

How Integrative Medicine Can Help Boost Your Brain Health

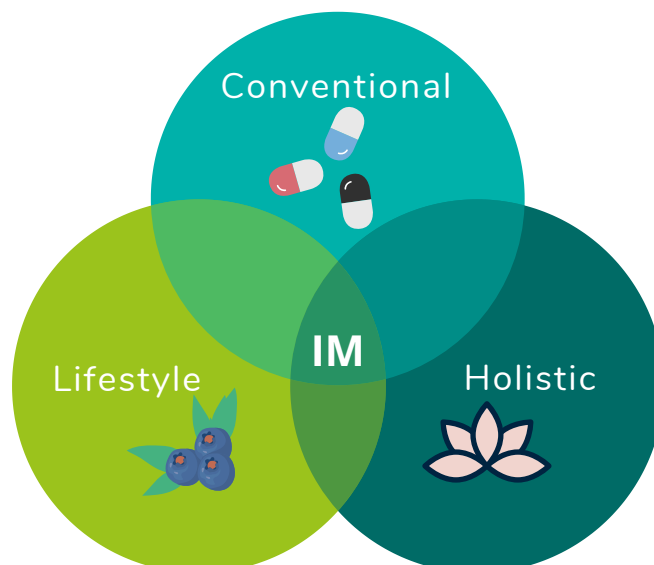


WHAT IS INTEGRATIVE MEDICINE?

Integrative Medicine, or IM, combines the best of conventional, lifestyle and holistic approaches to improve health and wellbeing. It is rooted in evidence-based approaches and works in harmony with each individual.

That means, when you see an Integrative Doctor or Practitioner, they will offer you the space to listen to you and your concerns and come up with an individualised healthcare plan to address your needs.

IM encompasses a broad range of integrative approaches that work alongside and complement conventional medicine, including: Traditional Chinese Medicine, Western Herbal Medicine, Mindfulness, Yoga, Green Care, Massage, Osteopathy and Alexander Technique. IM also pays attention to one's quality of nutrition, sleep, movement and relaxation.



WHAT DO THE STATISTICS SAY?

Here at NCIM we've been exploring brain health. Brain health is the key to who we are as human beings.

Did you know that **in the UK, 850,000 people suffer with dementia**? This number is predicted to rise to 1,000,000 people with dementia in the UK by 2025. Statistics also suggest that one in three people born in 2015 will develop dementia*.

These figures can sound daunting so in this resource we would like to explore what Integrative Medicine can offer to support your brain health.



**<http://www.dementiastatistics.org/statistics>
Lang L. et al. BMJ Open 2017;7:e011146*

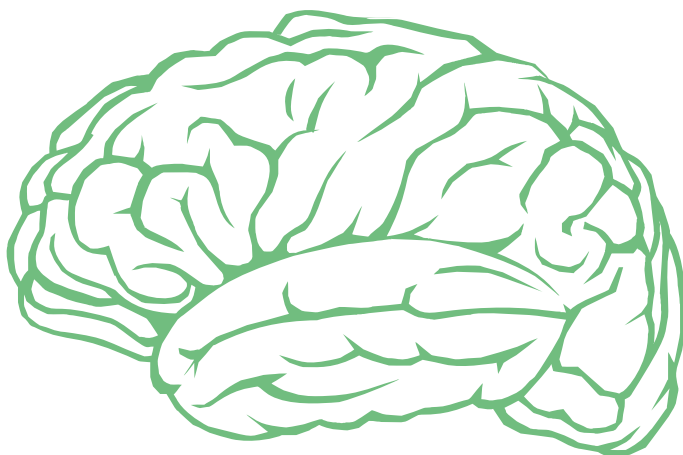
BOOST YOUR BRAIN HEALTH NOW!

Before reading more about brain health, I didn't know that the brain only makes up 2% of our overall body weight but uses 25% of our body's oxygen, that it's made up of 60% fat and produces all its own cholesterol. All in all it's a bit of a powerhouse!

The brain is probably part of our body that we take for granted. We don't really think about what it needs until problems arise, for example problems with memory or balance.

So let's explore together what it means to look after our brain health and realise that it's never too early to start!

We hope you enjoy reading this guide and learn something you can put into practice today to keep your brain happy and healthy, well into the future.

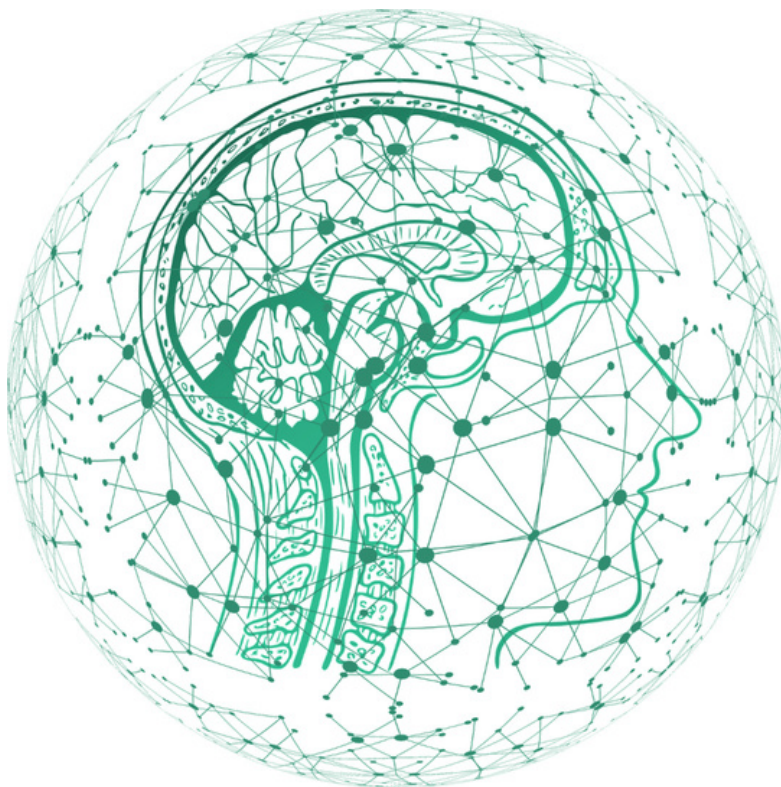


BACK TO BASICS

Let's start with the basics - *What does the brain do?*

The brain controls what we think, what we feel, how we learn and remember, the way we move, the way we talk but also controls things we are less aware of, like the beating of our heart, the breath we take and the digestion of our food.

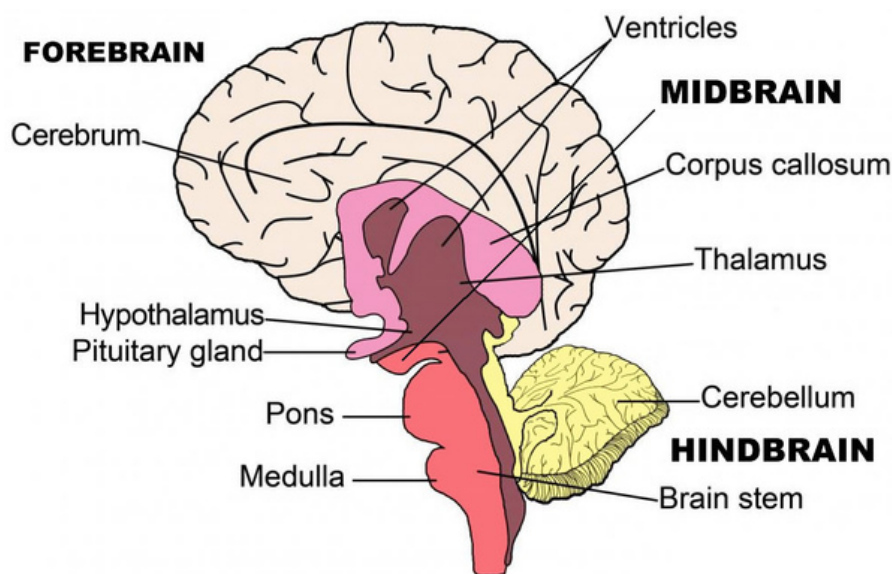
Think of our brain like a supercomputer that is constantly sending and receiving messages from all parts of our body. No wonder it uses so much oxygen...it's a workaholic!



WHISTLE STOP TOUR OF THE BRAIN

The brain and spinal cord are what makes up our **central nervous system (CNS)**.

The brain has three main sections - the **forebrain**, the **midbrain** and the **hindbrain**.

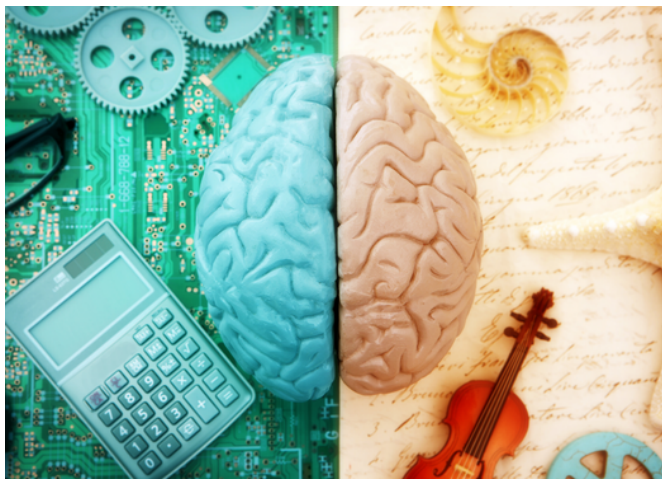


The **forebrain** is also known as the **cerebrum** and is the most complex part of our brain, responsible for intelligence, memory, personality, emotions, speech and our ability to feel and move.

The **cerebrum** is made up of four different lobes – frontal, parietal, temporal, occipital, as well as right and left hemispheres. The two hemispheres are connected in the middle by a band of nerve fibres known as the corpus callosum. This allows the two sides to communicate with one another.

WHISTLE STOP TOUR...continued

Science considers our **left brain** to be **logical**, analytical, objective and our **right brain** to be **more intuitive**, creative, subjective. So, for example if you're adding numbers and problem solving you're using your left brain whereas if you're listening to music, drawing art or dancing you are using your right brain.



The outer layer of a cerebrum is called the **cortex** which is what we refer to as our grey matter.

Other parts of the **forebrain** include:

- the **thalamus** which carries messages from our sensory organs like the eyes, nose and fingers to the cortex
- the **hypothalamus** which controls our pulse, thirst, appetite, sleep patterns and other automatic processes
- the **pituitary gland** which is controlled by the hypothalamus and is responsible for making hormones that control growth, metabolism, water and mineral balance, maturity and response to stress.

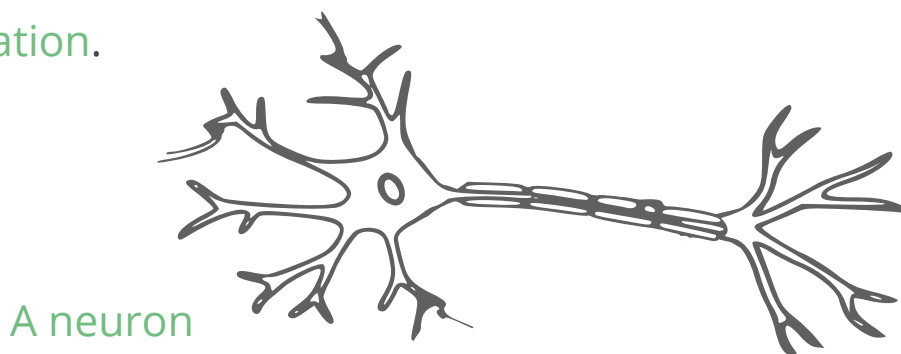
WHISTLE STOP TOUR...continued

The **midbrain** is like a master coordinator for all the messages going in and out of the brain to the spinal cord.

The **hindbrain** sits at the back end of the cerebrum. It's sometimes called the little brain and is responsible for balance movement and coordination.

The **central nervous system (CNS)** also needs a quick mention . It's made up of lots of tiny little cells called **neurons** and the brain has billions of them.

There are different types of neurons, relaying messages from the body to the brain in a **constant flow of information**.



The nerves that go through the whole body make up our **peripheral nervous system**.

In cases of Alzheimer's and dementia, it is this passing of information between neurons in the brain which is disrupted and can lead to issues with cognitive impairment, including memory loss.

OUR BRAIN MASTER COMMUNICATOR

You can see from what we've learned so far that the brain is constantly communicating with the rest of our body and sending out messages to keep us and our body in balance.

This offers a small insight into how all the different parts of our body work together and how an integrative approach to healthcare is so vital because it acknowledges the body as a whole, rather than looking at the body as separate parts.

This is the key message of integrative healthcare – looking at the body as one system and how each system works closely with other body systems to create **balance**.



THE AGEING BRAIN

ALZHEIMERS + DEMENTIA

We saw the statistics above which can seem quite worrying. If we look at what **conventional medicine** has to offer, there are a range of medications known as **anti-amyloid immunotherapies** that target the removal of amyloid plaques in the brain.

Amyloid plaques occur when there are abnormal levels of a naturally occurring protein known as beta-amyloid protein. These clump together to form plaques, which build up between neurons and disrupt cell function leading to problems with memory loss and later on with language, reasoning and social behaviour.

Think of it as a build-up of waste in the brain that starts causing problems with memory. It's like there's a road block and the road sweepers can't get through to clear away the rubbish.

The good news is that we can start looking at our lifestyle choices to support our brain health - things like nutrition, good sleep hygiene and exercise for good cardiovascular health!



OTHER RISKS TO BRAIN HEALTH

Our brains can also be affected by:

- Lipid dysregulation
- Glucose dysregulation & insulin resistance
- Inflammation
- Oxidation

.....more about that below!

So, now we've got the basics and know the statistics on the risks of being susceptible to Alzheimer's and dementia as we age, the question is **what can we do today, here and now, in order to look after our brain health?!**

Prevention of cognitive decline is what we're going to try and tackle. We've mentioned the conventional approach, so let's look at some studies...

Researchers believe there is indeed a genetic link, i.e. you have a **60% greater risk of developing dementia** if it runs in the family. Research also shows that a genetic disposition coupled with an unhealthy lifestyle **increases your risk to 360%**. That's a 300% increase!

If you have a genetic predisposition to dementia, and you choose to lead a healthy lifestyle, you can **reduce** your risk of cognitive decline in later life to **under 30%**.

WHAT IS A HEALTHY LIFESTYLE?

We often know what we should be doing but putting it into practice can sometimes be harder than we thought! Of course, one of the first areas to consider when it comes to brain health is **nutrition**.

Research seems to indicate that the best diet to support good brain health is the **MIND diet** which is a combination of the DASH and Mediterranean diets.

In trials it's been shown to be the most effective for brain health, reducing the risks of Alzheimer's disease, cognitive decline and dementia.



THE MIND DIET...what does it include?

- Load your plate with **vegetables** – imagine half your plate being filled with a colourful array of vegetables.



- Use mostly **olive oil** for cooking - it doesn't degrade when heated and loses only a little of its polyphenol richness.
- Eat **oily fish** at least once a week - it's packed full of good fats for the brain.
- Try and **reduce the amount of meat** in your weekly diet - especially red meats can lead to greater inflammation in the body - try and buy organic / grass fed where possible.
- **Snack on nuts** like almonds and walnuts, include seeds like pumpkin, chia, flax and hemp - aim for a palm full a day - they're also packed full of Omega-3s - good fats for the brain!



THE MIND DIET...continued

- Try and eat whole grains; avoid simple processed grains like white flour.



- Include **berries and citrus fruits** – blueberries, blackberries, strawberries, blackcurrants, cherries and remember that in winter you can often buy great quality frozen fruit, even in low cost supermarkets.
- Use **fresh turmeric, ginger and garlic**. If you can't get fresh try good quality powdered options (they are all anti-inflammatory).
- Eat lots of green leafy vegetables - like broccoli, cavolo nero, spinach, kale.



- Replace some of the space that was taken up on your plate by meat with **plant proteins** like tofu, lentils, chickpeas, quinoa, potatoes or sweet potatoes. They're packed full of B Vitamins which help with energy production of new brain cells and also help control homocysteine levels which have been linked to higher risk of Alzheimer's.

THE MIND DIET...continued

- **Eggs** – these are nutrient dense. Eat with lots of vegetables.
- **Green tea and caffeine** are also included in the MIND diet but check your tolerance to these first - caffeine has been linked to a reduced risk of Parkinson's disease.
- Include **mushrooms** – a wide variety of exotic mushrooms are now available in supermarkets to make your recipes much more interesting.
- Remember good gut health includes lots of **fibre, prebiotics and probiotics**.

Gradual changes in your diet will also help combat the other risks to brain health, like lipid dysregulation, glucose dysregulation, inflammation and oxidation... see below.



LIPID DYSREGULATION GOOD VS BAD FATS

As mentioned previously, the brain uses more energy than any other human organ and lipids represent about 50% of its dry weight. The brain also contains 20% of our body's cholesterol (a type of fat) and is a crucial structural component for our cell membranes (offers stability).

Remember the MIND diet includes oily fish, nuts and seeds packed full of essential fatty acids (Omega-3s) that support brain health (also very important for pregnant women).

We want to stay away from a diet high in processed food and so-called Trans (bad) Fats – burgers, chips, crisps etc. as they contribute to inflammation in the body and cognitive decline in later life.



There is a study, conducted over a four-year period, that showed a 70% decline in memory in older women consuming a diet high in saturated fats.

If oily fish is not an option, consider an algae supplement, also suitable for vegans, which is often more sustainable and will contain fewer environmental pollutants.

OUR BRAIN OXIDATIVE STRESS

The brain consumes 25% of our body's oxygen and is vulnerable to oxidation and the attack of free radicals, which can contribute to memory loss.

We can support our brain by:

- reducing exposure to environmental pollutants
- reducing our levels of stress
- getting a good night's sleep
- increasing our antioxidants through our diet
- or in some cases using supplements to increase our antioxidant intake

Stress – what stress?!

Please imagine a slightly sarcastic tone here... The past pandemic year was sure to have increased stress levels for most of us!



OUR BRAIN OXIDATIVE STRESS contd...

Stress means high levels of cortisol (our stress hormone) in our body. Raised levels of cortisol put us at greater risk of immune dysfunction, increased inflammation in the body, and higher oxidative stress and in regard to brain health.

This then puts us at greater risk of amyloid plaque formation (remember this puts us at greater risk of suffering with dementia).



Reducing stress or better stress management is which means lower levels of cortisol is therefore good for brain health!

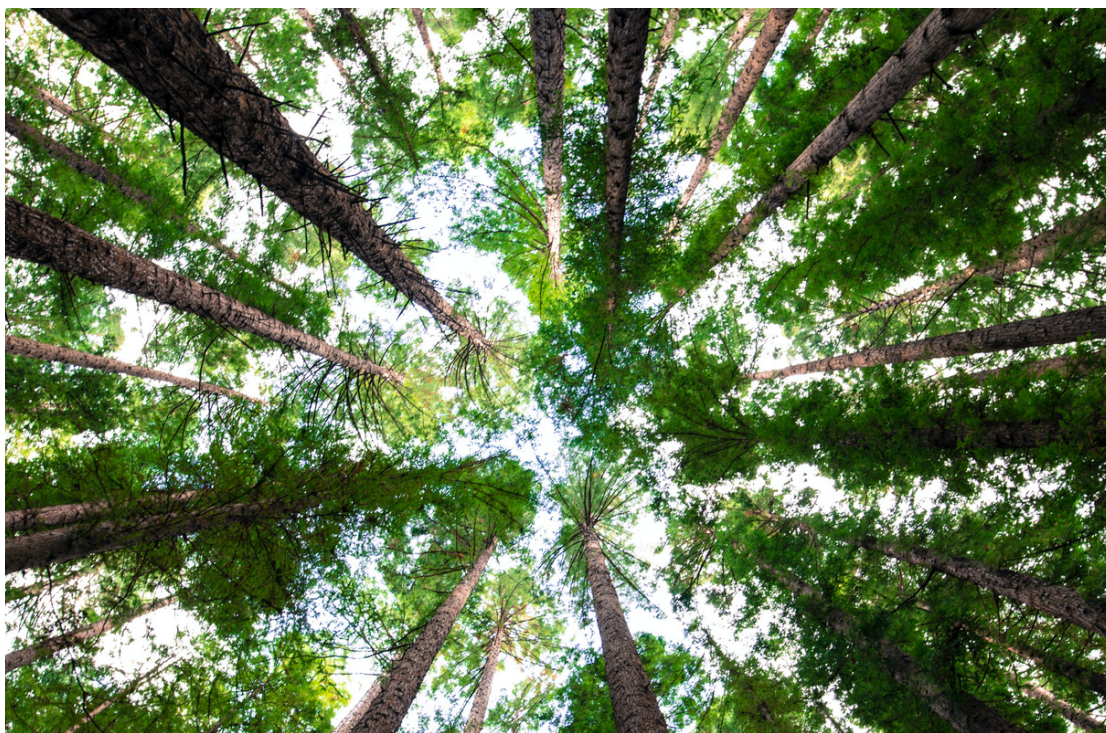
Of course there can be 'good stress', which is the form of stress that is challenging, manageable, achievable, something that has a clear direction and serves a purpose. This kind of stress can promote brain resilience and boost memory!

OUR BRAIN OXIDATIVE STRESS contd...

There are a number of ways to manage stress including...

- Connecting with nature
- Breathwork
- Yoga
- Tai-chi / Qi Gong
- Bodywork (massage, osteopathy, acupuncture)
- Exercise
- Good sleep hygiene
- Taking regular breaks at work
- Making sure you connect to friends and family
- etc!

Find something that works for you!



GLUCOSE DYSREGULATION INSULIN RESISTANCE

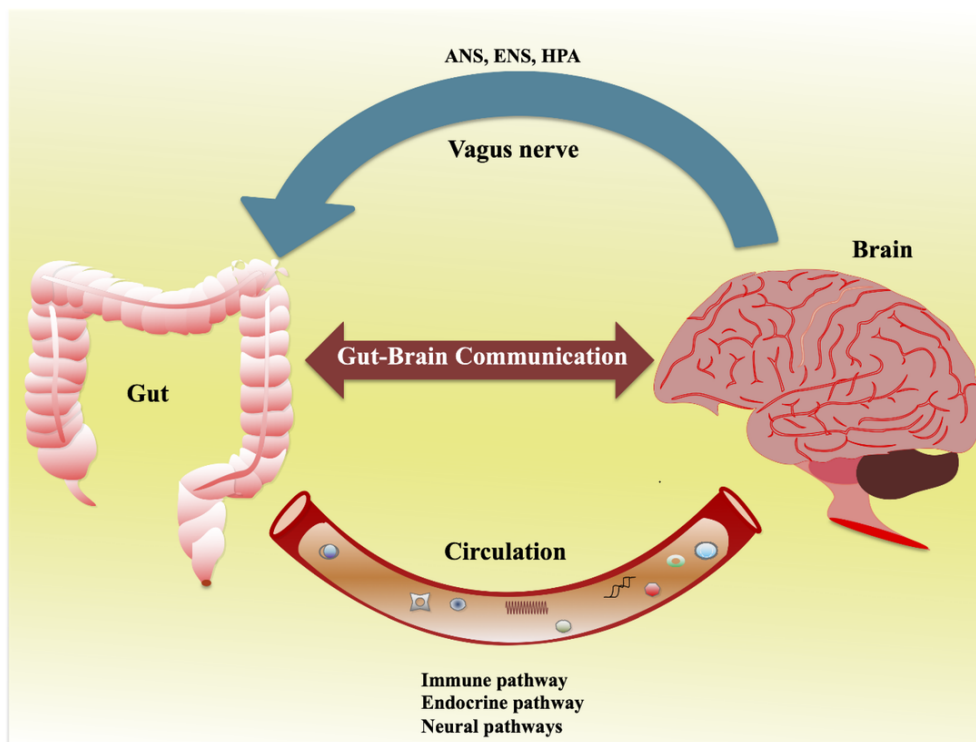
In short, try and stay away from sugary drinks – they are bad and that's not news to us!

Studies have shown that high consumption of sugary drinks and even fruit juices are associated with lower brain volume and poorer cognitive performance.

Our Brain and Inflammation

Have you heard of the **gut-brain axis**?

<https://www.mdpi.com/1422-0067/21/20/7551>



OUR BRAIN INFLAMMATION

We know that [gut microbiomes communicate with the central nervous system](#), in a constant flow of information exchange.

Imagine someone suffering with 'leaky gut syndrome'. This means bacteria, viruses and their neuroactive products can get passed through the gut, into the bloodstream, up to the brain, possibly contributing to systemic inflammation in the body. This in turn can lead to neuroinflammation and ultimately neurodegeneration.

Remember we discussed increasing the amount of vegetables on your dinner plate? [More plant-based foods means less inflammation in our body](#).

Again, we're not saying that you should stop eating meat but that it's important to buy good quality meat. In terms of plant-based foods, just start by increasing what you consume as part of your meal (refer back to the foods listed as part of the MIND diet above).

A good source of inspiration is the [30 vegetables a week challenge](#). That can sound quite scary but in fact includes herbs, spices, onions, garlic, turmeric, ginger, etc. Check out the link and let us know if you found it helpful!

OUR BRAIN SUPPLEMENTS

Although it's important to remember that supplements do not replace the healthy diet we have been discussing, we can use **supplements to support the reduction of inflammation** in the body and **reduce oxidative stress** on the brain.

Supplements linked to the reduction of mild cognitive impairment:

- Vitamin B12
- Folic acid
- Vitamin B6
- Glutathione
- Alpha-lipoic acid
- Gingko
- Bacopa Monnieri (Water Hyssop)

Glutathione is an essential antioxidant used by the body to prevent cellular damage – as it is metabolized by the liver, try to get the supplement in liposomal form, as it will make it more effective.

Alpha-lipoic acid is another powerful antioxidant worth researching, as it helps to neutralise free radicals, combats inflammation, thereby slowing the progression of Alzheimer's disease.

OUR BRAIN SUPPLEMENTS...contd

Ginkgo, which comes from the beautiful ginkgo tree, is another wonderful antioxidant supplement, which also increases blood flow to the brain. Please note however that ginkgo is contraindicated for people who are on anti-coagulant medication or may have bleeding disorders.

Bacopa monnieri, water hyssop, is an Ayurvedic supplement, which is slow acting and needs to be taken over a longer period of time. 300 mg or 600 mg daily have been shown to improve cognitive function - including improved memory, attention and ability to process information.



DANCING FOR BRAIN HEALTH

So far we have discussed nutrition and supplements, and touched on stress management.

Bearing in mind we're looking at an Integrative Medicine model to support brain health, **let's explore an option that engages the right side of the brain – our creative side!**

Start moving those arms and feet!

Now, I may be seen dancing around the kitchen on occasion and although I feel it's a way of stress relief, I never thought of it being great for my little grey cells!

Studies have shown that the wonderful thing about dance is that it connects both sides of our brain, which is a key element to stopping degeneration, i.e. cognitive decline.



DANCING FOR BRAIN HEALTH...contd

A 2018 study, with a cohort of people aged 60 – 80, used an intervention of sports exercise (with a trainer) as well as a dance intervention (with a choreographer and a dance trainer), to assess changes in brain health over a 6-month period, using blood tests and MRIs.

Results showed that both the white and grey matter were denser, with more fibres, and that the prefrontal cortex, temporal cortical areas and brain derived neurotrophic factor (BDNF) showed positive changes.

The **corpus callosum** which connects both the left and right hemispheres of the brain also saw an enlargement.

It is worth noting that this was quite a small study with only a limited number of participants, but the results are very positive and who doesn't love dancing around the kitchen with their family! It's worth noting that the more complex the dance moves are, the more the brain is stimulated!

Of course, if you're not a lover of dance then just consider doing small everyday exercises - even just **walking helps increase the density of the hippocampus!**

Remember, small steps are steps!

WHAT'S OUR TAKEAWAY?

... not a burger and chips!

Joking aside, it seems that there are lots of things we can do right now to help support our brain health.

Whether it's dancing around the kitchen, taking regular consistent exercise, eating a varied diet by increasing the number of plant-based foods we add to our dinner plate, snacking on nuts and seeds, using good quality olive oil, adding a range of herbs and spices to our culinary creations – all these things contribute to reducing inflammation in the body and it's important to remember that our body works symbiotically.



So, by looking after our heart by exercising, by looking after our gut with good nutrition and by supporting our mental health with stress management we are also contributing to good brain health!

Also remember to reduce sugar and saturated fats in your diet..Try making some food swaps like making kale crisps instead of grabbing the bag of cheese and onion or salt and vinegar crisps we all love..

WHAT'S OUR TAKEAWAY?...contd

Explore whether a ginkgo supplement might help fight free radical build up in your brain and body.

Sleep is also an important part of an integrative healthcare approach. Try to get seven or eight hours of sleep every night. Did you know that at night, the brain works hard to remove toxins that have built up during the day? Think of it like a car wash for the brain, helping us feel refreshed and alert every morning.

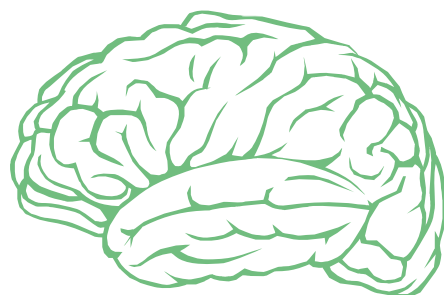
Remember there is always something we can do, and the best day to start is today!

Try not to feel overwhelmed - the key is consistency and not perfection - you could start by making simple changes to your diet. **Never forget, small steps are steps!**

We look forward to hearing about the changes you have started making to your daily routines!

All the best,
Chantal and the NCIM team

Chantal Enders
Business Development & Operations Manager
www.ncim.org.uk



REFERENCES

Dementia Statistics, Lang L. et al. *BMJ Open* 2017; 7:e011146

<https://www.dementiastatistics.org/statistics>

Inflammation as a central mechanism in Alzheimer's disease,

Jefferson W. Kinney,^{a,*} Shane M. Bemiller,^b Andrew S. Murtishaw,^a

Amanda M. Leisgang,^a Arnold M. Salazar,^a and Bruce T. Lambb,

Alzheimers Dement (N Y). 2018; 4: 575–590.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6214864/>

Dietary fat types and 4-year cognitive change in community-dwelling older women,

Olivia I. Okereke, MD, SM,^{1,5} Bernard A.

Rosner, PhD,^{1,6} Dae H. Kim, MD,^{4,5} Jae H. Kang, ScD,¹ Nancy R. Cook,

ScD,^{2,5} JoAnn E. Manson, MD, DrPH,^{2,5} Julie E. Buring, ScD,^{2,5} Walter C.

Willett, MD, DrPH,^{1,7} and Francine Grodstein, ScD^{1,3,5}, *Ann Neurol*.

2012 Jul; 72(1): 124–134.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3405188/>

Meta-analysis of randomized controlled trials on cognitive effects of Bacopa monnieri extract.

Chuenjid Kongkeaw 1, Piyameth

Dilokthornsakul 2, Phurit Thanarangsarit 3, Nanteetip Limpeanchob 3,

C Norman Scholfield 4

<https://pubmed.ncbi.nlm.nih.gov/24252493/>

Ginkgo Biloba for Mild Cognitive Impairment and Alzheimer's Disease: A Systematic Review and Meta-Analysis of Randomized

Controlled Trials, Guoyan Yang, Yuyi Wang, Jin Sun, Kang Zhang,

Jianping Liu 1, *Top Med Chem*. 2016;16(5):520-8.

<https://pubmed.ncbi.nlm.nih.gov/26268332/>

REFERENCES...continued

What is brain health and why is it important? Yongjun Wang, Professor^{1 2}, Yuesong Pan, Associate Professor^{1 2}, Hao Li, Professor^{1 2} Yongjun Wang, Professor^{1 2}, BMJ 2020;371:m3683
<https://www.bmj.com/content/371/bmj.m3683>

Association of Lifestyle and Genetic Risk With Incidence of Dementia, Ilianna Lourida, PhD,^{1,2} Eilis Hannon, PhD,¹ Thomas J. Littlejohns, PhD,³ Kenneth M. Langa, MD, PhD,^{4,5} Elina Hyppönen, PhD,^{6,7} Elżbieta Kuźma, PhD,^{1,8,9} and David J. Llewellyn, PhD^{1,10} JAMA. 2019 Aug 6; 322(5): 430–437.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6628594/>

Impact of Dietary Fats on Brain Functions, Rosanna Chianese,¹ Roberto Coccurello,^{2,3} Andrea Viggiano,⁴ Marika Scafuro,¹ Marco Fiore,^{2,3} Giangennaro Coppola,^{4,5} Francesca Felicia Operto,⁵ Silvia Fasano,¹ Sophie Layé,⁶ Riccardo Pierantoni,¹ and Rosaria Meccariello^{7,*}, Curr Neuropharmacol. 2018 Aug; 16(7): 1059–1085.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6120115/>

Brain glutathione levels--a novel biomarker for mild cognitive impairment and Alzheimer's disease

Pravat K Mandal ¹, Sumiti Saharan ², Manjari Tripathi ³, Geetanjali Murari ² Biol Psychiatry. 2015 Nov 15;78(10):702-10.
<https://pubmed.ncbi.nlm.nih.gov/26003861/>