental outcomes at school age. Said another way, the study reveals a gradual increasing risk of poor educational and development outcomes for newborns with increasing TSH concentrations from the 75th to the 99.95th percentile.

“The results showed a clear dose-response association between neonatal thyroid stimulating hormone and risk of scoring below the national minimum standard for numeracy and reading,” said the University of Sydney’s A/Professor Natasha Nassar, the study’s senior author.

“This study can't prove a cause and effect relationship between thyroid stimulating hormone levels in newborns and educational and development outcomes in school age children, but it suggests an urgent need for prospective studies examining different thyroid hormone thresholds for intervening with thyroxine,” said Dr Bridget Wilcken, Clinical Professor of Paediatrics and Child Health at the Children's Hospital at Westmead. “Given that thyroxine is a relatively safe medication when indicated and properly monitored, this simple intervention may prevent significant learning and developmental problems in a small group of affected children.”

Read more

- [Association between borderline neonatal thyroid-stimulating hormone concentrations and educational and developmental outcomes: a population-based record-linkage study](#)
- [Preconception Maternal Iodine Status Is Positively Associated with IQ but Not with Measures of Executive Function in Childhood](#)

ALL ABOUT IODINE

Iodine is a naturally occurring mineral that is needed by the thyroid gland in order to synthesize thyroxine, an important hormone that regulates metabolism. In babies and young children, thyroid hormones play a key role in physical and mental development. A deficiency of iodine can lead to learning difficulties and affect physical development and hearing. The recommended dietary intake a day for iodine is 150 micrograms for most adults, but this increases to 220 micrograms during pregnancy and 270 micrograms while breast-feeding, as your baby will take the iodine it needs from you.

Iodine deficiency Because Australian and New Zealand soils are low in iodine, the National Health and Medical Research Council and the New Zealand Ministry of Health recommend that all women who are pregnant, breastfeeding or considering pregnancy, take an iodine supplement. However, it's best to speak with your doctor before taking a supplement, especially if you have a pre-existing thyroid condition.

Though iodine deficiency is not typically a problem in the United States, as most table salt is enriched with iodine, the American Thyroid Association recommends that all women who are pregnant, breast-feeding, or considering pregnancy take an iodine supplement of 150 micrograms each day. Kelp and seaweed supplements are not recommended as they contain varying amounts of iodine and can even cause toxicity (too much iodine). Again, speak with your doctor first.

The best source of iodine in our diet is seafood. We also get iodine from other foods including milk and vegetables, but the amount varies depending on how these foods are grown and processed. In Australia and New Zealand, all salt used for making bread (apart from organic breads) must now be iodised, so bread has become a source of iodine.

- This is an edited extract from [The Low GI Eating Plan for an Optimal Pregnancy](#) (Dr Jennie Brand-Miller, Dr Kate Marsh and Prof Robert Moses); published in Australia as *The Bump to Baby Diet*.

BABY FORMULA CAN CHANGE GUT BACTERIA

A study of more than 1000 Canadian mothers and their infants in *Journal of Pediatrics* found exclusive breastfeeding in the first three months of life provided more protection against an infant becoming overweight at one year of age than either partial breastfeeding or formula feeding. This association is partially explained by the influence breastfeeding has on an infant's gut microbiome say the researchers. "Breastfeeding is one of the most influential factors in shaping the infant gut microbiome," says [Dr. Meghan Azad](#).

"Our research showed that partial breastfeeding and exclusive formula feeding were associated with a higher microbial diversity at three months of age, meaning more types of microbes were present in the baby's gut, as well as an abundance of a group of bacteria called *Lachnospiraceae*, which has been associated with infant overweight," explains [Dr. Anita Kozyrskyj](#). "We also distinguished between partial breastfeeding mixed with formula versus partial breastfeeding mixed with foods," adds [Dr. Jessica Forbes](#). "We found that breastfed infants supplemented with formula were at increased risk for becoming overweight at one year of age, and had a different microbiota composition than exclusively breastfed infants; whereas breastfed infants supplemented with complementary foods only (no formula) were similar to exclusively breastfed infants with no increased risk."

"These results emphasize the importance of breastfeeding as a possible protective factor against infant overweight by modifying the gut microbiome," says Azad. "They suggest that improved programs and policies to support exclusive breastfeeding could have a meaningful impact on infant health."

Read more

- [Association of exposure to formula in the hospital and subsequent infant feeding practices with gut microbiota and risk of overweight in the first year of life](#)
- [Commentary on this study](#)

MOTHER NATURE KNOWS BEST FOR BABY'S FIRST FOOD

Mother's milk provides the perfect mix of nutrients – carbs, fat, protein, vitamins and minerals – for babies to grow and thrive for the first six months of life. Mother Nature made it sweet so it is very appealing to babies. The sweetness comes from a special sugar called lactose only found in milk. Our human milk has one of the highest concentrations of lactose of any mammal coming in at some 7 grams of lactose per 100 millilitres (3½ fluid ounces) which in household measures is little over ⅓ cup. It is about 1½ times that of cow's milk. Why so much? One reason is probably to satisfy our fast-growing, energy-hungry, glucose-demanding brain. Scans show that a baby's brain reaches more than half adult size in the first 90 days of baby's life.

Mother's milk also contains special carbs called oligosaccharides (think of them as prebiotics, foods that friendly bacteria in the large intestine chomp on to thrive).

FUEL MIX FOR BABIES	Per 100ml (3½ fl oz)
ENERGY	
Calories	67
Kilojoules	280
MACRONUTRIENTS	
Carbohydrate (lactose mostly)	7.0 grams
Fat	4.2 grams
Protein	1.3 grams
MICRONUTRIENTS	
Calcium	35 milligrams
Sodium	15 milligrams
Phosphorus	15 milligrams
Iron	76 micrograms
Vitamin A	60 micrograms
Vitamin C	3.8 milligrams
Vitamin D	0.01 micrograms

Source: [The Good Carbs Cookbook](#)

MATERNAL NUTRITION IS MORE IMPORTANT THAN WE EVER IMAGINED

The man who transformed our thinking about the causes of diabetes, cardiovascular disease and cancer was Sir David Barker (physician, biologist and epidemiologist). Caroline Fall and Clive Osmond remind us that Barker's: "'fetal programming hypothesis' challenged the idea that these diseases are explained by bad genes and unhealthy adult lifestyles. Instead, he proposed, their roots lie in the early life environment: 'The nourishment a baby receives from its mother, and its exposure to infection after birth, determine its susceptibility to chronic disease in later life'. By permanently 'programming' the body's metabolism and growth, they determine the pathologies of old age. His now widely accepted ideas stimulated research into the developmental origins of health and disease. To pull back the modern epidemics of chronic disease we should prioritise the health and nutrition of girls, pregnant women and infants." And he said this over 20 years ago.

"Maternal nutrition is more important than we ever imagined," says Prof Jennie Brand-Miller. "Life inside the womb is a critical period for metabolic programming that influences a baby's cell types, cell numbers, body composition, hormonal feedback, metabolic activity, and appetite. Our food supply and dietary recommendations should be based first and foremost on the needs of pregnant women," she says. "If we cover them, we automatically cover everyone else. They should not be seen as the exception to the rule (and simply recommended nutritional supplements). We now also know that different patterns of growth have long-term effects on the risk of specific diseases. If growth is restricted, there is a higher risk of abdominal obesity, cardiovascular disease and type 2 diabetes as an adult. Over-nutrition, seen for example in maternal diabetes and obesity, is also linked to increased risk of obesity in adult life. The positive news is that we know that interventions in pregnancy are probably more effective than later interventions. So, we have to give Mum and her unborn baby much greater focus."

Read more

- [Commentary: The developmental origins of health and disease: an appreciation of the life and work of Professor David J.P. Barker, 1938–2013](#)

PLANNED PARENTHOOD TIPS FOR MUM AND DAD

Improving your own health before conception and providing a healthy environment for your unborn child can go a long way towards ensuring they have the best possible start in life. Here are eight tips from *The Low GI Plan for Optimal Pregnancy* for improving your health three to six months before conception.

1. Organise your pre-pregnancy health checks with your doctor.
2. Review your medications (including non-prescription medications and supplements) with your doctor. Optimal intakes of iron, folate and iodine is critical.
3. If you smoke, do your best to stop.
4. *Avoid* alcohol and perhaps coffee (and other highly caffeinated beverages).
5. Ensure your eating habits are healthy.
6. Be physically active.
7. If you are overweight, improve your diet and activity to achieve gradual weight loss.
8. Take folate and iodine supplements

Read more:

- [The Low GI Eating Plan for an Optimal Pregnancy](#)
- [The Bump to Baby Diet](#)

HEALTHY EAT OUT/TAKE OUT – MEXICAN

Mexican restaurants are popping up all over. They are ideal for low GI choices because they make great use of beans and corn. They also have small portions such as tacos if you just want a light meal. There are usually plenty of gluten-free and vegetarian choices. Menus often include detailed descriptions of dishes so you know exactly what you are getting (and you can always ask). Good options include:

- Tacos, burritos and quesadillas with mushrooms or vegetables, fish, seafood, pulled pork, beef, and chicken
- Salads and salsas of all kinds
- Chargrilled corn
- Ceviche bowls with tuna, salmon or kingfish
- Share plates with grilled octopus, guacamole, corn tamales.

PERSPECTIVES: DR ALAN BARCLAY

IODINE AND THE THYROID GLAND

Iodine was one of the first trace-minerals to be identified as an essential nutrient. Nearly 5000 years ago, Chinese physicians treated goitre (enlarged thyroid gland in the neck) by feeding seaweed, seafood extracts and burnt sponge – we now know that these are all rich sources of iodine. In 1811, iodine was identified in seaweed in France, and 8 years later a Swiss physician named Dr Coindet used a burnt sponge and seaweed extract for the treatment of goitre, and reasoned that iodine could be the active ingredient in seaweed. In 1819, he tested tincture of iodine at 250 mg/day, in 150 goitre patients with great success. In the 1920s, iodine was shown to be an integral part of the thyroid hormone thyroxine (T4) and in 1952 triiodothyronine (T3).



Very low levels of iodine intake (less than 50µg/day) cause goitre, which presents as an enlarged thyroid gland. Other symptoms include dry skin, fatigue and hair loss.

The thyroid hormones T3 and T4 are required for the normal growth and development of essential organs including the brain and nervous system and have a broader role in the maturation of the body as a whole. They are important for energy production and oxygen consumption in all of our cells, helping to maintain the body's metabolic rate. A typical adult body contains approximately 15–20mg of iodine, of which 70–80% is in the thyroid gland (a butterfly-shaped organ located in the base of your neck) – which concentrates iodine. The rest is in our blood.

Iodine deficiency results in a range of conditions collectively termed iodine deficiency disorders. In severe deficiency, these have major effects on the developing foetus, such as abortion or stillbirth, congenital abnormalities, increased infant mortality, cretinism or mental deficiency with deaf mutism, spastic diplegia (a form of cerebral palsy), and even a form of dwarfism. In newborns, childhood or adulthood, iodine deficiency can lead to goitre or hypothyroidism as well as impaired mental and physical development. Paradoxically, excessive intakes of iodine can also lead to the enlargement of the thyroid gland.

The iodine content of most foods is low and is affected by the soil, irrigation and fertilisers used. Losses can also occur in cooking (e.g., boiling). Best sources include:

- Seafoods – fish (e.g. canned salmon), shellfish (e.g. oysters), and seaweed (e.g., sushi).
- Dairy - milk, yoghurt, cheese, etc.
- Bread – Australian and New Zealand bakers are required to use iodised salt in bread.
- Salt – Approximately 120 countries, including Canada and the USA, have adopted mandatory iodization of all food-grade salt. In Australia and New Zealand, it's optional. While iodine fortified salt contains high levels of iodine, use of iodised salt has reduced due to increased awareness of the association between high salt consumption and high blood pressure.
- Supplements – Pregnant and breast-feeding women may require iodine supplements, though consultation with a doctor is recommended before commencing.

Finally, it's important to note that our ability to utilise absorbed iodine is influenced by goitrogens in foods. Goitrogens are found in brassica vegetables such as cabbage, broccoli and Brussels sprouts and can interfere with the synthesis of the thyroid hormones T3 and T4. Similarly, foods that contain goitrogenic cyanoglucosides such as sweet potato and corn release thiocyanate that competes with iodine, blocking its uptake by the thyroid gland. This

doesn't mean that we should avoid these vegetables – just consume them in moderation as part of a healthy balanced diet.

Read more:

- [Nutrient Reference Values - Iodine](#)
- [Nutrition Australia – Iodine facts](#)
- [Effect of different cooking methods on iodine losses](#)



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KEEPING IT GREEN – EATING FOR BODY AND PLANET

THE ANIMAL FOOD DILEMMA

Meat and dairy products are valuable sources of nutrition yet a recent [report by Greenpeace](#) recommends limiting meat intake to 300g per week and dairy intake to 630g per week to lessen our environmental footprint. They say this would reduce global consumption of animal products by 50% by 2050. However, they did not have a nutrition expert involved so how can we be sure this advice supports good health? How do we reconcile the nutritional value of animal foods with their environmental footprint? We decided to delve deeper into the animal food dilemma.

What is the most sustainable diet?

Meat has the greatest [environmental footprint](#) followed by dairy and then plant-foods. This is because livestock farming requires more land and water; and animals produce more green house gas (GHG) emissions compared to plant foods. You may think veganism (eating no animal products at all) is the most sustainable solution to feed our growing global population but you may be surprised to hear that [it's not](#), because growing crops doesn't utilise all types of land. For example, some land is useless for growing fruits and vegetables but can be used for dairy farming or livestock grazing. In fact, a vegetarian diet including dairy products (lacto-vegetarian) has been identified as [the most sustainable diet](#).

Eat a diet that is mostly plants, but some animal foods can be included in your diet and still be sustainable.

How much meat do you need?

In grappling with the animal food dilemma, we need to know how much we need – not want or crave, but actually need - for good health. National dietary recommendations are a good place to start. Meat is part of the 'meat and protein alternatives' group that includes red meat, white meat, fish, eggs and plant-based alternatives like pulses, legumes, nuts and seeds.

The [US Dietary Guidelines](#) recommend 5-6.5 ounces (around 140g-185g) of meat or protein equivalents per day for a sedentary person.

The [Australian Dietary Guidelines](#) recommend 2-3 'serves' of meat or alternatives per day, where one serve is:

- 65g of cooked red meat (100g raw);
- 80g cooked poultry (100g raw);
- 100g cooked fish (115g raw);
- 2 eggs;
- 1 cup (150g) cooked legumes (lentils, chickpeas, beans);
- 170g tofu;
- or 30g of nuts or seeds.

If you do the math, both countries are recommending around 1300g (45oz) of meat (or equivalent) per week, which seems a lot more than the 300g limit Greenpeace is recommending, but of course not all serves from this group need to be meat. The Australian guidelines recommend limiting your cooked red meat intake to 455g per week and including plant-based foods in the mix. And remember smaller animals such as chickens and pigs, and wild animals such as deer, bison and kangaroo all have a [smaller environmental footprint](#) than cattle.

The question of how much meat we can get away with eating and still look after our health and the environment is hotly debated and depends on a myriad of factors including: location/region, climate, production method, land and water use, feed type, animal genetics, waste management, supply chain efficiency, transport and wastage. We as citizen-eaters can help by eating animals 'nose-to-tail' (not just our favourite bits) and not wasting any because throwing animal foods in the bin just adds insult to injury (it wastes the already significant environmental costs in producing it).

Enjoy a variety of protein sources including plant sources but limit meat intake – especially from large, high eco-footprint animals to around 400g a week, or two meals. Whatever you do, don't waste a skerrick of food, especially animal food.

How much dairy do you need?

While Greenpeace recommend no more than 630g dairy food a week, [Australian](#) and [US](#) dietary guidelines recommend 2-3 serves of dairy products (or equivalent), or 500-750g a day of dairy milk.

One serve of dairy is:

- 1 cup of milk or fortified soy milk; or
- 40g cheese;
- 200g yoghurt;
- 100g almonds;
- 100g firm tofu with calcium

The dairy food group is a good source of many nutrients including calcium, Vitamin D and Vitamin B12. While you could meet these dietary requirements using only plant-based foods it is more difficult and you'll probably need supplements or fortified foods. For example, calcium is available in foods such as almonds, however you would need to eat more than 3

handfuls of almonds (100g) to get just 1 serve of dairy alternatives. If you choose plant-based 'milks', choose one with added calcium.

Why is there conflicting advice?

Greenpeace's advice to consume no more than 300g of meat and 630g dairy products per week appears to conflict with both Australian and US national dietary guidelines, although it doesn't have to if we chose more plant-based alternatives within the meat and dairy food groups. As Greenpeace correctly points out, you can meet your nutritional requirements with a vegetarian diet or vegan diet supplemented with Vitamin B12. However, there are still lingering nutrition questions we need to answer. For example, which groups (pregnant women, children, athletes, young women, teens?) are likely to experience nutritional shortfalls if meat and dairy are removed or limited from diets? How do we ensure those with higher needs have them met in an animal-food constrained world? If we are to solve the dilemma of animal foods, we need collaboration between environmental scientists and nutrition scientists and dietitians to ensure advice is evidence-based, and our sustainable diets are enjoyable.

The animal food dilemma in a nutshell:

- Eating less meat reduces your environmental footprint, but you still need to meet your nutritional needs - include healthy plant-based meat and dairy alternatives such as nuts, seeds, legumes, fortified plant 'milks' and tofu.
- If you eat meat make it a side show rather than the main attraction on your plate – fill half your plate with vegetables, a quarter with grains (or starchy vegetables) and limit meat to a quarter of your plate.
- Replace some of your meat with plant proteins. For example, try adding lentils to your spaghetti Bolognese, burgers, meatloaf or casseroles; and adding chickpeas, tofu or nuts to curries, soups and salads.

Thanks to Rachel Ananin aka TheSeasonalDietitian.com for her assistance with this article.



In this series we explore how you can reduce your ecological impact through your food choices. We'll help you do your bit for the environment, one mouthful at a time.

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.

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GOOD CARBS FOOD FACTS A TO Z

STRAWBERRIES

Strawberries are rich in vitamin C, with one cup providing 180% of the recommended daily intake," says dietitian Nicole Senior. "They are also high in the B-vitamin folate needed for a healthy heart and a healthy pregnancy. Like other berries, strawberries are low in natural sugars, low in kilojoules, low in sodium, and low GI. They are also a source of fibre for digestive health and potassium for better blood pressure.

Food skills: shopping. Check the punnet closely (top and bottom) to make sure they all look well formed, fresh and dry (moisture attracts mould), have a uniform good bright colour, aren't squashed or damaged (bruising or soft spots) and there's no oozing juice or fermenting smell. Strawberries should have their green caps attached.

Strawberries are best stored in the fridge, spread out in a single layer to avoid damage, but taste their best at room temperature so take them out for a while before eating.

Food skills: storing. Strawberries are among the most perishable of fruits and can turn soft and mouldy within 24 hours. They are hard to pass by, so open the punnet (or punnets) when you get home and sort and remove any bruised or damaged berries. Store in the refrigerator for two to three days in the punnet or place them on a plate in a single layer on paper towel and cover with plastic wrap. When you are ready to eat them, rinse gently in cool water (do not soak) before hulling and eating and allow to air-dry or pat gently with paper towel.

Good Carbs Food Facts	
Strawberries	
★ ★ ★ ★ ½	
Glycemic index 40	
Gluten free	
Serving size – 5 medium-sized strawberries (70g or 2½oz)	
Kilojoules	76
Calories	18
Protein	1g
Fats – Total	0g
Includes:	
--Saturated fat	0g
–Unsaturated fat	0g
–Cholesterol	0g
Saturated : unsaturated fat ratio	0.0
Carbohydrates – Total	4.5g
<i>Available</i>	2.7g
Includes:	
--Natural sugars	2.6g
–Natural starches	0.1g
–Added sugars	0g
–Added starches	0g
<i>Unavailable</i>	1.75g
Includes:	
–Dietary fibre	1.75g
Sodium	2mg
Potassium	110mg
Sodium : potassium ratio	0.02
Glycemic load	1

Diabetes exchange	1/5 (fifth)
Ingredients: Strawberries	

Source: [The Good Carbs Cookbook](#)

IN THE GI NEWS KITCHEN

THE GOOD CARBS COOKBOOK

	<p>The Good Carbs Cookbook (by Alan Barclay, Kate McGhie and Philippa Sandall) published by Murdoch Books helps you choose the best fruits, vegetables, beans, peas, lentils, seeds, nuts and grains and explains how to use them in 100 refreshingly nourishing recipes to enjoy every day, for breakfast, brunch, lunch, dinner and dessert. The recipes are easy to prepare, (mostly) quick to cook, long in flavour and full of sustaining goodness, so you feel fuller for longer. There is a nutritional analysis for each recipe and tips and helpful hints for the novice, nervous, curious or time-starved cook.</p>
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STRAWBERRY, RHUBARB AND APPLE OAT CRUMBLE

Rhubarb stalks can vary in colour from green to a perky bright red and we often, wrongly, assume that the red stalks are 'ripe' and sweeter. Colour and sweetness are not related and some green varieties produce very sweet stems. Smaller stalks will be tender, while thicker stalks tend to become stringy. Stalks the size of a finger are a good measure. Preparation time: 25 minutes • Cooking time: 30 minutes • Serves: 6

5 medium stalks rhubarb, trimmed and chopped
 3 small cooking apples, cored and coarsely grated
 200g (7oz) small strawberries, hulled
 2 tablespoons runny honey
 2 teaspoons cinnamon
 1 cup (90g/3¼oz) traditional rolled oats
 50g (1¾oz) butter
 ½ cup (100g/3½oz) lightly packed soft brown sugar
 1 teaspoon cinnamon
 ⅓ cup (100g/3½oz) coarsely chopped raw nuts (almonds, hazelnuts, walnuts, pecans)

Preheat the oven to 180°C/350°F (fan-forced 160°C/315°F). • Put the rhubarb, apples, strawberries, honey and cinnamon in a bowl. Toss well and spoon into a deep baking dish. • In a bowl combine the oats, butter, brown sugar, cinnamon and nuts and rub together with your fingers until the mixture is knobby. Spread over the top of the fruit and bake for about 30 minutes or until the fruit is soft and bubbling and the top is golden and crunchy. • Tip: Thinly sliced ripe pear or blackberries would be a lovely addition to the fruit mixture.

Per serve

1480kJ/355 calories; 6g protein; 18g fat (includes 5.5g saturated fat; saturated : unsaturated fat ratio 0.4); 42g available carbs (includes 32g sugars and 10g starches); 6g fibre; 70mg sodium; 430mg potassium; sodium : potassium ratio 0.2

ANNEKA MANNING: BAKECLUB



Anneka Manning is an author, food editor, cooking teacher, home economist, mother of two and the founder of BakeClub. With over 27 years' experience, she specialises in teaching the 'why' behind the 'how' of baking, giving home cooks the know-how, understanding and skill to bake with confidence and success, every time. She has written and contributed to a number of books, including *The Low GI Family Cookbook* (Hachette), *Mastering the Art of Baking* (Murdoch Books) and *BakeClass* (Murdoch Books).

STRAWBERRY, MAPLE AND PISTACHIO PARFAIT

A delicious combination of nuts, seeds and oats layered with sweet fresh strawberries and thick Greek-style yoghurt, it is hard to go past this parfait at breakfast time. Keep a jar of this granola in an airtight jar or container in the pantry, so you can whip up the parfait anytime you please. The granola will keep at room temperature for up to 2 weeks. Preparation time:

15 minutes • Baking time: 12–15 minutes • Serves: 8

800g (1lb 7oz) natural Greek-style yoghurt

2½ punnets (60g/2oz) ripe strawberries, hulled and quartered

Maple and pistachio granola

½ cup traditional rolled oats (oatmeal)

½ cup unsalted pistachio kernels, coarsely chopped

½ cup shredded coconut

½ cup sunflower seeds

½ cup pepitas (pumpkin seeds)

1 teaspoon ground cinnamon

¼ cup pure maple syrup or pure floral honey

1 teaspoon natural vanilla essence or extract

To make the granola, preheat the oven to 170°C/340°F (150°C/300°F fan-forced). Line a large oven tray with non-stick baking paper. • Combine the oats, pistachios, coconut, sunflower seeds, pepitas and cinnamon in a medium bowl and toss to combine. Combine the maple syrup and vanilla, pour over the oat mixture and toss to combine evenly. • Spread on the lined tray and bake in preheated oven for 12–15 minutes, tossing twice during baking, until golden. Set aside to cool to room temperature. • To assemble the parfait, layer the yoghurt, granola and strawberries in glasses or dishes, finishing with a little sprinkling of granola. Serve immediately.

Per serve

1430kJ/ 340 calories; 14g protein; 21g fat (includes 7g saturated fat; saturated : unsaturated fat ratio 0.33); 21g available carbs (includes 14g sugars and 7g starch); 6g fibre; sodium : potassium ratio 0.13