Nutrition I-Mag
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RESEARCH AND EDUCATION FOR TOMORROW'S PRACTITIONER
SUMMER 2026

Nutrition and cognition

The critical link between the brain and nutrient status

UNLOCKING THE MICROBIOME

An in-depth report into balancing the microbiome and its critical role in health

Mushroom choice

When to recommend medicinal mushrooms in clinic

PLUS: COOKING, THE UNPROCESSED WAY ■ *NUTRITION I-MAG* MENTORING SCHEME RETURNS ■ IHCAN SUMMIT – SECURE YOUR PLACE ■ SETTING UP YOUR PRACTICE – A GUIDE ■ READER GIVEAWAYS

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WELCOME

While much of the focus of a nutritional therapy qualification is focused on the science, on nutrition and its role in the body, there remains another important element that final year students and postgraduates also need to focus on – that of building their nutrition business.

For many people training in nutritional therapy, you are doing so out of a genuine passion for the work (often having had your own experience of the power of nutrition). But this can mean that as nutritional therapists graduate, they are armed with the technical knowledge but have less skills when it comes to navigating setting up in practice.

As a magazine that was designed for nutrition students and graduates, we know the importance of supporting our readers with help and advice in all aspects of your practice – and that includes arming you with the practical know-how when setting up a business. And so, in this issue, we're delighted to welcome Lucy Jones, herself a nutritionist but also someone well-versed in setting up her own practice.

Lucy wants to help others establish successful businesses, and so in her feature in this issue, she explains why knowledge isn't enough in building a successful practice and offers a seven-step plan for running a nutrition business, especially as a young founder, as many of our readers will be. You can read Lucy's advice by clicking **here**, and we would love to know what you think – feel free to email any comments to rachel.symonds@targetpublishing.com

As we head towards the summer, and the approaching end of the academic year, we wish all our readers well, whether you are finishing your course and taking your first steps into the world of practice, or you are working on your end of year assignments. The work of qualified and responsible experts in the nutrition world is critical to supporting a healthy population and maintaining high standards, and we wish you all continued success with your studies and progression into practice.

Rachel

RACHEL SYMONDS, EDITOR

MEET THE TEAM

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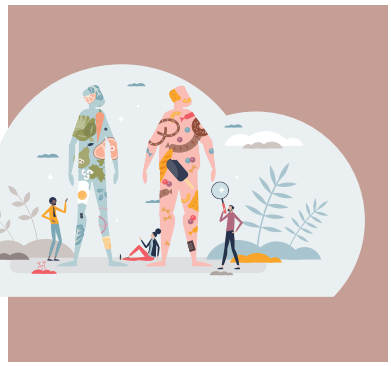

REGULARS

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OUR CONTRIBUTORS

Each issue, *Nutrition I-Mag* enjoys contributions from many leading authorities in the nutrition world. This issue, our writers include:

LINDSAY POWERS

is a qualified Naturopathic Nutritional Therapist and Head of Nutrition and Practitioner Services at Good Health Naturally. As well as supporting customers and practitioners, Lindsay contributes to product development, content creation and education.

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is a qualified Nutritional Therapist with a passion and interest in natural approaches to supporting complex health issues and improving vitality and wellbeing. She is Business Development Manager for Pure Encapsulations UK, a leading nutritional health science company.

MARTINA DELLA VEDOVA

obtained a Master in Functional Genomics in Italy and trained as a Nutritional Therapist in London. Martina works for NaturesPlus as a Nutritional Advisor and also sees clients privately.

LUCY JONES

is an award-winning Registered Nutritionist (RNutr) with Harley Street experience and has been providing support both online and in person since 2021. Lucy is the founder of Lutrition and The Freelance Nutritionist Collective, with the latter launched for aspiring and new nutritionists and dietitians to kickstart their own nutrition businesses.

CHRISTINE BAILEY

MSc BSc (Nutrition), Dip IOPN is an award-winning Registered Performance Nutritionist, Breathwork Practitioner, and author. Christine is trained in Functional Nutrition through the Institute of Functional Medicine and the Institute of Performance Nutrition (IOPN) and is Education Manager at Metagenics.

OLIVIA D'SILVA

is a student at the Institute for Optimum Nutrition, studying for a Graduate Diploma in Integrative Functional Nutrition. She holds a BSc (Hons) in Physiology from the University of Bristol. Olivia has a particular interest in nutrition, nature and ancestral health principles, which she integrates into her studies and her role as a Board Trustee for Mind Over Mountains.

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NEWS BITES

A round-up of the news from the natural health industry.

New report reveals food insecurity levels rising in the UK

Food insecurity in the UK has risen in the last six months, according to new data amid calls for a 'Good Food Bill' to protect against cost-of-living.

Data from The Food Foundation has revealed 12 per cent of UK households experienced food insecurity in January, which includes 6.3m adults, up from 11 per cent in June 2025. Some 15 per cent of households with children experienced food insecurity in January, amounting to 2.2m children in the UK. The data, based on statistics from YouGov, found that 53 per cent of food insecure households cut back on fruit, and 40 per cent on veg in the past 30 days. For those not food insecure, this was 10 per cent and 5.1 per cent respectively.

Food insecurity levels peaked during the height of the cost-of-living crisis in 2022. Since then, levels have remained stubbornly high, though had slowly decreased. The new data, however, shows rates are creeping up, and has prompted calls for Government to introduce a 'Good Food Bill'.

In the new report, the Food Foundation, Sustain and Green Alliance are calling for a 'Good Food Bill' to provide a legal framework to protect citizens, farmers and food businesses from food system shocks. This follows a joint statement from over 100 retailers, businesses, investors, NGOs, and academics calling for a bill, which was published last month. The report states that a bill should, among others, include legally binding targets around reduction in childhood obesity, increase in the national average consumption of fruit and veg in children, and reduction in household food insecurity as measured by DWP by 2035.

Anna Taylor, Executive Director at The Food Foundation, commented: "Many are asking whether the conflict in Iran will push up food prices. The honest answer is, it will, if it is prolonged. But that question misses the bigger point. The real issue is that the UK food system has become dangerously exposed to shocks far beyond our borders. From energy markets in the Middle East to global fertiliser and shipping routes, our food supply is now tightly bound to geopolitical events we cannot control. The cost-of-living crisis already exposed how fragile this system is.

"What we are seeing today is not a one-off crisis – it is a warning. Decades without a coherent, statutory framework for food policy have left the system fragmented, heavily import-dependent, and failing on multiple fronts: rising childhood obesity, farmers leaving the land, and growing insecurity for millions of households. Short-term firefighting won't fix this. It's like trying to patch a sinking ship while the storm is still building. What we need now is a Good Food Bill that sets out a long-term framework for building resilience in the UK food system — one that holds successive governments to account and protects citizens and farmers alike. We should act now, before the next shock hits. Because every time we delay, the cost grows — for families, for farmers, and for the country as a whole."

Kath Dalmeny, Chief Executive at Sustain, concluded: "Too many people in the UK are struggling to afford their shopping bill. Without a fundamental shift in the way we plan things as a country, that is only going to get worse. Our current food system is totally out of date and is over reliant on cheap processed food imported from overseas. It is failing British farmers and growers, it is failing our health, and it is failing to keep shopping bills down.

"We need to build a 21st century food economy where fresh, nutritious food is grown closer to home and within reach of every neighbourhood. By growing and producing more in the UK, we can cushion the blow to our shopping bills from pandemics, wars and climate shocks. New legislation on food would set a strong course for successive governments to build a food system that keeps people healthy and food affordable. The food system has got to change – and a Good Food Bill is how we change it."

Regional Director joins Clasado

Clasado Biosciences has announced the appointment of Sebastian Nummelin as APAC Regional Director.

The prebiotic specialist explains that the move strengthens its commercial presence in the Asia-Pacific market as demand for scientifically validated prebiotics continues to accelerate.

With almost two decades of experience across the APAC region, Sebastian brings expertise in sales, market development and commercial partnerships across the health, nutrition and supplement sectors. His career spans senior roles within the biotics industry, during which he established and grew commercial operations across South-East Asia, China, Japan, Australia and New Zealand. Sebastian will focus on expanding Clasado's reach across the region.

Marcelo Durante, VP of Sales and Marketing, commented: "His track record of building commercial relationships and opening markets across the APAC region is exceptional, and his deep understanding of the supplement and nutrition landscape makes him ideally placed to accelerate our growth in this strategically important part of the world."

Sebastian added: "It's a very exciting time to be working in this space. Consumer interest in gut health across Asia-Pacific is growing rapidly, and the industry is innovating at pace to meet that demand. What attracted me to Clasado is the depth of science behind Bimuno GOS. I look forward to working with the wider Clasado team to deepen relationships with existing partners and develop new ones across the region."

Updated nutrition guidelines in Finland sparks rising demand for legumes

New nutrition guidelines have triggered an unexpected rise in demand for tofu and legumes in Finland.

This comes from a new industry market report from Plant Based Food Finland, which revealed tofu sales rose by 12 per cent and canned legumes by 14 per cent in 2025. The shift coincides with Finland's revised national nutrition guidelines, published in late 2024, which encourage a more plant-based diet rich in legumes for both health and environmental reasons.

Survey data supports the market shift, suggesting that the recommendations are already influencing consumer behavior. Fifteen percent of Finns say they have changed their food choices because of the new guidelines. There is limited evidence of similar shifts in other European countries following recent dietary guideline updates.

"Seeing such a clear impact in retail is somewhat exceptional, partly because public dietary guidelines are typically designed to influence food services and product development rather than consumer purchasing behavior directly," commented Professor Maijaliisa Erkkola of the University of Helsinki, who led the revision. "The key question now is whether these changes will become permanent."

The survey suggests that the guidance has been particularly effective among people who had already intended to reduce red meat consumption, helping them turn those intentions into action.

First CBD novel food applications considered in Scotland

Food Standards Scotland (FSS) is consulting on the first CBD novel food applications.

FSS announced a 12-week public consultation on the first three applications seeking authorisation for cannabidiol (CBD) products as novel foods in Scotland. The consultation invites views from consumers, industry, enforcement bodies and all stakeholders with an interest in CBD products, food safety and consumer protection.

The three applications are the first to come forward in Scotland since CBD was confirmed as a novel food and became subject to premarket authorisation requirements. FSS is seeking feedback on a range of issues, including safety assessments, the proposed terms of authorisation, labelling requirements, enforcement considerations, and protections for vulnerable groups. Responses will inform final recommendations to Scottish Ministers, who will decide whether to authorise each product for the Scottish market.

Stephen Hendry, Head of Labelling and Standards at FFSS, commented: "This is an important moment for consumers and for Scotland's CBD industry. These are the first CBD products to be assessed through the full novel foods authorisation process, and we want to ensure that our recommendations to Ministers are informed by a wide range of voices. We encourage businesses, local authorities, and members of the public to take part in this consultation and help shape a safe, transparent and well-regulated market for CBD food products in Scotland."

Global standards for menopause set by international experts

The International Menopause Society (IMS) has set new global standards for menopause care with evidence-led framework.

For the first time in a decade, the IMS has released a redevelopment of its global menopause recommendations. Grounded in evidence, the new guidance defines how menopause and midlife health care should be evaluated, delivered, and governed as a clinical discipline in its own right.

The IMS Recommendations and Key Messages on Women's Midlife Health and Menopause were led by Professor Nick Panay, with editorial oversight from Dr Tim Hillard, Editor-in-Chief of *Climacteric*. They were developed by an international group of 38 experts, supported by 27 contributors from national and international menopause societies, using systematic literature searches and recognised evidence appraisal frameworks. It replaces the society's 2016 guidance.

Dr Hillard commented: "The publication of the updated IMS recommendations represents an important global milestone in women's midlife health care and builds on the previous guidance from 2016. In the intervening 10 years, women's health, and menopause in particular, has gained greater attention in the media and in government. While this is welcome, increased attention also brings challenges, including misinformation, false claims, and selective use of data. These updated recommendations have been developed by a broad international group using robust methodology to interrogate the available evidence, resulting in an authoritative, evidence-based framework covering a wide range of menopause-related issues."

The recommendations are published as a live, updateable document, designed to evolve as new evidence emerges and clinical practice advances. They provide evidence-based guidance and key messages across 30 sections covering lifestyle, midlife body changes, vasomotor symptoms, genitourinary syndrome of menopause, cardiometabolic and bone health, cancers, dementia, premature ovarian insufficiency, sexual wellbeing, and related areas.

IN RESEARCH

Nutrition I-Mag rounds up the latest research studies in the nutrition world.

Trial confirms multivitamin's role in slowing ageing

A major new trial has concluded that a daily multivitamin can help slow biological ageing.

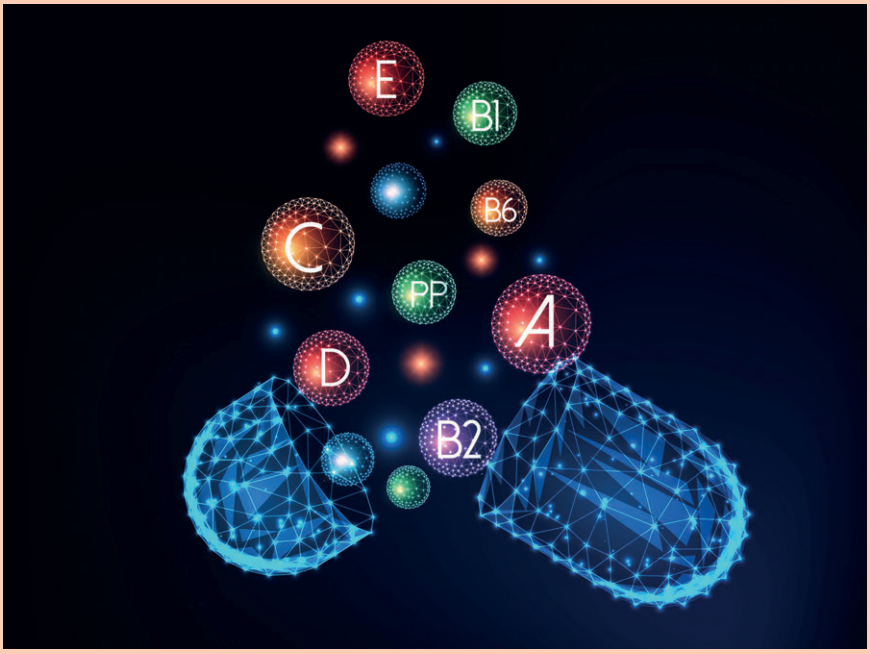
The results of the COSMOS randomized clinical trial have been published in the journal, *Nature Medicine*, which examined the effects of daily multivitamin–multimineral and cocoa extract supplementation on epigenetic ageing clocks.

The researchers explained that large-scale randomized trials have found that multivitamin–multimineral (MVM) supplements and cocoa flavanols may benefit several age-related chronic conditions among older adults, but it remains unclear whether these two supplements directly slow the biological ageing process.

The prespecified ancillary study evaluated the two-year effect of a daily MVM (Centrum Silver) and cocoa extract (500mg cocoa flavanols per day, including 80mg (–)-epicatechin) on five DNA methylation measures of biological ageing (PCHannum, PCHorvath, PCPhenoAge, PCGrimAge and DunedinPACE) among 958 participants (482 women and 476 men) in the COcoa Supplement and Multivitamin Outcomes Study (COSMOS).

Compared with placebo, daily MVM supplementation modestly reduced the rate of increase of second-generation epigenetic clocks, with a between-group difference in yearly change of −0.113 year for PCGrimAge and −0.214 years for PCPhenoAge. MVM had a stronger effect on PCGrimAge among those with accelerated biological ageing at baseline, compared with those with normal or decelerated biological ageing. Cocoa extract did not have an effect on the five epigenetic clocks tested.

In conclusion, the researchers commented: "Although the statistically significant but small effects of daily MVM supplementation on slowing biological ageing are encouraging, additional studies are needed to determine the clinical relevance of daily MVM supplementation on epigenetic clocks and whether such effects can help explain the beneficial effects of MVM supplementation on aging-related chronic conditions."



Choline's role on brain network studied

A new clinical study has revealed that choline can influence brain network efficiency in post-menopausal women.

Clinical research using functional magnetic resonance imaging (fMRI) has demonstrated that choline can influence brain network efficiency in post-menopausal women, a population historically underrepresented in nutrition research.

Published in the peer-reviewed journal, *Nutrients*, the study used Balchem's VitaCholine ingredient, showing its effects on working memory-related brain activation and functional connectivity.

In the pilot, randomized, cross-over study, 20 healthy postmenopausal women aged 50-65 consumed 1650mg of choline (as VitaCholine) or placebo before undertaking a working memory exercise (an N-back test) during a functional magnetic resonance imaging (fMRI) scan. Compared to placebo, researchers observed that choline intake had a rapid effect on the brain, significantly increasing functional connectivity within the working memory network to help optimise brain efficiency just three hours after consumption.

Lead author, Professor Julie A. Dumas, of the University of Vermont, commented: "Oestrogen is a key driver of choline production in the body, so when levels of the hormone drop during menopause, women are at increased risk of choline deficiency. This is important because choline is needed to make acetylcholine, a neurotransmitter involved in cognitive functions such as mood, memory and attention. Previous choline research has commonly relied on self-reported scores or assessments from participants, but what makes this study unique is that it utilized functional MRI scans and working memory exercises to capture an objective view of how brain networks respond to choline intake after menopause, gaining valuable insights into how targeted supplementation may support a pivotal moment of women's life."

Covid immunity lowers risk of new pandemic, research finds

Research from Glasgow has found Covid-19 immunity has lowered the risk of a new coronavirus pandemic.

Researchers writing in *Nature Communications* concluded that immunity to Covid-19 is likely to offer protection against the emergence of an as yet undiscovered new SARS-type virus, dubbed SARS-CoV-X.

The findings come from a new study, led by researchers at the MRC-University of Glasgow Centre for Virus Research, which used information from real-world patient antibody samples combined with mathematical modelling to understand the levels of immunity against SARS-like viruses. The team found that, as well as high levels of specific immunity to SARS-CoV-2, the virus responsible for the Covid-19 pandemic, the population also had cross-protection immunity against a range of sarbecoviruses, the wider family of viruses that SARS-CoV-2 belongs to. Researchers explained how infections by endemic viruses – that circulate commonly in the general population – and vaccines used to control them, often provide cross-protection immunity against related viruses. This cross-protection can potentially alter the transmission dynamics of new zoonotic viruses with pandemic potential, and the likelihood of their emergence.

Researchers found that Covid-19 immunity, both from infections during the pandemic and vaccinations, may also protect against sarbecoviruses that have not been discovered yet. They suggest this broader immunity may be key to slowing down – or stopping – a future pandemic by a previously unknown sarbecovirus.

Professor Pablo Murcia, Professor of Integrative Virology from the MRC-University of Glasgow Centre of Virus Research, commented: "Our global experience with Covid-19 has generated a biological barrier to other coronaviruses. While this does not mean we are immune to all future threats, infection and vaccine-derived immunity to SARS-CoV-2 has made it much harder for other sarbecoviruses to start the next pandemic. Our study shows the circulation of SARS-CoV-2 in the general population, alongside global vaccination campaigns, generated widespread immunity against related sarbecoviruses, creating an 'immunity shield' against the emergence of a novel sarbecovirus in humans."

Role of gut health and Parkinson's symptoms examined

A new study has explored the potential role between gut health and symptoms in Parkinson's disease.

The results of the study, published in *Movement Disorders*, is adding to growing scientific interest in the relationship between the gut microbiome and neurological conditions such as Parkinson's disease.

The research investigated the effects of Symprove, a multi-strain live and active bacteria supplement, on gut microbiota composition, inflammatory markers and symptoms in people living with Parkinson's disease.

Researchers explained how gastrointestinal symptoms are among the most common non-motor features of Parkinson's disease and can significantly affect quality of life. And so, in this randomised, double-blind, placebo-controlled trial, 74 adults with Parkinson's disease and constipation were assigned to receive either the four-strain probiotic formulation found in Symprove or a placebo. Across the intervention period, researchers evaluated a range of outcomes including gut microbiota composition, systemic inflammatory markers and non-motor symptoms associated with Parkinson's disease.

Participants taking the probiotic formulation showed measurable changes in gut microbiota composition compared with those receiving placebo, including increases in bacterial groups associated with beneficial metabolic activity. The study also reported reductions in markers of systemic inflammation. Alongside these biological changes, improvements were observed in gastrointestinal symptoms including constipation severity. Participants receiving the probiotic also demonstrated improvements in aspects of fatigue and overall non-motor symptom burden compared with placebo.

Simple blood test could predict dementia, research finds

A new peer-reviewed study has suggested a simple blood test could spot dementia years earlier.

University of East Anglia scientists have discovered that subtle changes in the blood may reveal signs of cognitive decline long before symptoms become obvious. These changes are caused by chemicals produced by gut bacteria, reinforcing the idea the gut–brain connection plays an important role in early memory changes.

Lead researcher, Dr David Vauzour, from UEA's Norwich Medical School, advised: "Dementia is one of the greatest public health challenges of our time. Around a million people in the UK are living with the condition, and globally more than 55 million people are affected. With cases projected to increase sharply as populations age, the urgency for earlier detection, better support, and meaningful prevention strategies has never been greater. Early detection is critical because by the time dementia symptoms become obvious, much of the brain damage has already happened."

Researchers analysed blood and stool samples from 150 adults aged 50 and over, ranging from healthy individuals to those with mild cognitive impairment (MCI), which is often a precursor to dementia. A third group included people experiencing subjective memory lapses, who still perform normally on standard cognitive tests. The volunteers gave fasting blood samples to measure 33 key molecules produced by the gut microbes and from diet. Participants also provided stool samples so scientists could map the unique communities of bacteria living in their digestive systems.

Dr Vauzour explained: "Using advanced computer modelling and AI-powered machine learning, we explored whether specific combinations of these gut and diet derived chemicals could separate the healthy from those experiencing early cognitive decline. What we found was really striking. Even in people who had only just begun noticing mild memory changes, there were clear shifts in both their gut bacteria and the metabolites they release into the bloodstream.

"Crucially, the chemical changes in the volunteers' blood were strongly linked to differences in specific gut bacteria. This adds weight to growing evidence that the so called gut–brain axis – the communication network between our digestive system and the brain - may play an important role in cognitive ageing."

Co-author, Dr Simon McArthur, from Queen Mary University of London, added: "While we're not yet at the point of providing a diagnostic test, our work suggests we may be able to use dietary and microbial information to help catch the presence of dementia earlier in life, potentially even before significant brain damage has occurred. We hope this work will pave the way for simple, non-invasive blood tests capable of identifying people at higher risk of memory decline years before dementia is typically diagnosed."

The research was part-funded by Alzheimer's Research UK. 'Circulatory dietary and gut-derived metabolites predict early cognitive decline' is published in the journal, *Gut Microbes*.

NEW TO MARKET

Nutrition I-Mag brings you the latest product developments in the nutrition world.

ProVen innovations focus on women's health

Two products with a focus on women's health are among the new launches at ProVen Biotics.

Women's Intimate Flora has been developed as a comprehensive product for the vaginal microbiome, while at the same time providing the scientifically proven Lab4 live bacteria to complement the naturally occurring bacteria in the gut.

The two species of friendly bacteria consistently associated with the natural vaginal flora are *Lactobacillus crispatus* and *Lactobacillus gasseri.* There are 7.5 billion live cultures of these two species in every capsule, which also contains vitamin A, which contributes to the maintenance of normal mucous membranes, and vitamin D, which contributes to cell division.

Also new to the range is For Peri/Menopause, developed for women aged 40-60 experiencing perimenopause and menopause related symptoms. The product includes 50bn CFU of the Lab4P live bacteria consortium, which comprises five strains of friendly bacteria used in combination in three major studies with women of perimenopause and menopausal age. It also includes vitamins D3 and K2, which both help to retain bone density, B vitamins to support energy and hormonal activity, and vitamin A, which supports skin and vision. Minerals include zinc, selenium, and chromium for the maintenance of normal blood glucose levels, along with ashwagandha, soy extract and milk thistle.

The final new launch is ProVen Biotics Baby Drops, featuring 10bn research-backed Lab4B friendly bacteria per dose, specifically formulated for babies. Lab4B was used in the large Swansea Baby Study, which included 454 mothers during pregnancy and their babies from birth.

Good Health Naturally announces L-Carnitine as latest NPD

L-Carnitine 500mg is the latest product innovation from Good Health Naturally.

The clean, single-ingredient addition provides 500mg of L-Carnitine fumarate per capsule, selected for quality and stability.

L-carnitine is widely recognised within the nutrition space, with continued interest from customers focused on energy, performance and active lifestyles. It is also relevant for plant-based consumers, as dietary sources are primarily animal-derived.

The 500mg dose allows for flexible use and easy stacking alongside other products, and is suitable for vegans.

Biome Cholecare developed by Activated

Activated Probiotics has expanded its range in the UK with the development of Biome Cholecare.

The new probiotic product contains three clinically researched strains of *Lactobacillus plantarum*, KABP 011, KABP 012, and KABP 013, each present at a defined dose of 0.4 billion live cells, delivering 1.2 billion live bacteria per capsule.

This specific strain combination has been the subject of multiple human clinical studies, including a randomised, double-blind, placebo-controlled trial, a large prospective cohort study involving over 340 participants, and a mechanistic human study. The research body investigates this formulation as a standalone intervention as well as in co-administration settings.

Each capsule is individually blister-sealed to support strain viability. The formula is free from gluten, dairy, soy, and GMO ingredients, and is suitable for vegans.

Lamberts launches

Two new products have been announced by Lamberts.

Metabolic Weight Support is described by Lamberts as one of the first supplements in the UK formulated with Metabolaid, a blend of natural *Hibiscus sabdariffa* and *Lemon verbena* extracts. This blend has 20 years of research and several trials to support its use.

Lamberts has combined Metabolaid with chromium and vitamin C, which contribute to the maintenance of normal blood glucose.

Also new to the Lamberts portfolio is Gentle Magnesium Bisglycinate, a form where magnesium is bound to two glycine molecules, is better absorbed and gentler on the digestive system than many inorganic forms and is often recommended as part of a nighttime routine.

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IHCAN 2026 summit

Integrative Healthcare & Applied Nutrition Summit 2026

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One more speaker to be confirmed

Nathan S. Bryan, Ph.D

Sarah Osborne, So Nutrition

Dr James Goolnik BDS MSc

Kirsten Chick
MSc., BA (Hons.), DNN, mBANT, mCNHC

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Integrative Healthcare and Applied Nutrition IHCAN magazine

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Events | Magazine | Webinars | Podcasts

Places are limited
For more info & tickets:
ihcansummit.co.uk

Discounts available for members of associations and students

IHCAN SUMMIT RETURNS FOR NOVEMBER

Don't miss out on unmissable CPD, cutting-edge science and a thriving practitioner community.

The IHCAN Summit is set to return to London this November, bringing together some of the most respected voices in integrative health for a powerful day of learning, networking and clinical inspiration.

Taking place on Saturday, November 21 at 155 Bishopsgate, the event continues to cement its reputation as one of the UK's leading gatherings for nutritional therapists and complementary medicine practitioners.

Organised by the team behind *Integrative Healthcare & Applied Nutrition (IHCAN)* magazine, the IHCAN Summit is designed with a clear objective: to deliver practical, evidence-based education that practitioners can apply immediately in clinic.

A PROGRAMME FOR REAL-WORLD PRACTICE

At the heart of the IHCAN Summit is its speaker line-up, and the November event promises another compelling mix of scientific depth and clinical relevance.

Headline speaker, Dr Nathan Bryan, a global leader in nitric oxide research, brings over 25 years of pioneering work in molecular medicine and cardiovascular health. His session is expected to explore the critical role of nitric oxide in chronic disease and longevity, an area of growing importance for practitioners working across multiple conditions.

Joining him is Sarah Osborne, who will delve into the complex interplay between nutrition, neurodivergence and behaviour. Her session on ADHD and autism explores appetite dysregulation through the lens of brain chemistry, genetics and the gut-brain axis, offering actionable strategies for supporting patients with often-overlooked challenges.

Also on the programme is Dr James Goolnik, a leading holistic dentist integrating oral health with systemic wellbeing. His work reflects a growing shift towards truly integrative models of care, where dentistry, nutrition and lifestyle medicine converge.

As well as compering the event, nutritional therapist and host of the *IHCAN* magazine podcast, Kirsten Chick, will present a short session titled Mushrooms, gut microbiota and cancer.

Keep an eye out for updates on our final speaker still to be announced.

A MUST-ATTEND

Tickets are extremely limited, so we recommend securing your place as soon as possible at **www.ihcansummit.co.uk/book**

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Seminar 10am-2.30pm

Mitochondria, methylation and healthy ageing

Join Chris Newbold and Helen Drake for our new 2026 roadshow as we discover the deepest secrets of the cell, the greatest feat of nature's engineering.

In this comprehensive overview we'll delve into cell biology, with a focus on methylation and mitochondrial function, and explore how to promote longevity and reduce risk of chronic disease, from the inside out. As always, we'll be presenting this key clinical topic in our unique style, distilling complex science into practical ideas for clinical practice, including tips on which supplements can really help. Our free education events are a great social day out too, with opportunities to network with friends and colleagues. Places are limited, so book now to secure yours. Each attendee receives presentation notes, an exclusive discount, a free product and 3.5 hours CPD.

Date	Location	Where
23/01/26	**Birmingham**	Becketts Farm Conference Centre
05/02/26	**Bristol**	Penny Brohn
26/02/26	**Cork**	Clayton Silver Springs
27/02/26	**Galway**	Connacht Hotel
28/02/26	**Dublin**	Clayton Liffey Valley
05/03/26	**Manchester**	Pendulum Hotel
26/03/26	**Leeds**	St Georges Centre
30/04/26	**Edinburgh**	Edinburgh Training & Conference Venue
22/05/26	**Brighton**	University Falmer Campus
23/05/26	**London**	Cavendish Conference Centre
04/06/26	**Bury St Edmunds**	The Apex
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STUDENT LIFE

In a series of features, we hear from students as they progress through their Nutritional Therapy degrees. This issue, we hear from Helen Smith about her journey from working in the NHS to nutrition.

Q CAN YOU TELL US ABOUT YOUR CURRENT STUDIES?

I am studying BSc Nutritional Therapy at Institute for Optimum Nutrition (ION). It is a 4.5 year course and I am in the fourth year, due to finish in March 2027.

Q WHAT WAS YOUR CAREER BACKGROUND PRIOR TO THIS?

Prior to starting this course, I worked for Public Health England, in quality assurance of the NHS screening programmes. Currently, alongside studying, I am at NHS England working in the dental and optometry policy team, working primarily on the dental contract reforms. I have always wanted to have a career that worked with people, helping them. My first degree was environmental health, and I then studied midwifery for a year before deciding that wasn't for me as I wanted to support women's health, holistically, through nutrition.

Q WHAT INSPIRED YOU TO STUDY NUTRITION?

I have always had an interest in health and wellbeing, and I was an avid *Women's Health* reader from a young age. I struggled with hormones as a teenager and was diagnosed with Polycystic Ovary Syndrome (PCOS) after years of symptoms affecting me physically and mentally. I wasn't given much information on how to help manage symptoms and was told to come back when I wanted a baby.

It wasn't until I struggled with fertility issues and sought the help of a Nutritional Therapist that I really saw how powerful nutrition and lifestyle could be. They showed me how certain nutrients could help pathways in the body shift, with positive effects. It wasn't instant but consistent, small changes meant my 70-plus day cycles became regular monthly cycles and my PCOS symptoms reduced. I then fell pregnant and had a healthy pregnancy. I was already studying by the time I fell pregnant so was able to use my knowledge to feel well throughout and into the postpartum period.

Q HOW DID YOU DECIDE ON THE COLLEGE TO STUDY WITH?

I had seen the degree with ION advertised and attended their open day. I was drawn to the content in the modules. The whole-body approach as a foundation, covering each area of the body, seemed like a good start to then build on. Their flexibility was also a factor as I have worked alongside studying.

Q WHAT HAVE YOU ENJOYED ABOUT THE COURSE SO FAR?

I have enjoyed pretty much all of it! In particular, when we learn about how to apply the physiology knowledge to real life situations, in terms of recommendations for clients. I also really enjoyed the business module, it made everything feel real and got me excited for qualifying. However, my favourite part is training clinic, getting to work with real clients and the feeling when you help them feel better is amazing.

Q AND WHAT HAVE YOU FOUND CHALLENGING?

Juggling work, studying, a toddler and everything else life throws at you! My stress levels are something I would definitely work with a client on to reduce.

Q IS THERE ANYTHING YOU WISH YOU'D KNOWN BEFORE YOU STARTED STUDYING THAT YOU COULD ADVISE OTHER STUDENTS ON?

Don't underestimate your knowledge; you might feel like you don't know enough but you've slowly been building this knowledge through the course and it's in there. Have confidence in yourself.

Q WHAT ARE YOUR GOALS WHEN YOU FINISH YOUR STUDIES?

I want to start my own part-time practice, working primarily in women's health and then going into children's health as well.

Q DO YOU HAVE AN AREA YOU WOULD LIKE TO SPECIALISE IN? IF SO, WHY?

I would like to eventually specialise in children's health. My son has a Cow's Milk Protein Allergy, diagnosed at six months after a trip to A&E for bloody mucus in his stools. We weren't given much advice at all, which was really scary as new parents. It's only thanks to my training that I felt more capable of navigating dairy free weaning successfully. I want to help more parents feel confident in managing their child's health. There is very little education on what a healthy diet for a child is and how to help them prevent chronic diseases later in life.

Q WHAT ADVICE WOULD YOU GIVE TO STUDENTS AS THEY ARE STARTING THEIR COURSE?

Read, read, read, it's the best way to truly understand topics. Also, start to build up your own recommendations early on, and try out products so you can experience the client's experience.

■ **You can find Helen on Instagram: @hps.nutritionalstudent**

■ **If you are a student and would like to share your story, we would love to hear from you. Email rachel.symonds@targetpublishing.com to be featured in a future issue.**

PRODUCT SHOWCASES

Nutrition I-Mag's top picks

WILD NUTRITION LION'S MANE PLUS

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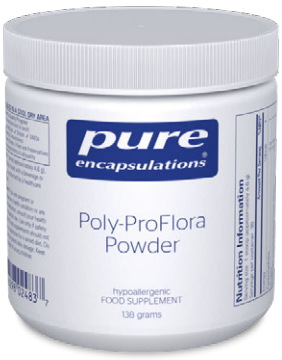

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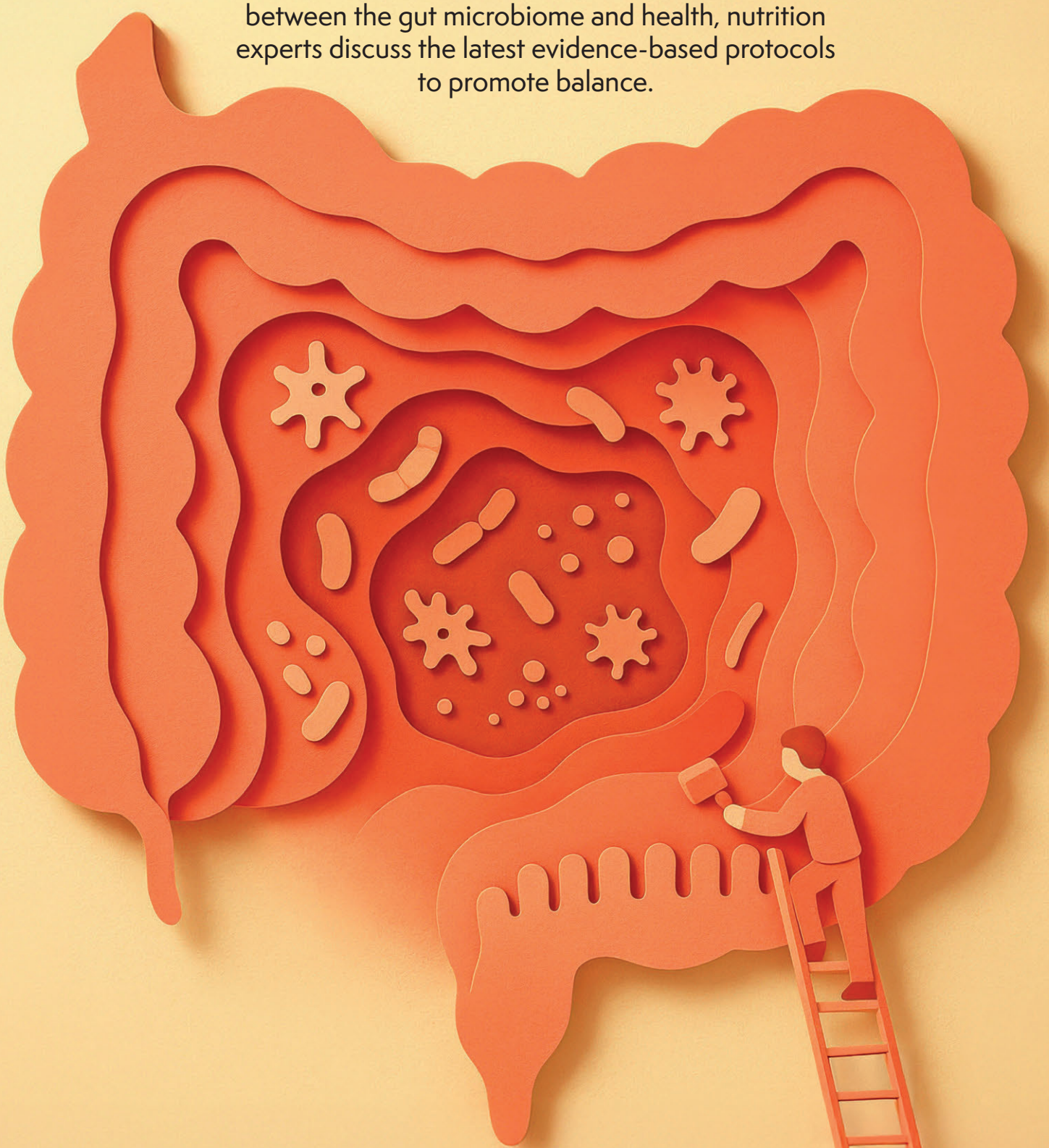
Exploring the digestive ecosystem

As research expands around the critical link between the gut microbiome and health, nutrition experts discuss the latest evidence-based protocols to promote balance.



Gone are the days when discussion around the gut microbiome was focused solely on its impact on digestive health. Today, the research base has expanded vastly, and we now know just how critical this delicate ecosystem is for our health, playing a role in immunity, the brain, the skin, nervous system function, and vaginal health, among much more.

Therefore, ensuring a balanced microbiome is crucial in supporting your clients to better health. And as the evidence-base continues to expand, remaining up to date with the latest scientific developments – which in turn can affect your recommendations – is key.

Lesley Harper Clinical Consultancy/UK Project Lead at Invivo, commented: "There is now a wealth of research exploring the wider influence of the gut microbiome on what might at first seem to be unrelated areas of health. The impact of diversity, the totality of metabolites, the integrity of the gut barrier, etc., can all impact systemic health and this can have far-reaching effects on different body systems: mental health, skin, fertility, inflammatory conditions, autoimmune conditions, and so on. This is why many practitioners start with exploring gut health within the context of their specialist areas."

Ben Makeham, Scientific and Regulatory Affairs Manager at Activated Probiotics, continued: "It is now widely accepted by modern science that the influence of the gut microbiome extends far beyond the digestive tract, with effects on the immune system, skin health, bone health and more. The gut microbiota helps to regulate immune function and influences endocrine and nervous system function. Important *bifidobacteria* populations established in early life have been associated with a reduced risk of developing allergies and obesity later in life, highlighting how early microbial balance can shape long-term health outcomes.

"The intestinal epithelial barrier plays a central role in mediating the microbiome's systemic influence. In states of dysbiosis, reduced production of beneficial metabolites such as butyrate can weaken intestinal cell health and compromise barrier integrity, a phenomenon known as leaky gut. This allows substances with the potential to activate the immune system, such as undigested food proteins and pathogenic microorganisms, to pass through the intestinal lining. The resulting immune response creates inflammation, and chemical messengers circulating in the blood can carry this inflammatory signal to the rest of the body, impacting distant organ systems."

Hanna Trueman, BHSc, Nutrition + Dietetic Medicine, mANP, mGNC, from Wild Nutrition's expert nutrition team, added: "The gut is in constant dialogue with the immune system, brain and hormone pathways. It can influence everything from inflammation and mood to skin health and energy balance. A key part of this comes down to those metabolites produced by the bacteria in our guts as these compounds can influence the production and activity of neurotransmitters, immune cells, hormones and metabolic pathways."

A GUIDE TO THE MICROBIOME

Let's start with the specifics of the microbiome in terms of what it is, and the functions it has.

Trueman explained: "The microbiome is a living ecosystem that exists both inside and on the surface of the body. It is a dynamic community of trillions of microorganisms, including bacteria, viruses, fungi and other microbes. When we think of the microbiome, we tend to think of the gut microbiome but there are distinct microbiomes throughout the body – on the skin, in the mouth, lungs and vaginal tract, and each has its own unique influence on our health.

"The microbiome plays a central role in breaking down some dietary components that reach the large intestine (mainly fibres and resistant starches) through fermentation. Throughout this process, compounds like short-chain fatty acids are produced, which help maintain the integrity of the gut lining, regulate inflammation and support metabolic and immune function in the gut. Gut bacteria also contribute to the synthesis of vitamins, including vitamin K and some B vitamins. A healthy microbiome supports tolerance to foods, environmental toxin exposure and pathogenic overgrowth within the gut. Imbalances within the microbiome can contribute to digestive symptoms such as bloating, gas, irregular bowel movements and increased reactivity to foods."

Adrienne Benjamin, Nutritionist at ProVen Biotics, went on: "The human body is an ecosystem that comprises 90 per cent non-human cells and most of the 'life' taking place in and on our bodies involves microbial organisms, collectively known as the human microbiome. This human microbiome is a collection of the trillions of microorganisms, their genes and by-products that live on and in the body – on our skin, in our mouths, throughout our digestive tract and in the genito-urinary tract. They are essential for a wide variety of functions, including helping to digest foods, absorb nutrients and protect the body from disease-causing pathogens.

"The highest microbial numbers are found in the gut and each of us has an estimated 100,000 billion viable bacteria living in our intestines, comprising over 1,000 different species/strains identified with enough frequency to be considered part of the human microbiota. These microbes weigh around 1.5kg in total and are referred to collectively as the gut microbiome. This is made up of specific kinds of micro-organisms that complement each other and their host (person), fulfilling various functions that depend on the species of bacteria. Some bacteria synthesise vitamins and neurotransmitters, others support digestion and/or absorption of nutrients and some support the immune system.

"The bacteria also help support the function of the mucous membrane (mucosa) that covers the inside surface (wall) of our intestines. The microbes form part of this mucosa as they move through the body and help form a protective barrier to defend against toxins and bad bacteria. The primary digestive tract diseases include irritable bowel syndrome (IBS), small intestinal bacterial overgrowth (SIBO) and inflammatory bowel diseases (IBD – Crohn's disease and ulcerative colitis). Related complaints include gastroesophageal reflux disease (GERD), gallbladder disease and gallstones, coeliac disease and diverticulitis. Whilst all of these present differently, the health of our intestinal tract and our microbiome is key to all of them."

And Harper advised: "The human microbiome is the totality of microorganisms; including bacteria, archaea, and fungi, that live on and in us. There are distinct microbiome colonies in different areas of the body such as the gut, vagina, oral cavity, urinary tract, and skin. The inhabitants that can survive in each of these niches is determined by factors including pH, oxygen availability, temperature and moisture, and available nutrients. The gut microbiome is one of the most diverse as the conditions in the colon are favourable to many species of anaerobic bacteria. Diversity here

is associated with health, whereas in the vaginal microbiome a lack of diversity is desirable."

Looking at the health effects in greater detail, Christine Bailey, MSc BSc (Nutrition), Dip IOPN, Education Manager at Metagenics, advised: "Commensal microorganisms are active contributors to gut structural integrity, immune education, and digestive capacity.

- **Barrier function:** Bacteria, including *F. prausnitzii*, produce butyrate, which fuels colonocytes and upregulates tight junction proteins. *Akkermansia muciniphila* contributes to mucin turnover and barrier regulation. Loss of these populations is associated with increased intestinal permeability.
- **Motility:** Microbial metabolites influence peristalsis via serotonin, motilin, and peptide YY; altered communities are consistently associated with constipation and diarrhoea.
- **Nutrient status:** The microbiome synthesises certain B vitamins and K2; transforms primary bile acids required for fat-soluble vitamin absorption; ferments fibre to produce butyrate (~60-70 per cent of colonocyte energy), propionate, and acetate; lowers luminal pH to improve mineral solubility; and modulates tryptophan metabolism along serotonin, kynurenine, and indole pathways. Isoflavones and polyphenols require microbial transformation to produce active metabolites – patients with depleted microbiomes may not derive full benefit from phytoestrogen-rich diets.
- **Immune education:** Treg maturation, secretory IgA development, and calibration of immune tolerance are microbiota dependent.
- **Serotonin and the gut-brain axis:** ~90-95 per cent of total body serotonin is synthesised in the gut, primarily by enterochromaffin cells, with microbial influence occurring indirectly. However, gut serotonin does not cross the blood-brain barrier. CNS serotonin is independently regulated. The gut-brain relationship operates via vagal afferents, the enteric nervous system, and systemic immune and endocrine signals."

And Makeham added: "When kept in balance, microorganisms work together to create the conditions for a healthy gut. They compete for resources and interact in ways that keep potentially harmful microorganisms at lower levels, and when this balance is lost, it can lead to common digestive symptoms such as abdominal pain, bloating, flatulence, diarrhoea and constipation.

"Specific beneficial microorganisms generate health-promoting metabolites, such as butyrate, which is the preferred fuel source for the enterocytes that line the digestive tract. The loss of butyrate-producing bacteria has been implicated in the development of inflammatory bowel disease, highlighting the important role of microbial metabolites for our gut health."

FACTORS AFFECTING BALANCE

In our modern world, we commonly see the microbiome fall out of balance, but what factors affect this?

Alice Bradshaw, Head of Nutrition Education and Information at Terranova, advised: "Microbiome balance is shaped by diet, environment, medications, and host factors. Dietary diversity and fibre intake are major drivers of microbial diversity. Antibiotics can significantly disrupt the microbiome, sometimes for long periods, and other medications such as PPIs, NSAIDs, and certain hormones can also shift microbial composition. Stress, sleep, alcohol, infections, age, birth mode, breastfeeding history, and environmental exposures all play a role. Chronic illness and altered gut motility can further influence microbial patterns."

Makeham went on: "A number of external influences can disrupt the diversity and composition of the gut microbiota. One of the most well-known causes is antibiotic use, as broad-spectrum antibiotics act against beneficial gut bacteria as well as the bacteria causing infection, significantly reducing microbial richness and diversity. Diet is another major factor. High intake of saturated and trans-fat, sugar, refined carbohydrates and other processed foods increases the risk of dysbiosis, while diets low in fibre significantly reduce microbial diversity.

"Other contributing factors include being born via caesarean section, formula feeding, the use of certain medications such as ibuprofen and proton-pump inhibitors, cigarette smoking, excessive alcohol consumption, exposure to certain household chemicals, and physical or psychological stress. Often, it is the combined actions of several factors over time that push the microbiota to a tipping point."

Harper continued: "Bacteria are also in constant conversation with other microorganisms in their community via quorum sensing, resulting in adjustment of their behaviours or changes in the metabolites they produce, for example. This behaviour can influence the production of biofilms as a protective measure, or the production of toxins to target pathogens, for example, so can have an impact on the overall balance of the microbiome."

Let's also address the obvious signs a person may exhibit if they are experiencing unbalanced gut microbiome.

"This could present as digestive symptoms such as gas, bloating, irregular bowel movements and heightened reactivity to foods but can also have systemic effects such as fatigue, brain fog, mood changes, hormone imbalances, skin issues, histamine intolerance or altered immune function. Because the gut interacts with so many body systems, imbalances can show up in many different ways that don't always immediately obviously point back to the gut," Trueman advised.

Bailey went on: "Dysbiosis produces non-specific, overlapping signs. Testing and clinical context are essential:

- **GI:** Bloating, flatulence, variable stool consistency, alternating constipation and diarrhoea. Methane-positive breath tests are more accurately termed intestinal methanogen overgrowth (IMO), particularly associated with constipation.
- **Immune**: Increased infection frequency, food intolerances, atopic conditions.
- **Neuropsychiatric**: Brain fog, low mood, anxiety, and fatigue.
- **Metabolic**: Dysregulated blood sugar, elevated inflammatory markers.
- **Hormonal/skin**: Inflammatory skin conditions and hormonal dysregulation."

Makeham continued: "Gut dysbiosis can lead to common digestive symptoms such as abdominal pain, bloating, flatulence, diarrhoea and constipation. However, not all instances of dysbiosis present the same way or cause digestive symptoms at all. For example, antibiotic-associated dysbiosis can cause temporary diarrhoea through the overgrowth of harmful microorganisms like *Clostridium difficile*, while overgrowth of methane-producing microorganisms can have the opposite effect and cause constipation. SIBO typically presents with a range of complaints including abdominal pain, bloating, gas and irregular bowel movements. In some cases, reduced microbial diversity may not trigger obvious gastrointestinal complaints but could be having a more long-term effect on overall health, making dysbiosis a potentially hidden contributor to chronic disease."

The long-term impact

If a client has prolonged imbalance when it comes to the microbiome, there can be some longer-term health impacts.

Benjamin advised: "The intestinal tract is known to be a major centre of immune, endocrine and neural function, as well as its established role in digestion, absorption and substance elimination. We now understand the pervasive importance of our microbiome in facilitating and influencing this functionality, and the importance of maintaining the balance, numbers, and diversity of bacteria in our gut. The multitude of physiological systems in our bodies that our gut microbiome impacts includes: helping digestion and absorption; maintaining the normal function of the intestinal mucosa; providing non-immunological protection against infection; stimulating maturation and balancing of the immune system following birth; regulating and priming the immune system throughout our life; facilitating, via GI tract cross-talk, a wide variety of neural, endocrine, and metabolic functions of the host; and having wide metabolic capability, including short chain fatty acid (SCFA) production and numerous bio-transformation."

Bradshaw added: "The microbiome influences health well beyond the gut. It shapes immune development, metabolic regulation, hormone signalling, and brain function through the gut-brain axis. Dysbiosis has been linked with metabolic disorders, cardiometabolic risk, inflammatory conditions, and functional gut disorders. Microbial metabolites and signalling molecules can affect mood, cognition, and stress responses. There is also growing evidence that microbiome composition influences insulin sensitivity, lipid metabolism, and systemic inflammation. Long-term dysbiosis is associated with low-grade inflammation, impaired gut barrier function, and altered immune regulation. These changes may contribute to metabolic dysfunction, autoimmune tendencies, and gastrointestinal diseases such as IBD. Dysbiosis has been linked with metabolic endotoxaemia, insulin resistance, and altered lipid metabolism. Persistent disruption of the gut-brain axis may influence mental health, although these relationships are complex and multifactorial."

Makeham went on: "Chronically raised inflammation stemming from the gut is thought to contribute to the increasing prevalence of many chronic diseases. Intestinal hyperpermeability has itself been implicated in Parkinson's disease, Alzheimer's disease and coeliac disease. Gut dysbiosis may play a causative role in the development of these conditions, or it may exacerbate existing diseases by increasing inflammation, and in some cases, it may be a consequence of the disease rather than the cause. More research is needed to fully understand these relationships, but the growing body of evidence underscores the importance of maintaining a healthy balanced gut microbiota."

"The microbiome influences health well beyond the gut. It shapes immune development, metabolic regulation, hormone signalling, and brain function through the gut-brain axis."

Bailey also advised: "The microbiome is implicated across multiple systems although the evidence strength varies:

- **Gut-brain axis:** Dysbiosis has been associated with anxiety, depression, and cognitive changes in observational studies. The Rome IV reclassification of IBS as a disorder of gut-brain interaction places the microbiome as a key contributor, with microbiome-targeted dietary and probiotic strategies forming an important component of first-line management in many cases.
- **Immune:** Early-life colonisation is essential for Treg development and tolerance induction; disruption via caesarean birth, formula feeding, or antibiotics can have lasting immunological consequences.
- **Metabolic:** Consistent microbiome differences exist between metabolically healthy and compromised individuals, with mechanistic pathways via SCFA depletion and altered bile acid signalling.
- **Hormonal:** The estrobolome, gut microbial genes capable of metabolising oestrogens, can deconjugate oestrogen metabolites, allowing reabsorption via enterohepatic circulation. Increased β-glucuronidase activity may contribute to higher circulating oestrogen; reduced activity may lower it, though clinical impact is not well established. Stool β-glucuronidase testing is not a validated standalone marker and should be interpreted cautiously alongside clinical context."

Trueman went on: "Long-term microbial imbalances can have far-reaching effects on health. They can disrupt digestive function as well as overall integrity and resilience of the gut, which can increase the risk of conditions such as SIBO, *Candida* overgrowth and intestinal permeability. These imbalances can also impact nutrient status and influence immune function, hormone regulation, mood, fertility and metabolic health, as well as potentially exacerbating existing conditions or contributing to the development of new ones. In short, a balanced microbiome is central to overall systemic health and supporting a healthy microbiome has benefits across the board when it comes to improving physical and mental health."

PRACTITIONER PROTOCOLS

When helping clients manage their microbiome, what are the most up to date protocols to consider?

Trueman advised: "Start with the basics: stress management and mindful eating habits (no screens at meals, thorough chewing and limiting fluid intake at mealtimes). Focus on dietary diversity, lots of colour (encourage clients to have three different coloured plants on their plates with each meal) and increasing fibre as needed to support a healthy microbiome. Always make dietary changes gradually (especially when it comes to increasing fibre intake) to avoid overwhelming the gut. Encourage a predominantly whole-foods diet with plenty of colour and minimal processed foods as they can disrupt microbial balance and irritate the gut lining.

"Once these foundations are in place, consider targeted supplementation as needed. For some clients, testing can help identify imbalances that require specific interventions or probiotic strains, such as vitamin D status, microbiome analysis or food sensitivity testing."

Benjamin agreed, adding: "The first recommendations for any nutrition practitioner should always be food-based. Firstly, eating fermented foods such as sauerkraut, kimchi and kefir can help to ensure that our friendly (good) bacteria remain topped up. These foods were traditionally eaten by our ancestors before refrigeration was invented and are a valuable addition to a modern diet. Fermented foods contain probiotic bacteria, which supports the microbiome, and include natural live yoghurt, kefir and fermented vegetables, such as kimchi and sauerkraut. Other naturally probiotic foods include kombucha, soy, miso, pickled vegetables, sourdough bread and fermented soft cheeses, such as Gouda.

"Eating foods that contain prebiotic fibres will also help to feed the beneficial probiotic bacteria in our guts, supporting them in reproducing and colonising the gut to 'crowd out' the pathogenic species. These prebiotic fibres are found in vegetables, fruits, legumes, beans, nuts and seeds. Conversely, sugar feeds the pathogenic gas-forming species. Prebiotics can also be found in supplement form. It is also essential to manage stress as it can lead to increased cortisol production, which may impact the intestinal tract and microbiome dysbiosis. Getting adequate sleep, exercise, time outdoors, fun and relaxation are key in managing stress."

Makeham went on: "Making dietary changes is one of the most important parts of addressing gut dysbiosis. Eating a high-fibre diet rich in minerals and vitamins with high-quality protein, while avoiding excessive consumption of saturated and trans-fat, sugar and processed foods, has a protective effect against dysbiosis. Different plant fibres feed different communities of microorganisms, so diets can be tailored to support specific forms of dysbiosis. Prebiotic fibres such as inulin and galactooligosaccharides can increase the growth of important butyrate-producing bacteria. Identifying and addressing food intolerances is also important, as these can prevent the restoration of intestinal barrier integrity. Lifestyle factors should also be considered. Practitioners should address stress, as nervous system dysfunction is a significant component in gut-related conditions, and encourage avoidance of factors known to disrupt the microbiota such as excessive alcohol consumption and smoking."

Bailey continued: "Diet is the most powerful and modifiable driver; the microbiome can respond to change within 24-48 hours. One of the strongest associations with microbiome diversity in the American Gut Project was consuming 30+ different plant foods per week, which was a stronger predictor than diet (vegan, vegetarian, omnivore) alone. Ultra-processed foods, refined carbohydrates, and emulsifiers are associated with reduced SCFA-producing bacteria. Alcohol negatively affects microbial composition and intestinal permeability. Fibre is the microbiome's primary substrate; the UK average of ~16-17g/day falls below the recommended 30g.

"In the Wastyk et al. (2021) RCT, the high-fermented-food arm steadily increased microbiota diversity and reduced 19 inflammatory markers, including IL-6; the high-fibre arm increased microbiome functional capacity (CAZyme activity) but did not significantly change microbial community diversity. Polyphenols act as selective prebiotics; the Mediterranean dietary pattern remains the most consistently evidence-based framework. Restrictive diets (low-FODMAP) are short-term diagnostic tools, not therapeutic endpoints – they reduce *Bifidobacterium* and overall diversity if extended beyond four to eight weeks without reintroduction."

And Bradshaw suggested: "Reviewing medication history, especially antibiotics and PPIs, may also be relevant. Interventions should be gradual and monitored, particularly in symptomatic clients."

Harper added that testing may be necessary, explaining: "If a practitioner has a gut microbiome test result, then recommendations can be tailored to specific interventions. Nutrition and lifestyle recommendations, however, should always come first. Is the client very stressed, sleeping poorly, not getting outside every day, is their diet very limited, or have they noticed that certain foods trigger symptoms? These kinds of questions make a good starting point for recommendations.

"Make any changes slowly, especially if a client is very sensitive. Increasing the diversity of plant foods in the week is a great place to start. Consider gut microbiome testing to help identify specific areas of focus. Think about culinary herbs and spices that have been used traditionally to help ease digestive complaints, such as fennel, ginger, and peppermint. It's also worth noting that herbs and spices contribute to overall plant diversity so while they can be a great addition for bloating or wind, when used whole or ground they also help to nurture gut microbes. Explore supplement options: prebiotics such as PHGG or GOS, or specific probiotic strains aimed at supporting the area of health the practitioner is hoping to address."

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Managing nutrient deficiencies

If a person is suffering with digestive issues and a potential microbiome imbalance, considering potential deficiencies is key.

Trueman advised: "There can be deficiencies, although it's rarely the sole cause. Disruptions in gut bacteria can affect how well we break down and absorb nutrients by impacting the integrity of the gut lining, enzyme activity and inflammation levels within the gut. The microbiome also plays a supportive role in the production of certain vitamins, such as vitamin K and some B vitamins. Over time, this can influence overall nutrient status, especially when combined with factors like low dietary intake of nutrients, stress, underlying digestive issues or conditions such as coeliac disease."

Bradshaw continued: "Dysbiosis can affect nutrient status by impairing digestion and absorption, reducing microbial synthesis of vitamins such as vitamin K and certain B vitamins, and altering bile acid metabolism. Reduced short-chain fatty acid production may also influence gut health and nutrient uptake. Over time, this may contribute to suboptimal levels of B vitamins, vitamin K, magnesium, and potentially iron, depending on diet and individual physiology. Living with digestive disorders can create the impression that strict dietary limitations are unavoidable. While these restrictions may manage symptoms, they can also unintentionally narrow the variety of foods consumed. Over time, this reduced diversity may lead to gaps in essential nutrients, making it more challenging to maintain health and wellbeing. Finding the balance between symptom management and nutritional adequacy is therefore crucial."

And where is it considered appropriate to recommend supplements to support the gut?

Harper commented: "There are lots that can be appropriate in different scenarios:

- Prebiotics to selectively feed gut bacteria – PHGG or GOS. PHGG can also help to normalise bowel movements, and GOS can help to reduce pathogenic *E coli* in the gut.
- Look upstream to digestive capacity and support with enzymes if indicated.
- Is SIBO a part of the picture. Consider strong ginger tea for its prokinetic activity, or a prokinetic supplement.
- Curcumin to help reduce intestinal inflammation.
- Mucilaginous herbs to support mucosal barrier integrity.
- Botanicals with antimicrobial activity if indicated in gut microbiome test, such as allicin or oregano.
- Zinc, glutamine, or colostrum to support gut barrier integrity."

Makeham also recommended: "Prebiotic fibre supplements can help to bolster the diet and provide extra support to the gut microbiota by feeding specific beneficial communities of microorganisms. Soluble fibres that increase production of short-chain fatty acids via gut microbiota fermentation can strengthen the intestinal epithelial barrier through beneficial effects on epithelial cell metabolism and immune system function.

"Vitamin A, vitamin D and zinc play important roles in maintaining the structure and function of the intestinal epithelial barrier and tight junction proteins. Glutamine is an essential amino acid which has demonstrated a positive influence on intestinal hyperpermeability. Ensuring sufficiency of neurotransmitter cofactors such as magnesium and zinc, supporting the nervous system with B vitamins and herbal nervines, and promoting stress resilience with herbal adaptogens are important considerations, given the significant role of stress in gut microbiota disruption."

And Bradshaw suggested: "Polyphenol-rich extracts (such as those from berries, green tea, or pomegranate) may support microbial balance through their antimicrobial-modulating and anti-inflammatory effects without the same gas-producing potential as some prebiotics. Postbiotics may offer benefits in clients who cannot tolerate fermentable fibres, though their use is still developing in practice. Omega 3 fatty acids and vitamin D may indirectly support microbiome health through their roles in immune regulation and inflammation. Any supplementation should complement a nutrient-dense, fibre-appropriate diet and be tailored to the client's symptom profile and tolerance."

Bailey added: "Dysbiosis can disrupt nutritional status via impaired absorption, altered bile acid metabolism, and microbial competition (e.g., B12 in SIBO). Assess iron, B12 (± MMA), folate, zinc, vitamin D, and omega 3 status. For practitioners taking a comprehensive approach, prebiotics may be useful. Partially hydrolysed guar gum (PHGG) is a comprehensively researched prebiotic fibre for clinical use; it is well tolerated, even in patients with IBS and SIBO, selectively feeds SCFA-producing bacteria, and supports bowel regularity without the bloating associated with other fermentable fibres. For patients who are sensitive, starting with PHGG and transitioning to broader prebiotic diversity through food (chicory, Jerusalem artichoke, leek, garlic, onion, green banana) is often the more practical clinical approach."

FOCUS ON BACTERIA

Probiotics are an important recommendation but offering guidance around the correct products is important, given it is a vast and sometimes confusing market. Let's first discuss the general benefits.

Makeham explained: "Specific probiotic strains can help to supplement the diversity and health of the gut microbiome by introducing more beneficial microorganisms into the gut. While they do not become permanent residents and will only remain in the gut for as long as supplementation continues, they act like renovators which improve the gut environment and create more favourable conditions for a person's own beneficial microorganisms to grow. Certain strains also upregulate the expression of tight junction proteins and growth factors that help to restore intestinal barrier integrity, modulate the immune system and reduce production of pro-inflammatory cytokines. During antibiotic treatment specifically, probiotics can help prevent dysbiosis by competing against and preventing the overgrowth of potentially harmful microorganisms."

Benjmain went on: "Probiotics are proxies for the most beneficial members of our microbiome. As such, probiotics can be beneficial in helping to balance and manipulate our microbiome in both normal and dysbiotic states. They can help to prevent dysbiosis from occurring, to rectify a dysbiotic state and create a more beneficial homeostasis. They are also considered safe to take long-term and can, therefore, be used easily and harmlessly for ongoing microbiome support – although it is important to work to address any underlying issues that may be impacting our health."

Trueman added: "Probiotics can help support and rebalance the gut microbiome when used appropriately. They work by introducing beneficial strains, crowding out less desirable microbes and interacting with the gut lining and immune system. Depending on the strain(s), they may also support digestion, reduce inflammation, enhance histamine clearance and influence gut-brain signalling."

Let's then move to specific recommendations around species and strain, as well as quality factors.

Harper advised: "If it is suspected that stress is a driver of symptoms, then specific bacterial strains researched for their impact on the gut-brain axis could be appropriate. There are also specific strains that can help to reduce gases associated with SIBO, e.g. *Lactobacillus reuteri* can help to reduce methane so can be helpful for constipation and bloating associated with methane-dominant SIBO. The important thing when selecting live bacteria is that the specific strains in the product have been researched for the desired functional or clinical effect. Previous thinking was that bacteria needed to colonise in the gut to have an impact was better, whereas we now know the importance lies in the behaviour of the bacteria as it moves through the digestive tract, e.g. what metabolites are they producing or consuming, what impact are they having on gut barrier or immune cells, for example."

Makeham added: "One of the best probiotic strains for supporting a healthy balanced gut microbiota during and after antibiotic use is *Lactobacillus rhamnosus* GG. This strain reduces the risk of antibiotic-associated diarrhoea. *L. rhamnosus* GG has also been shown to enhance the integrity of the intestinal epithelial barrier through its actions on tight junction protein expression, while improving epithelial cell health and modulating the immune system. In formula-fed infants, *L. rhamnosus* GG-supplemented formula has been shown to expand butyrate-producing bacterial strains. For practitioners, selecting strains with robust clinical evidence for the specific presentation being addressed is essential."

Bailey went on: "Strain-specificity is the most important clinical principle here and selecting on clinical indication rather than colony-forming unit count alone is more likely to produce better outcomes for patients. The starting point is always the clinical picture. For patients presenting with constipation, *B. lactis* HN019 has good evidence for reducing transit time and is safe in pregnancy. Where constipation is accompanied by a need for prebiotic support, partially hydrolysed guar gum (PHGG) and *L. plantarum* Lpla33 is a useful option for patients who need functional support alongside microbial diversity.

"For diarrhoea and loose stools, *Saccharomyces boulardii* can be helpful: it is yeast-based and therefore unaffected by concurrent antibiotic use, making it the appropriate choice to start on day one of antibiotic treatment. For post-antibiotic recovery more broadly, *S. boulardii* with NCFM, Bi-07, and Lpc-37 to support both immediate tolerance and microbial rebuilding. Where abdominal pain, stress, or vaginal health are considerations, *L. rhamnosus* GR-1 and *L. reuteri* RC-14 for urogenital health, alongside BB-12 and Lpla33."

Bradshaw continued: "Certain probiotic strains have been extensively studied and are recommended for their specific health benefits. *Lactobacillus rhamnosus* GG is one of the most researched strains and is highly effective in managing diarrhoea, particularly antibiotic-associated diarrhoea, and improving overall gut health. *Bifidobacterium longum* is known for its ability to alleviate symptoms of IBS and support immune system health. *Lactobacillus acidophilus* is widely used to support general digestive health and is particularly beneficial for maintaining vaginal health in women. *Bifidobacterium infantis* has shown promise in reducing bloating and digestive discomfort, particularly in those with IBS."

And Benjamin recommended: "All probiotics should attain the following standards:

- Stable at room temperature – the technology is now readily available to keep high potency probiotics stable for 18-24 months at room temperature, so there should be no requirement for refrigeration.
- Guaranteed bacteria count to end of shelf-life and not stated as 'at the time of manufacture'.
- Individual strain numbers, which should be clearly stated on the product packaging (simply stating *Lactobacillus acidophilus* is not acceptable).
- Evidence that the bacteria remain stable in stomach and bile acids.
- Evidence that they are manufactured to current good manufacturing practice (cGMP) guidelines."

TAKING COGNITIVE CONTROL

With issues around cognitive health known to be on the rise, nutrition experts take a closer look at the interventions that can support your clients' brain health in our modern world.

The data demonstrates that cognitive health issues are a major problem, with statistics showing rates of dementia are on the increase – and that's just one aspect of cognitive health.

Of course, ageing will play a role in cognitive decline, but we must also consider the role of nutrition on our brain's ability to age well.

Catherine Gorman, Nutritionist and Health Advisor at Good Health Naturally, commented: "While cognitive decline most commonly affects older adults, it should not be considered a normal part of ageing. Some older adults retain excellent cognitive function well into their 70s and 80s and perform as well or better than some younger adults. A paper published in *The Lancet* in 2020 highlighted 12 potentially modifiable risk factors for dementia. These were poor education, hypertension, hearing impairment, smoking, obesity, depression, physical inactivity, diabetes, low social contact, excessive alcohol consumption, traumatic brain injury and air pollution. Astonishingly, these modifiable factors account for around 40 per cent of worldwide dementias. If these risks were addressed, all those cases of dementia could theoretically be prevented or delayed."

Alice Bradshaw, Head of Nutrition Education and Information at Terranova, added: "Ageing is accompanied by gradual changes in brain biology, including reduced flexibility in neural connections, shifts in neurotransmitter activity, and a decline in mitochondrial efficiency. These changes can contribute to slower processing and mild cognitive shifts over time, but they do not fully explain the level of cognitive decline seen in many individuals. A significant proportion of deterioration is driven by modifiable factors. Metabolic dysfunction – especially insulin resistance and poor blood-sugar regulation – is strongly linked to impaired brain performance. Chronic low-grade inflammation, elevated homocysteine, oxidative stress, micronutrient insufficiencies, disrupted sleep patterns, and psychological stress all increase vulnerability within the nervous system. In this context, ageing acts more as a background amplifier of risk rather than the main cause of cognitive decline, with lifestyle and metabolic health exerting a far greater influence on long-term cognitive trajectory."

And Keri Briggs, Senior Brand Specialist at Lambers, continued: "With an increasingly ageing population, due to improvements in health and medicine, mild cognitive impairment (MCI) and dementia cases are set to continue rising indefinitely. Improvements in diet and lifestyle, including physical and mental exercises ,re key to improving cognitive function and slowing rates of age-related decline. However, there is a clear role for supplementation, especially when the diet does not provide sufficient levels of certain nutrients such as B12, DHA and lutein, or when nutrients are not part of the diet. Most of the literature suggests that making changes and additions to the regime is more effective in milder and earlier cases of cognitive decline rather than in cases where the issues have progressed to dementia."

Sophie Barrett, Mycotherapy Advisor at Hifas da Terra, went on: "While ageing remains the strongest risk factor, up to 40 per cent of dementia cases are linked to modifiable factors such as diet, metabolic health, sleep and stress (Livingston et al., 2020). Ultra-processed diets, chronic stress, sedentary behaviour and poor sleep increase inflammation, insulin resistance and oxidative stress, key drivers of neurodegeneration (Jacka et al., 2015)."

Cognitive data

Looking in detail at what the statistics tell us, Briggs advised: "There are many issues which can fall under the umbrella of cognitive issues, but the ones of most concern to the general public as well as the medical professionals, public health bodies and charities are those causing cognitive impairment or decline. A certain amount of decline in memory and thinking is expected with age, but if this is progressing more quickly than expected a diagnosis of MCI may be given. This is often seen as an intermediate state between normal decline and the development of dementia, and although symptoms can be noticeable to those close to the individual affected, it generally has little impact on daily life. However, it can be very concerning to the sufferer.

"It is estimated by Alzheimer's Research UK that 10-20 per cent of people over the age of 65 has MCI, but exact figures are difficult to obtain due to a lack of intervention or diagnosis. Other significant cognitive issues include dementia, which affects 944,000 people in the UK, and Parkinson's Disease, which affects 145,000. Both are on the increase, due in part to better diagnosis and partially due to an increasingly ageing population: dementia cases have increased by 56 per cent between 2010/11 and 2015/6 and are set to be in excess of one million cases by 2030 and 1.6 million by 2050. Parkinsons cases are predicted to increase to 172,000 by 2030."

Barrett continued: "Cognitive decline represents a significant and growing public health concern. Dementia affects over 900,000 people, with numbers expected to rise significantly. MCI is increasingly observed in clinical practice, often presenting years before diagnosis (Alzheimer's Society, 2023)."

And Gorman also advised: "Cognitive decline has become a

huge concern in the UK. It is predicted that one in three people born in the UK today will go on to develop dementia in their lifetime. It is a major and escalating challenge for health and social care systems. Current costs for dementia care are currently around £42bn a year and this is likely to reach £90bn by 2040."

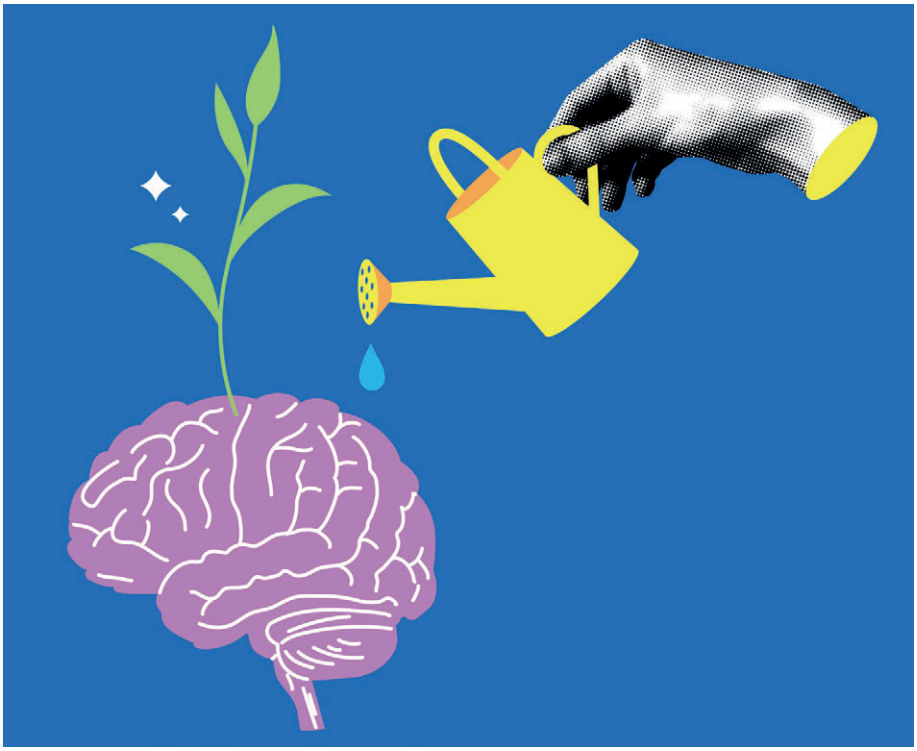
Bradshaw added: "Cognitive decline represents a significant and expanding clinical concern in the UK, driven primarily by demographic ageing but increasingly compounded by lifestyle and metabolic factors. Conditions such as Alzheimer's disease and vascular dementia account for a large proportion of diagnosed cases, and their prevalence continues to rise alongside increased life expectancy. At the same time, practitioners are seeing a growing number of individuals who do not meet diagnostic criteria for dementia but report persistent cognitive symptoms such as reduced focus, memory lapses, and mental fatigue. These presentations, often grouped under non-specific cognitive dysfunction or brain fog, are increasingly relevant in working-age populations and suggest that cognitive health challenges extend beyond traditional geriatric cohorts. This broader burden highlights the importance of early identification and preventative strategies in clinical practice."

"Cognitive decline represents a significant and expanding clinical concern in the UK, driven primarily by demographic ageing but increasingly compounded by lifestyle and metabolic factors."

Condition focus

There are a number of common issues that can relate to cognitive decline.

Bradshaw advised: "From a clinical perspective, practitioners should be familiar with a spectrum of neurodegenerative and cognitive disorders that present across different stages of severity. Alzheimer's disease remains the most common cause of dementia, characterised by progressive memory impairment and global cognitive decline. Vascular dementia is also prevalent and is closely linked to cerebrovascular health, often coexisting with cardiovascular risk factors. Other important conditions include Parkinson's disease, where cognitive impairment may emerge alongside motor symptoms, and frontotemporal dementia, which tends to present earlier with behavioural and executive function changes. MCI represents an intermediate clinical state that may remain stable, improve, or progress depending on underlying aetiology and intervention. Alongside these diagnostic categories, practitioners are increasingly encountering subclinical cognitive complaints that may reflect metabolic, inflammatory, or lifestyle-related dysfunction rather than established neurodegeneration.



"Early cognitive changes often appear gradually and can be easy to overlook unless someone is paying close attention to how their thinking and memory are shifting over time. Common early signs include reduced short-term memory, difficulty recalling names or recent events, and a general sense of mental slowing. People may notice that concentrating takes more effort, mental clarity feels reduced, or tasks that once felt automatic now require more deliberate focus. Changes in executive function can emerge, such as finding it harder to plan, stay organised, make decisions, or manage multiple tasks at once. Word-finding difficulty is another frequent early feature. Emotional and behavioural shifts, like irritability, low motivation, anxiety, or withdrawing from social situations, may accompany or even precede cognitive symptoms. As changes progress, issues such as disorientation or poorer judgment can become more noticeable. What tends to matter most is not an isolated lapse but the persistence or gradual worsening of these patterns over time."

Briggs also advised: "Another set of conditions which can be linked to MCI and cognitive decline are those affecting the heart and vascular system. Those diagnosed with cardiovascular disease have a 45 per cent higher risk of developing cognitive impairments, probably due to the fact that many of the risk factors for the development of CVD are also linked to cognitive decline, including diabetes and smoking. The Framingham Study also found a correlation between hypertension and increased cognitive decline; a systolic blood pressure reading just 40 points higher than the 120mm Hg which is aimed for, led to cognitive function being comparable to some 10 years older.

"High cholesterol and blood triglycerides are also health concerns that can have significant effects on cognitive function. Whilst it is well known that 60 per cent of the brain is made up of fat and 20 per cent of the body's cholesterol is found in brain tissue (even though the brain only makes up two per cent of body weight), the form of cholesterol seems to be significant when discussing cognitive issues. A higher proportion of low density lipoprotein (LDL) and triglycerides is associated with faster rates of cognitive decline, whereas high HDL is correlated with better cognitive function.

"Emerging evidence is now also identifying a link between the gut, and more importantly the gut microbiome, and cognition. It has already been established that there is bi-directional communication between the brain and the gut via the vagus nerve, production of neurotransmitters and production of compounds such as short chain fatty acids. Studies have also shown those with dementia often have gut dysbiosis as well. This can lead to an increase in the production of compounds linked to inflammation, which is an underlying issue in the development of cognitive decline."

CAUSATIVE FACTORS

Many factors are involved in brain health, and often, there can be a multitude of reasons a person might suffer with an issue. However, it is well accepted that a poor diet and sedentary lifestyle that is low in key nutrients, especially over a prolonged period, can contribute.

Briggs advised "Not all cases of MCI will progress to dementia, but it is estimated that those with MCI have a three to five times higher chance of developing some form of dementia. This may be due to the fact that some cases of MCI may actually be the very early stages of dementia. However, there are a number of other causes which may impact on cognition and memory:

- **Medications** – several groups of drugs including anti-depressants, non-steroidal anti-inflammatories (NSAIDS) and corticosteroids may cause cognitive impairment.
- **Thyroid disorders** – both hypo-and hyperthyroidism appear to impact cognitive function, possibly due to the effects on neurotransmission and oxidative stress.
- **Autoimmune conditions** – several conditions including rheumatoid arthritis, systemic lupus erythematosus, and systemic sclerosis/scleroderma are associated with cognitive dysfunction and decline. This has been attributed to a combination of increased inflammatory compounds, side effects of medications and the psychological effects such as stress or depression, which can accompany chronic conditions.
- **Infections** – the immune response and associated increase in inflammatory compounds can cause a reduction in cognitive function.
- **Sleep disorders** – insomnia, broken sleep and the use of sleep-inducing medications appears associated with cognitive decline.
- Menopause – 44-62 per cent of perimenopausal women mention 'brain fog' as a major symptom. Several markers of cognitive ability decline in this period and appear to be linked to changes in follicle stimulating and lutenising hormones and oestrogen.
- An emerging cause of MCI and cognitive issues is **long Covid** with up to 81 per cent of those diagnosed reporting 'brain fog' as an ongoing symptom."

Gorman continued: "In many cases, symptoms which appear to be cognitive decline may stem from issues such as hearing or vision loss, nutrient deficiencies like B12 or vitamin D, thyroid problems, sleep disorders or mental health conditions like depression. Addressing these issues can often improve cognitive function.

"The western diet full of heavily processed foods, together with an increasingly sedentary lifestyle, certainly seem to be contributing to the rise in cognitive decline. Studies repeatedly show a strong link between poor dietary habits and worsening cognitive decline. For example, a 10-year study in China involving more than 72,000 participants aged 55-plus found diets high in processed foods were associated with a greater risk of dementia. On a positive note, replacing just 10 per cent of processed foods with unprocessed or minimally processed alternatives was shown to reduce this risk.

"Lack of exercise and physical activity can also negatively affect brain health. Research suggests regular exercise improves cognitive performance and memory. In older adults, physical activity has been linked to an increase in the size of the hippocampus, the area of brain responsible for memory, learning, and emotion. Interestingly, studies have even shown that regular exercise can enhance cognitive function in people already experiencing memory issues."

Bradshaw added: "Modern western lifestyles bring together several factors that can place strain on brain health. Diets high in ultra-processed foods and refined carbohydrates can lead to unstable blood sugar, insulin resistance, and gaps in essential nutrients. Long periods of sitting reduce cardiovascular and circulatory efficiency, which affects how well oxygen and nutrients reach the brain. Ongoing stress can keep cortisol elevated for long periods, and this may affect areas of the brain involved in memory and emotional regulation.

"Sleep disruption, driven by irregular routines, screen exposure, or stress, adds further pressure by interfering with memory consolidation and the brain's overnight clearing processes. Environmental exposures such as air pollution and certain chemicals can also contribute to inflammation and oxidative stress. When several of these factors occur together, they create conditions that increase the likelihood of cognitive difficulties over time."

And are there certain groups who are more at risk of cognitive ill health?

Briggs went on: "Type 1 and type 2 diabetics and those with metabolic syndrome appear to be more susceptible to the development of cognitive decline and for this to progress to dementia. This is thought to be due to hyperglycaemia and poor glycaemic control, which leads to brain atrophy, and a reduction in the hippocampal volume. Improving glycaemic control can lead to a stabilisation of brain atrophy."

Dietary interventions

Shifting the diet to an anti-inflammatory one is crucial to support brain longevity.

Gorman recommended: "One of the best brain friendly dietary protocols is the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet. It was created using elements from the Mediterranean and DASH diets, which researchers believe are the most important for brain health. The emphasis is on natural plant-based foods, with limited animal produce and high saturated fat. It encourages whole grains, nuts, berries and green leafy vegetables, with at least two vegetable servings per day and at least one fish meal a week. A study with almost 1,000 participants showed The MIND diet lowered the risk of Alzheimer's by as much as 53 per cent for those who adhered to it rigorously, and by 35 per cent in those who followed it moderately.

"Long-term research in Finland monitored people aged 60-77 as they followed a similar brain-healthy diet combined with exercise and brain training. The intervention group followed a diet high in vegetables, fruit, and fish, but low in sugar, along with exercise and cognitive training. They were encouraged to eat at least two portions of fish per week and take fish oil supplements if they didn't consume enough oily fish. Vitamin D supplementation was also recommended. Participants in the intervention group showed significant improvements in cognitive function, with results ranging from 25 per cent to 150 per cent better than those in the control group."

Bradshaw added: "Early-stage cognitive decline, particularly within the context of MCI, is a critical window for intervention. While outcomes vary depending on underlying pathology, there is substantial evidence that progression can be slowed, stabilised, or in some cases partially reversed through targeted lifestyle and clinical strategies. Interventions typically focus on improving metabolic health, as insulin resistance and dysregulated glucose metabolism are strongly associated with cognitive impairment."

Briggs continued: "Polyphenols, which are found in most plants, have been shown to reduce oxidative stress, to have protective effects on the neurons of the brain and may also improve neuroplasticity. Specific polyphenols such as those found in cocoa, red wine, green tea and citrus fruits have been shown to improve cognitive function in

the elderly. Nutrients such as curcumins, found in turmeric and catechins found in green tea, along with omega 3 fatty acids, appear to have multiple roles in brain health and cognitive function. Several studies have examined the link between this diet and cognitive function and found a positive correlation between the two; those adhering to the Mediterranean diet showed improvements in cognitive function, prevention of cognitive decline and improved scores on function tests.

"The DASH (Dietary Approaches to Stop Hypertension) diet, which is very similar to the Mediterranean diet, focuses on lots of fruit, vegetables, wholegrains and low fat dairy produce, with a specific emphasis on low sodium intake. This diet has also been linked to slower cognitive decline. As neither diet is specific to brain health, an amalgam, known as the MIND diet has been developed and studied. This focuses more on the specific foods and nutrients which are linked to increased cognitive function. It is important, regardless of the specific diet followed, to consume adequate levels of high-quality protein, to ensure a consistent and sufficient supply of amino acids. Of particular relevance are:

- Tryptophan, which is required for the production of serotonin, melatonin and acetylcholine. Depletion of melatonin is associated with cognitive decline.
- Tyrosine is involved in production of the neurotransmitter, dopamine, which is closely associated with learning. Tyrosine supplementation seems particularly useful for cognitive function during periods of stress.
- Cysteine/NAC are involved in the production of BDNF and also synthesis of glutathione, considered the master antioxidant in the body. Preliminary studies suggest supplementation with NAC reduces severity of cognitive changes.
- L-Carnitine is a useful nutrient for the function of the mitochondria. It is involved in the transport of fatty acids across the mitochondrial membrane and also transports toxins out of the mitochondria, enhancing mitochondrial function and reducing dysfunction. The exact mechanisms of action are unclear but may be linked to influencing cholergenic activity, synaptic stimulation, stabilizing cell membrane fluidity, reduction of oxidative stress, inhibiting excitotoxicity and antioxidant activity."

It's also important to consider the gut.

"The gut–brain connection is a two-way communication system involving the nervous, hormonal and immune systems. The gut's trillions of microbes play a vital role in mental and cognitive health, producing neurotransmitters like serotonin, which affect mood and cognition. Gut microbes also produce short-chain fatty acids such as butyrate, which provide energy for the cells lining the intestine, help maintain the gut barrier and reduce inflammation," Gorman explained. "A review in *Nutrition Research* (March 2026) highlights the importance of the gut-brain axis and how changes in gut bacteria with age may contribute to cognitive decline and dementia. The review analysed 15 studies involving more than 4,000 adults aged 45 and older who had memory problems or were at risk of dementia. These studies tested various interventions, including supplementing with probiotics and following the Mediterranean diet. The results showed improving gut bacteria was linked to better memory, thinking skills and overall brain function, especially in people with early-stage cognitive decline. These benefits were associated with healthier gut bacteria and reduced inflammation. However, improvements were limited in people with advanced Alzheimer's disease."

Bradshaw added: "Consistent meal timing, adequate protein, and balanced blood-glucose responses also influence gut-brain signalling. Practices that calm the stress response – like breathwork, time outdoors or gentle movement – can shift gut motility and microbial activity through vagal pathways. Hydration, natural light exposure, and regular sleep patterns further support digestive rhythms and microbial cycles. Together, these factors help maintain a resilient gut environment and a strong gut barrier, supporting smoother communication along the gut–brain axis and reducing vulnerability to cognitive changes over time."

Self-help strategies

There are a number of recommendations as part of an overall cognitive health protocol that can keep the brain active and engaged, which is particularly beneficial as people get older.

Bradshaw advised: "Regular physical activity supports vascular health and neuroplasticity, while consistent sleep patterns are essential for memory consolidation and metabolic waste clearance in the brain. Stress regulation techniques that promote autonomic balance can help mitigate the impact of chronic stress physiology. Cognitive stimulation and social interaction contribute to maintaining neural connectivity and resilience. From a practitioner standpoint, combining these elements into a coherent, individualised plan is more effective than addressing any single factor in isolation."

Briggs added: "Regular physical activity is closely linked to a reduction in cognitive impairment. Other studies have found exercise improves memory and attention. These outcomes may be due to the effects exercise has on reducing the losses of tissue in the frontal, parietal, and temporal cortices, as well as the hippocampus. The effects of physical activity may also improve neuroplasticity, and both aerobic and resistance exercise can increase BDNF levels.

"There is also good evidence for the role that cognitive engagement plays – the concept of 'use it or lose it'. Taking part in activities such as mentally demanding work, leisure activities (such as reading, crosswords and sudoku, playing an instrument or learning a new language) and social activities are all associated with a reduced risk of cognitive decline. Clinical trials have shown that smoking has a negative effect on most groups of smokers. Cigarette smoke decreases vasodilation, via the reduction of nitric oxide and increases inflammatory compounds such as cytokines."

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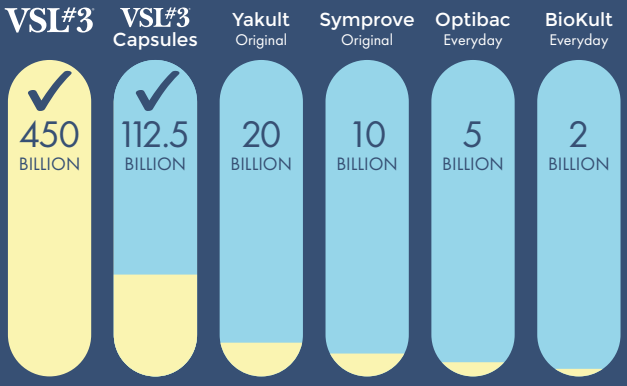

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1. DoxaPharma Research. Data on File, March 2022.
2. VSL#3 Clinical Summary, March 2023.
3. Vecchione A, *et al. Front Med.* 2018;5(59).
4. Based on companies websites accessed July 2024.

BRAIN NUTRIENTS

Research confirms nutrients are needed to support brain function, and these can become more important as we age.

"Supplementation can be really helpful especially if there are signs of nutrient deficiencies, oxidative stress or inflammation," Gorman advised. "A daily multivitamin and mineral can be a good place to start. The COSMOS-Mind Study, published in *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*, followed more than 2,200 older adults for three years and found those taking a daily multivitamin and mineral supplement experienced statistically significant benefits with memory, focus and mental skills.

"Vitamin D is another crucial nutrient for brain health. The brain contains a high concentration of vitamin D receptors. It has been well-established that people with Alzheimer's often have lower circulating levels of vitamin D. Studies suggest it may help reduce inflammatory responses in neurons, potentially protecting against cognitive decline. Polyphenols, such as curcumin and resveratrol, have shown promise as neuroprotective agents. These compounds are known for their antioxidant and anti-inflammatory properties, which can reduce oxidative stress and inflammation in the brain. Curcumin, in particular, has been used in protocols for managing dementia. Studies suggest that, in addition to its anti-inflammatory and antioxidant effects, curcumin may help slow neuronal degeneration and support metal chelation, which could protect the brain. Probiotics support the microbiome, which may positively influence mood and brain function through the gut-brain axis. Butyrate, a type of short-chain fatty acid produced when gut bacteria break down fibre, is especially important for gut health. It provides energy for cells lining the intestine, helps maintain the gut barrier and reduce inflammation."

Bradshaw went on: "Several nutrients play central roles in supporting healthy brain function because they influence neurotransmitter activity, cell-membrane structure, mitochondrial energy production, and methylation pathways. Vitamin D contributes to neuroimmune balance, while magnesium supports synaptic activity, energy metabolism, and sleep quality. Antioxidants such as vitamins C and E, selenium, and a wide range of plant-derived polyphenols help counter oxidative stress, a major driver of neuronal damage. Certain botanicals are gaining attention for their potential neuroprotective or neurotrophic properties. Lion's mane is of particular interest due to its bioactive compounds that may support nerve-growth-factor pathways. Other botanicals, such as bacopa, rosemary extract, saffron, and adaptogens like ashwagandha, are being explored for their roles in modulating stress responses, supporting memory processes, or influencing inflammatory pathways. Together, these nutrients and botanicals form part of a broader strategy aimed at supporting cognitive health, especially when combined with lifestyle factors that promote metabolic stability, sleep quality, and reduced inflammatory load."

Briggs also recommended: "B vitamins are some of the most important nutrients for brain health. B6, B9 (folate) and B12 are considered to be important for the methylation cycle and therefore homocysteine regulation. Homocysteine is an amino acid naturally found in the body as part of the methylation cycle, which produces methionine, cysteine and SAMe. Body levels of homocysteine are normally low due to it being an intermediate product in the processes involved in methylation but in some circumstances, homocysteine can be raised, and the most common reasons are linked to vitamins B6, B12 and folate. Gene mutations affecting methylene tetrahydrofolate reductase (MTHFR) are relatively common, affecting up to an estimated 40 per cent of some populations and these prevent methylation of the aforementioned B vitamins and therefore inhibit the recycling of homocysteine.

"Raised homocysteine levels have been linked to the development of a number of degenerative conditions, including dementia, and there are many mechanisms involved. The main processes involved are damage to the white matter, which contains a large network of axons which facilitate communication in the brains and brain atrophy. Raised homocysteine may also affect the blood vessels supplying the brain, reducing the transport of oxygen and nutrients. These B vitamins are also heavily involved in the production of neurotransmitters such as dopamine (B6, B9, B12), adrenaline (B9), serotonin (B6, B9, B12), GABA (B6, B12), acetylcholine (B12), noradrenaline (B6, B12) and melatonin (B6)."

Barrett went on: "Phosphatidylserine supports neuronal membranes (Glade and Smith, 2015). It is crucial for neuronal functioning and has been shown to improve memory and reduce stress. *Rhodiola rosea* improves stress resilience (Panossian and Wikman, 2010). This stimulating and normalizing adaptogen has been shown to improve physical fitness, mental fatigue and neuromotor tests, as well as general wellbeing. *Bacopa monnieri* enhances memory (Stough et al., 2008), it has antioxidant actions that improve cognitive function and emotional wellbeing, helping improve memory and reduce anxiety, providing cognitive benefits and a reduction in oxidative stress."

Briggs turned to the role of nootropics: "The term is derived from the word 'noos', meaning 'to mind', and 'tropein', meaning 'to monitor' and any substance which has a positive effect on cognitive function can roughly be characterised as a nootropic. Coenzyme Q10 (CoQ10) is considered to have significant nootropic effects. CoQ10 has significant effects on the function of the mitochondria. These organelles are vital for the production of energy, via the electron transport chain. Mitochondria are very susceptible to oxidative stress and damage and therefore maintaining the balance of oxidation and antioxidants is of importance. CoQ10 supports the production of energy and decreases as we age. CoQ10 appears to reduce inflammation and act as an antioxidant, as well as having effects on the dilation of the blood vessels, via the production of nitric oxide.

"Decreases in CoQ10 and the resulting increase in oxidative stress causes declines in attention and executive function (which defines the ability to plan, focus attention, remember instructions, and juggle multiple tasks successfully) and depleted CoQ10 levels are also associated with cognitive impairment.

Supplementation with the reduced form of CoQ10, ubiquinol, appears to reduce endothelial cell damage, (which can lead to constriction of the blood vessels) and inflammation, which may then improve MCI.

"One of the main herbal products studied for cognitive function is ginkgo biloba extract. As a plant material, it has antioxidant properties which may help protect the brain and neurons, but it also appears to improve the flow of blood, and therefore other nutrients and oxygen to the brain, via its effects on vasodilation and platelet aggregation. It also appears to have neuroprotective effects, most likely linked to the effects on free radicals and oxidative stress, effects. It is one of the most widely researched herbs in this area of health and studies show that it improves memory and has comparable effects on cognitive function of pharmaceutical drugs.

"Rosemary will have compounds such as rosmarinic acid, which exert antioxidant effects in the body. It also appears to have a neuroprotective effect on dopaminergic neurons, which may be directly linked to memory and learning. Relatively low doses of up to 750mg have been shown to improve memory speed and alertness. Ashwagandha has been fairly widely studied as a nootropic and adaptogenic supplement, and has antioxidant, anti-inflammatory and neuroprotective effects, as well as decreasing the breakdown of acetylcholine. The withanolides in this herb have been shown to improve memory, executive function and information processing speed. Mechanisms of action include the regeneration of axons, dendronites and synapses.

"Sage is considered to have significant effects of brain health and cognitive function. As a plant, it will be rich in polyphenols, which have antioxidant properties and these include rosmarinic acid and caffeic acid. One of the most widely studies and significant effects of sage on brain health is the effect it has on acetylcholine, one of the neurotransmitters involved in learning, memory, attention and cognitive function. The breakdown of acetylcholine (ACh) is catalysed by the enzyme AChE and several species of sage can inhibit this enzyme, leading to an increased level of ACh, associated with increased neuronal transport and improvements in cognitive function.

"Lutein is largely associated with the health of the eye and macula health in particular, however, there are new studies emerging to confirm that lutein also accumulates in brain tissue, in direct correlation with the level found in the macula of the eye. Lower levels of lutein in brain are associated with an increase in MCI, and the mechanisms are not fully understood by may be linked to a reduction in oxidative stress, reduced inflammation and improvements in the structure and function of synaptic membranes. Lutein supplementation of 12mg a day improved verbal fluency, and when combined with DHA, it also improved memory and rate of learning more than DHA alone. Finally lemon balm can be considered, as it contains polyphenols such as monoterpenes, triterpenes and phenolic acids amongst others. The effects seem to be linked to its antioxidant capacity, which exerts a neuroprotective effect. Studies also suggest an effect on AChE, similar to that described for sage, which increases Ach levels and longevity in the body, improving cognition."

Barrett also suggested certain mushrooms.

"Functional mushrooms such as lion's mane, reishi and chaga offer adjunctive therapeutic benefits (Boh et al., 2007). The gut microbiome plays a central role in cognitive function via immune signalling and neurotransmitter production (Cryan et al., 2019). Functional mushrooms act as prebiotic modulators supporting microbial diversity (Valverde et al., 2015)," she explained.

"Lion's mane supports NGF synthesis and cognitive function (Nagano et al., 2010). This functional mushroom can activate the synthesis of nerve growth factor (NGF) in astrocytes, helping to improve cognitive function and memory as well as promoting the survival and regeneration of neuronal cells, significantly improving cognitive functions and emotional wellbeing. Chaga provides antioxidant support (Duru et al., 2019). It contains biomolecules such as beta-glucans, triterpenoids, inotodiol, betulinc acid and botulin that protect cells when under oxidative stress, it also reduces pro-inflammatory cytokines and regulates the synthesis of collagen and hyaluronic acid, helping to improve brain function."

FOCUS ON FATS

Essential fatty acids are among the most important considerations for brain health.

Briggs advised: "The brain is around 60 per cent by weight and poor levels of the right kids of fats have been linked to cognitive issues and decline. Fats contribute to the production of leukotrienes and prostaglandins, which act as chemical messengers, they will ensure the myelin sheath around nerves cells is intact and therefore allowing nervous impulses to be transmitted properly and will allow neurons and their cell membranes to function correctly. As the brain ages, changes in lipids in the brain can lead to a reduction in the release of neurotransmitters and changes in membrane function.

"One of the most important nootropic nutrients is the omega 3 fatty acid docosahexaenoic acid (DHA), found in algae and oily fish. This fatty acid is almost impossible to make from dietary intakes of alpha linolenic acid, the parent compound of the omega 3 group. Studies suggest that to obtain the 250mg of DHA equired per day for normal brain function, according to EFSA, an individual would need to consume 12.5-50g (12,500- 50,000mg) of flax seed oil. DHA is the main fat found in brain tissue and has many different roles to play in improving brain function and cognition. These include:

- Increasing production of Brain Derived Neurotrophic Factor (BDNF), a protein which plays a role in the growth, differentiation, maturation and survival of neurons.
- Improving neuroplasticity which is the ability of the brain and nervous system to reorganise formation, function and networks which may enhance memory and cognition.
- Reducing inflammation, by inhibition of COX-2, associated with damage to neurons. Inflammation is increased in all neurodegenerative conditions including dementia.

"DHA is also involved in regulating and supporting the synthesis and accumulation of other important nootropic compounds including phosphatidyl serine (PS). PS and the related phospholipids such as phosphatidyl choline (PC) are predominantly involved in maintaining the lipid membrane and changes in this membrane affecting excitability and the release of neurotransmitters are associated with age related cognitive decline.

"Phospholipids are also required for the health of the myelin sheath and the transmission of nervous impulses, all of which have an effect of the connections required to maintain and improve memory and cognition. Supplementary PS can cross the blood-brain barrier and has effects on the formation and consolidation of both short- and long-term memory as well as positive effects on retrieval, learning, recall, attention, concentration, reasoning, problem solving and language skills.

"PC intake is also associated with increases in PC in the brain and, like PS, it will play a role in the production and release of neurotransmitters and maintaining the integrity of the myelin sheath. It is also involved in the production of sphingomyelin, a compound involved in many processes including cell signalling and apoptosis (programmed cell death which ensures that damaged and dysfunctional cells are naturally destroyed). Both PS and PC are found in the diet, in foods such as eggs, fish and some beans, but many diets do not supply sufficient levels, particularly those which are plant-based."

Guide to MUSHROOM NUTRITION

Experts in medicinal mushrooms offer a practitioner guide to making the right recommendations

"Modern research has moved beyond traditional folklore to map the specific pathways, such as the HPA axis, the gut-brain-immune axis, and mitochondrial biogenesis through which fungal bioactives operate."

Medicinal mushrooms have become one of the most in-demand categories in recent years as public understanding of their health benefits has grown. But there remains a huge gap in knowledge around the specifics of what mushrooms can do, and also the importance of why quality is such an important consideration.

As the nutrition sector has known for many years, medicinal mushrooms offer a wide variety of health benefits and can act as a useful support for clients in areas that includes cognitive function, energy and immunity. But why is it that in more recent times, we have seen such growth in demand and understanding of these nutritional powerhouses?

Sophie Barrett, Herbalist and Mycotherapy Advisor at Hifas da Terra, explained: "The renaissance of medicinal mushrooms in Western medicine is driven by a shift toward systems medicine. Modern research has moved beyond traditional folklore to map the specific pathways, such as the HPA axis, the gut-brain-immune axis, and mitochondrial biogenesis through which fungal bioactives operate. As patients increasingly present with multi-systemic issues, for example, 'tired but wired' burnout, practitioners are turning to fungi for their unique ability to modulate, rather than simply suppress physiological responses (1, 6)."

Rebecca Keane, Nutritional Therapist at Wild Nutrition, added: "Many people are turning to more natural remedies to support their health, which has led to increased research funding and to the testing of traditional mushrooms in research studies. The increase in interest has led to rising sales of medicinal mushroom supplements. In Asia, medicinal mushrooms have been used for centuries to treat diseases, while in the West, attention in this area has been comparatively recent. As research develops, especially on certain species like lion's mane for cognitive support, mushrooms have become more available in different formats such as capsules, powders, and gummies, and consumers have become more comfortable and familiar with using them as part of their routine."

And Lola Biggs, Registered Dietitian and Nutritionist at Together Health, also advised: "There's been a real convergence of factors. The research base has grown substantially, with much stronger clinical evidence supporting the benefits of mushrooms like lion's mane, reishi, and chaga, particularly around immune modulation, cognitive health, and adaptogenic properties. That scientific validation has given practitioners more confidence in recommending them.

"At the same time, there's been a broader cultural shift towards natural and functional approaches to health. People are increasingly looking for solutions that work with the body's own systems, and medicinal mushrooms fit perfectly into that philosophy. They've been used in traditional Chinese and Japanese medicine for thousands of years, and we're now beginning to understand the mechanisms behind what those traditions always knew. With the wide range of formats available – powders to add to coffees, gummies to chew on your way to work, or convenient capsules – there seems to be a mushroom product for everyone. This variety could be why more people are open to trying them."

Alice Bradshaw, Head of Nutrition Education and Information at Terranova, agreed, adding: "The rapid growth in research, improved analytical techniques and a rising interest in natural health solutions have all contributed to a deeper understanding of medicinal mushrooms. Scientists are now able to isolate and study compounds such as polysaccharides, triterpenes and sterols with far greater precision, which has expanded the evidence base considerably. At the same time, mushrooms have moved firmly into the mainstream through functional foods, mushroom coffees and wellness-led product innovation. This visibility has helped shift them from niche traditional remedies to widely recognised functional ingredients supported by modern research."

Nutritional benefits

If we start by looking broadly, why are mushrooms considered so beneficial to health?

Keane explained: "Medicinal mushrooms offer health benefits that have been shown to reduce inflammation, modulate the immune system and protect the body against oxidative stress. They are rich in bioactive compounds such as beta-glucans, triterpenes, phenolic compounds, and plant sterols, all of which contribute to their therapeutic effects. Some studies suggest they can help support blood sugar levels, improve cholesterol levels, support brain, liver, and heart health, and provide potential anticancer, antimicrobial, and neuroprotective benefits. While more high-quality clinical trials to confirm their therapeutic effectiveness are needed, medicinal mushrooms are established as part of a complementary health approach."

Biggs added: "At their core, medicinal mushrooms are powerful immune modulators. Compounds called beta-glucans interact with immune cells to help regulate the immune response, helping it to be more effective without pushing it into overdrive. Many possess significant antioxidant and anti-inflammatory properties relevant to cardiovascular health and healthy ageing. Specific mushrooms offer unique benefits on top of this shared foundation: lion's mane for cognitive function and nerve health, reishi for stress adaptation and relaxation, and chaga for its exceptional antioxidant capacity. There's also emerging research around gut health support and blood sugar regulation. What I find compelling is the synergistic nature of these compounds. Mushroomscontain hundreds of bioactive substances that work together, which is why a whole and multiple mushroom approach tends to be more effective than isolating individual compounds."

"Their broad-spectrum potential reflects the complexity of their chemistry, with many species containing hundreds of compounds that work together to influence key physiological pathways."

Barrett continued: "The primary clinical value of medicinal mushrooms lies in their biological response modifier (BRM) activity:

- **Immunomodulation:** High-molecular-weight β-glucans (1,3/1,6) prime the innate immune system (macrophages and natural killer cells) without overstimulating the pro-inflammatory response (2).
- **Secondary metabolites:** Beyond polysaccharides, mushrooms contain triterpenes, phenols, and alkaloids that provide potent antioxidant, anti-inflammatory, and neuroprotective effects (7)."

And Bradshaw advised: "Medicinal mushrooms contain a diverse range of bioactive compounds that are present in much higher concentrations than in culinary varieties. These include β-glucans, triterpenes, sterols and antioxidants, all of which have been studied for their roles in immune modulation, healthy inflammatory responses, metabolic balance, cognitive support and adaptogenic activity. Their broad-spectrum potential reflects the complexity of their chemistry, with many species containing hundreds of compounds that work together to influence key physiological pathways."

Let's also examine the clients that could benefit – as well as those who should be advised with caution.

Barrett commented: "Mycotherapy is most effective when tailored to the patient's root cause health challenge:

- **The highly-stressed individual:** Reishi for nervous system dysregulation and sympathetic dominance.
- **The chronic fatigue patient:** Cordyceps for mitochondrial dysfunction and low ATP resilience.
- **The cognitively challenged:** Lion's mane for neuro-inflammation and impaired recovery."

Keane continued: "Research has indicated that they may aid immune function, and can even help with cancer therapy, but effects and species vary by dose. People with autoimmune conditions, those on immunosuppressant medication, or on blood-thinning medications should consult a healthcare professional before using them. People with cancer should not use medicinal mushrooms without consulting their oncologist. There is no reliable research on the safety of medicinal mushrooms for pregnant or breastfeeding women, so it's best to avoid them for safety reasons."

FOCUS ON REISHI

Let's now examine the benefits of some popular specific medicinal mushrooms, starting with reishi.

"Known as the 'mushroom of immortality' in traditional Chinese medicine, its adaptogenic qualities help the body respond to stress more effectively, and it contains triterpenoids called ganoderic acids that support relaxation and sleep quality," Biggs explained.

And Bradshaw pointed out: "Reishi is notable for its extensive profile of more than 400 compounds, including triterpenoids and polysaccharides that have been studied for blood sugar regulation and histamine-related pathways."

Keane went on: "I usually use reishi (*Ganoderma lucidum*) over winter to support my immune health and during hay fever season. Reishi contains compounds like triterpenes and polysaccharides that help modulate the immune system and reduce inflammation, and can be used in various forms such as powders, dietary supplements, and tea and are produced from different parts of the fungus, including the mycelium, spores, and fruiting body."

Barrett added: "Reishi acts as a nerve tonic. Its ganoderic acids (triterpenes) modulate GABAergic pathways and lower systemic inflammation, improving sleep architecture and reducing sleep latency (3, 8).

A LOOK AT LION'S MANE

A strong choice around cognitive function, lion's mane (*Hericium erinaceus*) is among the most popular of medicinal mushrooms.

"Lion's mane contains erinacines and hericenones, which stimulate Nerve Growth Factor (NGF) and BDNF, facilitating myelin repair and synaptic plasticity (4, 9)," Barrett explained.

Biggs added: "I have a genuine soft spot for lion's mane. It contains unique compounds called hericenones that stimulate NGF production, essential for neuron health and cognitive function. It's one of the few natural substances that can genuinely support brain health at a cellular level."

Bradshaw continued: "Lion's mane has become one of the most widely discussed medicinal mushrooms due to research exploring its potential influence on cognitive and neurological pathways. Compounds such as hericenones and erinacines have been investigated for their ability to support NGF activity, which has placed lion's mane at the forefront of interest in cognitive health, focus and mental clarity. Its growing popularity reflects both traditional use and emerging scientific interest."

And Keane added: "Lion's contains compounds like hericenones and erinacines that protect the brain, reduce inflammation, and promote nerve growth. Recent research has highlighted its antioxidant and neuroprotective benefits, and some studies have shown how it can help not only with cognition but also with emotional wellbeing."

Other options

There are a number of other medicinal mushrooms that can be supportive of clients with certain health issues, including:

- **Chaga:** Biggs explained: "Chaga deserves a mention for its extraordinary antioxidant profile, I often call it the vitamin C of mushrooms. It grows on birch trees in cold climates, and that harsh environment seems to concentrate its protective compounds, offering potent support for immune health." Bradshaw added: "Chaga's exceptionally high ORAC score and triterpenes such as betulinic acid have been explored for their antioxidant and cell-protective properties."
- **Maitake:** Ideal for metabolic and cardiovascular markers. Bradshaw explained: "Maitake stands out for its high β-glucan content and ergothioneine, supporting research into immune function, cardiovascular markers and stress resilience."
- **Cordyceps:** "Rich in cordycepin and adenosine, it enhances oxygen uptake and ATP synthesis, supporting the adrenal glands and improving metabolic resilience during burnout (5, 10)," Barrett advised. Meanwhile, Bradshaw explained: "Cordyceps has a long history of use for vitality and is now studied for endurance, immune health and metabolic pathways."
- **"Shiitake and Royal Sun Agaricus** also offer well-documented β-glucan activity, contributing to immune modulation and antioxidant support," Bradshaw recommended.

In-clinic recommendations

Mushroom supplements have become so popular that we now see widespread differences in terms of quality, not just in how a product has been manufactured but also with regard to the raw materials that go into it. Therefore, it is really important clients are educated on the factors to consider.

Biggs advised: "This is where quality really separates the good from the ineffective. The single most important factor for me is whether a supplement provides guaranteed levels of key bioactive compounds. A quality product should tell you exactly how much beta-glucan, hericenone, or triterpenoid content is in each dose, not just list a polysaccharide percentage. That distinction matters because polysaccharides include starch, which doesn't offer the immune-modulating benefits of beta-glucans specifically. If the actives aren't measured and guaranteed, you really have no way of knowing whether the supplement is going to do what it claims.

"Beyond that, whether the supplement uses 100 per cent fruiting bodies or includes mycelium grown on grain is crucial. The fruiting body is where the highest concentrations of bioactive compounds are found. Many cheaper supplements use mycelium cultivated on grain substrates, and the final product often contains significant starch that dilutes the active compounds.

"The extraction method matters enormously too. Mushroom cell walls are made of chitin, their tough scaffolding, which humans can't digest, therefore, beneficial compounds remain locked away unless properly extracted. A dual extraction process using both hot water and alcohol is the gold standard, capturing water-soluble compounds like beta-glucans and alcohol-soluble compounds like hericenones and triterpenoids. And the growing substrate is often overlooked. Mushrooms grown on natural, species-specific substrates like hardwood logs and sawdust produce significantly more potent compounds than those grown on grain, because wood substrates contain lignin and other precursors essential for synthesising compounds like beta-glucans."

Keane added: "When recommending medicinal mushrooms, it's very important to recognise that the quality can vary. This includes factors such as what part of the mushroom is used, risk of contamination, dosage, and some supplements might not contain the active compounds they have listed on the label. Independent third-party tests will verify the purity and levels of active compounds like the triterpenes and beta-glucans to ensure what's on the label reflects the ingredients. So, when you're buying from a brand, always ask whether their products are third-party tested. Other factors to consider include any added ingredients, like caffeine, and whether the supplement is suitable for your personal needs, such as budget, or dietary requirements like gluten-free or vegan."

"Extraction methods, standardisation and the inclusion of the full organism — mycelium, fruiting body, primordia and extracellular compounds — all affect potency."

And Barrett went on: "For a practitioner, 'mushroom powder' is not a therapeutic dose. The industry is currently plagued by:

- **Mycelium on grain:** Many products are mostly starch/filler with negligible active metabolites.
- **Lack of standardization:** Without a guaranteed percentage of β-glucans and triterpenes, clinical outcomes are unpredictable.
- **Contamination:** Fungi are bio-accumulators; if not grown organically, they may contain heavy metals or pesticides.

"To ensure clinical efficacy, a practitioner should insist on:

- **Standardized extracts:** Look for defined amounts of bioactives per capsule.
- **Dual extraction:** Essential for mushrooms like reishi to capture both water-soluble polysaccharides and alcohol-soluble triterpenes.
- **Traceability and purity:** Products must be organic, non-GMO, and third-party tested for heavy metals and toxins.
- **Concentration ratios:** Therapeutic extracts should be highly concentrated (e.g., 10:1 or 15:1) to ensure the patient can achieve a clinical dose in just one to two capsules."

Meanwhile, Bradshaw advised: "Quality varies significantly across the mushroom supplement market, and this can directly influence the presence of active compounds. Some products use only the fruiting body or only the mycelium, which may limit the spectrum of bioactives. Others may be grown on grain substrates that dilute the final material with starch, rather than delivering meaningful levels of β-glucans. Extraction methods, standardisation and the inclusion of the full organism — mycelium, fruiting body, primordia and extracellular compounds — all affect potency. Practitioners therefore need to look closely at cultivation, processing and testing methods when assessing product quality."

There is also the benefit of recommending those are subject to respected certifications.

"Organic certification should be non-negotiable. Mushrooms are bioaccumulators, meaning they absorb and concentrate whatever is in their environment, which is wonderful in pristine conditions but concerning if pollutants are present," Biggs advised: "Third-party testing is essential, particularly for heavy metals. Because mushrooms are such effective bioaccumulators (natures sponges), testing should be carried out by independently accredited laboratories rather than in-house. Look for UKAS accreditation in the UK.

"Sourcing and provenance are worth paying attention to as well. China has thousands of years of expertise in mushroom cultivation, and the best suppliers follow the ancient DaoDi concept of sourcing from authentic habitats. That said, rigorous quality controls need to be in place, including DNA testing of strains and batch testing to Western standards. Finally, transparency from the brand is a good indicator of quality. If a brand can't tell you whether they use fruiting bodies or mycelium, what their extraction ratio is, or what their beta-glucan content is, that should raise questions."

Bradshaw added: "Traceability and certification are increasingly important indicators of quality. Products should clearly state their species, origin, cultivation method and testing standards. Independent verification of β-glucan content is particularly valuable, as this is one of the most researched groups of compounds. Organic certification, controlled cultivation environments and transparent sourcing all help ensure purity and consistency. Fermented or submerged-cultivation mushrooms can offer additional advantages, as this method preserves both the mycelium and the extracellular β-glucans, improving bioavailability and ensuring a high-potency final material."

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NATURAL PLANT GOODNESS

What can ancestral diets teach us about metabolic disease and inflammation?

As part of the *Nutrition I-Mag* Mentoring Scheme, Olivia D'Silva, studying for a Graduate Diploma in Integrative Functional Nutrition at the Institute of Optimum Nutrition (ION), examines the role of ancestral diets in nutrition protocols.

Ancestral-based diets are continuing to gain popularity as awareness grows around the role of diet in chronic disease. With rising rates of metabolic dysfunction and inflammation-related illness, there is interest in how ancestral diets may impact health outcomes.[5, 6, 10, 19]

Ancestral diets are typically considered as the native diets for a given region, influenced by geography, culture and seasonality.[1] Although specific food types vary globally and there is no single ancestral diet, the underlying principles align with an emphasis on minimally processed whole foods consumed in-season and sourced locally.[2, 15, 19]

On the other hand, modern diets typically have a higher intake of ultra-processed foods as defined by the NOVA classification, i.e., ingredients which are highly processed industrially into another food substance before consumption, made for palatability and shelf-life rather than nutritional quality.[7, 8] These diets are also generally associated with a lower intake of fruit and vegetables, with higher levels of sugar and sodium.[10, 18, 21] The change from ancestral-based to the modern, ultra-processed diet has occurred alongside a rise in chronic illness, particularly linked to metabolic dysfunction and chronic low-grade inflammation.[5, 6, 10, 11]

FROM ANCESTRAL TO MODERN DIETS

The transition from ancestral to modern diets has occurred relatively quickly in the last 200 years as a result of industrialisation. Today's food systems have been driven by globalisation with an emphasis on scalability and year-round availability, as well as changing lifestyles, which tend to focus on accessibility and convenience. This has contributed to an increased reliance on ultra-processed foods, comprised of refined carbohydrates, added sugars and processed fats, while fibre and micronutrient-dense foods have declined.[5, 6, 7]

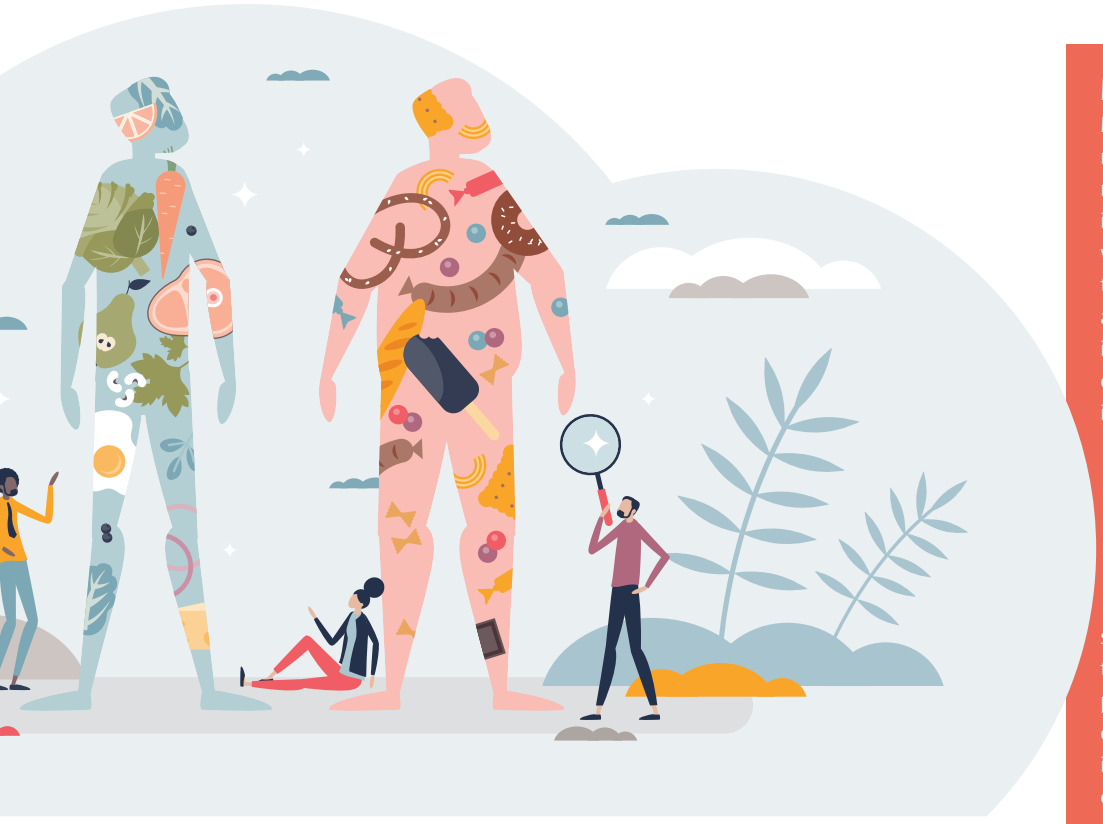
Changes have also occurred throughout the food chain process, from agricultural practices influencing soil quality and potential micronutrient availability, to modern processing techniques altering the composition of both food ingredients and final ultra-processed foods for consumption.[7, 10]

The broader impact of diet-related illness has also been quantified. The Food, Farming and Countryside Commission estimated that it costs Britain £268 billion annually based on healthcare expenditure, productivity losses and wider society-related impacts.[9] The personal health burden is significant too; of the UK adult population, 30 per cent are estimated to have hypertension[3] and 20 per cent have prediabetes or diabetes[8], while 7.6 million have cardiovascular disease, responsible for 25 per cent premature deaths[3], although these diseases are multi-factorial.

How ancestral diets and lifestyle influence metabolic health and inflammation

Given the significant burden of diet-related illness, it is worthwhile to understand changes that can be made to support healthier lifestyles. Studies relating to ancestral diets often involve comparing the principles of minimally processed whole food diets with more modern ultra-processed dietary patterns.[4, 6, 16, 19] Whole food diets are generally linked with reduced metabolic dysfunction and more favourable inflammatory marker profiles. For example, in a 2025 study of a population in Northern Tanzania, incorporating a modern, western diet impacted metabolic pathways linked to chronic diseases and was linked to higher levels of pro-inflammatory markers. The reverse was found when returning to an ancestral diet.[20]

However, any findings should be interpreted in the context of lifestyle factors such as sleep, stress and physical activity, all of which appear to influence metabolic health and inflammation-related illness.[2, 17]



Inflammation

While inflammation pathways are a normal physiological response to infection or injury, chronic low-grade inflammation is linked to a range of non-communicable diseases including cardiovascular disease, type 2 diabetes and gastrointestinal disorders.[6] These pathways are complex and multi-factorial, with diet considered one factor that may contribute.[21]

Growing research links the role of the gut microbiome with modulating inflammatory processes. Dietary patterns which are highly processed, with lower intakes of fibre and phytonutrients, as well as higher amounts of sugar, tend to be associated with a reduction in microbiome diversity.[6, 13] Imbalances in the gut microbiome are linked to impaired gut barrier integrity and associated with a reduction in short chain fatty acids. This can then modulate inflammatory signalling pathways.[14] This remains an evolving area of research.

In addition, diets high in ultra-processed foods have been associated with increased oxidative stress and pro-inflammatory pathways, which may further contribute to chronic low-grade inflammation.[6] In contrast, dietary patterns rich in whole plant foods typically include polyphenols and other bioactive compounds which may provide anti-inflammatory effects through modulation of cellular signalling pathways.[12, 13, 21]

Where do supplements fit in?

While a food first approach is usually preferable, there are situations where supplements may prove helpful for an individual. For example, modern day lifestyles present challenges such as limited time for food preparation and accessibility to certain foods. Supplements may be recommended to support a specific micronutrient deficiency where diet alone is not sufficient for that individual.

In particular, one of the factors in an ancestral-based diet is the 'nose to tail' approach, where organ meats are consumed for micronutrients including vitamin A, iron and B vitamins.[12] However, organ meats do not typically feature in a modern diet. As a result, there are a growing number of organ-based supplements available as a more accessible way to incorporate these nutrients into modern diets. As with any supplement, quality and individual need should always be carefully considered and where appropriate, guided by a qualified practitioner.

Conclusion

While we do not need to exactly replicate ancestral diets, there is value in applying these principles in a modern context. Focusing on minimally processed whole foods, increasing dietary diversity and considering how food is sourced and prepared are important considerations when considering metabolic health and inflammation outcomes.

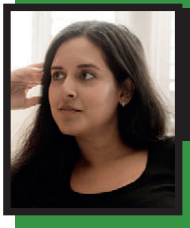
Metabolic health

Metabolic dysfunction, collectively referring to blood glucose, lipid metabolism and energy dysregulation, is increasingly common and linked to a wide range of chronic conditions such as type 2 diabetes, cardiovascular disease and obesity.[6] While metabolic health is complex and multi-factorial, diet is considered as one of several factors influencing outcomes.

When diets are high in refined carbohydrates, a typical feature of modern diets, blood glucose levels can be more variable, requiring increased insulin regulation. Over time, this may be associated with reduced insulin sensitivity in individuals, contributing to type 2 diabetes risk.[19, 21] In addition, ultra-processed foods are generally energy-dense but less satiating, which may influence appetite regulation and overall energy intake.[18]

In contrast, ancestral diets, which are generally higher in fibre and whole foods, may support more stable blood glucose responses. Fibre may also be involved in modulating gut microbiome diversity through the production of short chain fatty acids, which are linked to improved insulin sensitivity and energy regulation.[10]

Furthermore, whole food diets may provide a wider range of micronutrients and compounds involved in modulating metabolic pathways, including those involved in mitochondrial function and cellular energy production, which may further support metabolic resilience.[6] This includes nutrients such as magnesium, zinc and B vitamins, which are involved in glucose metabolism and energy production processes.



ABOUT THE EXPERT

Olivia D'Silva is currently a student at the Institute for Optimum Nutrition, studying for a Graduate Diploma in Integrative Functional Nutrition. She holds a BSc (Hons) in Physiology from the University of Bristol. Olivia has a particular interest in nutrition, nature and ancestral health principles, which she integrates into her studies and her role as a Board Trustee for Mind Over Mountains.

Building your practice

Award-winning nutritionist and young business founder, Lucy Jones, explains why knowledge isn't enough in building a successful nutrition business.

Fresh out of university at 21, I stepped straight into the nutrition field as a freelancer. I had a role freelancing within another business, alongside setting up my own nutrition practice, Lutrition, on the side. What I didn't anticipate was just how hard it would be to build credibility and authority as a self-employed Registered Nutritionist.

On paper, I had everything I thought I needed to be trusted. A first class degree, registration with a professional body, and a commitment to regular CPD. The moment I started networking, reality hit. People weren't taking me seriously, for two reasons.

The first was experience, or rather, their perception of experience. I had no visible evidence beyond my degree that I could support people with their diet and health. The second barrier was my age. People often equate age with authority. At 21, I was easy to dismiss. People assumed I lacked knowledge, that I wasn't ready to run a business, and that I didn't know enough about nutrition.

This knocked my confidence, and imposter syndrome hit me in the face. I over-emphasised my qualifications, my CPD, the handful of clients I'd supported – anything to make people respect me. Looking back, I realise I wasn't unknowledgeable, and I did have experience. I had transferable skills from my previous job, a volunteering role, and also work experience. I was also mentored by a dietitian who shadowed me. The issue was never my capability, it was how people perceived my capability.

Five years on, now running Lutrition full-time at 26, I've learnt a lot. Here are the key lessons I wish I'd known earlier, and reassurance that your age doesn't matter.

1 LESSON ONE

Credibility is built socially, not academically. Qualifications matter, but they don't build the trust needed for people to work with you. Trust is built through what people see you doing, not from your certificates.

That means showing up consistently, sharing your professional opinions (including the bold ones), showcasing client feedback and transformations, but also being honest about your scope of practice, and talking openly about your CPD and supervision. These actions show people you're knowledgeable, reliable and credible.

2 LESSON TWO

Showing up as your genuine self is essential for building a successful nutrition business, especially as a younger nutritionist.

It's a misconception that you need to dress or speak a certain way or hide your personality to appear 'professional'. All this does is make you blend in. People buy from people. There are many nutritionists doing similar work – what makes you stand out is you. Your personality is your biggest asset. Dress like yourself, speak like yourself, and share your quirks, humour and stories. Authenticity attracts the right clients and prevents burnout from pretending to be someone you're not.

3 LESSON THREE

Social media is a highlight reel. It's easy to look at other freelance nutritionists and only see their wins, from being fully booked, working with brands, or travelling whilst working remotely. What you don't see are the messy bits. Losing clients, missing out on opportunities, or carrying the intense weight of every business decision.

These are the realities of self-employment. Every freelancer experiences these, even if they don't share them. Building resilience is one of the most important business skills you can develop. Business is full of ups, downs and lots of no's. Learning to keep going is essential, and it comes with time.

4 LESSON FOUR

Running a nutrition business requires more than nutrition knowledge. You need business skills – marketing, bookkeeping, customer service and systems that create a smooth client experience. These skills aren't taught in nutrition courses, but they're essential.

Invest time in learning them – there's so much support out there, so don't do it alone. For example, The Freelance Nutritionist Collective is an online membership supporting nutritionists and dietitians to develop the skills to kickstart their own businesses.

5 LESSON FIVE

Translating theory into simple, actionable steps is fundamental. Clients won't understand complex scientific explanations. As I learnt early on, telling someone to eat 30g of fibre a day isn't helpful when they don't know which foods contain fibre or how to add them into their meals. Being able to break down science into practical, actionable steps is a make-or-break skill for being a good nutritionist. This is where CPD, particularly on behaviour change, becomes invaluable.

When you work for yourself, no one schedules mandatory training – so you must make sure you do!

6 LESSON SIX

Business success rarely happens overnight, it happens from consistent action. Consistency of your actions is as important for your business as it is for your own clients' results.

You can't expect to put up one social media post or display a poster in a cafe and be fully booked. You need to keep showing up, even when it feels like no one is listening. Post on socials when engagement is low, find speaking opportunities to showcase your expertise, and network to make new connections. Visibility builds awareness and trust, which leads to clients and referrals.

7 LESSON SEVEN

Success as a freelance nutritionist isn't always just being fully booked. As glamorous as being fully booked or having thousands of followers on socials can be, they're not the only markers of success. Success also looks like receiving a message from someone who found your content helpful, a client leaving a testimonial, gaining a referral, or being asked for your professional opinion. These moments show growth and success – and are worth celebrating!

In summary

Running a nutrition business, particularly as a young founder, isn't always straight sailing, but that doesn't mean it's not possible. Your age doesn't define your capability, and your credibility grows every time you show up, every time you communicate your expertise clearly, every time you support someone to make a positive difference in their lives, and every time you keep going when it feels tough. Be consistent, build your resilience and be willing to make mistakes and learn. Do this, and you'll build a nutrition business that not only thrives but genuinely helps people – and that's the best marker of success as a nutrition practitioner.

Lucy Jones is an award-winning Registered Nutritionist (RNutr) with Harley Street experience and has been providing support both online and in person since 2021. Lucy is the founder of Lutrition and The Freelance Nutritionist Collective, with the latter launched for aspiring and new nutritionists and dietitians to kickstart their own nutrition businesses. Find out more at **www.lutrition.co.uk/tfnc**

EXPERT ADVICE

Our panel of nutritional experts offer readers advice on dealing with a variety of issues.

Q Can you explain the role of fibre and specifically why it is so important for female pelvic health?

LORNA DRIVER-DAVIES ADVISED: In my clinical practice, I frequently consult with women experiencing complex pelvic inflammation and Pelvic Inflammatory Disease (PID), particularly those with comorbid diagnoses such as endometriosis. When patients remain unresponsive to conventional protocols – including antibiotic therapy and specialist pelvic physiotherapy – targeted nutritional intervention becomes a critical component of care.

Clinical presentation often includes irregular bowel motility and constipation, frequently co-occurring with varying degrees of vaginal microbiome dysbiosis. In these cases, I typically incorporate vaginal microbiome testing to map the local environment more closely.

A primary pillar of my protocol is the qualitative analysis of dietary fibre intake. This involves not just considering how much is consumed, but the specific sources of fibre; typically, clients either do not eat enough fibre or they intake sources that are not supportive. Fibre is supportive in PID, endometriosis, and vaginal dysbiosis. Beyond supporting regularity, dietary fibre exerts a significant systemic influence on both the vaginal and pelvic microbiomes through several pathways:

- **Risk reduction of PID:** There is a clear preventative correlation between high fibre intake and lower rates of pelvic infection. Data suggests that individuals in high-fibre cohorts have a 69 per cent lower prevalence of PID. Maintaining a high total fibre load is a foundational goal for long-term pelvic health and microbial diversity (1).
- **Microbial migration and pH:** High-fibre intake promotes the proliferation of beneficial gut flora (such as *Lactobacillus*), which can migrate to the vaginal tract to support a protective, acidic pH and reduce the risk of infections like Bacterial Vaginosis (BV).(2)
- **SCFA production:** Fibre acts as a prebiotic, feeding beneficial bacteria that produce Short-Chain Fatty Acids (SCFAs), specifically butyrate. These metabolites possess potent anti-inflammatory properties that help modulate the systemic 'whole body' burden of endometriosis.(3)
- **Reduction of pro-inflammatory markers:** Clinical studies demonstrate a direct correlation between high-fibre diets and lower levels of systemic inflammatory cytokines, including interleukin-6 (IL-6) and tumour necrosis factor-alpha (TNF-α). A reduction of inflammation is key in both PID and endometriosis.

A critical clinical nuance in the endometriosis population is the high prevalence of Small Intestinal Bacterial Overgrowth (SIBO) and Intestinal Methanogen Overgrowth (IMO). Studies indicate that endometriosis patients are significantly more likely to test positive for these overgrowths compared to the general population – often with a prevalence rate as high as 80 per cent.(x) To manage the inflammatory profile without exacerbating digestive distress or gas production (particularly methane in IMO), I prioritise low FODMAP fibre sources.

ABOUT THE EXPERT

Lorna Driver-Davies is a Clinical Nutritional Therapist Head of Practitioner Education at Wild Nutrition. Lorna brings 15 years' clinical experience across nutritional therapy, functional medicine, naturopathy and phytochemistry. Lorna specialises in women's hormonal, gynaecological and nutritional health, and is recognised as an industry expert through her lecturing, mentoring and academic achievements.

Q Can you explain why saffron is so beneficial around mood balance and sleep?

LINDSAY POWERS EXPLAINED: Saffron, the world's most precious spice, has long been prized for its vibrant colour, delicate flavour and remarkable health benefits. Harvested by hand from the bright red stigmas of the *Crocus sativus* flower, it has a history spanning thousands of years. It is deeply rooted in the traditional medicines of Persia, India, and the Mediterranean. Today, modern science is uncovering just how powerful this golden spice can be, particularly for supporting mood, hormonal balance and restful sleep.

Saffron's therapeutic power lies in its unique plant compounds, including crocins, safranal, and picrocrocin, which interact with the brain's neurotransmitters, such as serotonin and dopamine. These brain chemicals influence how we feel, think and cope with stress. By gently helping to rebalance them, saffron appears to promote a more positive mood and greater emotional stability.

One notable 2017 double-blind, randomised, placebo-controlled trial found that 28mg of Affron saffron extract daily for four weeks significantly reduced anxiety, stress and depression in healthy adults with low mood. Participants also reported increased vigour and less fatigue, with no significant side effects. This makes saffron a promising and well-tolerated option for those seeking alternatives to conventional medications.

For women, hormonal shifts can bring their own set of challenges – whether in the form of PMS, perimenopause or menopause. Research suggests saffron can help smooth these transitions. In 2007, a double-blind, randomised, placebo-controlled trial found that daily saffron supplementation eased the symptoms of premenstrual syndrome, with notable benefits for mood regulation. For perimenopausal women, a 2021 study found that 28mg of Affron saffron extract daily for 12 weeks lowered anxiety and depression scores by around a third, helping participants feel calmer and more in control.

In a 2020 study, adults with poor sleep who took 28mg of Affron saffron extract daily experienced significant improvements in sleep quality, offering a welcome natural option for those with self-reported sleep complaints. This can be particularly helpful during menopause, which is commonly disrupted during this transitional period.

For anyone navigating stress, low mood, hormonal changes or restless nights, saffron may just be nature's precious gift for restoring balance and vitality.

ABOUT THE EXPERT

Lindsay Powers is a Naturopathic Nutritional Therapist and Head of Nutrition and Practitioner Services at Good Health Naturally. As well as supporting customers and practitioners, Lindsay contributes to product development, content creation and education.

Q Can nutritional and lifestyle factors enhance male fertility?

JOANNA DZIEDZIC ADVISED: Male factor subfertility plays a significant role in infertility, impacting about 40-50 per cent of couples trying to conceive. Common issues include low sperm count (oligospermia), reduced sperm motility, abnormal sperm shape, and hormonal imbalances that can affect testosterone levels.

To improve male fertility, several helpful strategies can be considered. First, focus on key dietary nutrients. Zinc is essential for reproductive health and sperm production, found in foods like oysters, red meat, poultry, beans, and nuts. Maintaining adequate zinc levels is crucial for keeping testosterone levels healthy, which is vital for fertility.

Vitamin C also plays a significant role; it acts as an antioxidant that protects sperm from damage and boosts sperm motility. Great sources of vitamin C include citrus fruits, berries, bell peppers, and broccoli. Additionally, selenium is linked to better sperm motility and overall reproductive health. You can get selenium from seafood, Brazil nuts, and organic meats, so be sure to include these in your diet. Studies show that men with higher intakes of vitamins C and E experience improved sperm quality and lower DNA fragmentation.

Antioxidant supplements can offer extra support as well. Coenzyme Q10 (CoQ10) is known to enhance sperm count and motility while protecting sperm from oxidative stress. L-carnitine improves sperm health, motility, morphology, and count by protecting against oxidative stress and supporting mitochondrial energy production.

Including omega 3 fatty acids in your diet can also improve semen quality, with oily fish, nuts, and seeds being excellent sources. Additionally, lycopene, a powerful antioxidant found in tomatoes and other red fruits, has shown promising results in reducing DNA damage and increasing sperm survival.

Another effective approach is adopting a Mediterranean diet. This diet emphasises plenty of fruits, vegetables, whole grains, olive oil, nuts, and fish, all of which can promote better semen quality and overall health. The Mediterranean diet is praised for its antioxidant and anti-inflammatory benefits, which can positively influence fertility.

Managing oxidative stress is key, and lifestyle changes are equally important. High alcohol consumption is linked to lower testosterone levels and reduced sperm production. Regular physical activity is crucial as well; it helps maintain a healthy weight, reduces stress, and improves overall wellbeing, all contributing to enhanced fertility. Both underweight and overweight conditions can disrupt hormonal balance, so achieving and maintaining a healthy weight through nutritious eating and regular exercise is essential.

It is also important to be aware of potential contaminants in everyday products. Compounds like bisphenol A (BPA) and phthalates, commonly found in plastic food packaging, have raised concerns regarding their effects on reproductive health.

In summary, focusing on a nutrient-rich diet, incorporating key supplements, and maintaining a healthy lifestyle can significantly enhance male fertility. By addressing these dietary and lifestyle factors, men can take proactive steps toward improving their reproductive health.

ABOUT THE EXPERT

Joanna Dziedzic is a qualified Nutritional Therapist with a passion and interest in natural approaches to supporting complex health issues and improving vitality and wellbeing. She is Business Development Manager for Pure Encapsulations UK, a leading nutritional health science company.

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MAGNESIUM MATTERS: understanding the different forms

Nutritional Therapist, Martina Della Vedova, examines the importance of magnesium, and the recommendations around correct form.

Magnesium is one of the body's most essential minerals, yet it remains frequently overlooked in everyday nutrition. In clinical practice, it is a nutrient I return to time and time again – not as a quick fix, but because of its extensive involvement in normal physiological processes and its foundational role in supporting overall wellbeing.

Magnesium contributes to over 300 enzymatic reactions in the body. These include processes involved in normal energy metabolism, protein synthesis, and the maintenance of normal bones and teeth. It also contributes to normal muscle function, nervous system function, and electrolyte balance. Additionally, magnesium plays a role in cell division and contributes to a reduction of tiredness and fatigue, an authorised health claim that highlights its relevance in modern, fast-paced lifestyles.

Beyond these functions, magnesium acts as an electrolyte, helping to regulate electrical activity in the body. This is particularly important for muscle contraction and relaxation, including the steady rhythm of the heart.

Why intake matters

Modern lifestyles can significantly influence magnesium status. Busy schedules, processed foods, and reduced soil mineral content all impact dietary intake. At the same time, chronic stress, digestive imbalances, certain medications, and inflammation can affect how magnesium is absorbed and utilised within the body. While magnesium is naturally present in foods such as leafy green vegetables, nuts, seeds, legumes, and whole grains, intake does not always meet requirements. From a nutritional therapy perspective, magnesium is often considered as part of a wider, personalised approach, particularly during periods of increased demand, such as stress, physical exertion, or fatigue. Rather than viewing magnesium in isolation, it is important to consider it within the context of overall dietary patterns, lifestyle, and nutrient balance.

How the body uses magnesium

Magnesium is involved in hundreds of enzymatic reactions in the body. It plays a role in:

- Energy production at a cellular level.
- Muscle contraction and relaxation including playing a role in heart rhythm.
- Nervous system signalling.
- Electrolyte balance.
- Magnesium contributes to a reduction of tiredness and fatigue.
- Magnesium contributes to normal protein synthesis.
- Magnesium has a role in cell division.

Importantly, magnesium does not work in isolation. It interacts with other nutrients, including calcium, vitamin D, potassium, and B vitamins. This interrelationship means that magnesium's effectiveness depends not only on intake, but also on overall nutritional status and digestive health.

Absorption and bioavailability

When discussing magnesium, the concept of bioavailability – how well the body absorbs and utilises a nutrient – is key.

Supplements are available in a variety of forms, broadly categorised as organic (chelated) and inorganic compounds. Organic forms such as citrate, glycinate, and malate are generally more soluble, which may support absorption. In contrast, inorganic forms like oxide are less soluble. However, absorption is influenced by multiple factors, including digestive function, dosage and timing, individual nutrient status, and interactions with other minerals.

In practice, tolerance is just as important as theoretical absorption rates. A form that is well tolerated and taken consistently is often more beneficial than one that may be highly bioavailable but poorly tolerated.

Understanding forms

One of the most common questions I encounter is 'Which type of magnesium should I take?' The answer is nuanced. Different forms of magnesium are bound to different compounds, which influences their solubility, absorption, and suitability for individual needs:

- **Magnesium oxide:** Magnesium oxide contains a high percentage of elemental magnesium but is less soluble. It is often used in supplements due to its high elemental concentration, although it isn't easy to absorb.
- **Magnesium sulphate:** Commonly known as Epsom salts, this form is widely used in baths as part of relaxation routines. It is not typically used for oral supplementation unless under medical supervision.
- **Magnesium citrate:** Magnesium citrate is one of the most widely used forms. It is well

absorbed and commonly included in general supplementation due to its balance of bioavailability and elemental magnesium.

- **Magnesium malate:** Bound to malic acid, a compound involved in energy production. It is included in daytime formulations and offers similar elemental magnesium levels to citrate.
- **Magnesium glycinate (bisglycinate):** This form is bound to the amino acid, glycine. It is often selected for its gentle nature and suitability for regular use. While it contains less elemental magnesium than citrate, it is typically well tolerated. Bisglycinate refers to magnesium bound to two glycine molecules, versus only one in magnesium glycinate. Glycine can bind to nervous system cell receptors and synergistically work with magnesium.
- **Magnesium taurate:** Magnesium taurate combines magnesium with taurine, involved in nervous system and heart function. It is well absorbed and provides a similar level of elemental magnesium to glycinate.
- **Magnesium acetyl taurate:** Magnesium acetyl taurate is included in advanced formulations. It contains lower levels of elemental magnesium but is selected for its bioavailability and compatibility with nervous system support.
- **Magnesium threonate**: Magnesium threonate is a newer form that has been explored in research relating to cognitive function. While no specific health claims are authorised in the UK, it is often used in targeted formulations. Often branded as Magtein, it is bound to threonic acid, a metabolite of vitamin C. It contains a lower percentage of elemental magnesium but is noted for its superior bioavailability.
- **Magnesium lysinate:** This chelated form combines magnesium with lysine. It is typically well absorbed and gentle on digestion, making it suitable for sensitive individuals.
- **Magnesium glycerophosphate:** A lesser-known but highly soluble form, magnesium glycerophosphate is well tolerated and often used in combination formulas.
- **Magnesium fumarate and succinate:** These forms are linked to compounds involved in the body's natural energy cycle (the Krebs cycle. They are equally bioavailable compared to magnesium citrate or malate and have also similar elemental magnesium concentration.
- **Magnesium gluconate:** A water-soluble and gentle form, magnesium gluconate is well tolerated but contains lower levels of elemental magnesium compared to citrate.

Elemental magnesium: what does it mean?

Supplement labels often list 'elemental magnesium', which refers to the actual amount of magnesium available in a compound. Different forms provide varying percentages:

- **Magnesium oxide**: High elemental magnesium.
- **Magnesium citrate:** Moderate.
- **Magnesium glycinate**: Lower but often better tolerated.

This means a higher milligram dose does not necessarily equate to better absorption or effectiveness. Both the form and the elemental magnesium content should be considered together.

Choosing the right magnesium

From a nutritional therapy perspective, selecting the appropriate form is highly individual.

- **Daily support:** Magnesium citrate or glycinate.

"Different forms of magnesium are bound to different compounds, which influences their solubility, absorption, and suitability for individual needs"

- **Sensitive digestion**: Glycinate or glycerophosphate.
- Topical use: Magnesium sulphate baths.
- Broad support: Combination formulas.

Quality matters: what to look For

When selecting a supplement, quality is key:

- **Clear labelling:** Look for transparency around the form and amount of elemental magnesium.
- **Thoughtful formulation:** Blended formulas may offer complementary benefits.
- **Appropriate dosage:** Ensure it provides a meaningful amount suitable for regular use.
- **Manufacturing standards:** Choose brands that adhere to recognised quality practices, such as Good Manufacturing Practice (GMP).

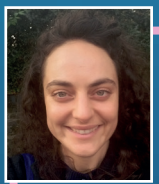
A balanced approach

Magnesium is a foundational nutrient, but is most effective when considered as part of a holistic approach to health. Alongside supplementation:

- Include magnesium-rich foods in the diet.
- Maintain adequate hydration.
- Support overall nutrient balance.
- Address leep, stress, and physical activity.

Key takeaways

- Elemental magnesium alone does not determine effectiveness.
- Organic forms are generally more bioavailable.
- Tolerance plays a crucial role in consistency.
- Different forms serve different purposes.
- A personalised, balanced approach is essential.



ABOUT THE EXPERT

Martina Della Vedova obtained a Master in Functional Genomics in Italy and trained as a Nutritional Therapist in London. She works for NaturesPlus as a Nutritional Advisor and also sees clients privately.

Rooted in science, powered by innovation

At the heart of Metagenics is a commitment to rigorous science and genuine innovation. Since acquiring Nutri Advanced, the business has wasted no time investing for future growth. Here, *Nutrition I-Mag* finds out more about the focus ahead.

When Nutri Advanced was acquired by Metagenics in 2022, it marked the start of an exciting new programme of work, which has seen a range rebrand, not to mention huge investment in both the portfolio and its practitioner support.

But this wasn't just any acquisition, as Metagenics, had, for many years, enjoyed a strong relationship with Nutri Advanced, founded by Ken Eddie; prior to the acquisition, Nutri Advanced was the UK distributor of Metagenics, with 45 per cent of its product range supplied through Metagenics Belgium.

At the time of the acquisition, Metagenics pledged investment and support, and almost four years on, it is clear the business took such pledges seriously; we have now seen a rebrand of the Nutri Advanced products to align under the Metagenics brand, a clear investment in education, and exciting NPD.

Stijn Oste, Regional Vice President EMEA at Metagenics, commented: "Having worked at Metagenics for 17 years and knowing Ken Eddie well, I see this acquisition not as a change in direction, but as the formalisation of a longstanding partnership and shared clinical values – with the added benefit of stronger scientific backing and more resources to support practitioners in their daily practice. In short, practitioners get continuity where it matters – and more options where it helps."

Robert Sackett, Brand Manager, added: "The real win for UK practitioners is that continuity is now combined with greater clinical breadth and support. Practitioners keep the products and protocols they trust, but gain access to a broader, complementary portfolio developed under the same evidence-based philosophy – particularly valuable for more complex or evolving patient needs."

The Metagenics business

Metagenics is based in the USA, supplying global markets, and has a clear ethos.

CHRISTINE BAILEY

Stijn commented: "Metagenics doesn't just make vitamins. Metagenics rethinks wellness entirely. For too long, choosing a supplement has been a place of guesswork and empty promises. At Metagenics, every product is a promise, rooted in rigorous science, powered by innovation, and designed to make a provable difference. Not just in lab results, but in how people actually feel. We don't just formulate supplements, we formulate outcomes.

"With over 40 years of clinical expertise, our formulas are built to work with the body to restore balance, so you can truly feel the difference. Precision dosing, bioavailable ingredients, backed by research, trusted by practitioners, proven by results."

And to the changes since the acquisition – what has this meant for the brand?

Stijn advised: "From the very beginning, Nutri Advanced worked closely with Metagenics, initially as the UK distributor, which meant that many formulations were either Metagenics formulas or developed in close collaboration with our global science teams. As a result, while some products have been renamed or rebranded as part of bringing the portfolios together, the underlying science has remained unchanged; the same therapeutic dosing, the same ingredient quality, and the same level of scientific and clinical rigour. Those standards were non-negotiable."

A key facet of the Nutri Advanced business, which carries on through Metagenics, is its strong relationship with practitioners, with support remaining central to the strategy

"The practitioner channel is not only our legacy – it is the core of our strategy," Stijn commented. "Metagenics was built by and for healthcare professionals, and that remains unchanged. Clinicians are central because they ensure these products are used appropriately, effectively, and within a clinical framework. That relationship is a differentiator, not a constraint.

"At the same time, we have a clear long-term ambition: to help functional medicine evolve toward becoming a standard of care. To achieve that, we need to engage not only practitioners, but also society more broadly, particularly younger generations who are increasingly interested in prevention, health literacy, and proactive wellbeing."

Robert expanded further, adding: "Using modern communication channels to raise awareness does not mean shifting clinical decision making away from professionals. On the contrary, it helps build a more informed, prevention-minded population that ultimately enters the healthcare system through practitioners. In that sense, practitioner-led care and broader health education are not opposing forces – they are complementary. Metagenics grows with practitioners, while helping create the conditions for functional medicine to become more widely understood, valued, and ultimately integrated into mainstream care."

From a quality perspective, the Metagenics production process is certified FSSC 22000, ISO 9001, and AUTOCONTROLE.

"These certifications are not just badges; they reflect our unwavering dedication to quality," Robert commented. "FSSC 22000 is a globally recognised certification that guarantees food safety. It proves that our production processes comply with the stringent requirements of food safety management systems, ensuring that our products are safe for consumption.

"ISO 9001 highlights our commitment to quality management. It ensures that we consistently deliver products that meet customer and regulatory requirements and that we continuously strive to improve our production processes as well as our products. AUTOCONTROLE certification is specifically approved by the Food Standards Agency. It guarantees that we apply Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP) based on Hazard Analysis and Critical Control Points principles. This applies not only during production but also throughout the distribution of our products all the way to your doorstep."

Stijn continued: "From sourcing the purest ingredients to performing rigorous testing on all raw materials, as well as conducting thorough checks on production and packaging processes, we leave no stone unturned to offer the very best. Our team of quality control experts works tirelessly to ensure that every product leaving our facilities is of the highest quality. In addition, we ensure complete traceability of our products, enabling us to track every ingredient from its origin to the final product. This means you can be sure that every stage of our production process is meticulously controlled and documented."

Grounded in science

Looking in greater detail at one of the key brand principles, science is critical.

"At Metagenics, science-based is not a slogan – it's built into how the company is structured. We are a 100 per cent vertically integrated organisation, which is quite rare in our industry," Robert advised. "That means clinical research, formulation development, regulatory oversight, manufacturing, and ultimately education and distribution all sit within the same organisation. Because of that, formulation decisions are made by dedicated global science, regulatory, and formulation teams — and they are insulated from commercial pressure."

Stijn added: "Every product is grounded in peer-reviewed evidence and goes through a rigorous cross disciplinary review process before it ever reaches the market. Commercial growth does not influence those decisions – it follows them. If anything, growth strengthens these safeguards. Scale allows for deeper scientific expertise, stronger governance, and more scrutiny, not compromise. The internal principle is very clear: clinical integrity and efficacy come first – commercial success follows, never the other way around. Because we control the entire value chain, science leads every decision."

Let's also address regulation, and how the business ensures it can maintain therapeutic dosing and clinical relevance without dilution of formulas.

Robert commented: "Regulatory tightening is a reality across Europe, but our response is not to dilute formulas. Instead, we innovate within the framework. Our science and formulation teams focus on optimising bioavailability, ingredient combinations, and delivery systems so that therapeutic intent and clinical relevance are maintained, even as regulations evolve. Vertical integration gives us full control over that process, and our active involvement with organisations like the HFMA ensures we're contributing to constructive, evidence-based regulatory dialogue rather than simply reacting to change."

Another exciting development in terms of reinforcing its science-led focus has been the recent appointment of Christine Bailey as Education Manager.

Stijn explained: "Metagenics needed someone who could bridge two worlds credibly – the science and the practice. Christine brings over 20 years of experience across nutrition, functional medicine, performance nutrition, and the wider health industry. She is a Registered Performance Nutritionist (RNutr) and Nutritional Therapist (BANT) with an MSc, a PG Dip from the Institute of Performance Nutrition, and additional training through the Institute of Functional Medicine. She also remains an active practitioner, which means she understands exactly what it means to need resources that can be trusted, applied, and defended in a clinical setting.

"She is also the author of over 14 books, including *Five Weeks to Gut Health*, *The Brain Boost Diet*, and *The Personalised Nutrition Guide to Menopause*, is a regular speaker at national and international conferences, and a twice Catey Award winner for her work in mental health and corporate wellbeing. Her ability to translate complex science into clear, evidence-based content is central to what the role requires. Perhaps most importantly, Christine brings a genuine desire to build community – to create a supportive, collegial practitioner environment where people feel heard and are growing professionally. That ambition aligns exactly with where Metagenics is heading."

Education investment

Clearly demonstrating its commitment to the practitioner community, Metagenics invests

time and resource into its educational offering.

Stijne advised: "Education sits at the heart of what Metagenics stands for. Built by and for healthcare professionals,the practitioner relationship isn't a commercial afterthought, it's the foundation of everything. And that relationship only works if practitioners feel genuinely supported, not just supplied.

"Metagenics operates as a fully vertically integrated organisation – clinical research, formulation, regulatory, manufacturing, and education all sit within the same structure. Education isn't bolted on as a marketing function; it's part of the same evidence-based philosophy that drives product development. When Metagenics educates practitioners, it is translating the same science that shaped the formulations, and that consistency matters enormously in a clinical setting.

"There is also a broader ambition. Metagenics holds a long-term vision of helping functional and integrative medicine evolve toward becoming a standard of care. That doesn't happen without sustained investment in the people practising it. Education is how Metagenics earns that position, year after year."

And looking at this in detail in terms of what this investment means in reality, and how practitioners can benefit, Robert advised: "The education offering spans a wide range of formats designed to meet practitioners where they are and crucially, to listen to what they actually need. Metagenics runs a regular programme of webinars and clinical talks across key areas, including gut health, hormone health, mental health, longevity, and metabolic function as examples, science-led rather than product-led, with product recommendations as the natural conclusion of a well-evidenced clinical discussion.

"Alongside webinars, Metagenics produces detailed clinical protocols, structured educational programmes, and in-person product training, giving practitioners the opportunity to deepen their understanding of formulations and clinical applications in a more immersive setting. Written resources are rigorously referenced and built to be practitioner-ready: practical, defensible, and directly usable in clinical practice. Metagenics also works with partner organisations to bring practitioners access to functional testing frameworks and broader clinical tools. The HCP community, including an active Facebook group, provides an ongoing space for peer support, case discussion, and real-time clinical conversation. Metagenics engages actively with that community, listening and shaping its educational output around what practitioners say they need, not just what the company thinks would be useful."

And this year is a big one on the learning front, with a refresh of the education and practitioner plans.

"2026 represents a significant step forward in both the depth and structure of the Metagenics education offering. All our material is fresh and new, including our Female Hormone Health in Clinical Practice Programme running in May, a comprehensive, multi-session programme for practitioners working with women across the hormonal lifespan, bringing together the latest clinical evidence with practical, applicable frameworks," Robert revealed.

Stijn added: "Beyond that, 2026 is about building a more sustained practitioner community. We are keen to connect with practitioners to enable them to engage directly with Metagenics' clinical team and have the kind of in-depth professional conversations that a webinar simply cannot replicate. In-person product training is being expanded alongside a growing library of clinical protocols and structured resources across key condition areas all rigorously referenced and designed for direct clinical use. Throughout, the 2026 strategy has been shaped by what practitioners have said they need. That responsiveness is what makes the offering feel like a professional partnership rather than a content programme."

A look ahead

So, what can we expect from this exciting brand for the future, and what additional support can practitioners benefit from?

Stijn commented: "Looking ahead, success means helping shape a stronger, more credible practitioner ecosystem across the UK and EMEA. Being the first call for clinicians, not because of scale, but because of relevance, trust, and clinical depth. That comes from sustained investment in education, tools, and scientific leadership, and from partnering with practitioners as the field continues to evolve. If we contribute meaningfully to raising clinical standards and outcomes, growth will follow naturally. Success is when practitioners choose us because we make them better clinicians.

"The expansion of intimate practitioner meet-ups, structured programmes, in-person training, and clinical protocols all point toward a relationship with the practitioner community that is more sustained and more reciprocal than a traditional brand-to-clinician dynamic."

Robert went on: "Longer term, the ambition is for functional and integrative medicine to move closer to mainstream care as an integral part of how prevention and chronic disease management are approached, not an alternative to it. Education is the bridge between where the field is now and that future. With Christine Bailey shaping the education strategy, Metagenics has both the clinical credibility and the community-building instinct to make that vision a reality."

Eating without UPFs

Jason Adetola Mackson offers a new practical cookbook helping people reclaim their health with a collection of UPF free recipes.

SALTED CARAMEL SMOOTHIE BOWL

THE EARTH BOWL

WALNUT 'MEAT'

RAW CHEESECAKE

CRUNCHY ALMOND BLISS SNACKS

SALTED CARAMEL SMOOTHIE BOWL

Serves 1

Salted caramel but make it fuel. This bowl hits all the right notes – sweet, creamy and just the right amount of salty – but without the sugar crash. Medjool dates and bananas bring that natural caramel richness, while tahini or almond butter add depth and healthy fats to keep you going. Cinnamon ties it all together with a warm, spiced kick. The best part? Every ingredient is here to work for you. Whether you need a morning boost, a post-workout recovery, or just something to satisfy those sweet cravings – this is indulgence done right.

INGREDIENTS:

- 2 frozen bananas
- 3 medjool dates, pitted
- 230ml (8fl oz/1 cup) unsweetened milk of choice (coconut or almond work well)
- 3tbsp tahini or almond butter
- 2tbsp ground linseed (flaxseed)
- 1tsp ground cinnamon
- 1tsp vanilla extract
- Pinch of sea salt

TOPPINGS (OPTIONAL):

- Sliced bananas
- Crushed cashews
- Raw cacao nibs
- Almond butter
- Sesame seeds
- Halved strawberries

METHOD:

- In a high-speed blender or food processor, combine all the ingredients and blend on high until completely smooth and creamy. Adjust as needed – if you prefer a thinner consistency, add a splash more milk. For a thicker texture, let it sit in the fridge for five to 10 minutes to thicken naturally.
- Pour into a bowl or glass and top with your choice of bananas, cashews, cacao nibs, a drizzle of almond butter, sesame seeds and, strawberries.

THE EARTH BOWL

Serves 2

Every bite we take is either building us up or slowing us down. This bowl does the former – loaded with fibre, healthy fats and plant-based protein, it fuels your body with everything it needs to thrive. Sweet potatoes bring natural sweetness and slow-burning energy, while almond butter and sesame oil create a creamy, spiced glaze that takes them to another level. Paired with hummus for extra protein and rocket for a peppery bite, this dish is a powerhouse of nutrients wrapped up in pure comfort. One bowl, endless benefits.

INGREDIENTS:

SPICED SWEET POTATOES:

- 2 large sweet potatoes, peeled and cut into small chunks
- 2tbsp extra-virgin olive or avocado oil
- ½ tsp ground cloves
- 1tsp ground cinnamon
- 2tsp ground cumin
- 1tsp sea salt
- Black pepper

ALMOND SESAME DRESSING:

- 2tbsp date syrup (or 1tbsp maple syrup)
- 3tbsp toasted sesame oil
- 3tbsp almond butter
- Juice of ½ lemon

FOR SERVING:

- A generous base of The Best Hummus (see below)
- Handful of wild rocket (arugula)
- Fresh flatbread or steamed quinoa (optional)

METHOD:

- Preheat the oven to Fan 180°C/200°C/400°F/Gas 6.
- Spread the sweet potato chunks on a baking tray, drizzle with the olive or avocado oil, then sprinkle over the cloves, cinnamon, cumin and salt. Season with some pepper and toss everything together until evenly coated. Roast in the preheated oven for 40-50 minutes, turning halfway, until soft and caramelised.
- Meanwhile, in a bowl, whisk the dressing ingredients together with a pinch of salt until smooth and creamy. Add a tiny splash of water to loosen it, if needed. Toss the roasted sweet potatoes in the dressing until well coated.
- Spread a generous layer of hummus onto a serving plate, then pile the sweet potato on top. Scatter with the rocket and enjoy warm on its own or alongside some fresh flatbread or quinoa.

THE BEST HUMMUS

INGREDIENTS:

- 225g (8oz) cooked chickpeas (garbanzo beans)
- 190g (6½ oz) tahini
- 5-7tbsp fresh lemon juice
- 3 garlic cloves, chopped
- 1tsp ground cumin
- 6-8tbsp ice-cold water
- Sea salt and black pepper

TOPPINGS (OPTIONAL):

- 4-5tbsp extra-virgin olive oil
- 3-4 garlic cloves, sliced into long, thin slivers
- 5 thin strips of organic lemon peel
- Pinch of paprika
- Small bunch of parsley, chopped

METHOD:

- Place the chickpeas in a food processor and blend for one to two minutes until smooth and thick. Scrape down the sides, as needed, to ensure everything is evenly processed. Add the tahini, fresh lemon juice, chopped garlic, cumin, and salt and pepper to taste. Blend again until well combined.
- With the motor running, slowly drizzle in six-eight tablespoons ice-cold water, a tablespoon at a time, until the hummus becomes light, creamy and velvety. The ice water helps achieve a smooth texture. Scrape down the sides, taste and adjust seasoning as needed. Blend one last time for extra smoothness.
- To make the topping, if using, heat the extra-virgin olive oil in a small pan over a low heat. Once warm, add the thinly sliced garlic and lemon peel. Sizzle gently for about two minutes until golden – be careful not to let them burn. Sprinkle in a little salt, then remove the garlic and lemon zest from the oil.
- Pour the warm, infused oil over the hummus, then top with the crispy garlic and lemon peel, a pinch of paprika and some freshly chopped parsley.

WALNUT 'MEAT'

Serves 3-4

I still remember the first time I made this dish – it was one of those days when I wanted something hearty and satisfying, but unprocessed. I opened my pantry, saw a bag of walnuts and thought, 'What can I do with these?' Fast forward and now this walnut 'meat' has become a staple in my kitchen. It's not just about the flavour (which is incredible), it's the idea that these humble, brain-shaped nuts are feeding both body and mind. Every bite feels nourishing, grounding and full of purpose. Real food for thought.

INGREDIENTS:

- 275g (9¾ oz) walnuts, soaked for 4-6 hours, then drained
- 2-3tbsp extra-virgin olive oil
- 1 red onion, finely chopped
- 4 garlic cloves, minced
- ½ tsp cayenne pepper
- 1tsp smoked paprika
- 1tsp ground allspice
- 1tsp sea salt
- 30g (1oz) sun-dried tomatoes in oil, finely chopped
- Juice of 1 lime
- 2tbsp date syrup or maple syrup

FOR SERVING (OPTIONAL):

- Romaine lettuce
- Guacamole
- Steamed quinoa
- Plantain
- Lime wedges

METHOD:

- Place the soaked walnuts in a food processor and pulse until they resemble coarse crumbs. Be careful not to overdo it – you want a 'meaty' texture.
- Heat the olive oil in a large skillet or frying pan over a medium heat. Toss in the onion and sauté for two to three minutes, until soft and translucent. Add the garlic and cook for one minute, stirring frequently to prevent burning.
- Sprinkle in the cayenne pepper, smoked paprika, allspice and salt, stirring well to coat the onion and garlic. Let the spices bloom in the heat for about 30 seconds, then add the sun-dried tomatoes and cook for one minute, stirring to combine. Add the crumbled walnuts and stir well to ensure they soak up all the flavours.
- Pour in the lime juice and date or maple syrup, stirring thoroughly. Cook for another four to five minutes, stirring occasionally, until the mixture is heated through and well combined. If the mixture starts to feel dry, add a tablespoon of water or a drizzle of more oil.
- Remove from the heat and serve the walnut meat in romaine lettuce leaves as wraps, or pair with guacamole, quinoa or plantains, and lime wedges.

Unprocess by Jason Adetola Mackson, £20 Carnival. Photography credit: Nassima Rothacker.

CRUNCHY ALMOND BLISS SNACKS

I remember walking through the grocery aisles with my younger siblings, their eyes glued to the flashy snack packaging. I tried to explain that the front of the packaging is for entertainment, but the back is where the truth lies. Although, reading out the endless ingredients in a 'kid-friendly' coconut cereal didn't seem to bother them much. One thing kids love, however, is a challenge. So, I challenged us to make our own cereal-like snacks with just a handful of unprocessed ingredients. To this day, it's still their favourite quick sweet treat.

INGREDIENTS:

- 350g (12oz) medjool dates, pitted
- 75g (2¾ oz) almonds
- 40g (1½ oz/½ cup) desiccated (dried shredded) coconut
- Pinch of sea salt

METHOD:

- In a high-speed blender or food processor, combine the dates, almonds, desiccated coconut and sea salt. Blend on low until the mixture resembles coarse crumbs and begins to stick together.
- Transfer it to a small dish or tin lined with parchment paper. Press down firmly using your hands or the back of a spoon until evenly compacted.
- Place in the fridge for at least one hour to firm up, then slice into small bars or squares. Store in an airtight container in the fridge for up to two weeks.

RAW CHEESECAKE

Serves 8-10

Creating dishes using foods in their natural, raw state requires a bit of creative thinking. What some may see as a limitation, others see as an opportunity to innovate. Curiosity led me to experiment with only raw, natural foods. The results? A newfound love and appreciation for food, a glow from within that shone through my skin and – my favourite takeaway – this raw cheesecake recipe that I developed during my cleanse.

INGREDIENTS:

CRUST:

- 150g (5½ oz) almonds
- 120g (4¼ oz) walnuts
- 40g (1½ oz/scant ½ cup) rolled oats
- 60g (2¼ oz) carrots, grated
- 75g (2¾ oz) medjool dates, pitted
- 1tsp ground cinnamon
- ¼ tsp ground cloves

FILLING:

- 300g (10½ oz) cashews, soaked for 4-6 hours, then drained
- 320ml (11fl oz/1⅓ cups) full-fat coconut milk
- 5tbsp raw honey (or maple or agave syrup)
- 2tbsp coconut oil, melted
- Juice of 2 limes
- Icing (optional)
- 300g (10½ oz) mango (fresh or frozen)
- 1tbsp raw honey (or maple or agave syrup)
- 20g (¾ oz) coconut oil, melted
- Fresh strawberries, to decorate

METHOD:

- For the crust, in a food processor, combine the almonds, walnuts, oats, carrots, dates, cinnamon and cloves. Blend until the mixture sticks together but remains slightly coarse.
- Press the mixture into the base of a 23cm (9in) springform tin to make an even crust.
- In a high-speed blender or food processor, combine the soaked cashews, coconut milk, honey, coconut oil and lime juice. Blend until smooth and creamy. Pour the filling over the crust and level the surface.
- If making the icing, combine the mango, honey and coconut oil in a high speed blender. Blend until smooth, then drizzle over the filling.
- Freeze the cheesecake for three-four hours or overnight.
- Defrost at room temperature for 15-30 minutes before slicing. Serve with fresh strawberries, if desired.

I-MAG GIVEAWAYS

We showcase a selection of giveaways on offer to readers this issue.

Linwoods Milled Flaxseed

Linwoods Milled Flaxseed is a versatile, 100 per cent organic, gluten-free and vegan product, known for supporting normal blood cholesterol levels and providing a rich source of fibre and plant-based protein. Unlike whole seeds, milled flaxseed is easier to digest, allowing the body to absorb its full nutritional benefits. Linwoods' unique cold milling process helps retain nutrients while improving digestibility. A 20g serving provides omega 3 (ALA), which contributes to normal cholesterol levels, along with fibre to support digestive health, magnesium for bones and energy, and plant-based protein to support muscle maintenance. It's a simple way to boost everyday nutrition.

I:Win: We have five to give away.

Hifas da Terra Hifas-Neuro

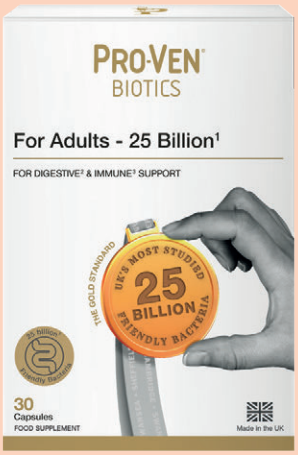
A powerful synergy of ingredients and standardised extracts to support focus, concentration, memory, nerve and neuron regeneration and increased cognitive capacity. Containing lion's mane (*Hericium erinaceus*), chaga (*Inonotus obliquus*), alongside *Ginkgo billoba*, *Bacopa monnieri* and *Rhodiola rosea* for increased neuronal functioning, stress reduction and cognitive performance and better mental health, with the addition of phosphatidylserine.

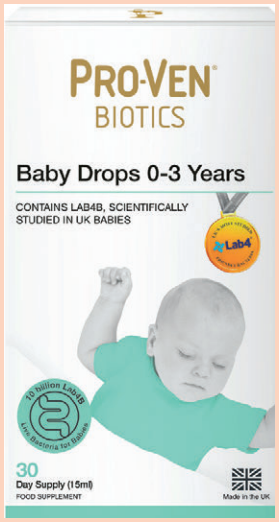
I:Win: We have five to give away.

ProVen Biotics for Adults

ProVen Biotics studies, develops, and manufactures research-backed live bacteria products for the whole family. Supported by over 30 years of science and more than 35 human clinical research studies, ProVen Biotics friendly bacteria products are developed to support the whole family every day, from pregnancy to infancy, childhood to adulthood. ProVen Biotics For Adults – 25 Billion combines its unique research-backed Lab4 Probiotics with key vitamins and minerals to support immunity and digestion. Vegetarian, gluten and dairy free.

I:Win: We have five to give away.





BioCare Magnesium Glycinate

Magnesium Glycinate is a highly bioavailable and easy to absorb complex of magnesium and glycine, designed to help you feel calm and relaxed while supporting your mood. This high strength, 100 per cent pure magnesium glycinate provides 100mg per capsule and is designed for maximum absorption and use by the body. Magnesium contributes to normal functioning of the nervous system and normal psychological function, while also supporting energy-yielding metabolism and helping to reduce tiredness and fatigue. Gentle on the stomach and well tolerated, with no unnecessary additives, it is suitable for vegetarians and vegans.

I:Win: We have three to give away.

SEMINAR SERIES 2026

Metabolic Syndrome: Pathways, Subtypes and Precision Nutrition

Over 30% of adults present clinically with Metabolic Syndrome, a cluster of risk factors including glucose intolerance, dyslipidemia, obesity, and elevated blood pressure that together dramatically increase risk of cardiometabolic disease. The development of metabolic syndrome is dynamic and multifactorial, but dietary factors, ectopic obesity, insulin resistance, and inflammation all play a central role.

Clinically, biomarkers can help identify and direct management, including glucose homeostasis, waist measurement, lipid fractions, blood pressure, nutritional biochemistry, uric acid, inflammatory markers, and bioactive adipokines. Furthermore, unique clinical phenotypes based on adiposity, vascular health, blood lipid profiles, insulin resistance, and hormonal profiles have been identified and translate to specific management approaches.

In this important seminar, we breakdown and demystify metabolic syndrome by exploring validated clinical assessments that reveal subtypes and help direct effective evidence-based nutritional and lifestyle management approaches. We also explore key issues such as nutrient-drug interactions and integrative patient care.

Learning objectives:

- ✓ The key drivers of the pathophysiology of metabolic syndrome
- ✓ Simple routine clinical assessments that can be used in daily practice
- ✓ Advanced biomarkers and functional assessments
- ✓ How to personalize nutritional approaches to different clinical subtypes
- ✓ Positive, and negative, nutrient-drug interactions

All attendees will receive:

- ✓ 2-hours of CPD approved education
- ✓ Lecture notes
- ✓ Supplementary research papers
- ✓ Dinner and drinks
- ✓ Free sample products

Expert speaker:

Benjamin I. Brown, ND

Ben is founder and director of the *Nutritional Medicine Institute*, an educational, advocacy and research group committed to advancing the science and practice of nutritional medicine. An internationally acclaimed lecturer, Ben is host of *Positive Health Podcast*, a guest lecturer on Nutritional Therapy, and regularly speaks at major educational institutions and international conferences for health professionals.

Ben is a consultant for *Pure Encapsulations*. He is editor of the *Nutritional Medicine Journal*, contributing editor of *Integrative Healthcare and Applied Nutrition Magazine*, on the editorial board for *Nutrition Evidence*, author of *The Digestive Health Solution*, has contributed textbook chapters, and had research published in journals including *Gastrointestinal Disorders, Alternative Therapies Health and Medicine, Nutrients, and Nutrition Reviews*.

3:15 – 4:00:
Arrival and registration

4:00 – 6:00:
Metabolic Syndrome:
Benjamin I. Brown, ND

6:00 – 7:30:
Sit down buffet dinner

Ticket
£35

Cork, Clayton Hotel Silver Springs, 21 April

Dublin, Talbot Hotel Stillorgan, 22 April

London, Millennium Gloucester, 24 April

Exeter, Hotel Du Vin, 28 April

Manchester, Malmaison, 7 May

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