

Boost your BRAIN from your PLATE



The food you eat could make your brain younger and your memory sharper, as Anita Bean explains

As you get older, your brain starts to shrink. The areas that control cognitive function – that is, thinking, speaking, processing information, problem-solving and memory – get smaller, as do the nerve bundles that carry signals between brain cells. These changes can begin in middle age or even earlier, and lead to subtle changes in cognitive function over time. For example, you may find that you're a little more forgetful, that you need longer to remember things, get distracted more easily or struggle to multitask.

But cognitive decline isn't an inevitable part of ageing. Research by Alzheimer's UK found that 40% of cases could be delayed by tackling a range of risk factors. Evidence shows that looking after your heart health, staying active – both physically and mentally – and keeping connected with others, can make a big difference.

Foods high in flavonoids could help prevent cognitive decline

Alongside this, improving your diet has positive results. A 2018 report from the Global Council on Brain Health recommends a diet rich in fruit and vegetables to improve cognition in older age, and reduce the risk of dementia and Alzheimer's.

Researchers have now taken that a step further. A 2021 study from Harvard University has found that eating certain foods rich in powerful antioxidant plant compounds called flavonoids can significantly slow cognitive decline and lower dementia risk.

'There is mounting evidence suggesting flavonoids are powerhouses when it comes to preventing your thinking skills from declining as you get older,' says Dr Walter Willett, one of the study's authors. 'Our results are exciting because they show that eating foods high in flavonoids could help prevent, or slow down, decline in memory and other cognitive processes in late life.'



The key to brain health may lie in your food choices

How do flavonoids help?

Flavonoids are a group of naturally-occurring compounds that are found in plants – including fruit, vegetables and herbs, as well as tea and red wine. They act as antioxidants, which help fight brain inflammation that underlies cognitive decline. They also feed our gut microbes, increasing the relative abundance of health-promoting microbes and contributing to brain health.

Simple goals

As food labels don't reveal flavonoid levels in foods, it's best to eat a wide range of brightly coloured fruit and veg to give your gut microbes a decent amount of each type. It's called 'eating the rainbow' as flavonoids give these foods their vibrant colour, and doing it continuously can lead to a healthier, more diverse gut microbiome that's good for your brain health. Try to hit the five-a-day goal. Recent evidence shows the most effective combination to be two servings of fruit plus three of veg a day.

Most cooking methods cause a small loss of flavonoids from green leafy veg

Memorable research

The researchers at Harvard looked at data from 77,000 middle-aged men and women. They tracked the participants' diets over 20 years, calculating their intake of six classes of flavonoids, which included beta-carotene in carrots, flavanones in oranges and anthocyanins in berries. They also tested participants' levels of cognitive decline, with questions such as, 'Do you have more trouble than usual remembering recent events?', 'Do you have more trouble than usual remembering things from one second to the next?' and 'Do you have more trouble than usual remembering a short list of items?'

The study found that the people who got the most flavonoids from fruit and vegetables were 19% less likely to report difficulties with memory and thinking than those who ate the least. Researchers took into account their intake of other nutrients, such as vitamins and omega-3s, as well as non-dietary factors including age, weight, physical activity, smoking and alcohol intake, which are known to affect cognition.

While it's unclear how flavonoids aid brain health, researchers cite a few factors. They improve blood flow to the brain, reduce inflammation, reduce blood pressure, promote new brain cell growth and help brain cells strengthen their connections. They also act via the gut-brain axis, the communication network that connects your gut and brain. Flavonoids provide food for your gut microbes, helping them produce lots of beneficial short-chain fatty acids that decrease the inflammation associated with cognitive decline.

What's best for your brain?

Some flavonoids provided stronger protection from cognitive decline than others. Flavones found in yellow or orange fruit and veg, such as oranges, bananas and carrots, were associated with a 38% reduction in risk. Anthocyanins, found in cherries, blueberries and blackberries, were associated with a 24% reduction.

The study found that just half a serving of fruit or veg a day, for example, half an apple or two handfuls of spinach, was enough to help prevent cognitive decline. Those who took in the most flavonoids had around 600mg a day, the equivalent of eating a 400g strawberry punnet. Dr Willett said: 'People who did the best ate an average of at least half a serving a day of foods such as oranges, peppers, celery, grapefruits, grapefruit juice, apples and pears. A diet rich in flavonoids, specifically flavones and anthocyanins, seems to be a good bet for promoting long-term brain health.'

The top 20 rainbow superstars

The foods most associated with beneficial cognitive effects, listed from strongest to weakest, were:

1. Brussels sprouts
2. Strawberries
3. Cauliflower
4. Raw spinach
5. Yam/sweet potato
6. Blueberries
7. Yellow/orange winter squash
8. Cooked spinach
9. Cooked carrots
10. Peaches/apricots/plums
11. Cantaloupe
12. Tomato juice
13. Apples
14. Red/green/yellow peppers
15. Broccoli
16. Cabbage
17. Tomato sauce
18. Romaine lettuce
19. Tomatoes
20. Grapefruit

Other sources: iceberg lettuce, celery, beetroot, potatoes (baked, boiled or mashed), orange juice, pears, grapefruit juice, bananas, oranges, onions, apple juice, tea and grapes.



A MENU to boost your BRAIN

Not sure where to start? Try one of my meal suggestions, packed with flavonoid-rich foods, to help fend off forgetfulness. Adapt and swap out ingredients according to your preferences.

Start the day

Spinach, Tomato and Feta Omelette

Beat 2 eggs with salt and black pepper. Heat 1tsp olive oil in a non-stick pan, pour in the eggs and swirl so it coats the bottom, add a chopped **tomato**, a handful of baby **spinach** and 25g crumbled feta. When the omelette is cooked but still slightly soft in the middle, slide on to a plate and fold in half.

Breakfast Smoothie

Blitz 2 handfuls **baby spinach**, ½ **banana**, 1tbsp oats and 250ml milk alternative (we used almond milk), 1tsp peanut butter and 1tsp honey in a blender.

Blueberry and Banana Yogurt Pot

Add 1tbsp Greek-style plain yogurt to a glass, add 40g **blueberries**, ¼ sliced **banana** and 1tbsp granola. Repeat the layers; drizzle with 1tsp honey to serve.

Light meals

Beans and Greens Salad

Mix 150g cooked **new potatoes**, ½ a 400g can cannellini beans, 80g **Tenderstem broccoli** (lightly cooked), a handful each of **rocket** and **baby spinach**, 1 finely sliced **celery** stalk, ¼ finely chopped **red onion** and 1tbsp green pesto. Scatter over pomegranate seeds to serve.



Roasted Squash and Black Bean Tortilla Wrap

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Add ¼ **butternut squash** (cut into 1cm cubes), 2tsp olive oil, salt, black pepper, ¼tsp each ground cumin and paprika to a roasting tin, toss to combine and roast for 25min at 200°C (180°C fan) mark 6. Fill a tortilla with 1tbsp guacamole, the roasted squash, 2tbsp canned black beans (drained and rinsed), a few **onion** slices, and 1tbsp plain Greek-style yogurt.



Cabbage and Broccoli Soup

Fry ½ finely chopped **onion** in 2tsp olive oil; add a small, crushed **garlic** clove and cook for 5 minutes. Add ½ sliced **carrot**, 80g **broccoli**, 80g shredded green **cabbage** or **kale**, 1 small **potato** and 300ml vegetable stock, bring to the boil and simmer for 15 min. Liquidise using a blender. Serve with wholegrain bread.



Spinach and Broccoli Soup



Make every day a flavonoid day

“Cooking and processing/ juicing/pulping increases the bioavailability of flavonoids in tomatoes, making them more readily absorbed by the body”



Hearty dinners

Aubergine, Cauliflower and Bean Curry

Fry ½ finely chopped **onion** in 2tsp olive oil for 3min, add a small, crushed **garlic** clove and 2tsp curry paste, cook for 1min then add ¼ **aubergine** (sliced) and 100g **butternut squash** (cut into 1cm dice) and a handful of **cauliflower** florets, ½ a 400g can chopped **tomatoes**, ½ a 400g can red kidney beans and 100ml water. Bring to boil, simmer for 10-15min. Serve with wholegrain rice.



Aubergine, Cauliflower and Bean Curry

Ratatouille and Chickpea Traybake

Combine ¼ sliced **onion**, ½ sliced **red pepper**, ½ sliced **courgette**, ¼ sliced **aubergine**, ½ can chickpeas, 1 small, crushed **garlic** clove and 2tsp olive oil in a roasting tin, then mix in ½ a 400g can chopped **tomatoes** and roast at 200°C (180°C fan) mark 6 for 1hr, stirring the mixture halfway through. Serve with focaccia bread.



Ratatouille and Chickpea Traybake

Sweet Potato, Beetroot and Chickpea Salad

Add 1 **sweet potato** (cut into 1cm cubes) and ¼ **red onion** (sliced), 2tsp olive oil, salt, black pepper, ¼tsp each ground cumin and paprika to a roasting tin, toss to combine and roast for 30min at 200°C (180°C fan) mark 6. Combine with ½ a 400g can chickpeas, 1 sliced cooked **beetroot**, a handful of **watercress** and 1tbsp French dressing.

Scrumptious snacks

Almond Butter and Raspberry toast

Spread a slice of wholegrain toast with almond butter and top with fresh **raspberries**.

Beetroot Hummus on Pitta

Blitz 250g hummus and 150g cooked **beetroot** in a blender until smooth. Spread 1tbsp beetroot hummus on ½ toasted pitta bread and scatter over a few pomegranate seeds and herbs.



Beetroot Hummus on Pitta

WHAT NOT TO EAT

These foods may decrease your brain function...

1 HIGH-SUGAR FOODS

A high-sugar diet has been shown to cause insulin resistance in the brain, a reduction in brain function and memory, and a loss of brain neurons, which may lead to dementia. Aim for no more than 30g added sugar per day.

2 ALCOHOL

Stick to the recommended limit of 14 units a week. Higher intakes have been linked to greater dementia risk. Spread out alcohol consumption over at least three days, with several drink-free days a week. Red and white wine do contain flavonoids, but the benefits are not proven.

3 ULTRA-PROCESSED FOODS (UPFs)

UPFs, such as processed meats, packaged foods and breakfast cereals, tend to be low in nutrition, encourage weight gain and may increase dementia risk, says a 2021 study*. □

*ASSOCIATION OF ULTRA-PROCESSED FOOD CONSUMPTION WITH RISK OF DEMENTIA/TIANJIN MEDICAL UNIVERSITY STUDY/THE LANCET, 2021. PHOTOGRAPHY: URBANLIP, KRISTIANE VEX, TWINKLE IMAGES, THE VEGAN ATHLETE'S COOKBOOK (BLOOMSBURY SPORT) BY ANITA BEAN