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Food for thought: your diet is vital for a better brain

Nutritional deficiencies are causing widespread neurological issues. But food is one way to fight them



Neurological conditions are the leading cause of illness and disability around the world. According to the World Health Organization, they affect more than three billion people.

The state of our collective brain health has even been described as an 'emergency' by the Federation of European Neuroscience Societies. And it's easy to see why: declining neurological health on this level is a new threat, on both a micro and macro level. Poor brain and mental health is linked to lower lifetime earnings for people and the social care costs

ABOVE A diet containing sufficient amounts of nutrients and fibre has health benefits for your body and brain

of dementia in the UK now outstrip those for cancer, stroke and heart disease combined.

This all means finding ways to protect neurological wellbeing should be a public health priority. And recent research suggests that nutrition could be a valuable tool.

In one study, researchers took data on food preferences from 181,990 anonymised people in the UK Biobank and divided them into four dietary subgroups: starch-free or reduced starch; vegetarian; high protein and low fibre; and balanced. The data was then analysed against a range of other factors

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including mental health, cognitive functions, and blood and metabolism biomarkers. The researchers found that diet can determine brain structure, which influences mental health and cognition.

So, what should we be eating to keep our brains healthy? Here are three science-backed suggestions...

GET THE RIGHT MICRONUTRIENTS

Nutrients are essential for brain development so deficiencies are an issue. For example, iodine deficiency is the leading cause of preventable brain damage worldwide and during pregnancy can lead to permanently suppressed offspring IQ (67 per cent of pregnant women are iodine deficient). The NHS advises adults to have 140 micrograms of iodine daily. Seaweed, dairy products and fish are rich sources.

Similarly, cobalamin (vitamin B12) is so vital for normal neurological function that deficiency causes a range of psychological and cognitive impairments, including confusion, impaired judgement, anxiety, depression, forgetfulness and dementia. The NHS currently recommends adults have 1.5 micrograms a day of vitamin B12 and it can be found in meat, fish,

“67 per cent of us are not hitting our five-a-day target for fruit and veg”

eggs and cheese (vegetarians often take a supplement, often in tablet form).

Polyphenols (found in berries, tea, coffee and legumes) and omega-3 fats (from oily fish) help generate new neurons. They also promote the growth of new connections in the adult brain and protect ageing brain cells.

INCREASE YOUR FIBRE INTAKE

Low fibre intake contributes to pro-inflammatory changes in the gut microbiome and the degrading of the protective gut lining, as fibre-starved microbes go in search of something else to eat. If gut bacteria get into the bloodstream, the immune system identifies them as pathogens, which triggers an inflammatory response. This inflammation can provoke neuroinflammation, a recognised feature of major depression, schizophrenia and Alzheimer's disease.

When they get the fibre they need, gut microbes break it down to produce a range of by-products including vitamins and neurotransmitters. One class of by-products are short-chain fatty acids, which not

only feed the cells that line the gut, helping to support the integrity of the gut barrier, but can do the same for the blood-brain barrier (BBB) too.

The BBB is a highly selective structure that prevents toxic proteins and other pathogens from entering the brain. We know that impaired BBB integrity is an early precursor to neurodegenerative conditions such as Alzheimer's disease, raising the possibility that diets low in fibre could be contributing to neurological illness.

Currently, not a single age group in the UK is meeting the recommendations for fibre intake, which for adults is 30g a day according to the NHS. Oats, legumes (such as beans and lentils), fruit and vegetables are all great sources of fibre.

AVOID FAD DIETS

Another concern is the online promotion of extreme dietary practices, such as the carnivore diet, which encourages people to eat only animal products (meat, eggs and dairy) and to exclude fibre-rich plant foods.

Such diets are endorsed as a fast track to fat loss and muscle growth and have, consequently, become popular with young men. But, while they might encourage young people to eat fewer ultra-processed foods, they could be introducing immunological changes that put young brains at increased risk, at what is already a vulnerable time for mental health.

What's clear is that, as a nation, we're not eating enough of the foods known to support brain health and development. Twenty years after the campaign was introduced, 67 per cent of us are not hitting our five-a-day target for fruit and veg. Close to 60 per cent of our diets are ultra-processed, and there's an inverse relationship between the proportion of ultra-processed foods in the diet and nutrient status.

These stats alone should give us pause. The brain is an extraordinarily hard-working organ with a high demand for energy and a broad range of nutrients – nutrients that most of us aren't getting enough of.

ABOVE Fibre, in oats, and polyphenols, in berries, both have beneficial effects for your brain function



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