

## **Seaweed, sardines and sauerkraut: the best diet for your brain at every stage of life**

It's never too early or late to use nutrition to improve brain health. From iodine intake to avoiding ultra-processed foods, here's what to bear in mind

*Kimberley Wilson*

Sun 12 Mar 2023 The Guardian

While the foundations of brain structure and function are laid during pregnancy and early life, the brain is constantly being fuelled and shaped by the food and drink we consume daily. We should be thinking of brain health like a pension plan; it is best to start as early as possible so that you have more to draw from when you need it. That said, it is never too late to invest in your brain health. Here is how to use nutrition to aid the brain at each stage of life.

### **Pregnancy**

Most people know that you need to take folic acid to support a healthy pregnancy, but there is another lesser-known nutrient that is critical to brain development. Iodine is a trace mineral that is essential for the production of thyroid hormones. We know that thyroid hormones play a role in metabolism but they also determine the growth and development of the foetal brain during pregnancy. Consequently, the World Health Organization [describes](#) iodine deficiency as “the single most important preventable cause of brain damage” worldwide. A lack of iodine impairs thyroid hormone production during pregnancy, meaning a baby's brain development will be unavoidably affected, with studies linking low maternal iodine with sub-optimal scores for verbal IQ at age eight.



A good source of iodine ... laver bread. Photograph: neiljohn/Alamy

Because adequate thyroid hormone is required from the moment of conception, women need to ensure sufficient iodine intake for several months before conceiving. This can typically be achieved by eating a balanced diet that includes a variety of dairy, fish and seafood. However, those who do not eat animal foods may need to consult a health professional about taking an iodine supplement. Too much can be a problem too, with an excess causing iodine poisoning or

hyperthyroidism, so it is important to get the balance right. The NHS [suggests](#) that a supplemental dose of 0.5mg or less per day is unlikely to cause harm.

### **Good things to eat now**

Fish and cooked seafood – seek out smaller, sustainable species, such as MSC certified sardines, salmon and mussels

Eggs

Seaweed is a concentrated source of iodine. The [British Dietetic Association recommends](#) not eating brown seaweed more than once a week, especially during pregnancy.

### **Childhood**

The brain continues its rapid growth and development during infancy and childhood. Omega-3 fatty acids, particularly one called DHA, make up a significant proportion of the membrane of brain cells. DHA is considered irreplaceable for brain development and evidence shows it may be especially important to ensure that children are getting sufficient amounts through regularly eating oily fish. A [recent survey](#) found that less than 5% of UK children are meeting the fish consumption recommendations.

On the other hand, children in the UK are eating more than the recommended levels of added sugar. The [UK government](#) advises that free sugars – sugars added to food or drinks and found naturally in honey, syrups and unsweetened fruit and vegetable juices, smoothies and purees – should not make up more than 5% of the energy (calories) you get from food and drink each day.

Children are eating, on [average, eight sugar cube equivalents over](#) the advised limit, largely in the form of sugar-sweetened beverages, and prepackaged cakes and biscuits, often eating over 11g of sugar at breakfast alone.



Oily fish ... sardines. Photograph: Denis Zubchenko/Alamy

Not only is added sugar a risk to teeth, the energy in sugar is easy to overconsume, increasing the risk of Type 2 diabetes. In turn, diabetes significantly increases the risk of cognitive decline and dementia, and the longer someone has the condition the greater the risk, so it is very worrying that rates of diagnosis in childhood are [on the rise](#).

### **Good things to eat now**

Oily fish (salmon, mackerel, sardines, trout, anchovies, kippers) or a supplement  
Fresh fruit or cheese with oat crackers for snacks  
Low- or no-sugar drinks

### **Adulthood**

[Ultra-processed foods](#) (UPFs) make up 55% of the UK adult diet, the highest in Europe. UPFs are foods that are sold ready-to-eat or ready-to-heat and produced using ingredients or processes for which there is no domestic equivalent. To improve palatability and shelf-life, these foods tend to be higher in added sugar, fat and salt, and contain less fibre than their homemade equivalents. So how might having a large proportion of these foods in our diets be affecting our brains? Well, firstly, research indicates that it is causing us to miss out on brain-healthy nutrition. A [Mexican study](#) of 10,000 people found that the higher the consumption of UPFs, the lower the intake of vitamins B, C and E and minerals. A 2015 [Brazilian study](#) that assessed the diets of over 32,898 people found similar results; the consumption of UPFs was inversely correlated to the intake of vitamins B3, B6, B12, D and E, magnesium, selenium and zinc, all known to be important for brain function.



Cognitive coffee ... in moderate amounts. Photograph: Alex Fung/Getty Images/EyeEm

Longitudinal research has shown a correlation between diet quality and size of the hippocampus (the brain's memory centre). The greater the proportion of UPFs in the diet, the smaller this brain area – this is a concern because loss of brain volume is linked to poorer function. Indeed, [a recent study](#) found that just a few days on a high UPF diet caused damage to the hippocampus that tracked with impairments in learning and memory. Though we are still in the early days of this research, [evidence is showing](#) that higher consumption of UPFs is linked to

increased risk of [depression](#) and harmful changes in the regions of the brain linked to [learning and memory](#).

There is, though, good news for coffee drinkers. Moderate coffee consumption (two to four cups per day) has been linked to better brain health and reduced risk of cognitive decline, in part because caffeine regulates a neuroprotective brain enzyme.

### **Good things to eat now**

A daily serving of leafy green vegetables (spinach, watercress, rocket, kale)

Beans, legumes and wholegrains

Coffee, tea (just watch the sugar and cream)

### **Later life**

That dementia is currently the leading cause of death in the UK is not simply an artefact of longer life expectancy, because we know that other, longer-lived nations, such as Japan and Italy, have lower dementia rates. Revealingly, [one study](#) found that the Japanese Alzheimer's disease rate had increased from 1% in 1985 to 8% in 2008 and cited the increased consumption of a western-style diet as the cause.



Help reduce dementia risk ... sauerkraut. Photograph: Yulia Naumenko/Getty Images

What low-dementia rate nations have in common is moderate fish and seafood consumption, plenty of vegetables and beans, fermented foods eaten regularly, and tea and coffee.

### **Good things to eat now**

Oily fish

Kimchi, sauerkraut, kefir, live yogurt

Berries (strawberries, raspberries, blueberries, blackcurrants, blackberries, cooked elderberries).

Kimberley Wilson is a psychologist with an MSc in nutrition and author of *Unprocessed: How the Food We Eat is Fuelling Our Mental [Health](#) Crisis*, published by WH Allen