Nutrition I-Mag

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RESEARCH AND EDUCATION FOR TOMORROW'S PRACTITIONER

WINTER 2026







NUTRITION IN THE YOUNG

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The latest research around digestive enzymes and their role in health

Keeping up collagen

Do we all need collagen? Nutrition experts explain all

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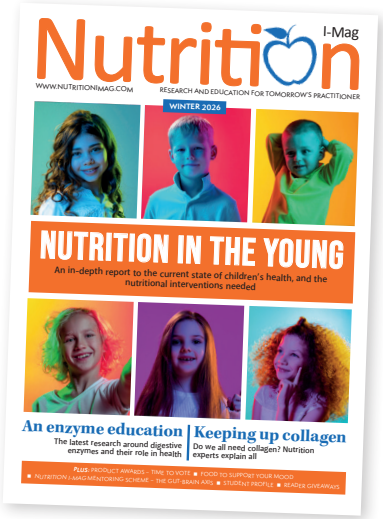
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WELCOME





As we bring readers the last *Nutrition I-Mag* of 2026, we wanted to reflect on a positive year of learning, collaboration, and continued development.

As a magazine that is designed with student nutritional therapists in mind, our goal is to support you, both during your studies and as you take your first steps into work, whether that be in practice, or working in industry. We are proud that this magazine is CPD accredited, helping you to earn valuable points, and also to have the support of the key colleges in the UK, which distribute this magazine.

And in this issue, we are also delighted to bring you our Mentoring Scheme. This initiative was created by *Nutrition I-Mag* many years ago to give a student nearing the end of their studies the opportunity to write for us, and to see their work published. In this issue, we are delighted to welcome Rebecca Fousset, a student at CNELM, who writes on digestive health, with a particular focus on the gut-brain axis. You can read Rebecca's work here.

It has also been a positive year of education through the ever-popular IHCAN Summits, the last one for 2026 due to take place on November 21. We have seen hundreds of practitioners come together at these events to learn and network, and we look forward to bringing you more of the same next year. If you want to find out more or book a ticket for the November event, visit www.ihcansummit.co.uk

And finally, we are pleased to bring news of the winner of the Heather Rosa *IHCAN* Tutor of the Year Award, a partnership between ION and *IHCAN* magazine, which is the sister magazine to *Nutrition I-Mag*. The award is designed to remember Heather by recognising the often-unsung people at the heart of practitioner education – the tutors. Click here to read about the winner.

All that remains is to thank our readers and advertisers for their continued support of *Nutrition I-Mag*. We look forward to another year of education and collaboration, and if you have any comments or suggestions of what you would like to see in the magazine in 2027, email rachel.symonds@targetpublishing.com

Rachel

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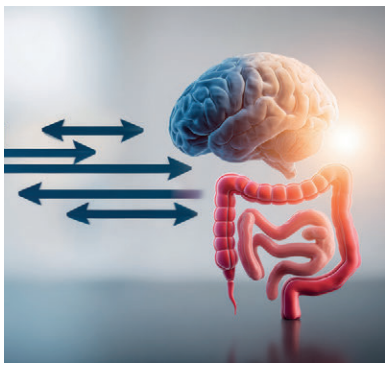
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SCAN FOR BROCHURE

1. Walker E, et al. An extract of hops (*Humulus lupulus* L.) modulates gut peptide hormone secretion and reduces energy intake in healthy-weight men: a randomized, crossover clinical trial. *Am J Clin Nutr*. 2022;115(3):925-940.
2. Walker E, et al. Bitter hop nutraceutical stimulates fat mass loss while preserving muscle mass in a cohort of individuals with overweight or obesity receiving diet and exercise advice. *Obes Pillars*. 2026;19:100299

OUR CONTRIBUTORS

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



BERNIE HARRISON

BA Hons, DipCNM, mBANT, CNHC is a BANT and CNHC-registered Nutritional Therapist, who is a Clinical Nutritionist at BioCare. Bernie's interest in nutrition began in the 1990s after her father's diagnosis with non-Hodgkin's lymphoma, inspiring a lasting interest in the role of nutrition in health and wellbeing. Bernie has a particular interest in gut health, children's skin, and nutritional support during cancer recovery. She takes a personalised, evidence-informed approach to help clients achieve their health goals.



WILL JORDAN

BSc (Hons) MSc, is a Nutrition Advisor at Viridian Nutrition. He holds a Master's degree in Sports and Exercise Nutrition and a BSc in Food and Nutrition. Having worked in the NHS, Will has a hand-on approach in providing nutritional advice to a wide range of people.



REBECCA FOUSSET

is a UK-born expat living in Bangkok and currently completing a BSc in Nutritional Science at CNELM. Nutrition has been a passion of Rebecca's for many years and studying it formally has deepened her interest in the role food and lifestyle play in health. Rebecca is particularly interested in gut health, cognitive function, and the role of nutrition in child development and lifelong health. Rebecca is the subject of this issue's *Nutrition I-Mag* Mentoring Scheme.



THALIA PELLEGRINI

is a BANT-registered Nutritional Therapist and works as a Senior Nutritional Therapist for the supplement brand, Wild Nutrition.



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.



ADRIENNE BENJAMIN

is a Nutritionist at Pro-Ven Biotics and specialises in understanding and sharing the ways in which our gut and microbiome help to support our health.



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NEWS BITES

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

IHCAN Tutor of the Year Award in partnership with ION announces inaugural winner

A new award from *IHCAN* magazine and the Institute of Optimum Nutrition (ION) in memory of its late Dean, Heather Rosa, has announced its inaugural winner.

The Heather Rosa *IHCAN* Tutor of the Year Award is a partnership between ION and *IHCAN*, published by Target Publishing, which also publishes *Nutrition I-Mag*, to remember Heather by recognising the often-unsung people at the heart of education – the tutors.

A contributing editor to *IHCAN*, Heather was renowned for her tireless support of ION students and her political activism in pursuit of professional excellence and recognition for the profession. Heather died unexpectedly in July.



Rachel Hampson with winner Sarah Orme (*right*)

We can now reveal that Sarah Orme is the winner of the accolade, in recognition of her commitment to student success, module leadership, innovation and teamwork. Her dedication to student learning and wellbeing is reflected in the feedback she receives from those she teaches, including: "Sarah has shown incredible dedication to student support and mentorship. She is deeply committed to her students, always available to answer questions and offer guidance. Her extensive knowledge, kindness, and encouragement help keep students motivated and engaged. She has certainly had a very positive impact on my learning experience."

Sarah also demonstrates exceptional skill in managing module administration. Her meticulous attention to detail ensures high standards across all aspects of module delivery, from design briefs and module reporting to managing the marking of a complex combination of assessments with significant moderation requirements. Her commitment to continuous improvement ensures insights from quality processes directly inform module development. One of Sarah's key strengths is her ability to combine strategic thinking with operational excellence. She has a clear understanding of how her modules contribute to the wider student journey, continually refining content in response to student and peer feedback.

Sarah has also shown outstanding enterprise and innovation through developing the coaching module. By undertaking a demanding coaching qualification herself, she has not only enhanced her own expertise but brought this learning directly into the curriculum. She now delivers the coaching module internally, removing the need for an external visiting lecturer.

A valued member of the Academic Team, Sarah is always willing to share her knowledge, expertise and systems understanding with colleagues. Her collaborative approach, generosity and commitment to supporting others make her an exceptional team player and a highly respected colleague. Through her dedication to students, commitment to excellence, innovative approach to teaching and willingness to support, Sarah exemplifies the qualities of an outstanding educator and is a truly deserving winner of the *IHCAN* Tutor of the Year Award.

Commenting on the launch of the award, ION CEO, Chris Mansi, said: "ION is delighted to have *IHCAN's* support in keeping Heather's memory alive in a way she would have appreciated."

David Cann, MD at Target Publishing, added: "Heather's drive to improve practitioner education was an inspiration for us at *IHCAN*. We're honoured to help ION keep up the momentum."

IHCAN is funding the award for three years. ION students will nominate and vote for their Tutor of the Year. The winner receives £500-£750 toward CPD or research and *IHCAN* puts up a further £750-£1,000 to the Heather Rosa Bursary Fund.

European study reveals multiple barriers to micronutrient-rich diets

Having access to enough food does not necessarily mean a nutritionally adequate diet.

That's according to a study among people experiencing socioeconomic disadvantage in Italy and Poland, which found multiple barriers – from high food prices and transport difficulties to limited cooking facilities and culturally unsuitable food provision – can combine to make micronutrient-rich diets harder to achieve.

The qualitative study, led by the European Food Information Council (EUFIC) as part of the EU-funded Zero Hidden Hunger EU project, involved eight focus groups with 68 beneficiaries of charitable organisations, including food-assistance recipients, refugees and asylum seekers. Participants described economic, physical, time-related, informational, social, cultural and organisational barriers affecting their ability to access foods rich in vitamins and minerals. These included high prices and competing household expenses, transport and work constraints, inadequate cooking or storage facilities, concerns about food quality, culturally incompatible food provision, and difficulties accessing professional nutrition guidance. Importantly, many of these barriers did not occur in isolation.

Affordability, availability, accessibility and acceptability barriers were particularly reported for foods, including fruit, vegetables, fish and meat. Participants generally preferred obtaining vitamins and minerals from ordinary foods, expressed predominantly negative attitudes towards fortified foods, and had mixed views on supplements. For refugees and asylum seekers, the research identified additional challenges associated with displacement and their living circumstances.

Dr Katerina Palascha, Senior Research Manager at EUFIC and lead author, commented: "Our findings show that multiple barriers interact to compromise access to and consumption of micronutrient-rich foods, particularly when limited resources restrict people's ability to act on their preferences for fresh, minimally processed or culturally appropriate foods."

Report finds 750,000 pregnant women and children missing out on vital nutrition

A new report has revealed that 750,000 pregnant women and children from low-income households are missing out on a government scheme meant to provide vital nutrition.

The Food Foundation report has revealed 750,000 on Universal Credit are missing out on the Healthy Start scheme because of strict eligibility criteria. The report brings together evidence from a range of sources to show the potential benefits of increasing access to the scheme. For example, expanding Healthy Start to all families on Universal Credit would deliver a return on investment of £2.36 for every £1 spent – a £7.7bn gain over 10 years as a result of the reductions in food insecurity, increased household disposable income, and wider economic gains.

The Healthy Start scheme was set up by the Labour Government 20 years ago to provide critical support to families on low incomes to afford fruit, vegetables, pulses, milk and vitamins in pregnancy and a child's earliest years. Whilst it provides a lifeline for those who are eligible, two rules are currently locking out families who urgently need support. Households on Universal Credit with pregnant women, babies and young children only qualify if they earn under £408 a month (about £4,900 a year), and support stops when a child turns four, leaving a gap before they start school and can access free school meals.

In light of the report, Jo Frost, Emma Thompson, Hugh Fearnley-Whittingstall and over 100 organisations spanning health, education, poverty, industry, academia, local government and more have united to demand urgent Government action in the Budget (which was due to be announced as *Nutrition I-Mag* went to press) to expand Healthy Start and ensure every child gets the healthy start they deserve. This would mean expanding eligibility to all pregnant women and children on Universal Credit and increasing the age bracket to all children under five so families have access to the support until their children start school.

Anna Taylor, Executive Director of The Food Foundation, commented: "Good nutrition in the earliest years lays the all-important foundations for children's health, learning and future opportunities. Yet Healthy Start is shutting out many of the families it was created to help. The Children's Commissioner's stark warning this week about a childhood lottery makes action even more urgent: a child's access to nutritious food must not depend on their postcode or on whether their parents earn just above an outdated threshold. Expanding Healthy Start to all families on Universal Credit and to every child under five would close this unacceptable gap and turn the Government's wider early-years ambitions into healthier childhoods."

Dr Helen Stewart, Officer for Health Improvement at the Royal College of Paediatrics and Child Health, added: "You do not need to be a paediatrician to know how significant the beginning of a child's life is for their health and development. The Healthy Start scheme has the potential to ensure that all children, not just some, get the best possible start in life. By helping families access healthy food and essential vitamins during pregnancy and early childhood, the scheme can support good nutrition at the time it matters most. It can also provide much-needed financial support for families facing rising costs, helping to reduce some of the pressures that can affect a child's health and wellbeing."

Mentor scheme announced in new partnership

Metagenics UK & Ireland and The Natural Dispensary have announced the launch of a new practitioner mentorship programme.

The Practitioner Mentorship Programme is a new 10-month initiative which gives newly qualified nutrition practitioners clinical mentorship, industry experience and opportunities to work alongside two leading practitioner organisations.

Launched in October, the programme will give nutrition graduates the opportunity to develop their clinical confidence while gaining practical, hands-on experience across the wider practitioner nutrition and supplement industry. The programme brings together the expertise of Metagenics and The Natural Dispensary, combining clinical and practitioner education with experience in supplements, dispensing, business, content and industry. Three mentees will be selected for the inaugural programme, allowing for a highly personalised mentoring experience.

The programme is led by Christine Bailey, RNutr MSc AFMCP, Education Manager at Metagenics UK & Ireland, and Debbie Cotton, Product Specialist at The Natural Dispensary, with support from Louise Joyce, Managing Director of The Natural Dispensary.

Christine commented: "I'm really passionate about supporting practitioners at the start of their careers. Recent graduates have so much knowledge and enthusiasm, but they need opportunities to put that into practice, build confidence and develop their own professional path. This programme is about opening those doors and giving them meaningful experience, connections and support as they begin their careers. I'm thrilled to be collaborating with The Natural Dispensary to make this opportunity possible."





Louise added: "Newly qualified practitioners have so much knowledge and enthusiasm, and we want to help them navigate those first steps into the profession. This programme gives them real experience, not just advice – a chance to get involved, make connections and explore the different opportunities within our industry. By working together with Metagenics, we hope to give them the experience and support to start shaping a career that's right for them."

The inaugural programme will run from late October to August 2027. Applications are open to practitioners who have completed a BSc-level qualification in Nutritional Therapy or Nutrition, or equivalent, and who graduated within the last one to two years. Contact christine.bailey@metagenics.com for more information.

IN RESEARCH

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

New study finds targeted supplementation could reduce cardiovascular costs

Targeted food supplementation could substantially reduce costs associated with cardiovascular disease.

That is according to a new study from Frost & Sullivan, commissioned by Food Supplements Europe (FSE), which has revealed up to €8.3 in net societal cost savings for every €1 spent on supplementation in defined eligible populations across the EU. It was found that targeted supplementation with omega-3 EPA and DHA, phytosterols and beta-glucans could deliver substantial net economic benefits by helping reduce the burden of cardiovascular disease.

The study quantifies the potential economic value of cardiovascular disease risk reduction through three food supplement interventions across 27 EU Member States and the UK from 2025-2035. It focuses on at risk populations aged 55 and over with elevated triglycerides or cholesterol, which are recognised risk factors for cardiovascular disease.



Drawing on scientific evidence, the analysis models potentially avoidable cardiovascular events, societal savings, supplementation costs, and net economic benefit. Across EU Member States, under the study's 2025-base case assumptions, each €1 spent on supplementation could generate:

- €8.1 in net societal benefit for omega-3 EPA and DHA, at 1 g/day.
- €8.3 in net societal benefit for phytosterols at 1.5 g/day.
- €4 in net societal benefit for beta-glucans, at -3 g/day.

These figures represent the estimated economic benefits to society after deducting supplementation costs. The analysis accounts for potential reductions in healthcare and social care, informal care costs, and productivity losses.

Christopher Shanahan, Senior Director at Frost & Sullivan, commented: "Cardiovascular disease costs are rising and the eligible population for preventive intervention is growing every year. This study shows that targeted supplementation with ingredients supported by scientific evidence is not just a health measure; it is an economically rational investment."

Peter Loosen, Chair of FSE, added: "Cardiovascular disease has a profound impact on individuals and families, while placing considerable pressure on health systems and society. This study highlights the potential economic value of targeted supplementation as part of a broader approach to cardiovascular disease risk reduction. We hope it will inform discussions on how nutrition, including the appropriate use of food supplements, can contribute, alongside healthy diets, lifestyles, and medical care."

Benefits of rhodiola and ashwagandha in sleep and stress confirmed

Researchers have found rhodiola and ashwagandha offer sleep and stress benefits.

They explained that stress and poor sleep are prevalent public health concerns that negatively impact wellbeing and daily functioning. Although adaptogens and sleep-focused supplements have separately demonstrated benefits, few studies have examined combined effects, particularly in healthy populations. Therefore, the trial evaluated the impact of morning adaptogens, evening sleep-focused supplements, and their combination on stress, mood, and subjective and objective sleep quality.

Using a double-blind, placebo-controlled design, 103 healthy, physically active adults were randomized to one of four treatment groups: 1) AMPM: active morning (AM) and active evening (PM); 2) AM: active AM and placebo PM; 3) PM: placebo AM and active PM; and 4) PL): placebo AM and placebo PM. The AM group contained 600mg ashwagandha and 300mg rhodiola. The PM group contained 2g magnesium L-threonate (MgT) (14mg of magnesium), 200mg L-theanine, and 50mg apigenin. Participants completed daily stress questionnaires and weekly questionnaires on perceived stress, affect, and subjective sleep, and monthly subjective sleep at baseline and post-washout. Objective sleep data were collected nightly using a wearable sleep monitoring device.

The AM group showed a decrease in weekly perceived stress, but no differences in daily stress. For positive affect, there was a significant effect in the AM group at the end of the cessation period, which continued to increase, whereas the AMPM group showed a decrease. The AM group showed a decrease in subjective sleep-related impairments and in objective wake after sleep onset. Subjective sleep quality was significantly improved in the AM group compared with AMPM.

"Morning supplementation with adaptogens (ashwagandha and *R. rosea*) was associated with improvements in subjective stress, sleep quality, and positive affect following 14 days in healthy physically active adults as compared to the placebo product. Minimal effects on other outcomes may reflect limited benefits in healthy individuals over a short supplementation period. Future research should investigate longer interventions and populations with greater baseline stress and sleep disturbance," the study concluded.

New research reveals low levels of gut bacteria in infants

A study from Sweden has found low *bifidobacteria* and distinct microbiota composition and function in newborns, despite being breast-fed.

In a nationwide study (PREVENT) addressing the longitudinal development of 253 infants in Sweden via stool samples, researchers used deep metagenomic sequencing to determine the bacterial composition. It focused on samples collected during the first six months of life from 146 infants who were predominantly breast-fed.

Unsupervised analysis of these infants' microbial gut composition revealed three distinct foundational community types: CT1 infants had high *Bifidobacterium spp.* levels, CT2 infants had only *B. breve* at low abundances but high *Bacteroidota*, and CT3 infants had virtually no *Bifidobacterium spp.* but elevated levels of *pathobionts*. The researchers added that, surprisingly, they observed a clear bimodal distribution of *Bifidobacterium spp.*, the canonical taxa associated with early-life colonization. Sixty samples from predominantly (58 per cent) vaginally-born infants did not contain any detectable gut *Bifidobacterium* genomes.

The remaining 140 samples showed high relative *Bifidobacterium* abundance (median 70 per cent), notably including *B. breve, B. longum subsp. longum* and *B. longum subsp. infantis*. Infants lacking *Bifidobacterium spp.* showed crying after feeding and contained an unusual gut microbiota composition, dominated by known pathobionts such as *Clostridium neonatale* or *Klebsiella michiganensis*. The metagenome-based predicted functional capacity of the gut of infants lacking *Bifidobacterium spp.* showed increased levels of potentially undesired genes involved in mucus degradation, sporulation processes, and flagella production, while the *Bifidobacterium*-colonized infants were enriched in starch degradation, glutamate transport, and aromatic amino acid production. Notably, they found that a pathway for the production of lactate derivatives of tryptophan and other aromatic amino acids with anti-inflammatory activity was more abundant in the latter group.

In conclusion, the researchers said: "Our results indicate that infants lacking *Bifidobacterium spp.* contain unusual gut microbiota architecture and functions that are associated with health issues. This pattern is more prevalent in PREVENT than observed in many other studies, underscoring the importance of early testing, while long-term follow-up and potential nutritional advice should be addressed in future studies."



UK study finds vegan honey could have similar antimicrobial properties to mānuka



New research from Aston University has found that vegan honey could be made with similar antimicrobial properties to mānuka honey.

Dr Jonathan Cox, Senior Lecturer in Biosciences, led the research to test specially made formulations of vegan honey against bacteria. The work helps identify which honey-associated antimicrobial factors contribute most strongly to activity.

Mānuka honey, from New Zealand, is made by bees that pollinate the mānuka bush, and it is known for its unique antibacterial properties. Vegan honey alternatives, based on sugar syrup, mimic the natural consistency, carbohydrate structure (sugar and inulin) and taste of honey while containing no bee-derived components. They are gaining popularity with the rise of veganism, and the decline of honeybee populations, which is impacting honey supplies.

Dr Cox wanted to investigate whether the key antimicrobial components of medical honey could be recreated in a fully vegan, synthetic formulation. The broader aim was to understand which components are responsible for the antibacterial activity and whether a sustainable, reproducible alternative to natural honey could be developed.

Previous research from Dr Cox's group showed that mānuka honey is active against *Mycobacterium abscessus*, a highly drug-resistant bacterium that can cause difficult-to-treat lung, skin and soft tissue infections. They tested their vegan honey formulations against a culture of this bacterium, both for their ability to stop bacterial growth, and to kill bacteria outright.

Two components of mānuka honey proved to be particularly effective when added to the vegan honey formulations – methylglyoxal (MGO) and hydrogen peroxide. The most effective vegan honey formulations against *M. abscessus* were those containing combinations of MGO and enzyme-based systems that generate hydrogen peroxide within the honey. The best formulations could kill *M. abscessus*.

Dr Cox says the next steps will be to optimise formulations and better understand how the different antimicrobial components work together. He also suggests that future work could test the efficacy of the vegan honey formulations against other clinically important disease-causing bacteria.

"Longer term, this research could help support the development of sustainable honey-inspired antimicrobial products for wound care or other topical applications, without relying on bee-derived ingredients," he added. "The work also provides insight into how natural honey functions, which may help guide the design of next-generation antimicrobial therapies."

The research has been published in the *PLOS One* journal.

NEW TO MARKET

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

Relaunch for Planet formulas



Planet Paleo has announced the return of three of its most popular formulas a decade after first launching.

Active Collagen, Primal Goddess and Digestive Collagen are being relaunched; drawing on advances in nutritional science, ingredient sourcing and manufacturing, the formulas have been refined using better raw materials, upgraded ingredient forms and the experience Planet Paleo has gained over the past decade.

Active Collagen offers upgraded support for movement, mobility, and recovery through collagen, turmeric, boswellia, and supportive cofactors such as Celadrin, hyaluronic acid and glucosamine. Primal Goddess combines collagen, vitamin C, zinc, biotin and bamboo silica to provide targeted nutritional support for normal collagen formation and the maintenance of healthy skin, hair and nails. To complement these, the formula combines upgraded botanical ingredients including organic sea buckthorn, rosehip, and acai. The updated formula places greater emphasis on structure, hydration and antioxidant protection. And Digestive Collagen offers increased collagen content, and a significantly upgraded probiotic potency and digestive enzyme activity, and prebiotic, PHGG, alongside botanicals to support the gut as an interconnected system. Each serving now contains a shot of aloe vera juice too.

Alongside this, Planet Paleo is also launching an expanded range of bone broth concentrates. Building on its existing Organic Beef Bone Broth Concentrate, Planet Paleo has developed new Organic Chicken and Grass-Fed Beef varieties.

Slowly simmered for more than 20 hours and made with only three ingredients, the concentrates provide collagen and protein, including naturally occurring amino acids such as glycine and glutamine.

Lamberts innovates gummy range

Lamberts has grown its popular gummy range by two.



New tangerine flavoured Vitamin C Gummies and grape flavoured Multi-Guard for Adults Gummies have been designed for convenience and uphold Lamberts' commitment to quality without compromise.

The innovative formulation means there is no added sugar or sweeteners. Instead, the brand has utilised FOS (fructo-oligosaccharide), a beneficial soluble fibre that not only provides a pleasant sweetness but also contributes to digestive health.

Kinetic takes on Vital Greens distribution



The Vital Greens brand is now being distributed by Kinetic Natural Products.

The distributor has announced a new partnership with Martin & Pleasance for Vital Greens in the UK and Ireland, as well as Schuessler Tissue Salts.

Australian brand, Vital Greens, now renamed Vital, includes in its range Vital All-In-One. Backed by a 25-year heritage, the formula combines 78 premium ingredients, including plant-based vitamins, minerals, superfoods, adaptogens, antioxidants, prebiotics, and 14 billion CFU of probiotics, to support gut health, daily energy, immunity, and mental clarity.

Schuessler Tissue Salts, manufactured by Martin & Pleasance for more than 130 years using a traditional hand-grinding process, are built on the principle that mineral deficiencies at cellular level cause common ailments. These homeopathically prepared microdoses bypass complex digestion to enter the bloodstream directly, quickly restoring systemic balance. The unique lactose-free oral sprays are appealing to vegans, children, and those with dairy sensitivities.

Kinetic has added to its existing brand portfolio of Trace Minerals, the leader in ionic mineral supplementation. The brand has developed the ZeroLyte hydration range, a new Creatine + Electrolyte complex, and travel-ready Magnesium Glycinate sticks, designed to meet consumer demand for clean-label, bioavailable mineral support.

Linwoods unveils two-strong range



Fibre and protein are the focus of new launches from Linwoods Health Foods.

Boost is a two-product range designed to make it easier to hit daily fibre and protein targets. Fibre Boost provides 8g of fibre per 20g serving, from milled chia, hemp and flaxseed with psyllium husk powder and apple fibre, while Protein Boost provides 10g of plant-based protein per serving from shelled hemp seeds, milled chia seeds and plant protein powders. Both are stirred into porridge, yoghurt, smoothies or savoury dishes.

The launch comes as fibre has become one of the year's defining nutrition trends, with fibremaxxing driving a surge in interest, yet the vast majority of UK adults still fall short of the recommended 30g a day, with average intake sitting at around 16g.

One reason people abandon the attempt is that they increase their fibre intake too quickly and too narrowly, leaving them bloated and uncomfortable. Fibre Boost has been formulated with that in mind. Each serving delivers 4g of soluble fibre, which slows digestion, alongside 4g of insoluble fibre, which adds bulk and keeps things moving.

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Leading nutritionist, Sarah Osborne, explores how brain chemistry and structure, genetics and the gut-brain axis can influence eating behaviour in ADHD and autism. Sarah will discuss the effects of neurotransmitters, brain networks, dopamine regulation and genetic polymorphisms on emotional regulation, impulsivity, appetite, reward and food-related behaviours.

'Mouth first nutrition: The oral microbiome as a lever for blood sugar, inflammation and longevity', presented by Dr James Goolnik BDS MSc

You will leave with a clear 'mouth-first' framework, red flags to screen for in clinic, and patient-ready interventions to support blood sugar stability, lower inflammatory burden and improve health.

'Capacity is the missing variable: Neurodivergence, gut-brain regulation and mental health', presented by Dr Miguel Toribio-Mateas

Dr Miguel's talk reframes the gut–brain axis as a bidirectional regulatory system operating within real-life capacity, rather than a pathway we can optimise through nutrients alone. Drawing on current research and concepts from Miguel's emerging NEEM Ecology Model, he will examine how low capacity can shape food choices, digestion and mental wellbeing, and how self-kindness may reduce threat and create more workable conditions for nourishment, regulation and change.

'Mushrooms, gut microbiota and cancer', presented by Kirsten Chick MSc, BA (Hons), DNN, mBANT, mCNHC

The use of medicinal mushrooms is popular in integrative oncology, both in traditional Chinese medicine and in nutritional therapy/functional medicine. In exploring their anti-cancer mechanisms, Kirsten Chick has turned her attention to the role of the gut microbiota. The anti-cancer properties of beta-glucans, for example, have been previously studied, but they are poorly absorbed in the gut. Despite this, they still seem to have anti-tumour effects for cancers outside of the GI tract. Kirsten has reviewed studies looking at the impact of mushrooms on gut microbiota, and shares both her findings and how this has influenced her nutrition recommendations for people with a cancer diagnosis.

Plus, there will be bonus online sessions from Allison Siebecker, ND, LAc and Nathan S. Bryan, PhD, sent directly to your inbox.

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AN ENZYME EDUCATION

Gut health remains a key health concern in the UK, making it important people understand the role of digestive enzymes as part of a broader protocol. Here, experts in the field offer their insights.



"Think of digestive enzymes as tiny scissors your body makes to cut food into pieces small enough to actually use."

This is the description given by enzyme expert, Naturopath, Leyla El Moudden, Dip Herb, Dip Nat, Head of Education at Enzyme Science, in explaining what digestive enzymes actually do. And this education is critically important for students, as digestive enzymes have had perhaps less of a spotlight shone on them than other gut related areas, for example, probiotics. However, it doesn't make their role any less important.

El Moudden went on: "When digestive enzymes are low, food does not get broken down properly. Instead of being absorbed, it sits in the gut and ferments – feeding the wrong kinds of bacteria, causing gas, bloating, and inflammation. Over time, this creates a downward spiral for gut health."

Lindsay Powers, Naturopathic Nutritional Therapist and Head of Nutrition and Practitioner Services at Good Health Naturally, added: "Digestive enzymes are proteins that break larger food molecules into smaller components the body can absorb and use. Digestion is very much a coordinated process: enzymes are released at different stages, beginning in the mouth and continuing through the stomach and small intestine, with the pancreas supplying many of the major enzymes needed to digest carbohydrate, protein and fat. Importantly, digestive enzymes are highly substrate-specific. Rather than having one enzyme responsible for 'digestion', we have different enzymes designed to act on different components of the diet."



The actions of digestive enzymes

So, let's look in greater detail at what digestive enzymes are, the functions of them, and how we can obtain them.

El Moudden explained: "When you eat a meal, the food is a jumble of large molecules – proteins, fats, and carbohydrates. Your body cannot absorb any of these in their whole form. Digestive enzymes snip them down into their building blocks: proteins become amino acids, fats become fatty acids, and carbohydrates become simple sugars. Only then can your gut wall absorb them into your bloodstream. These enzymes work like catalysts; they speed up the breakdown process dramatically without being used up themselves. Without them, food would just sit in your gut and ferment, rather than nourish you. They are produced all along the digestive tract. Your saliva starts the process the moment you chew, your stomach adds its own enzymes, and then the pancreas delivers the biggest payload into the small intestine. The small intestine lining also makes its own enzymes for the final finishing steps. Each enzyme is highly specific, it only works on one type of molecule, at the right temperature and the right acidity level.

"There are three main families, each tackling a different food group:

• **Amylases** break down carbohydrates and starches. Salivary amylase starts in your mouth the moment you chew, and pancreatic amylase continues the job in the small intestine. Smaller enzymes on the gut wall (like lactase) then finish the process, which is why people who lack lactase cannot tolerate dairy.

• **Lipases** break down fats. Pancreatic lipase is the star here. It handles the vast majority of fat digestion in the small intestine. Fat digestion is the most vulnerable process; if lipase is low, undigested fat ends up in the stool (steatorrhea, oily, floating stools).

• **Proteases** break down proteins. The stomach starts with pepsin, then the pancreas releases several powerful proteases (trypsin, chymotrypsin) into the small intestine to finish the job.

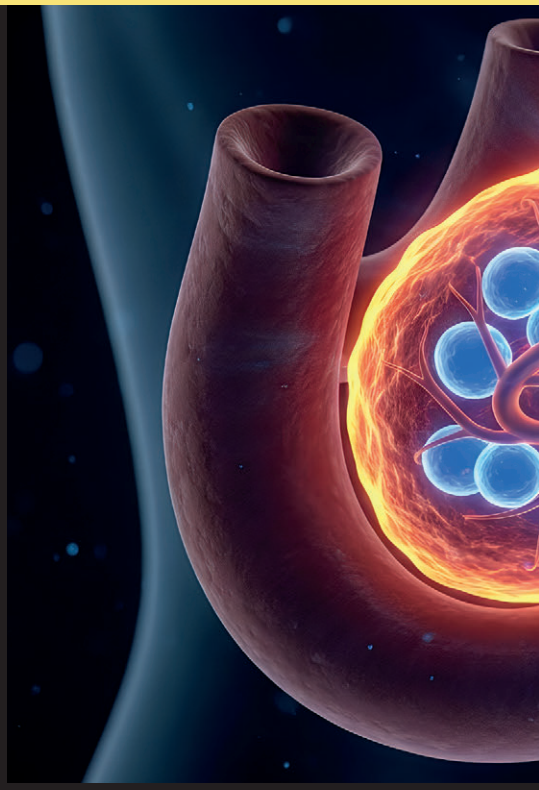
"Of all of these, pancreatic enzymes are the most critical. The pancreas is essentially the engine room of digestion; it produces enzymes for all three food groups in large quantities. When the pancreas struggles, the whole digestive process suffers quickly and malnutrition can follow, which is why pancreatic health is so closely linked to overall nutrition."

Alice Bradshaw, Head of Nutrition Education and Information at Terranova, continued: "Digestive enzymes are naturally occurring proteins that catalyse the breakdown of food into nutrients the body can absorb and use. Proteins are reduced to amino acids, fats to fatty acids and carbohydrates to simple sugars such as glucose, each small enough to cross the gut wall and enter the circulation. Digestion begins in the mouth, progresses through the stomach and is largely completed in the small intestine, where enzymes from the pancreas and the intestinal lining finish the process. When enzyme activity is inadequate, nutrient absorption is compromised and partly digested food passes further along the gut, where bacterial fermentation can give rise to bloating and discomfort. Enzymes should be distinguished from beneficial bacteria: the two play complementary but distinct roles, with enzymes breaking food down and the gut microbiota maintaining microbial balance and supporting wider gut health.

"Three groups of enzymes account for the majority of digestive activity: amylase, present in saliva and secreted by the pancreas, breaks down starchy carbohydrates; proteases, including pepsin in the stomach and trypsin from the pancreas, break down protein; and lipase, acting in conjunction with bile, digests fat. Lipase is arguably the most clinically significant, as the body has limited capacity to compensate for impaired fat digestion, and a shortfall often presents early as greasy stools and reduced absorption of vitamins A, D, E and K. Lactase, produced in the small intestine, also merits attention: it breaks down lactose in dairy, and its natural decline is the most common enzyme shortfall worldwide and the underlying cause of lactose intolerance. Humans do not produce alpha-galactosidase, the enzyme needed to digest certain carbohydrates in beans, pulses and vegetables such as cabbage and broccoli, which is why these foods reach the large bowel largely undigested and can cause gas and bloating."

Keri Briggs, Senior Nutrition and Brand Specialist at Lamberts, also explained: "When we eat, we consume large molecules of macronutrients: fat, protein and carbohydrates. Before these nutrients can be absorbed and used by the body, they need to be broken down into much smaller particles. Digestive enzymes are specific proteins that are produced and excreted throughout the digestive system to facilitate this breakdown and support normal digestion. They fall into three main groups; amylases which assist in the breakdown of carbohydrates to sugars and then to glucose; proteases which break down proteins to peptides and then amino acids, and lipases, which deal with fats, turning them into fatty acids. Another enzyme of significance is lactase, which is involved in the breakdown of lactose, the sugar found in milk and dairy products.

"Digestive enzymes are produced in several glands associated with the digestive system, including the salivary glands, which start the breakdown of carbohydrates and fats, the stomach, which uses pepsin to start the process of protein digestion, and the small intestine, which produces specialised enzymes to complete digestion, such as lactases and peptidases. The main organ associated with digestive enzymes, however, is the pancreas. Sitting adjacent to the upper part of the small intestine, the duodenum, it secretes amylase, lipase, trypsinogen and several other enzymes. These are made from amino acids and will function optimally in the relatively neutral environment in the small intestine. Many are released in an inactive form to prevent them from digesting the secreting organ.



"There are several reasons why people may not have adequate levels of enzymes, and these are most often related to insufficient pancreatic production. Many of these conditions are serious and will require specific medical treatment alongside the use of supplementary enzymes. They include chronic pancreatitis, pancreatic cysts or benign tumours, blockage or narrowing of the pancreatic or biliary duct, pancreatic cancer, pancreatic surgery, cystic fibrosis and diabetes. However, digestive enzyme production can also fall with age and during periods of stress and eating heavy or very processed meals. Eating too quickly can also mean digestive enzymes cannot have their full effect. Low stomach acid can also prevent the activation of pepsin and medications which lower stomach acid, such as proton pump inhibitors may reduce pepsin activity and its related effects on protein digestion."

Powers added: "We also have more specialised enzymes. Lactase, located on the brush border of the small intestine, breaks lactose into glucose and galactose. Reduced lactase activity allows more lactose to reach the colon, where bacterial fermentation can contribute to the familiar symptoms of lactose



intolerance. Alpha-galactosidase is an interesting exception. Humans do not produce sufficient digestive alpha-galactosidase to break down raffinose-family oligosaccharides found particularly in beans and pulses. These carbohydrates therefore reach the colon and are fermented by the microbiota, which is one reason legumes can cause gas and bloating in susceptible individuals. Supplemental alpha-galactosidase can help break down these carbohydrates before they reach the colon."

Next to consider is how they can be obtained.

"The body synthesises its own digestive enzymes from the amino acids supplied by dietary protein and relies on nutrients such as zinc to sustain production," Bradshaw explained. "Enzymes are produced in the salivary glands, stomach, pancreas and lining of the small intestine. Many are secreted in an inactive form, a safeguard that prevents them from digesting the tissues that produce them and are activated only once they reach the stomach or small intestine.

"Their release is regulated by the nervous system and gut hormones, initiated by the sight, smell and taste of food and sustained by its arrival in the gut. The body therefore remains the primary source of the enzymes it requires. Certain raw foods contain enzymes of their own, but many are inactivated by cooking or degraded in the stomach, so their contribution is best regarded as supportive rather than a replacement for the body's own production."

Powers also commented: "Most enzymes responsible for human digestion are produced endogenously, including by the salivary glands, stomach, pancreas, and intestinal brush border. Pancreatic enzymes are particularly important, with the pancreas releasing amylase, lipase and protease precursors into the small intestine in response to a meal. Some foods also naturally contain enzymes. Pineapple contains bromelain, papaya contains papain and green kiwifruit contains the protease actinidin. However, these shouldn't be confused with our own digestive enzymes. They may contribute enzymatic activity within the food or gastrointestinal tract, but eating enzyme-rich foods isn't a substitute for normal pancreatic or intestinal enzyme secretion."

El Moudden went on: "Your body makes digestive enzymes constantly. The main production sites are:

- **Salivary glands** produce amylase to start starch breakdown when you chew.
- **Stomach lining** produces pepsin for protein digestion.
- **Pancreas,** the biggest producer, releases enzymes for all food groups into the small intestine.
- **Small intestine lining** produces final-stage enzymes like lactase and sucrase on the gut wall.

"Your gut bacteria also play a supporting role, producing their own enzymes that contribute to fermentation and breakdown of plant fibres. From a dietary perspective, some whole foods naturally contain enzymes. The most well-known are:

- **Pineapple** contains bromelain, a protein-digesting enzyme.
- **Papaya** contains papain, another protein-digesting enzyme.
- **Kiwi fruit** contains actinidin, which helps digest proteins.
- **Mango, honey, and bananas** contain amylases that help with starch.
- **Fermented foods** (kefir, kimchi, sauerkraut, miso) contain enzymes produced during fermentation."

"The key takeaway is that low enzymes are usually a symptom of an underlying issue, not the problem itself."

What happens when we are lacking

In terms of low levels, it can be a problem in certain people – and there are obvious signs.

"It is actually very common to be lacking, but the reason is rarely that the body has simply forgotten how to make enzymes. More often, something is getting in the way of them being produced, activated, or able to do their job properly," El Moudden advised.

"Common reasons include:

- **Chronic stress** – stress hormones suppress digestive function, reducing enzyme secretion.
- **Low stomach acid** – stomach acid is essential for triggering enzyme release further down the gut; if acid is too low (common with age or antacid use), the whole cascade is disrupted.
- **Poor diet** – ultra-processed foods, excess sugar, and alcohol can damage the gut lining and pancreas over time.
- **Chronic pancreatitis** – long-term inflammation of the pancreas damages the cells that produce enzymes.
- **Coeliac disease** – gut damage from gluten reduces the brush-border enzymes on the intestinal lining.
- **Ageing** – enzyme secretion naturally declines with age.
- **Gut dysbiosis** – an imbalanced gut microbiome can impair the environment needed for proper enzyme function.
- **Medications** – particularly proton pump inhibitors (PPIs) and some antibiotics.

"The key takeaway is that low enzymes are usually a symptom of an underlying issue, not the problem itself."

Bradshaw went on: "Prevalence varies considerably depending on the enzyme. A decline in lactase is very common, affecting around two-thirds of adults worldwide, although it is less prevalent among people of northern European

descent and more so among those of African, Asian and South American heritage. A more significant shortfall of pancreatic enzymes, known as exocrine pancreatic insufficiency (EPI), is less common but likely under-recognised. It is most often associated with chronic pancreatitis, cystic fibrosis and pancreatic or stomach surgery, and is also seen in some people with diabetes, coeliac disease and inflammatory bowel disease.

"Beyond these conditions, enzyme output may be reduced by ageing, low stomach acid (whether age-related or linked to long-term use of acid-reducing medication), high alcohol intake and smoking. Disruption to the gut lining, whether from coeliac disease, a bout of gastroenteritis or bacterial overgrowth in the small intestine, can also lead to a temporary loss of lactase. Everyday habits matter too: eating quickly, not chewing thoroughly and eating under stress may all hinder digestion."

Powers continued: "It is probably more useful to talk about specific enzyme insufficiency than a generalised lack. Lactase insufficiency is a common example and varies considerably between populations. Pancreatic exocrine insufficiency is a different clinical picture and can occur with conditions affecting pancreatic function, including chronic pancreatitis, cystic fibrosis, pancreatic disease or surgery, and can also occur secondary to some gastrointestinal and metabolic conditions. Ageing is interesting because changes in pancreatic structure and exocrine function have been observed with advancing age, and some studies find a greater prevalence of low pancreatic enzymes in older populations. However, this isn't universal, so age alone shouldn't be taken as evidence of enzyme insufficiency."

And to the signs that a client may exhibit if they are lacking.

Bradshaw advised: "When enzyme activity is insufficient, food is incompletely broken down and nutrient absorption is reduced. Undigested food reaching the large bowel is fermented by gut bacteria, producing excess gas and potentially disrupting the balance of the microbiome, while unabsorbed fat can accelerate transit and irritate the bowel. Common signs include bloating, abdominal discomfort, excessive gas and a sensation of heaviness after meals, particularly larger or richer ones, together with changes in bowel habit.

"Lactose intolerance typically presents with bloating, gas and loose stools within a few hours of consuming dairy. Pancreatic enzyme insufficiency may present with pale, bulky, greasy or foul-smelling stools that float or are difficult to flush, visible undigested food or oil in the stool and, over time, unintentional weight loss and low levels of vitamins A, D, E and K. As these symptoms can overlap considerably with IBS, coeliac disease, inflammatory bowel disease and more serious pathology, they should be treated as a prompt for further investigation rather than confirmation of enzyme insufficiency."

Powers also explained: "When digestion is incomplete, nutrients that would normally be digested and absorbed in the small intestine can remain within the gastrointestinal tract. Depending on the cause, this can contribute to bloating, excessive gas, abdominal discomfort, diarrhoea and changes in stool characteristics.

"In significant pancreatic exocrine insufficiency, practitioners should also watch for unexplained weight loss and nutritional deficiencies, particularly involving fat-soluble vitamins. However, bloating alone is not evidence of enzyme insufficiency. Similar symptoms occur with IBS, altered gut motility, carbohydrate malabsorption, coeliac disease and numerous other gastrointestinal conditions. That distinction matters clinically. Rather than asking whether this person needs digestive enzymes, it may be more helpful to ask whether there is a particular food or macronutrient they appear to have difficulty digesting, and whether there is a plausible reason why."

And El Moudden went on: "Bloating and gas, especially after meals, loose, oily, or foul-smelling stools (a sign fat is not being absorbed), feeling heavy or uncomfortable after eating, undigested food visible in stools, frequent loose bowels or alternating constipation/diarrhoea, food intolerances that seem to be multiplying, fatigue after eating, nutritional deficiencies despite eating well, particularly fat-soluble vitamins (A, D, E, K), and unexplained weight loss.

"The gut lining itself can suffer too. Without proper enzyme activity, the intestinal wall becomes less healthy, gut bacteria fall out of balance (dysbiosis), and small intestinal bacterial overgrowth (SIBO) becomes more likely, and food intolerance reactions increase. In short, enzyme deficiency does not just affect digestion, it affects the whole gut environment and, downstream, overall health and energy levels."

SUPPORTING HEALTHY LEVELS

Ensuring a client is getting an adequate supply of digestive enzymes can be an important part of a protocol around gut health. So, what do the experts advise is considered?

Bradshaw advised: "A number of foods contain naturally occurring enzymes. Pineapple provides bromelain and papaya provides papain, both of which assist protein digestion. Kiwi fruit contains actinidin, which has shown promise for protein digestion in studies, and ginger contains a protein-digesting enzyme of its own. Mango and banana contain amylase, avocado contains lipase, and raw honey contains enzymes that help to break down sugars and starch. Fermented foods such as kefir, live yoghurt, sauerkraut, kimchi and miso provide enzymes produced by their bacterial cultures, and the bacteria in yoghurt and kefir partially pre-digest lactose, which is why these foods are often better tolerated by people with lactose intolerance.

"As enzymes are readily destroyed by heat, these foods offer the greatest benefit when consumed raw or unpasteurized. They are best regarded as a valuable component of a varied diet rather than a therapeutic dose, since their enzyme content is variable and may be insufficient for those with specific digestive needs. Equally important are habits that support the body's own enzyme production: eating slowly, chewing thoroughly, eating in a relaxed setting, and ensuring an adequate intake of protein and zinc-rich foods."

El Moudden went into further detail, commenting: "Including enzyme-rich and enzyme-supporting foods in the diet is a great first step. Foods that support the body's own enzyme production are:

- Bitter foods (rocket, dandelion greens, apple cider vinegar) will stimulate stomach acid and bile, which trigger enzyme release.
- Zinc-rich foods (pumpkin seeds, meat, legumes) needed for enzyme production.
- Adequate protein gives the body the raw materials to make enzymes.

"Eating these foods raw where possible preserves their enzyme content, as cooking (especially at high heat) destroys enzymes."

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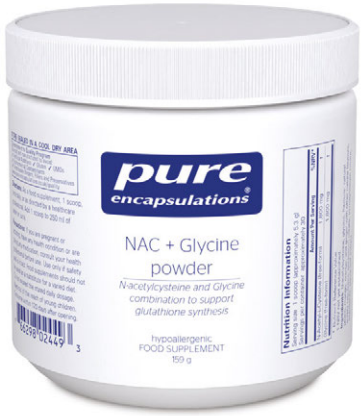
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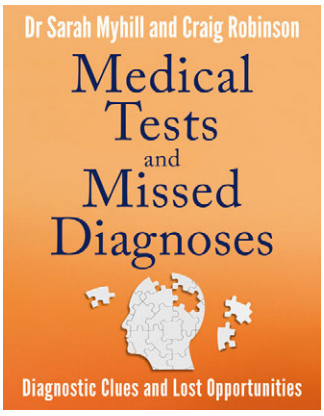
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Supplement considerations

For many people, a digestive enzyme supplement can be beneficial, especially for certain groups of people. But what needs to be considered?

"For many individuals, enzyme supplementation can offer meaningful support, particularly when it is matched to a specific dietary trigger," Bradshaw explained. "Lactase is the most established example; taken with dairy-containing meals, it enables those with lactose intolerance to include milk, cheese and yoghurt without the bloating and loose stools that would otherwise follow. Alpha-galactosidase, taken at the start of a meal, can reduce the gas and bloating associated with beans, lentils, chickpeas and brassicas, supporting a greater intake of these fibre-rich, plant-based foods.

"Broad-spectrum formulations combining amylase, protease and lipase may benefit those who experience fullness or bloating after larger or richer meals, as well as older adults and individuals on long-term acid-reducing medication, whose digestive capacity may be diminished. They may also assist those recovering from gastroenteritis, or individuals who have progressively restricted their diet for fear of symptoms, in reintroducing a wider range of foods with greater confidence. The evidence is strongest for lactase and alpha-galactosidase and more mixed for general bloating, so a time-limited, monitored trial is the most appropriate approach. Enzymes do not treat food allergies, are not a substitute for a strict gluten-free diet in coeliac disease."

Powers also commented: "I prefer a targeted rather than blanket approach. Some situations make the rationale very clear. Lactase supplementation, for example, can help people with lactose malabsorption digest lactose, while alpha-galactosidase may be useful when particular galacto-oligosaccharide-rich foods such as beans and pulses reliably trigger symptoms. Broad-spectrum digestive enzyme combinations are also widely used for post-meal fullness, bloating, and digestive discomfort, and some clinical research suggests benefit. For practitioners, the more interesting question is therefore not simply whether digestive enzymes work, but whether the enzymes in a particular formulation match the foods and symptoms presenting in front of us."

El Moudden went on: "For someone with a confirmed deficiency, or insufficiency, enzyme supplementation can be genuinely life-changing, improving nutrient absorption, reducing symptoms, and protecting long-term health. For people with diagnosed conditions like chronic pancreatitis, coeliac disease, cystic fibrosis, or after pancreatic surgery, prescription pancreatic enzyme replacement therapy (PERT) is standard medical care and is well supported by evidence. For people without a diagnosed condition but who experience ongoing bloating, food intolerances, oily stools, or fatigue after eating, a good-quality, broad-spectrum digestive enzyme supplement can provide meaningful symptom relief and support better nutrient absorption while the root cause is being investigated. Enzyme supplements are also worth considering during periods of high physiological stress (illness, recovery, intense training), as digestive function often drops during these times.

"That said, supplements are not a fix-all. If the underlying issue is low stomach acid, gut dysbiosis, pancreatic inflammation, or coeliac disease, and is not addressed, the improvement will be partial. Think of enzymes as support, not a solution on their own. The evidence is strongest for specific enzyme types in specific conditions: lipase for fat malabsorption, lactase for lactose intolerance, and broad-spectrum pancreatin for general pancreatic insufficiency."

Briggs added: "Studies have shown that adding bromelain to a pancreatic enzyme formulation is more effective than the enzymes alone. Papaya enzyme preparations have been shown to reduce symptoms of IBS, constipation and heartburn. Other foods which contain digestive enzymes include bananas, avocado, kefir, sauerkraut and mango. For those with symptoms related to digestive enzyme insufficiency, an enzyme supplement may be useful. If the symptoms are related to large or heavy meals then a mixed enzyme product, providing a range of amylases, proteases and lipases, would be a good option. Always look for a product which states enzyme levels in units of activity rather than weight."

And what do practitioners need to consider when recommending a supplement?

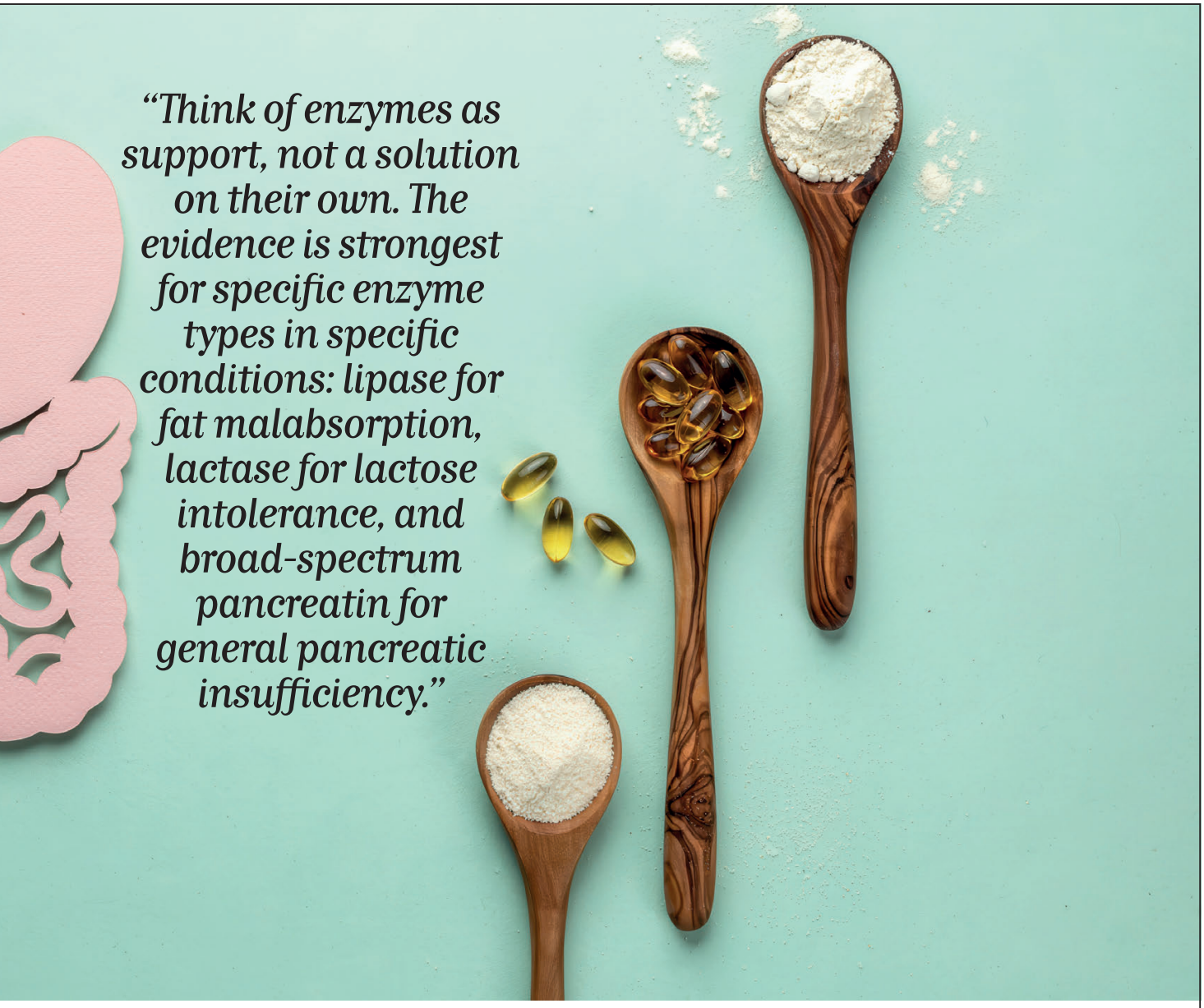
"I would start with the pattern of symptoms rather than the supplement. Is discomfort specifically associated with dairy, legumes, high-fat meals or protein-rich meals? Are there signs of malabsorption, such as persistent diarrhoea, steatorrhoea, unexplained weight loss or nutritional deficiencies? If so, those findings warrant investigation rather than simply recommending an over-the-counter enzyme product," Powers advised.

"Practitioners should also look at the actual enzyme profile and activity rather than assuming all digestive enzyme supplements are interchangeable. Enzymes are substrate-specific, so the formulation should make sense for the individual's dietary triggers and clinical presentation. Finally, check the wider formulation. Products containing proteolytic enzymes such as bromelain may require additional consideration for people taking anticoagulant or antiplatelet medication, and you should also consider allergies and individual tolerability. If genuine pancreatic exocrine insufficiency is suspected, this moves beyond general supplementation to appropriate investigation and pancreatic enzyme replacement therapy under medical supervision."



El Moudden continued: "Recommending digestive enzymes is not one-size-fits-all. Here is what practitioners should work through:

• **Identify the root cause first:** Is it pancreatic insufficiency, low stomach acid, gut dysbiosis, coeliac disease, or something else? Enzymes



"Think of enzymes as support, not a solution on their own. The evidence is strongest for specific enzyme types in specific conditions: lipase for fat malabsorption, lactase for lactose intolerance, and broad-spectrum pancreatin for general pancreatic insufficiency."

work best when paired with addressing the underlying driver.

• **Match the enzyme to the problem:** Fat malabsorption? Prioritise lipase. Lactose intolerance? Lactase. Protein digestion issues? Protease, bromelain, or papain. General maldigestion? Broad-spectrum formula (amylase, lipase, and protease, plus brush border enzymes).

• **Timing matters:** Enzymes should be taken with food during or at the start of a meal, so they are present in the gut at the same time as the food. Taking them too early or too late reduces effectiveness.

• **Consider stomach acid:** If stomach acid is low, even well-chosen enzyme supplements may not work well, as acid signals are needed to trigger the full digestive cascade. Supporting stomach acid (for example, betaine HCl, bitter herbs) alongside enzymes can improve outcomes.

• **Source and quality:** Animal-derived (porcine/bovine pancreatin) most comprehensive, closely mirrors human enzymes. Plant/fungal-derived is suitable for vegetarians, often more acid-stable. Check potency in units (measured in lipase, amylase, and protease units).

• **Monitor and reassess:** Track changes in symptoms, stool quality, weight, and nutritional markers. In some cases, the need for enzyme support may reduce over time as the gut heals."

Bradshaw also advised: "The first step is to rule out red flags, such as unexplained weight loss, rectal bleeding, a persistent change in bowel habit or greasy stools, which warrant referral to the GP before any supplement is introduced. From there, practitioners should explore the root causes of a client's symptoms rather than reaching straight for a supplement, considering factors such as eating habits, stress, low stomach acid, medication use, recent gut infections and food intolerances. Supplementation can then be tailored to the individual.

"Where symptoms are clearly linked to a particular food group, a targeted enzyme is often the most appropriate choice, such as lactase for dairy or alpha-galactosidase for beans, pulses and brassicas. Where symptoms are more general, occurring across a range of meals or after larger and richer ones, a broad-spectrum formulation combining amylase, protease and lipase is likely to offer more comprehensive support. The source of the enzymes also warrants attention: many traditional formulations contain pancreatin derived from pork, which is unsuitable for vegetarians, vegans and those who avoid pork for religious reasons, whereas plant-based and microbial enzymes provide a suitable alternative and remain active across a wider range of conditions in the gut. Enzymes are best taken with the first few mouthfuls of a meal, and a defined trial period with regular review allows practitioners to assess their benefit and determine whether ongoing use is warranted."

Building the FOUNDATIONS

Nutrition experts offer their insights into how to ensure nutrition foundations are built in the young to ensure the health of the next generation.

Healthy habits, a balanced diet, and a steady supply of key nutrients for growth are the cornerstones to children's health. Yet, in the UK, we seem to be getting it wrong; rates of obesity among children are at an all-time high, cases of type 2 diabetes in the young are up, while mental health remains a growing concern.

As nutritional therapists, you will know that building those foundations early, not just in terms of getting enough key nutrients but also in educating children about healthy eating, is critical to ensure children can grow into healthy adults.

Martina Della Vedova, Nutritional Advisor at NaturesPlus, commented: "Sneaky chronic conditions left undetected during early development can cause major health hurdles later in life. The same goes for our daily routines. Picking up poor dietary habits or a sedentary lifestyle as a child builds a foundation that is incredibly hard to break as an adult.





"Mental health follows a similar pattern. Without the right support during our formative years, psychological struggles become much more complex to manage down the road. This happens because the human body and mind are hardwired for survival. When faced with stress or trauma, our instinct is self-preservation. Our systems will ruthlessly cut corners, running on the bare minimum energy required to get the job done, sacrificing our long-term quality of life just to get through the day. While national health is usually measured by medical interventions and clinic visits, real wellness starts much closer to home. True health is built on awareness, self-care, and prevention. It is about learning to listen to our bodies and adjusting lifestyles before a crisis hits."

Keri Briggs, Senior Nutrition and Brand Specialist at Lamberts, went on: "Children's health is becoming increasingly recognised as a critical issue, particularly with regard to concerning trends that are emerging in dietary intake. Recent challenges in the dietary



intake of children may have also been exacerbated by the cost-of-living crisis. A report by Barnardos indicates over 50 per cent of parents have cut their spending on food, with one in five unable to provide sufficient food for their children. An increased reliance on food banks will often limit children's diets to more processed, long-life food and cause significant disruptions to children's access to balanced nutrition.

"Many health issues faced by younger people are modifiable and significantly shaped by Western lifestyles. Poor dietary habits, such as low fibre intake and high consumption of saturated fats and sugars, arise from a food environment that prioritises convenience over nutrition. The reliance on processed cereals as a primary energy source exemplifies this trend, leading to limited dietary diversity and inadequate nutrient intake essential for growth and development. However, while these habits are modifiable, it is important to acknowledge the various challenges that can complicate efforts to change children's dietary habits for the better."

And Alice Bradshaw, Head of Nutrition Education and Information at Terranova, continued: "Children's health concerns have shifted from short-term illnesses toward more ongoing, lifestyle-linked patterns. Higher screen use, less outdoor play, and later bedtimes have all been associated with rising daily fatigue, behavioural challenges, and reduced emotional resilience. At the same time, the modern diet has become more processed and less varied. Many children meet their energy needs but fall short on essential micronutrients required for growth, immunity, and cognitive development. This pattern reflects broader changes in diet quality, daily structure, and environmental demands.



"Modern routines strongly shape how children eat, move, sleep, and recover. Prolonged sedentary time, limited daylight exposure, and constant digital stimulation can disrupt circadian rhythms, affecting appetite cues and stress regulation."

What the statistics tell us

Let's examine what the data is telling us around how healthy children are today, and what the issues are.

Eleanor Faulkner, Nutrition Advisor at Viridian, commented: "Unfortunately, in the UK in 2026, there is a general decline in children's health in nearly all major health measures. The impact is seen mostly in deprived areas and among ethnic minority communities. UK paediatricians are worried about the deteriorating health of children. Current data shows that children's health is poor and some conditions like obesity are worsening. Since 2016, there's been a 54 per cent increase in type 2 diabetes in children and young people, and 94 per cent of these children and young people were obese. The UK Government reports that in state-funded schools, one in five children aged four to five are obese or overweight, and almost two in five aged 10-11 are overweight and obese.

"Inequalities around the UK can cause differences in health outcomes for children. Those living in poverty experience worse nutrition and therefore are more likely to develop certain illnesses. Children's health is different to adult's health and needs to be treated



differently. They are constantly growing and changing emotionally, cognitively and physically.

"Children's mental health is also on the decline, as approximately 20 per cent of children between the ages of eight to 16 have a probable mental health disorder, according to NHS England. Furthering this, sleep is also an area of health that a large number of children are not meeting the recommended standards. NHS digital reports that 28 per cent of six-10-year-olds have sleep problems at least three nights per week, and in 11-16-year-olds, this rises to 38 per cent. Finally, longer waiting times, and over strained and underfunded healthcare services may potentially compound the issue."

Della Vedova went on: "The Royal College of Paediatrics and Child Health (RCPCH) reports a long-term decline in UK youth health metrics. The latest RCPCH State of Child Health data indicates that public health outcomes for children have either plateaued or declined across the majority of monitored categories. Obesity, tooth decay, poverty impacts, and mental health strain remain central.

"More than a fifth of children aged five are overweight or obese, nearly a quarter of five-year-olds in England are affected by tooth decay, and a rise in infant mortality in Scotland and no improvements in England and Wales data from 2018 to 2023, disproportionately affecting the poorest parts of the country. There has been a rise in demand for children's mental health services. The impact of our way of life is massive: less time spent with our kids, less community life, a more processed diet, and a more sedentary lifestyle are all very important factors that fuel stress and set a suboptimal level of health for all."

Looking specifically at diet, Briggs advised: "The recent National Diet and Nutrition Survey (2019-2023) highlights some of the biggest obstacles regarding nutrition for children in the UK in recent years.

- **Low fibre intake:** Only 14 per cent of children aged four to 10, and four per cent of adolescents aged 11 to 18 are meeting the recommended fibre intake. This was only slightly higher in those aged 18 months to four.
- **Saturated fat intake:** Saturated fats contributed 12.5 per cent of energy intake for children aged 18 months to 18. Notably, 85 per cent of children failed to keep to the UK government's recommended limit of 10 per cent of total energy intake from saturated fats.
- **Free-sugar intake:** The average intake of free-sugars was 10.5 per cent of the total energy intake for children, which is over double the recommended percentage of five per cent that the government suggests.
- **Limited dietary diversity:** There is a high reliance on cereals and cereal products, and it was the highest energy contributor, with 39 per cent of energy intake being from this food group in children aged 18 months to three, and 43-to 44 per cent for children aged four to 18. This may highlight a lack of dietary diversity, and a reliance on processed foods."

And there are worrying, long-term impacts if these statistics continue as they are.

"The rising rates of childhood obesity pose significant long-term health risks for children, as noncommunicable diseases are now the leading cause of death worldwide, with obesity rates among children increasing faster than those in adults. This troubling trend elevates the likelihood of developing chronic health conditions such as diabetes and cardiovascular diseases later in life. Addressing the factors contributing to childhood obesity is essential for improving overall health and preventing the future burden of noncommunicable diseases," Briggs explained.



"Addressing the factors contributing to childhood obesity is essential for improving overall health and preventing the future burden of noncommunicable diseases."

"A high intake of free sugars, limited dietary diversity, and low fibre consumption can affect health factors such as gut health and weight management, further increasing the risk of developing noncommunicable diseases. Excessive sugar consumption is linked to obesity and can lead to conditions such as type 2 diabetes and cardiovascular disease in adulthood. Moreover, a lack of dietary diversity may restrict essential nutrients necessary for proper growth and development, potentially causing deficiencies that could impair immune function and overall health. Low fibre intake disrupts gut health by negatively affecting the microbiome, which is crucial for digestion and nutrient absorption. Research suggests that dietary fibre may protect against cardiovascular morbidity and mortality by mitigating risk factors such as metabolic syndrome, diabetes mellitus, hyperlipidaemia, and obesity.

"The consequences of poor nutrition in children extend beyond noncommunicable diseases, significantly impacting mental health and self-esteem. Adequate nutrition is vital for healthy brain function, influencing cognitive development and emotional wellbeing through various metabolic pathways. Many psychological studies also emphasise the connection between diet and mental health, highlighting the importance of promoting healthy eating habits in children to support their overall development. Collectively, these dietary habits may provoke a lifetime of both physical and mental health challenges, underscoring the importance of promoting balanced nutrition from an early age."

Bradshaw added: "Many children are experiencing a mix of low energy, frequent infections, digestive discomfort, mood swings, and difficulties with focus. These concerns rarely appear in isolation, but rather in a cluster, due to the fact that they stem from shared underlying factors such as low nutrient density, irregular eating patterns, reduced physical activity, shorter sleep duration, and high screen exposure. Ultra-processed foods and disrupted daily rhythms can create a domino effect, influencing blood sugar balance, gut health, and emotional steadiness."

Faulkner went on: "Unhelpful eating habits, lack of physical activity, being overweight or living with obesity can lead to serious health concerns later in life, which can significantly reduce life expectancy. Being overweight or obese significantly increases the risk of developing preventable diseases, including insulin resistance, and type 2 diabetes, and heart and circulatory related conditions like, strokes, high blood pressure, hypertension, coronary heart disease.

"Poor diets made up of ultra-processed foods and limited amounts of wholefoods, fruits and vegetables can lead to nutritional deficiencies, which are becoming a more widespread concern in society but are an even greater challenge for children. Unhelpful eating habits, such as ultra-processed and beige diets, can be set at a relatively early age as children who eat high amounts of ultra-processed foods are more likely to carry this into later life."

COVID-19 AND ITS IMPACTS

The impact of the pandemic and associated lockdowns on children has been marked, in a range of areas.

Della Vedova commented: "A study led by clinicians and researchers at Great Ormond Street Hospital and University College London Great Ormond Street Institute of Child Health has found that 70 per cent of young people aged between 11 to 17 in England with long Covid recovered within two years. At 24 months, only 68 young people (7.2 per cent) continued to have long Covid. Affected children experience an average of five to six ongoing symptoms, most commonly chronic fatigue, headaches, cognitive difficulties (brain fog), and sleep loss. Older teenagers and youth from disadvantaged backgrounds have shown lower recovery rates. The indirect consequences of the pandemic have caused imbalances to children's development such as mental health issues.

"The Nuffield Trust highlighted that the surge in demand for children's mental health care was vastly disproportionate to adults, causing the number of children waiting for eating disorder treatments to quadruple. Access to routine healthcare was severely altered. Delays in routine monitoring led to undiagnosed chronic conditions. Lockdowns and school closures severely disrupted physical activity and altered diets. National child measurement data notes a lasting upward shift in childhood obesity rates and severe tooth decay due to missed dental checks and reliance on ultra-processed diets."

Briggs went on: "The Covid-19 pandemic may have further exacerbated the impact of convenience and Western lifestyles, particularly through school closures, which deprived children of access to nutritious meals and structured environments that promote healthy eating. Many families may have been more inclined to choose convenient, processed foods during the lockdown, and this may be further driving the shift towards unhealthy dietary habits."

Meanwhile, Faulkner commented: "The pandemic and public health restrictions had huge impacts on the psychological wellbeing and physical health of children. Children's education, social skills and mental health faced significant challenges during the first two peak years of Covid-19. A survey conducted by the Institute of Education and the Institute for Fiscal Studies revealed that lockdown restriction measures disrupted children's emotional growth, leading to increased anxiety, reduced confidence, and low mood among young individuals. There were cases of younger children presenting with anxiety and panic attacks. It was evident that Covid-19 related anxiety encouraged existing conditions such as obsessive-compulsive disorder (OCD), which has impacted their confidence and mental health going into their teenage years.

"The pandemic also impacted physical activity in children. Children's step counts were markedly lower in late March and early April 2020, compared with the year before and early March, suggesting that children were less active during the outbreak. Covid restrictions kept children in the house and stopped them taking part in sports clubs and activities. Instead, children got used to staying at home and playing on their phones, tablets or computer games. The lack of movement has had an impact on mental health and physical health. Although the majority of parents reported that their relationships with their children improved, and that majority of children spent around two times a week outside green spaces during lockdown.

"It was reported that one in every 15 children has low happiness and that mental health difficulties have increased for some school-aged children since the pandemic. During the pandemic, data indicates that children with special needs or a disability from Black, Asian, Minority Ethnic backgrounds may well be feeling more anxious. A report identified challenges including isolation from friends, learning from home, or worries that family or friends could get sick."

A healthy plan

So, what are the key considerations in terms of a protocol for youngsters?

Bradshaw commented: "From a dietary perspective, the biggest challenges arise from frequent snacking, high sugar intake, refined carbohydrates, and low fibre – all of which can displace nutrient-dense meals. These patterns may destabilise blood sugar levels, influence gut health, and affect mood. When combined with reduced physical activity and shorter sleep duration, they make it harder for children to maintain stable energy and robust immune function. A further consideration is the decline in outdoor play, which naturally exposes children to diverse environmental microbes – an experience thought to support the development of a resilient immune system. In parallel, the increased use of antibacterial cleaning products and high-strength household sanitisers may reduce everyday bacterial exposure even further, contributing to a less varied interaction with the natural microbial environment during early childhood."

And when it comes to what to recommend, Briggs advised: "Dietary requirements will depend greatly on the age of the child but there are some general recommendations which do not vary significantly from a healthy diet suggested for an adult. Fruit and vegetable intake should be increased to ensure five portions a day and ideally this would be more vegetables than fruits. It can include dried fruits, which should be given sparingly and with a meal, as well as tinned and frozen fruits and vegetables and fruit juice (which can only be counted once). Potatoes, fruit squashes and cordials do not count and pulses such as beans can only count once. Offering a wide variety of options, as well as offering vegetables raw as well as cooked, can be helpful in achieving five a day. This will also go some way to increasing fibre intake to the recommended 20-25g a day (depending on age).



"Starchy foods are also important as part of a healthy diet and include potatoes, pasta, rice, bread and cereals. Ideally, wholegrain options should be offered after the age of two, as this improves nutrient and fibre intake. For children under two, it is not recommended as these fibre-rich foods can be very filling and prevent enough other nutrients from being consumed. Dairy, such as milk, cheese and yogurt, or fortified plant alternatives are also important for providing important nutrients such as protein, calcium and vitamins A and D. Full fat options should be used for younger children. Eggs, meat, fish and their plant alternatives are useful for providing not just protein but trace nutrients such as iron and choline. These are of particular importance in children as they are involved in cognitive development. Fish is also vital for the iodine it provides and at least one portion per week should be an oily fish such as salmon, sardines, herrings, mackerel or pilchards.

"Salt, sugar and processed foods should be limited in everyone's diets, not just children's, as the majority of the evidence shows most of us eat too much of these. Avoiding too much liquid sugar, in the form of fruit juices and smoothies and fizzy drinks, is sensible, as is replacing sugar laden snacks such as sweetened yogurts, with lower sugar alternatives."

Della Vedova added: "Food and beverages should only contain natural foods (nothing artificial such as sweeteners, preservatives, or stabilizers) and this is why it is suggested that fresh foods are always the best choice, even better when organic local and sourced by producers we know and trust. Foods rich in fibre and polyphenols are the ones that support our microbiome: practically, vegetables, fruit, and spices. Lean protein and healthy fats are also essential in a kid diet to support growth spurts and brain development."

And Faulkner recommended: "A healthy living strategy for children's health would be eating a protein filled breakfast to help set up for the day. It is recommended to cut out processed foods which contain additives, artificial ingredients and refined oil and sugar. It is recommended to add more fibre to the diet to support a healthy gut microbiome, which in turn helps to support the immune system and mental health through the gut-brain axis. Children may benefit from cutting out all sugar as it can have a negative impact on mood balance. Keeping stable blood sugar levels all throughout the day is important for a stable mood."

Bradshaw went on: "A strong dietary foundation centres on predictable eating rhythms, whole foods, and balanced meals that provide steady energy and essential nutrients. Regular mealtimes help stabilise appetite and mood, while reducing reliance on sugary drinks, refined snacks, and ultra-processed convenience foods. Prioritising a variety of colourful fruits and vegetables, quality proteins, healthy fats, and whole grains support growth, immunity, and cognitive development. Repeated exposure to nutrient-dense staples, including eggs, yoghurt, beans, lentils, oily fish and whole fruits, helps children build familiarity with nourishing foods and ensures they receive the macronutrients, vitamins and minerals needed for healthy development."

Diet isn't the only important consideration to make either.

"Outdoor activities are a great way to support a healthy gut and a healthy nervous system as they encourage movement and fresh air," Della Vedova advised, adding: "Screen-time should be reduced at a minimum: school-aged kids and teens generally target a maximum of two hours of recreational use."

Faulkner added: "I would recommend cutting down screen time as much as possible to reduce the negative impacts it has on mental health and sleep quality. Instead, increasing physical activity and group activities where children can be sociable. A regular sleep routine is also vital; make sure to keep a fixed bedtime and wake-up time every day and turn off screens one hour before bed. Keep bedrooms as a calm environment which is dark, quiet and a comfortable temperature to encourage better quality sleep.

"While it's difficult to implement all these changes in reality, making better choices slowly is still beneficial to children. Children get their habits from their parents so being a good role model is always important. Things like cooking meals together and playing in the park or going swimming with your children can help to show that being active and eating healthily is a fun thing to do."

NUTRIENT LEVELS IN CHILDREN

In a similar way to adults, it can be common for children to be low in certain nutrients, for a range of reasons.

Della Vedova advised: "Nutrient deficiencies are increasingly common in UK children due to a heavy reliance on processed foods, which often results in high-calorie consumption paired with cellular malnutrition. This diet degrades gut microbiome diversity – the foundation of overall health, immunity, and adaptation – leading to overlooked symptoms like skin rashes, poor sleep, and digestive issues."

Briggs added: "National Diet and Nutrition Surveys have identified several nutrients of particular concern for younger people, and these include iron, vitamins A and D, zinc, magnesium and calcium. Some symptoms such as tiredness or low immune function and repeated infections may indicate an inadequate intake of some of these nutrients, but many sub-clinical deficiencies will not be obviously apparent. For example, bone density peaks at around 25-35, and requires calcium, magnesium and vitamins D and K2 to be optimal. But any issue with peak bone mass and its decline will not be apparent until much older age."

Bradshaw went on: "Many children fall short on several key nutrients because their diets often lack the variety needed to cover all bases. Gaps most commonly arise when oily fish, iron-rich foods, and a broad spectrum of plant foods are limited, and when refined or ultra-processed options dominate daily intake. This can leave children low in nutrients such as vitamin D, iron, omega-3 fatty acids, magnesium, iodine, and fibre – all of which play essential roles in growth, immunity, cognitive development, and steady energy. Ensuring a wide mix of naturally nutrient-dense foods helps reduce the likelihood of these predictable shortfalls."

Faulkner agreed, adding: "Nutrient deficiencies are a widespread concern in society, but they pose an even greater challenge for children. It's common for children to be lacking in key nutrients due to several factors like picky eating habits, limited food access due to poverty, food allergies, underlying medical conditions and a diet high in ultra-processed foods. Despite the abundance of food options in developed countries, the availability and marketing of certain unhealthy foods aimed at children often prioritise convenience over nutritional value, which can complicate the task of providing nourishing meals that support healthy growth and development.

"UK government reports from 2019 to 2023 found that children were low in vitamin D, folate and iodine. For vitamin D, 10 per cent of children aged four-10 and 23 per cent aged 11-18 had low vitamin D. For folate, 12 per cent of children aged 11-18 had low levels. Folate levels are important for children as they help the body make DNA, repair cells and produce healthy red blood cells. It's suggested that vitamin D levels are currently lower in children due to them spending more time indoors than before. Wearing more sunscreen on hot days also blocks vitamin D production in the skin. Folate levels are low due to low intake of sources rich in the vitamin, including legumes like green beans and green leafy vegetables like kale."

Therefore, supplements are considered important, especially in the key nutrients that youngsters need for healthy growth and development.

"Supplements can be a practical way to support predictable dietary gaps when used alongside balanced meals and consistent routines," Bradshaw commented. "Daily vitamin D is officially recommended for infants and children up to four years of age throughout the year, and for older children during the autumn and winter months. For selective or picky eaters, or during periods of rapid growth, a gentle multi-nutrient formulation can offer reassurance by providing steady coverage of key vitamins and minerals. Targeted microflora supplements may also be useful for children recovering from frequent infections or experiencing ongoing digestive discomfort."

Faulkner continued: "Omega-3 fatty acids, EPA and DHA, found in fish or algae-derived supplements, are like brain food for kids. These essential fatty acids are crucial for brain development and cognitive function, making them a smart choice for growing minds. These are especially important for fussy eaters who don't like fish. DHA is especially beneficial for mood too. Probiotics and prebiotics are vital as good gut health is the foundation of a strong immune system. And beneficial bacteria and prebiotic fibres help maintain a balanced gut microbiome, supporting immune function and digestive wellness in children.

"When it comes to convenience, multivitamins are a parent's best friend, packed with a mix of essential vitamins and minerals in a single dose. Children can also take targeted supplements depending on their individual needs. Supplements like L-theanine and lemon balm are helpful to settle nerves in anxious children and California poppy can be taken by children who struggle with sleep. Magnesium is another beneficial supplement that children can benefit from to support a well-rested sleep and help manage stress."

Briggs also suggested: "During growth, there is extra demand on the body, which may put children at risk of micronutrient deficiencies and some children (such as those in poverty), may be at risk of malnutrition. The most common deficiencies in children and young adults are vitamin D3, iron (in females), folate and omega-3. When choosing a supplement, it is important that you ensure it's suitable for children, not just adults, as strengths and suitability can vary depending on the ingredients. Due to its role in brain health, an omega-3 supplement is often recommended, particularly if the child does not eat oily fish. Vitamin D3 is crucial for bone health, as well as immunity, therefore, important for children's growth and development. Iron plays many different roles, including contributing to cognitive development in children, energy production, role in cell division and the formation of red blood cells. Folate (or folic acid) is required for normal psychological function, energy production and immunity. If a child is being brought up in a vegetarian or vegan household, there may be more risk of deficiency of certain nutrients, such as vitamin B12."

Della Vedova went on: "Supplements, as the word suggests, supplement a diet. Diet needs to be nutrient dense and as natural as possible. Once we have established what food we need to aim at, then we can consider supplementing our children's nutrient intake if our children show reoccurring mild symptoms. What I can safely say is probiotics can be very helpful. There are many different strains available which look at different symptoms, conditions and are age tailored."



STUDENT LIFE



In a series of features, we hear from students as they progress through their Nutritional Therapy studies. This issue is the turn of Paul Dehan-Smith, who is in his last year of a degree in Nutritional Therapy.

Q CAN YOU TELL US ABOUT YOUR CURRENT STUDIES?

I'm studying a BSc (Hons) Nutritional Therapy at the Institute of Optimum Nutrition (ION). Looking back, it was one of the best decisions I've made. I originally studied part-time before transferring to the full-time programme to complete my final year. If all goes to plan, I'll graduate in June 2027.

Q WHAT WAS YOUR CAREER BACKGROUND PRIOR TO THIS?

I've worked in health and fitness since 2018, when I qualified as a personal trainer. I ran my own business before moving into my current role as a UKIHCA-Registered Health Coach within a GLP-1 clinic. I support patients in getting the most from their medication, developing sustainable lifestyle habits, minimising side effects and improving health.

Q WHAT INSPIRED YOU TO STUDY NUTRITION?

My interest started in 2013, when I began studying dietetics. At the time, I wasn't in the right place personally, so I decided to leave university early. Years later, I realised my passion for nutrition had never gone away. We live in a society facing increasing rates of obesity, diabetes and chronic disease, while misinformation about nutrition is everywhere. Prevention has never been more important, and I wanted to become part of the solution.

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

ION is the pioneer of nutritional therapy education in the UK, and I haven't regretted my decision for a second. The tutors and staff are incredibly knowledgeable and supportive; it is validated by the University of Portsmouth and BANT accredited, which was really important to me. BANT plays a huge role in raising professional standards, supporting practitioners, promoting evidence-based practice and increasing public awareness.

I'm about to start the training clinic, and I know I'll be supported every step of the way. I'll be incredibly proud to graduate from ION.

Q WHAT HAVE YOU ENJOYED ABOUT THE COURSE SO FAR?

One of my favourite modules has been Functional Nutrition 2 because of its strong focus on scientific research and critical appraisal.

Learning how to properly interpret research, identify bias and distinguish good evidence from poor has changed the way I approach nutrition. In a world where anyone can post nutrition advice online, these skills are invaluable. I genuinely believe they are essential for every healthcare professional, specifically nutrition.

Q AND WHAT HAVE YOU FOUND CHALLENGING?

One challenge nobody prepares you for is how much information is out there. When you first start, you want to read every book, attend every webinar, listen to every podcast and follow every expert. Before long, you're surrounded by conflicting opinions, because nutrition isn't a black-and-white science. Sometimes, you reach a point where, despite everything you've learned, you feel like you know nothing. In reality, you've learned an enormous amount, but the more knowledge you gain, the more you realise how much there is still to understand. I think that's a sign of becoming a good practitioner. It keeps you humble, encourages critical thinking and reminds you that learning never stops.

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

I don't think we talk enough about what it's like to return to studying as an adult. It's not just your decision; it becomes a household decision. Your partner, family and friends are all affected. There will be weekends writing assignments instead of socialising, evenings where you can't cook dinner because you have coursework due, and moments when you have to prioritise your studies over other commitments.

Having a strong support system makes an enormous difference. I am so impressed by such strong women from my course studying, working full time, raising kids, sometimes with special needs. My advice is to have those conversations before you start and to make sure the people around you understand the commitment involved.

Q WHAT ARE YOUR GOALS WHEN YOU FINISH YOUR STUDIES?

My goal is to continue developing my private practice (www.pdsnutrition.com) and help people improve their health through evidence-based nutrition. But who knows, it changes each time I talk with a fascinating practitioner!

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

I'm particularly interested in cardiometabolic health, obesity, type 2 diabetes, malnutrition and metabolic disease. GLP-1 medications are also a huge area of interest through my current role, and I'd love to develop expertise in this field. I can see myself pursuing an MSc one day because I genuinely love learning.

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

Everyone talks about time management, and they're right; it is essential. But the best piece of advice I've received came from the late Heather Rosa: she encouraged me to get out there, show my face, attend conferences, and build relationships. Nutritional therapy is actually quite a small industry, and I've discovered that people are incredibly welcoming. Heather always encouraged students to step outside their comfort zone, and she was right. She'll be in my thoughts on graduation day and for many years afterwards. I'm incredibly grateful for everything she taught me, both academically and personally.

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



Honouring product EXCELLENCE

This issue of *Nutrition I-Mag* is where we can reveal the brands vying for your votes in our annual Product Awards – so now is the time to tell us what is deserving of an accolade.

Products made with quality, backed by science and driven by efficacious ingredients are the cornerstones of the nutritional therapy community. For practitioners, being able to rely on brands to meet these strong requirements is critical.

And we believe this commitment to quality and excellence from brands operating in this sector should be rewarded, which is why we run the *Nutrition I-Mag* Product Awards, to celebrate innovation and recognise those brands going the extra mile.

And in this issue of *Nutrition I-Mag*, we are delighted to announce which products are in the running for one of our awards, across a range of categories of relevance to nutritional therapists. Then it is over to our readers to tell us what should win – whatever your reasons for voting, we want to hear from you.

Over the following pages, you can read all about the products seeking your votes. To vote, all you need to do is click on the link **here** – and look out for the spring 2026 issue of *Nutrition I-Mag*, where we will be announcing our winners.



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Good Health Biotic14™ is a comprehensive multi-species live bacteria formula, combining 14 carefully selected bacterial species with 10.8 billion CFU per serving (2 capsules). The blend includes clinically researched, spore-forming *Bacillus subtilis* DE111®, alongside *Lactobacillus* and *Bifidobacterium* species and 200mg of the prebiotic fructooligosaccharides (FOS). Rather than simply pursuing ever-higher CFU counts, Good Health Biotic14™ provides a broad, considered combination in an easy-to-use vegetable capsule. A long-standing favourite within the Good Health Naturally range, it is particularly popular with nutritional practitioners looking for a versatile, high-quality microbiome formula for their clients.



www.goodhealthnaturally.com

BEST GUT HEALTH

PIONEERING SPORE-BASED PROBIOTICS

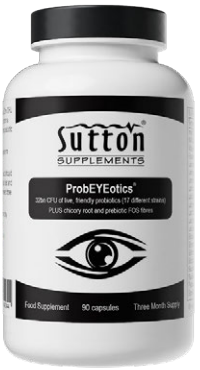


MegaSporeBiotic™ is the first 100% spore-based, broad-spectrum probiotic clinically shown to improve intestinal permeability in just 30 days. This unique blend of 4 Bacillus spores RECONDITIONS the gut instead of reseeding with probiotic strains that cannot survive digestion or colonise the gut. Having 12 published studies confirming it's efficacy, MegaSporeBiotic™ can reduce metabolic endotoxemia by 40% in 30 days by promoting microbial diversity, supporting intestinal barrier function and maintaining key health-promoting, commensal gut bacteria. MegaSporeBiotic™ does not require refrigeration and maintains efficacy during antibiotic therapy.
For more info contact: tegan@microbiomelabs.co.uk
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BEST GUT HEALTH

PROB-EYE-OTICS - RED ALERT – WHAT ARE OUR EYES TELLING US?

When inflammation is a key driver of dry eye disease, management should address this underlying mechanism. Supporting the body's natural balance with a daily probiotic may help promote overall eye comfort, hydration and tear film health. ProbEYEotics boost beneficial bacterial flora to support both gut and eye health.
The pharmacist and optometrist founders at Sutton Supplements have researched and personally developed ProbEYEotics to achieve this aim.
Each once-a-day capsule contains:
32bn CFU (colony forming units) of live, friendly probiotic bacteria across 17 different strains
prebiotic FOS (fructooligosaccharide) fibres and inulin from chicory root
riboflavin (vitamin B2) which contributes to the maintenance of normal vision.



www.sutton-supplements.co.uk

BEST GUT HEALTH

SUSTAINABLY SOURCED ORGANIC PREBIO FIBRE POWDER



Organic Prebio Fibre Powder by Viridian is a low FODMAP, water-soluble prebiotic fibre, ideal for supporting microbial diversity in the gut, and increasing akkermansia levels. Sourced from a blend of baobab pulp and acacia resin, two natural ingredients sustainably grown in Africa, where their production supports local communities and creates a valuable source of income for rural families.
Both are low FODMAP accredited and gentle on the gastrointestinal tract. This supplement contains 30 servings, at the clinically studied dose of 5g per day. Soil Association certified. Contains 100% active ingredient and no binders or fillers, non-animal tested and ethically made.
www.viridian-nutrition.com

BEST NEW

LAMBERTS - CREATINE MONOHYDRATE

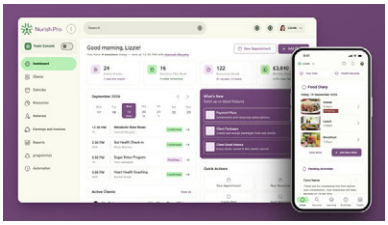
While long recognised for boosting athletic performance, creatine offers significant benefits far beyond competitive sports. As a thoroughly researched supplement, it helps adults over 55 enhance resistance training, mitigating age-related muscle and strength loss. It is also valuable for vegans and vegetarians whose plant-based diets naturally lack creatine. Furthermore, research suggests creatine monohydrate supports lean mass and strength in postmenopausal women and those on calorie-restricted diets. Emerging studies even link supplementation to improved short-term memory performance. Ultimately, creatine is proving to be a versatile tool for preserving physical health and cognitive function in everyday populations, not just traditional elite athletes.



www.lambertshealthcare.co.uk

BEST NEW

NURISHPRO



NurishPro is transforming nutritional healthcare with a clinically focused platform purpose-built for health professionals. It unifies AI-powered food recognition, automated notetaking, personalised nutrition planning, wearables and client engagement in one secure ecosystem.

By eliminating hours of administrative burden while enhancing clinical insight and client outcomes, the platform enables practitioners to deliver higher-quality, more personalised care at scale.

By combining clinical innovation, practical efficiency and meaningful professional support, NurishPro redefines what practice software can achieve; empowering practitioners to deliver exceptional care, grow sustainable practices and make the work they love viable.

www.nurishpro.com

BEST NEW

TARGET THE ROOT CAUSE OF AGEING: OXFORD HEALTHSPAN'S NEW TO MARKET GLUTEN-FREE FOOD-DERIVED SPERMIDINE POWDER

Multi-award-winning longevity supplement brand Oxford Healthspan has launched a new food-derived gluten-free spermidine powder, making it easier than ever before to get this vital longevity compound into your daily routine even if you're on a gluten-free diet.



Each serving contains at least 1.2mg of the cleanest, food-derived Okinawan spermidine, an organic molecule we all make when we are young, but which declines with age. Spermidine has been found to target 9 of the 12 root causes of ageing and trigger autophagy, our body's cellular "clean-up" process, making it an essential anti-ageing tool with wide-reaching benefits both inside and out.

https://oxfordhealthspan.com

BEST NEW

INTRODUCING COLLAGENEYES - KEY NUTRIENTS FOR HEALTHY EYES, SKIN, HAIR & NAILS

Sutton Supplements® CollagenEYES® packs in 7g of clinically tested marine collagen, 198mg of sodium hyaluronate, and a blend of eye essential vitamins and minerals.

This powerful, all-in-one combo is superior as it is composed with a high concentration (45%) of amino acids with potent antioxidant activity - glycine, proline and hydroxyproline. Its triple-action formula has been developed exclusively in-house by our optometrist and pharmacist founders in response to recent eye health research showing that eye-targeted sodium hyaluronate gives faster results when combined with collagen.



By increasing the levels of glycosaminoglycans (for eye cell structure), aquaporins (cell membrane proteins) and protein synthesis, it promotes corneal hydration.

www.sutton-supplements.co.uk

BEST NEW

PEBBLE BY VIVO LIFE

Meet PEBBLE by Vivo Life: the world's first refillable spray combining 23 nutrients, including vitamins, minerals and omega-3, without pills to swallow or powders to mix.

Inside, two separate chambers hold water-based and oil-based nutrients in one pocket-sized device. The vegan formula includes carefully chosen absorbable forms in functional amounts. Each refill set provides 28 days of daily essentials. Keep the aluminium case, replace the refills and carry on. At home or on the go, PEBBLE makes your supplement routine simple.



Available to pre-order at:

www.vivolife.co.uk

BEST VMS

BONEBALANCE™ - A BREAKTHROUGH FOR STRONG, FLEXIBLE BONES

bonebalance™ is a Food for Special Medical Purposes approved for the dietary management of osteopenia, osteoporosis and low bone mineral density. It comprises high-quality Bioactive Collagen Peptides® optimised for absorption into bone tissue.

These Bioactive Collagen Peptides are clinically proven to help form bone matrix – the tissue that gives bones tensile strength and flexibility to more absorb impact and resist fracture. bonebalance stimulates collagen metabolism and osteoblasts and reduces osteoclast action.

With no flavour, side-effects or contraindications, bonebalance is easily taken by dissolving 5g in a drink.



Increasingly, customers are sharing improved DEXA scans, bringing confidence to practitioners and patients.

www.bonebalance.co.uk

BEST VMS

HYDRATION MADE SIMPLE WITH ELETE™ ELECTROLYTES

elete™ is a naturally sourced liquid electrolyte concentrate, derived from the mineral-rich waters of Utah's Great Salt Lake.

Containing four key electrolytes; magnesium, potassium, sodium and chloride, plus naturally occurring ionic trace minerals. elete™ offers a convenient way to upgrade your drinks with zero sugar, calories, sweeteners or flavourings.

The compact 25ml pocket bottle makes up to 10 litres, while the economical 480ml bottle can be used to refill it at home; costing from just 26p per litre. Clean, convenient electrolyte fuelled hydration, wherever your day takes you.



www.eletewater.co.uk

BEST VMS

GOPO® JOINT HEALTH

GOPO® Joint Health is a herbal supplement designed to support joint health, mobility and an active lifestyle. Made from specially cultivated Rosa canina rose-hip, it contains the patented GOPO® galactolipid compound, unique to this formulation. Unlike standard rose-hip products, GOPO® is produced using a patented drying process designed to preserve key active ingredients. Backed by extensive clinical research and trusted by consumers for over 20 years, GOPO® combines natural heritage with scientific innovation. Rich in naturally occurring vitamin C, which contributes to collagen formation for the function of cartilage and bones, GOPO® offers a distinctive herbal approach to everyday joint support.



gopo.co.uk

BEST VMS

BLACK SEED (NIGELLA) OIL – COLD PRESSED

Looking to support your heart health, immunity and everyday wellbeing naturally? Black Seed Oil has been valued for centuries in traditional wellness practices, particularly for digestive comfort and overall vitality. Extracted from Egyptian Nigella sativa seeds (also known as Kalonji), this remarkable oil contains thymoquinone, a natural compound studied for its antioxidant and anti-inflammatory potential.



Why Hesh? Our 100% pure, cold-pressed, unrefined Black Seed Oil contains over 2.5% thymoquinone, independently laboratory-tested for quality and potency. Suitable for daily oral consumption, with no additives or dilution.

Discover Hesh Black Seed Oil

BEST VMS

NATURALLY SOURCED CONCENTRATED MINERAL DROPS

CMD is a concentrated liquid mineral supplement sourced from the mineral-rich waters of Utah's Great Salt Lake.

Concentrated naturally through solar evaporation, its liquid ionic formula provides magnesium along with a broad spectrum of naturally occurring minerals and trace elements.

CMD can be added to water or your preferred drink and is particularly useful for adding a spectrum of minerals and trace elements to distilled or low-mineral water.

A convenient way to add naturally sourced ionic minerals and trace elements to your everyday routine.



www.mriuk.co.uk

BEST VMS

EVERYDAY EYE FORMULA

Sutton Supplements Everyday Eye Formula has been created by an optometrist (with a family history of glaucoma and macular degeneration) and pharmacist to help support and maintain eye health, especially as we age.

Each one-a-day, vegan capsule contains: the key macular pigments lutein and zeaxanthin; bilberry, astaxanthin and resveratrol; a blend of key vitamins and minerals to support eye health. Most are chosen to be at 100% of the recommended daily allowance (NRVs).



Riboflavin, selenium, vitamin A, C, E and zinc contribute to the maintenance of normal vision and protection of cells from oxidative stress.

Riboflavin, thiamine and vitamin C contribute to the normal function of the nervous system.

www.sutton-supplements.co.uk

BEST VMS

LYMPH MOVER, IMMUNE STRENGTH

Feeling puffy, sluggish or stuck? Lymph Mover, Immune Strength is an herbal tincture for lymphatic drainage and immune support.* A clinical herbalist built it around Red Root and Cleavers, classic herbs for healthy lymph flow, with Echinacea, Baptisia, Red Clover and Calendula rounding out immune and cleansing support.* This tri-solvent extraction captures more of each plant's constituents in one full-spectrum tincture, with no capsule to break down first. It's made by WishGarden Herbs, a family-founded Certified B Corporation crafting herbal formulas in Colorado since 1979.

Available at wishgardenherbs.com, Amazon, Natural Grocers by Vitamin Cottage, Sprouts Farmers Market, and independent and regional natural food retailers across the US.



* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

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COLLAGEN – a guide to supplementation

The market for collagen supplements has exploded in recent years, leading to potential confusion among consumers. Experts in the field guide practitioners through the most up to date advice.

It seems every week there is a new collagen supplement that launches to the market – and often, each new one is suggesting it is better than the last, more advanced, with better absorption, and more.

This growing market for collagen has emerged as more people become aware of its benefits; where once joint health was the main reason a much smaller base of consumers bought collagen supplements, now, with its wide range of benefits, including around anti-ageing, more people are seeing it as a magic pill of sorts. This has undoubtedly given rise to confusion; many shoppers don't understand the different types and what they need it for, nor are they aware there are many bad collagens on the market, especially in the direct to consumer/mainstream market.

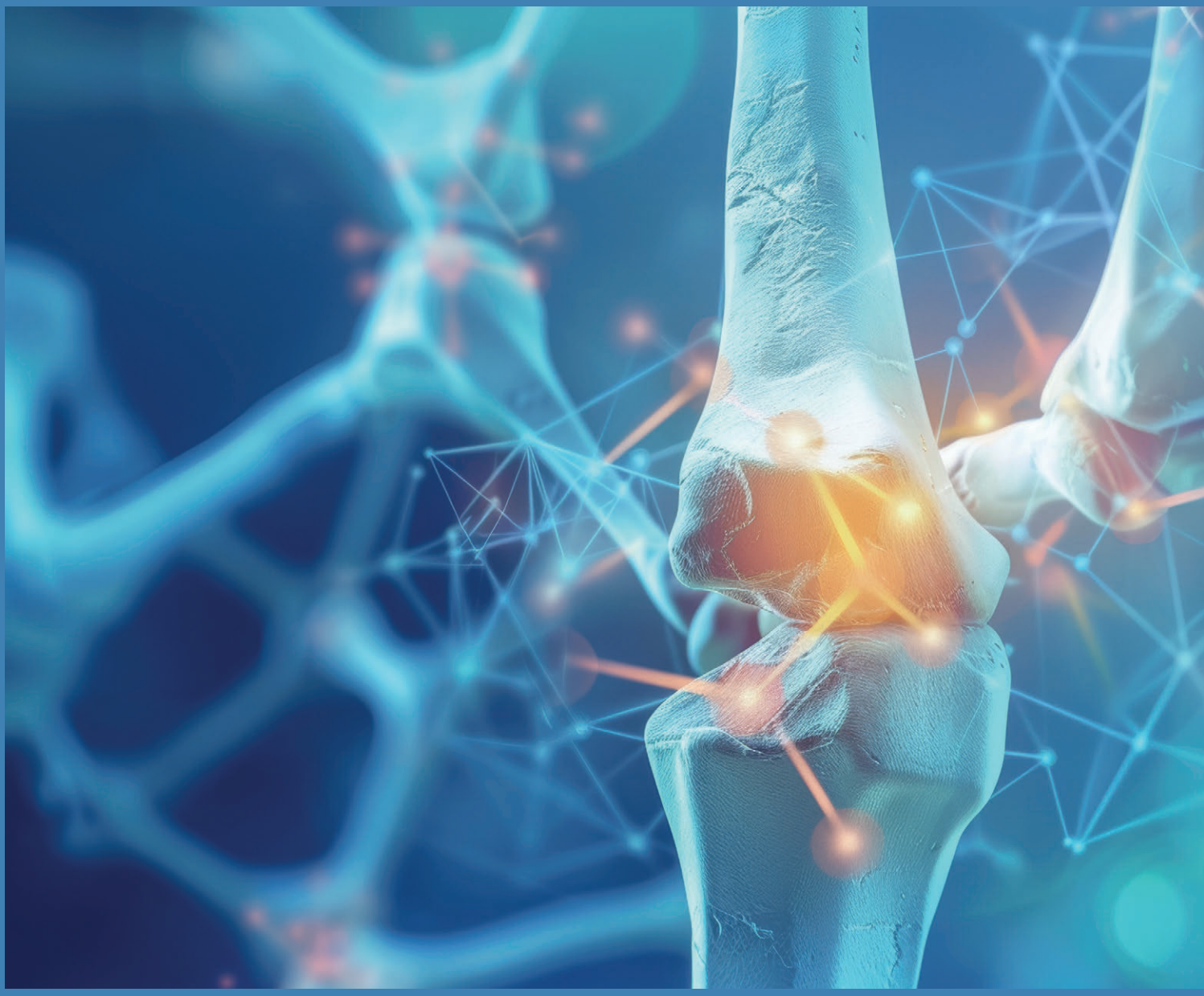
This means there is a clear role here for practitioners in educating clients, not so much about the benefits, but about choosing the right supplements to gain the most from it.

Ann Parker, Founder of Ann Parker Longevity, commented: "I think interest in collagen has been driven by the beauty industry much more so than for health reasons. In my experience, people are more willing to pay to look better than to feel better – strange but true. Celebrity endorsements have fuelled a huge demand for collagen focusing on anti-ageing.

"Ninety per cent of all supplements on the market globally are not manufactured by the people selling them – they are marketing companies. That isn't to say they are all poor quality but collagen is one of the worst, despite being the most researched supplement on the planet. The global collagen market is worth $12.7bn a year and so attracts brands where the quality isn't what you would hope. So many collagen brands contain no collagen at all – I didn't actually believe this at first and so did some research – collagen in big letters on the front of the packaging and then in tiny letters on the back 'collagen enhancing'. Not the same thing! Many collagens are not formulated to work at their best. Collagen on its own is not effective."

Thalia Pellegrini, BANT-registered Nutritional Therapist and Senior Nutritional Therapist for Wild Nutrition, added: "Over the last few years, collagen has become a supplement heavily endorsed by celebrities and influencers. I often speak to women who ask if they should be taking it without really knowing why. The surge in its popularity may also be attributed to enduring fascination with anti-ageing products.

"Inevitably, there are quality issues. In a crowded market with products ranging considerably in price, the consumer is well advised to do a little research into the collagen they're buying. The main non-negotiables for me would be to confirm whether the collagen is hydrolysed and whether it is third-party tested."



A COLLAGEN EDUCATION

We know the general public is aware of collagen, and there is a level of understanding about the benefits. But it's also key they are taught about what it is, and how it is made in the body.

Maxime Maunad, Nutritional Therapist at BioCare, advised: "Collagen is comfortably the most abundant protein in the body, comprising up to 35 per cent of it.[1] Collagen provides the structural scaffolding for our tissues, giving strength and elasticity to bones, skin, muscle, tendons and cartilage.[2] Our body can make its own collagen, requiring amino acids like glycine and proline, which we obtain from dietary protein sources such as meat and fish skin or bones. These protein sources are broken down into their individual amino acids in our digestive system and are then reformed to make collagen.[3] Vitamin C is an essential cofactor for this process.[4]

"Other nutrients involved in our body's collagen include vitamin A, which is needed for fibroblast production (the cells that build and support connective tissue), and zinc, as a cofactor for enzymatic processes for collagen and protein synthesis, as well as collagen protection.[5]"

Keri Briggs, Senior Brand and Nutrition Specialist at Lamberts, continued: "Collagen is a protein, constituting approximately 30 per cent of the body's dry weight, and is the most prevalent protein in the human body. As with any protein, collagen is made from amino acids and is particularly rich in proline, glycine, and arginine. Its unique arrangement allows it to provide both strength, stability, and elasticity to a wide range of tissues, including the skin, blood vessels and joints. Collagen is produced in cells called fibroblasts and requires a sufficient intake of proteins, to provide amino acids, as well as nutrients such as vitamin C, zinc, and copper to allow correct development of the cross-linked structure which gives collagen its unique properties.

"Collagen is naturally found only in animal tissues and is not necessarily an easy nutrient to obtain directly from the diet, as many of the foods it is found in are not widely consumed. Bone broths, organ meats and chicken skin will all provide collagen, as well as eating whole fish (including the bones and skin). However, these do not necessarily feature widely in many people's diets and collagen content may be variable, so taking a supplement, with the right form of collagen and at the right dose is often a preferable option to guarantee intake."

Parker went on: "It is literally the 'glue' that holds us together. The word collagen comes from the Greek word 'kolla', which means glue. Unfortunately, as we age, our collagen production reduces. From about 25 onwards, we naturally produce 10 per cent less collagen every five years. By the time we are 50, we are producing 50 per cent less collagen. Lack of collagen production is why we see elderly people literally crumbling. As we age, not only are we producing less collagen but the enzymes that destroy collagen are increasing.



"As our collagen production reduces, we may experience more wrinkles in our skin, our skin thins, our joints get stiffer, we have weaker and thinner hair and nails. Our bones weaken so we are more prone to fractures, our eyesight deteriorates and we are more likely to get injuries."

And Pellegrini also explained: "It is a key component of the connective tissue framework, providing the structural support that helps tissues maintain their strength and integrity. Produced primarily by fibroblasts, collagen acts like a biological scaffolding system. It provides the tensile strength, resilience and elasticity needed to support tissues throughout the body, including the skin, bones, tendons, ligaments and cartilage.

"When we think about collagen, it's easy to jump straight to skin and ageing, but its role is much broader. Collagen is a major structural protein and provides strength, structure and resilience to many of our tissues. It's particularly important for skin, bones, tendons, ligaments, cartilage and blood vessels, helping these tissues withstand mechanical stress while maintaining their structure. It also plays a role in wound healing and tissue repair, as new collagen is produced as part of the body's response to injury. As nutritional therapists, this is one reason collagen synthesis is worth considering when we're thinking about connective tissue health, recovery and healthy ageing."

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Understanding low levels

Collagen is something that becomes harder to come by as we get older, hence why it is considered more important for supplementation as you get older. But why do we lack collagen, and what signs are obvious if someone is lacking?

Pellegrini explained: "While getting older naturally slows down collagen production starting in our mid-20s, several lifestyle and metabolic factors can accelerate this decline. For women, hormonal shifts during the menopause can trigger a sharp drop in dermal collagen as oestrogen levels drop. Day to day, a diet high in refined sugars fuels glycation, creating AGEs that can change flexible collagen fibres, which may contribute to how skin looks and feels. Finally, environmental toxins like UV radiation, smoking, and vaping generate a free radical load and create further damage."

And Briggs advised: "As we age, production of collagen slows and breakdown can begin to outpace regeneration of this compound. Compounds known as matrix metalloproteinases (MMPs) are key in the breakdown of collagen. MMPs are vital for embryonic growth, the formation of new blood vessels and wound healing. However, when the expression of MMPs is increased, this can lead to the breakdown of collagen, outpacing new collagen production.

"An overall loss of collagen can be associated with issues such as joint discomfort and stiffness, fluid retention, increased bruising, and changes in the skin. These are often the most visible sign of collagen depletion in the body and can include an increase in fine lines and wrinkles, less elasticity, sagging of the skin and the skin becoming thin and easily damaged. Studies suggest that collagen starts to decrease in our 20s, with loss being accelerated to one per cent loss every year in our 40s and beyond.

"Studies have shown an increased expression of MMP-13 in cartilage tissue of people with osteoarthritis and that this may be responsible for the development of this condition. There is also compelling evidence to show that exposure to UV light has a significant effect on the expression of MMPs, increasing their production and therefore collagen breakdown. As MMPs are involved in healing, their presence is increased by inflammation. However, chronic inflammation, which is abnormal, will lead to an overproduction in these compounds and increased collagen degradation."

Maunand added: "Around our mid-20,[10] the synthesis of collagen decreases by around one per cent each year, which can be accelerated by factors such as oxidative stress from pollutants, chemicals, toxins, and UV exposure.[11] Smoking has been shown to reduce collagen type I and III by 18 per cent and 22 per cent respectively.[12] A diet rich and high antioxidant plant foods is

associated with fewer wrinkles, improved skin hydration and reduced atrophy. Whereas high sugar and high salt diets are linked with worsened extracellular matrix damage and skin ageing.[13]

"Regular exercise, particularly strength training, can boost extracellular matrix gene expression, thus collagen formation, as well as regulate inflammatory mediators linked with collagen preservation, improving signs of skin ageing.[14] Genetics can also play a role in our collagen levels. Various mutations in the genes that code for collagen production can increase risk for tissue disorders such as osteoarthritis,[15] tendon issues,[16] and bone repair.[17]

"There are various examples of low levels, but the one that we can all relate to on a universal level is visual skin ageing – characterised by thinner, less firm and less elastic skin, with an increase in fine lines and wrinkles. Ageing skin has consistently been examined as having reduced collagen synthesis, as well as increased collagen degradation.[6,7] A systematic review and meta-analysis of over 1,700 people found that targeted interventions of oral collagen supplementation significantly influence skin hydration and elasticity, further supporting the importance of collagen integrity to our skin's characteristics.[8]

"Since collagen also forms an important structural component of cartilage and tendons, disruption of this collagen network, from chronic inflammation or mechanical stress, can result in joint stiffness, reduced mobility and osteoarthritis.[9] Those with lower collagen may also find that wounds and injured tissue take longer to repair, indicating suboptimal collagen synthesis. Vitamin C is a cofactor to collagen synthesis, and low levels can result in defective connect tissue, fragile blood vessels and poor wound healing.[5]"



INCREASING INTAKE

We can obtain collagen from the diet, and depending on a person's lifestyle, this maybe sufficient. However, age does mean that in the main, people will need to supplement.

Briggs commented: "Consuming plenty of protein-rich foods, especially those providing proline and lysine, such as meat fish and eggs, will provide the amino acids required for the body to synthesise collagen. Vitamin C is also important as this nutrient is found in high levels in the skin and is also diminished in older and photodamaged skin cells. It is required for the conversion of both proline and lysine, which will then stabilise collagen. As an antioxidant, vitamin C also has an indirect effect on reducing activity of MMPs. Zinc has also been shown to prevent MMP breakdown of collagen."

Pellegrini added: "The best way to increase your collagen intake is by taking hydrolysed collagen supplements or eating collagen-rich whole foods paired with key nutrients that help your body build it. Collagen-rich foods include bone broth or oily fish, such as salmon, which provide bioavailable collagen and omega-3 fats. Eating chicken or turkey with the skin and connective tissue intact supplies natural amino acids. Egg whites are also packed with proline, a core amino acid needed for collagen synthesis. Then there are the nutrients that can aid collagen production:

- **Vitamin C:** Citrus fruits, berries, and bell peppers help your body convert amino acids into stable collagen.
- **Zinc and copper:** Oysters, nuts, and seeds provide the minerals required to create and repair collagen fibres.
- **Limit sugar:** High sugar and refined carb intake can damage and break down existing collagen in your body."

Supplements are, therefore, important.

Maunand explained: "The simplest, most reliable and effective way to increase the uptake of collagen is through a supplement. Other dietary sources of collagen include broths made with bones and cartilage, or desserts made with gelatine. However, there is limited evidence that these provide sufficient concentrations of functional collagen peptides.[28] Bone broth preparations tend to be lower in key amino acids and are subsequently less likely to provide therapeutic benefit when compared to a collagen supplement.[29] Whereas collagen supplementation has been found in meta-analyses to be effective in the improvement of osteoarthritis symptoms,[30] skin hydration and elasticity[31] and enhancing musculoskeletal performance.[32]"

Briggs continued: "Taking collagen has been shown to have significant benefits. Several studies have shown that taking 2.5 a day of BAPs has benefits for the health of the skin, hair, and nails: increasing skin collagen by up to 60 per cent, increasing skin elasticity by up to 30 per cent, reducing eye wrinkles by up to 49 per cent, and reducing nail splitting, increasing nail growth and hair thickness.

"A specific type of collagen, called UC-II (undenatured collagen type-II) is a unique form of collagen which is often recommended for joint health. This differs from standard collagen supplements in its mechanism of action. Rather than acting as a building block for collagen and therefore cartilage in the joints, it works via oral tolerance. Peyer's patches in the gut uptake UC-II and activate the immune cells that precisely target type II collagen. These migrate to the joints and upon recognition of type II collagen in joint cartilage, they secrete anti-inflammatory cytokines, while simultaneously decreasing the expression of pro-inflammatory cytokines, supporting cartilage repair. The lowered dose is to reflect its role in immune signalling rather than providing the building blocks for cartilage. The dosage is much smaller at 40mg a day and this allows it to be included in a one a day formulation. This unique form of collagen does not need to be taken at a high dose or absorbed as it works in the gut.

"A 40mg dose improved both knee flexion and extension in those with activity related joint discomfort – a total of a five-degree improvement. Whilst this sounds like a small improvement, an average adult loses one degree of knee flexion and extension range of movement for every 10 years of age. Therefore, restoring and maintaining knee range of movement is critical to keeping joints healthy. Studies have further shown that a permanent loss of three-five degrees of extension can significantly impact patient satisfaction and the development of early arthritis. Improvements in scores for pain, stiffness and function were also seen in those with osteoarthritis.

"Generally, collagen, with the exception of UC-II, needs to be taken at relatively high doses, of at least 2g (2000mg) a day. This makes powdered options popular, as it is impossible to get this level into tablets, capsules or gummies, at a one a day dose. However, some people may prefer the ease of using these formats, and as long as dosage compliance is achieved, they can still offer the same benefits."

Parker also advised: "For people over 40, I recommend collagen loading first, suggested by Dr Josh Axe. Instead of one dose a day as usually recommended, take three doses spread out throughout the day for one month – this replenishes depleted collagen stores. This can be repeated annually. Personally, I take both a marine and bovine collagen supplement every day."

And Pellegrini recommended: "As a practitioner, there are recommendations I'm likely to make over collagen for skin health. If someone drinks and smokes, doesn't use an SPF or has a diet high in UPFs, a collagen supplement is likely to be a waste of money. On the flip side, if someone has a balanced diet rich in omega-3 fatty acids and antioxidants and they're looking to add supplemental support to this foundation, a good quality collagen is worth trying."



"Several studies have shown that taking 2.5 a day of BAPs has benefits for the health of the skin, hair, and nails: increasing skin collagen by up to 60 per cent, increasing skin elasticity by up to 30 per cent, reducing eye wrinkles by up to 49 per cent, and reducing nail splitting, increasing nail growth and increases hair thickness."

Know your type

There are a number of types of collagen, and it's key to understand what a client needs it for to advise of the right supplement.

Briggs explained: "To date, 28 types of collagen have been identified and numbered from one-28 (I-XXVIII) and all have different structures and functions. The most common form is type I, which is the most relevant type for skin health, as it makes up 70 per cent of the total skin collagen. Skin also contains around 10 of type III collagen along with tiny amounts of types IV, V, VI and VII. If you are using collagen for joint health, then a form providing type II collagen would be the best option, as this is the form found in joints and the supporting tissues.

"Different sources of collagen will provide different forms of collagen, for example, marine collagen tends to be more type I and II, whilst bovine is more I and III. Generally, porcine collagen is considered to be the most similar to human collagen and is slightly less likely to cause an immune reaction than bovine collagen."

Maunand continued: "There are dozens of different types of collagen, but they all share a characteristic triple helix configuration of coiled subunits.[18] Collagens type I, II, III, V and X comprised those most commonly found in supplemental collagen products:

- Type I is the most dominant collagen in the body, with concentrated amounts found in the skin, making it particularly relevant for supporting signs of skin ageing.[1] Randomised controlled trials have shown improvements in the appearance of wrinkles and supplementing with type I collagen.[19]
- Type II collagen is best known for its use in the structure of cartilage,[20] making it important for joint health. Low levels of type II collagen have been linked to conditions like rheumatoid and osteoarthritis.[21]



• Type III collagen works synergistically with type I for wound healing and tissue regeneration,[22] and is also found in blood vessel walls, and the reticular fibres of the lungs, liver and spleen.[1] These two types of collagens can therefore be helpful for skin, ligaments and tendon support.[23]
• Type V collagen can be referred to as an 'architect' for other collagen types, responsible for how collagen is assembled – regulating diameter, structure, strength, mechanical behaviour and general organisation of collagen within the tissue.[24] Genetic mutations in the genes which code for type V collagen have been linked to Ehlers-Danlos syndrome and issues in Achilles tendon health.[16,25]
• Type X collagen is involved in the conversion of cartilage into bone, along with other repair-based processed.[26] Type X collagen is linked with growth plate function,[17] as well as the bone composition changes seen in osteoarthritis, and general skeletal development.[27]"

And away from collagen type, there are some other important considerations people need to be educated on, that will ensure what they are taking is actually going to work in the body.

Briggs advised: "It is important to choose a collagen in a form which can be assimilated well by the body. Several different types can be found on the market, ranging from native or intact collagen to bioactive peptides (BAPs). Some questions have been raised regarding the absorption of collagen, as the molecule size is large, and it can be insoluble. Undenatured collagen is often used to exert benefits by stimulating an immune response as it remains intact in the digestive system. BAPs are absorbed by the body making them a useful option to considered for health benefits."

Pellegrini went on: "Not all collagens are created equal. Far from it. High-quality companies will provide a batch-specific CoC (Certificate of Compliance) upon request. Practitioners should check these reports to verify that levels of heavy metals, specifically arsenic, cadmium, lead, and mercury fall well below established safety thresholds.

"Look at the Dalton weight, too. If a company doesn't declare their Dalton weight, that's a quality red flag for me. Studies indicate that the optimal molecular weight of collagen is 500. Most good quality collagens on the market are 2000-3000 and will share that information with the consumer. If this isn't mentioned on their website, ask. Anything over 3000 Dalton weight? Avoid. With sustainability, if bovine, check the provenance. I look for grass-fed cattle and a product that is third party tested. Likewise marine – look for MSC-certified collagen."

Parker continued: "As with any supplement I always say find out who makes it. Ask about testing. What do they test for? Do they test every batch of raw materials and finished products or just random testing every so often. How thorough are the tests? Are they to the trillionth part? Marine collagen, as the name suggests, comes from the sea. We all know how polluted the sea is, do you want that in your collagen? I always say to practitioners try the product yourself first for a few months.

"In a supplement, look for information on manufacture and testing – ask the people selling the products. Collagen is a triple helix and is like plaited hair, it needs both vitamin C and zinc in the formula to help it form. Zinc is not only essential for collagen production, but it also blocks the enzyme that breaks down collagen. I also look for hyaluronic acid for moisture retention in skin and lubrication in joints. Also, some formulations add things like lycopene and other antioxidants, which can boost the effect of the supplement.

"Don't be tempted to think more collagen in a supplement is better; the body can only absorb 5g at one go. In bovine collagen, I want to know that the animals are high welfare and are grass fed. In marine collagen, I want to know it is organic with no chemical contamination, no heavy metals or microplastics."

Vegan collagen

People may believe they are taking a vegan collagen supplement, but there is an educational piece that is needed here.

Briggs explained: "Collagen cannot be sourced from plants, and whilst there is currently some experimental production of vegan collagen from genetically modified yeasts and bacteria, these are not yet commercially available. Any product labelled as vegan collagen will be providing amino acids or nutrients to support collagen production, rather than the protein itself.

"One of the best sources of nutrients to support collagen production are grapeseed and bilberry extracts, which provide compounds called anthocyanidins. These have been shown to increase collagen production in fibroblasts, stimulate the cross-linking of collagen as well as inhibiting MMP induced collagen breakdown. Combining collagen with antioxidants and nutrients to reduce its breakdown may offer additional benefits."

PRODUCT SHOWCASES

Nutrition I-Mag's top picks

RETHINKING CREATINE IN CLINICAL PRACTICE



For decades, Creatine has been considered a gym supplement. Two years in development, Creatine Complex changes everything.
At its heart is highly micronised Creavitalis® Creatine, backed by 30 years' research and 99.9% purity. Marine Magnesium delivers 72 trace minerals, nervous system + psychological support. Organic Acerola cherry Vitamin C supports cellular health + energy levels. And finally, botanical blend AstraGin®, rich in polyphenols + antioxidants, is studied for its role in gut health. Because great nutrition is never just one ingredient.
RRP £30 for 30 servings
www.wildnutrition.com/products/creatine-complex

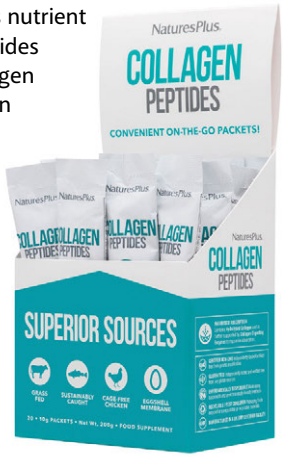
SYNERGY COLLAGEN

Collagen – it is what literally holds us together. It supports our bones, joints, skin, hair, nails, tendons, ligaments and even eyes. As we age our collagen production reduces.
Synergy Worldwide offer two all body collagen products. One is bovine and the other is marine – both are organic with every batch of raw materials and finished products tested. Both products are combined with vitamin C and zinc – two ingredients essential to collagen production.
www.annparkerlongevity.com



NATURESPLUS COLLAGEN PEPTIDES – POWDERS AND CAPSULES

Collagen is a key component of our tissues and getting enough of this nutrient is vital. NaturesPlus Collagen Peptides provides all 6 major types of collagen (type I, II, III, IV, V and X) from clean and sustainable sources, and with the addition of enzymes to maximise absorption and bioavailability. Tailor it to your lifestyle with our versatile unflavoured powder (in monthly tubs or travel-ready sachets), our delicious Berry Lemonade, or our convenient capsules in handy 1- or 2-month supplies.
www.naturesplus.co.uk – Collagen Peptides from £25.95



MULTI-GUARD®SUGAR CONTROL

This multi-nutrient formula offers robust support for blood glucose management. It includes a generous 200µg of chromium, a trace mineral known to contribute to the maintenance of normal blood glucose levels. Furthermore, it provides a substantial 2000mg of cinnamon bark extract per two tablets. This specific potency of cinnamon is significant as it mirrors the amounts used in published studies, which have demonstrated a positive effect on glucose metabolism. These key ingredients are delivered at potencies generally higher than those found in many standard shop-bought multi-formulas, making it a distinctive choice for those focusing on sugar control.
www.lambertshealthcare.co.uk



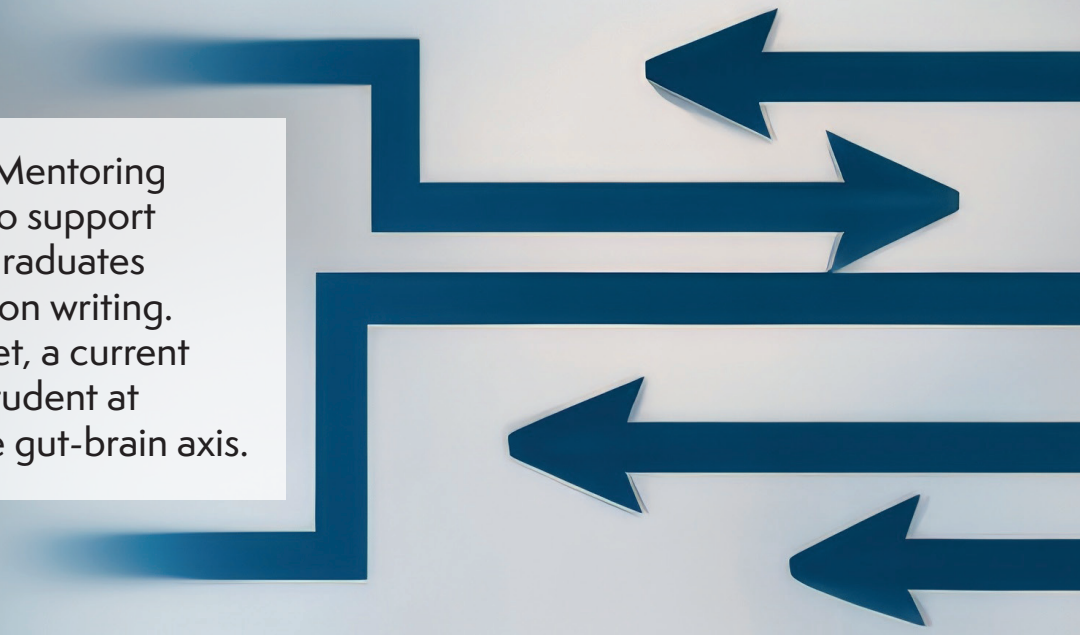
SOLGAR'S® REISHI SHIITAKE MAITAKE MUSHROOM EXTRACT

Solgar's® Reishi Shiitake Maitake Mushroom Extract combines Japanese mushrooms in both powder and powdered extract form. This specialist formula contains naturally occurring phytochemicals including beta-glucans, plant sterols, polysaccharides and triterpenes, compounds for which these mushrooms have traditionally been valued for thousands of years. The recommended intake is 1–2 capsules daily, delivering a potent blend of these well-known mushrooms in a convenient daily supplement.
www.naturaldispensary.co.uk



Exploring the bidirectional communication between the gut and brain and the role of nutrition

The *Nutrition I-Mag* Mentoring Scheme is designed to support students and recent graduates into a career in nutrition writing. Here, Rebecca Fousset, a current Nutritional Science student at CNELM, explores the gut-brain axis.



In recent years, our understanding of the human microbiome and its role in health and disease has grown significantly. Emerging evidence suggests that alterations in the gut microbiome may be associated with brain health, with potential links to neurodevelopmental conditions, mental health disorders such as depression, and neurodegenerative diseases including Parkinson's disease and Alzheimer's disease[1].

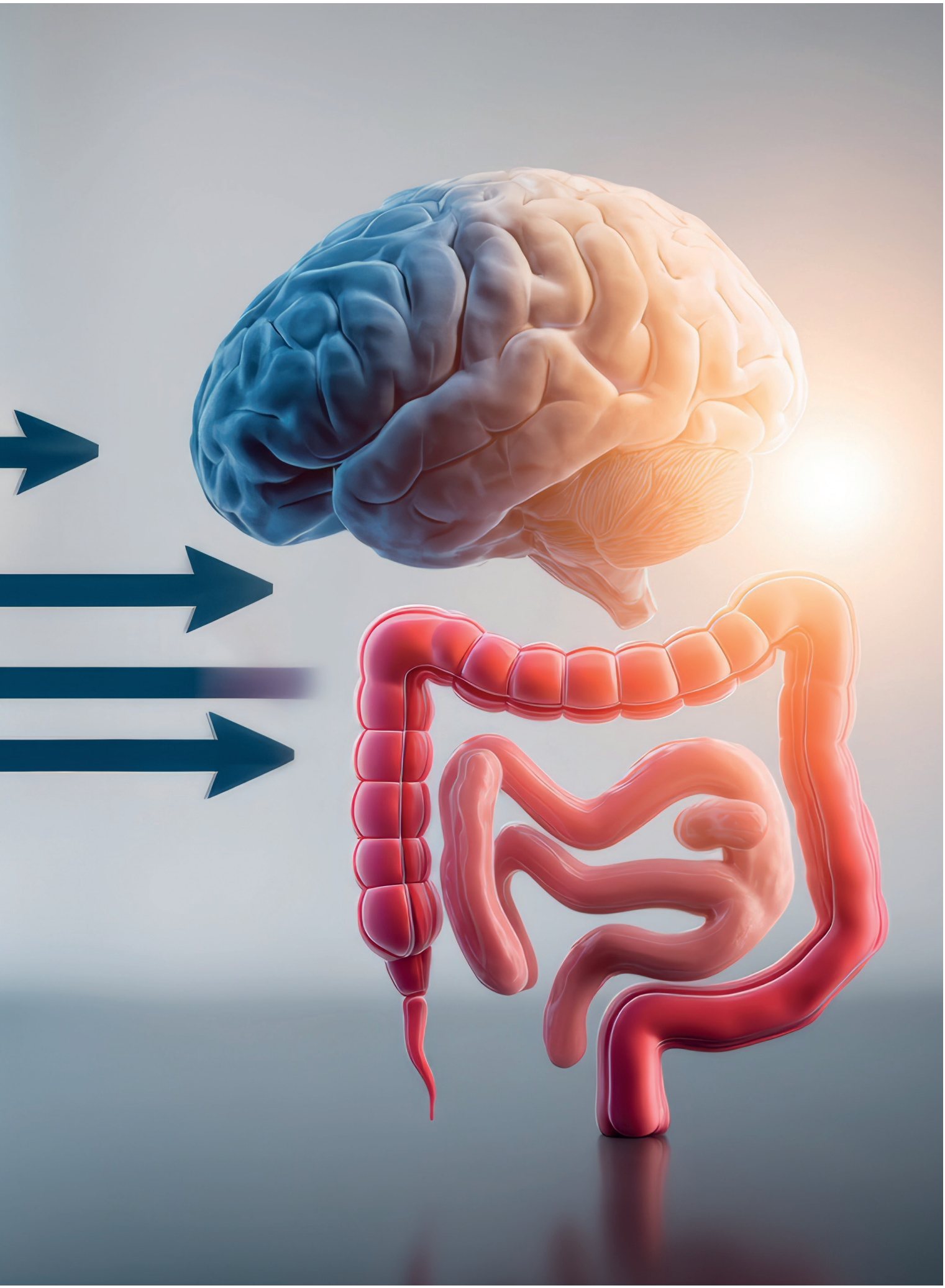
This article explores the complex communication between the gut and brain and considers how nutrition may help support this interconnected system.

MEET YOUR GUT MICROBIOME

Every internal and external surface of the human body that is exposed to the environment, from our skin and mouth to the lungs and gut, is colonised by tiny microorganisms, with most residing in the large intestine[2]. This collection of microorganisms, including bacteria, fungi and archaea, along with their genomes, is typically referred to as the microbiome[3]. An average adult human is estimated to have over 100 trillion microorganisms in their gastrointestinal tract, outnumbering human cells[1].

The composition of the gut microbiome varies among individuals and includes a diverse array of microorganisms, including beneficial, less favourable and potentially harmful species. No two individuals possess identical microbial profiles, much like a fingerprint. Several factors have been reported to help establish the gut microbiome in early life, including length of pregnancy, mode of delivery, feeding practices and infant weaning. Over time, the microbiome typically progresses to a more stable, adult-like composition at approximately three years of age, however, environmental factors can influence the composition of the microbiome throughout our lives[1].

Extensive research demonstrates the involvement of the microbiome in several human physiological functions, such as immune modulation, nutrient extraction and metabolism. Importantly, these effects extend beyond the gastrointestinal system, with substantial evidence indicating that not only does the brain communicate with the gut, but the gut communicates with the brain. This bidirectional relationship is commonly referred to as the gut-brain axis[4].



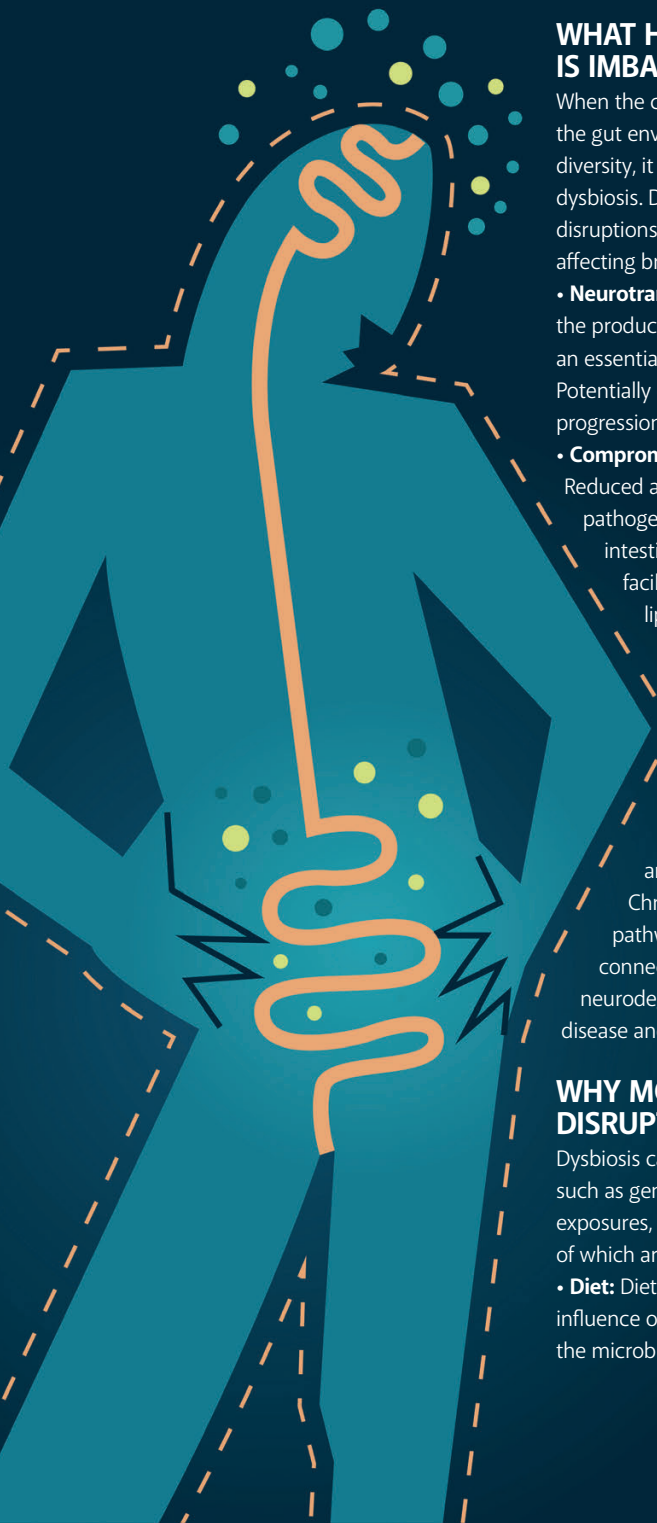
HOW DO THE GUT AND BRAIN COMMUNICATE?

The gut and brain communicate bidirectionally through neuronal, immune and hormonal signals that link the central nervous system (CNS) and the hypothalamic-pituitary axis (HPA) with the enteric nervous system (ENS) and the gut microbiota[5].

One of the key communication pathways is the vagus nerve, an extensive network of nerves that runs from the brainstem through the neck, chest and abdomen, serving as an important pathway between the gut and the brain. The gut also has its own extensive nervous system, the ENS, which helps regulate digestion and is in constant communication with the CNS. Signals from the gut are transmitted to the nucleus tractus solitarius (NTS) in the brainstem via vagal afferent fibres, which then relay information to higher brain areas, including the hypothalamus and limbic structures such as the amygdala. These areas are involved in regulating emotion, cognition and motivation[6].

The gut microbiome also contributes to this communication by producing a range of active compounds. When gut bacteria ferment indigestible carbohydrates and dietary fibre, they produce short-chain fatty acids (SCFAs), primarily butyrate, propionate and acetate. These metabolites can influence the integrity of the gut barrier, immune function and signalling pathways involved in brain function. The microbiome is also involved in the production and regulation of neurotransmitters, including serotonin and dopamine, and neurotrophic factors such as brain-derived neurotrophic factor (BDNF), which can influence our mood, memory and stress reactivity[5].

Importantly, not only do signals from the gut influence cognitive function and behaviour, but signals from the brain can also modify gastrointestinal motility, secretion and the intestinal environment[5], thereby highlighting the ongoing interaction between the gut and the brain.



WHAT HAPPENS WHEN THE GUT IS IMBALANCED?

When the community of microorganisms or the gut environment is imbalanced or lacks diversity, it is commonly referred to as gut dysbiosis. Dysbiosis can result in a cascade of disruptions in the gut-brain axis, potentially affecting brain health:

- **Neurotransmitter reduction:** Dysbiosis alters the production and bioavailability of tryptophan, an essential precursor for serotonin synthesis. Potentially contributing to the development and progression of mood disorders[7].
- **Compromised gut integrity and inflammation:** Reduced availability of SCFAs and increased pathogenic bacteria can compromise the intestinal epithelial barrier. This, in turn, facilitates the leakage of toxins such as lipopolysaccharides (LPS) from the gut into the systemic circulation. Once in the bloodstream, LPS activate immune cells, triggering inflammatory pathways and the release of pro-inflammatory cytokines that can degrade the blood-brain barrier, permitting LPS and inflammation to enter the brain[8]. Chronic inflammation and disrupted pathways linked to dysbiosis have been connected to mood disorders, as well as neurodegenerative diseases like Alzheimer's disease and Parkinson's disease[9].

WHY MODERN LIFE MIGHT DISRUPT OUR MICROBIOME

Dysbiosis can be influenced by internal factors such as genetics, health status and early-life exposures, as well as environmental factors, many of which are potentially modifiable, including:

- **Diet:** Dietary habits can have a significant influence on the composition and function of the microbiome. Diets rich in simple sugars can negatively affect the gut environment and intestinal barrier, resulting in inflammation. Additionally, exposure to certain food additives, such as preservatives and sweeteners, has been associated with less favourable microbial changes and intestinal inflammation[10]. Low-fibre diets, which lack plant foods like whole grains, fruits, vegetables and legumes, deprive the microbiome of essential fuel. Since dietary fibre serves as food for your microbiota and enhances the abundance of SCFA-producing bacteria[11], inadequate fibre intake may alter microbial diversity and function with potential implications for the gut-brain axis.
- **Antibiotic use:** Although antibiotics are essential in certain cases, repeated use over both short and long durations can significantly disrupt the microbiome, with effects that may be either temporary or permanent, depending on the type of antibiotic used. After antibiotic use, the microbiome's delicate balance can be disturbed, decreasing species diversity, lowering SCFA levels and increasing intestinal permeability. These changes may lead to immune dysregulation and a greater risk of infections[12].
- **Stress:** Psychological or environmental stress activates the HPA axis, resulting in the release of glucocorticoids, primarily cortisol. Stress also activates the sympathetic nervous system, increasing the release of catecholamines such as adrenaline and noradrenaline. These hormones can alter tight junction proteins in the intestinal wall, increasing intestinal permeability and potentially contributing to systemic inflammation. In addition, stress can influence reward processing, appetite, and executive control around food cues, potentially increasing preferences for sugary foods, which can independently contribute to dysbiosis[13].

While many factors influencing the microbiome are out of our control, dietary habits, antibiotic use where appropriate and stress management offer potential opportunities to support our gut microbiome.

A practical gut health plan

Although the gut microbiome is influenced by a variety of factors, there are several practical dietary approaches that can help support a diverse and resilient microbial ecosystem.

In the UK, the average adult's dietary fibre intake is 16g, almost half the recommended daily intake of 30g. Adequate consumption is essential for supplying substrates to the microbiome and offers benefits, including[15]:

- **Maintains diverse microbiome:** Fibre is crucial to a healthy diverse gut microbiome.
- **Essential for the production of SCFAs:** Fermentation of dietary fibre by fibre-degrading bacteria produces SCFAs.
- **Regulates immune health and reduces inflammation:** The production of key SCFAs directly and indirectly contributes to the expression of colonic T regulatory cells, which suppress gut inflammation and maintain intestinal immune homeostasis.
- **Supports gut barrier integrity:** SCFAs assist in maintaining the tight junctions in intestinal cells, thereby preventing pathogens and toxins from entering the bloodstream.
- **Promotes mucus production:** Butyrate, one of the SCFAs, promotes the synthesis and secretion of MUC2, the primary protein in the mucus layer which acts as a shield between the microbiome and immune cells. Without sufficient fibre, mucin-degrading bacteria rapidly expand, triggering inflammation and increasing susceptibility to infections.

Diversify plant consumption

The American Gut Project[16] enrolled more than 15,000 participants from the US, UK, Australia and other countries to investigate the diversity of the gut microbiome across different populations. Its findings showed individuals who consumed more than 30 different plant foods weekly had significantly greater gut microbiome diversity than those eating fewer than 10. Interestingly, this association was observed regardless of whether they were omnivores, vegans, or vegetarians. These findings align with a subgroup analysis of the ZOE Predict3 study[17], which found greater weekly plant diversity associated with greater microbial diversity, more favourable blood lipids and lower BMI.

Increasing plant diversity isn't just about adding more fruit and vegetables. There are several ways to broaden intake, including nuts and seeds, spices, herbs, legumes, wholegrains such as oats and even dark chocolate. By including different plants, the gut microbiome is exposed to a diverse range of fibres and compounds to support a diverse microbial community.

Fermented foods

Fermented foods contain live microbes, also known as probiotics, which can support a healthy gut microbiome. A 2021 17-week, randomised prospective study[18] investigating how a high-fibre, high-fermented-foods diet affects the gut microbiome and immune system found that consuming fermented foods over time steadily increased microbial diversity and reduced inflammatory markers.

Examples are fermented dairy such as kefir or yoghurt, fermented vegetables, including kimchi or sauerkraut, fermented drinks such as kombucha, and sourdough bread. It's important to note that not all fermented foods contain probiotics, and the production process can compromise their quality.

As there is interindividual variability in gut microbiome composition, the goal is not to perfect the microbiome but rather to support a diverse gut microbial ecosystem through a varied, fibre-rich diet.

Key nutrients

A diverse, fibre-rich diet that includes fermented foods provides a strong foundation for a diverse gut microbial ecosystem. Beyond fibre and fermented foods, several nutrients and bioactive compounds found in whole foods may also support gut and neurological health.

Omega-3 PUFAs, including eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), are found in oily fish such as salmon and mackerel, as well as nuts and seeds such as flax and chia, and marine algae. These long-chain PUFAs play a central role as bidirectional modulators of the gut-brain axis through several key pathways[19]:

- **Enhance intestinal barrier integrity:** EPA and DHA are incorporated into epithelial membrane structures and facilitate synthesis of tight junction proteins and submucosal collagen, reinforcing the intestinal barrier. Consequently, this restricts the translocation of LPS and limits immune activation.
- **Gut microbiome composition:** Omega-3s promote anti-inflammatory bacteria and suppress proliferation of pro-inflammatory and opportunistic species.
- **Promote SCFA production:** Omega-3 PUFAs encourage the proliferation of SCFA-producing bacteria, supporting gut barrier integrity.
- **Modulates vagal nerve signalling:** Omega-3s support vagal afferent activity, enhancing homeostatic signals from the gut to central brain regions involved in emotional regulation.

AMINO ACIDS

Tryptophan is an essential amino acid in protein-rich foods, including animal sources like chicken, turkey and egg whites, as well as plant-based sources such as soybeans, lentils, and flaxseeds. It serves as a crucial precursor for serotonin synthesis. In the gut, serotonin plays a role in intestinal motility, nutrient absorption and visceral pain perception. In the brain, it helps regulate mood, behaviour and cognitive functions[20].

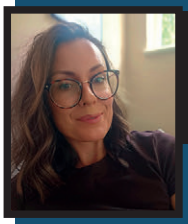
Glutamine is a non-essential amino acid produced in the body but also found in beef, eggs, tofu, and leafy greens. It is the most abundant amino acid in the body and plays vital roles in the gut-brain axis. In the gut, glutamine supports the maintenance and repair of intestinal tight junctions, reversing intestinal permeability and reducing inflammatory triggers. Glutamine acts as a precursor for gamma-aminobutyric acid (GABA), an inhibitory neurotransmitter in the CNS that reduces excitatory nerve signals, producing a calming effect[21].

Polyphenols

Dietary polyphenols are naturally occurring plant compounds present in fruits, vegetables, coffee, tea, olive oil and cocoa. They function as prebiotics, promoting the proliferation of beneficial bacteria and supporting SCFA production. Research suggests certain polyphenolic compounds, such as curcumin and resveratrol, can downregulate pro-inflammatory signals, thereby reducing neuroinflammation[22]. This further highlights the importance of a diverse variety of plant-based foods to support the gut and brain.

Concluding remarks

The gut-brain axis is a complex, interconnected system involving a range of multidirectional neuronal, immune and hormonal signals. Disruptions in the gut microbiome can have wide-ranging effects, potentially impacting mood, behaviour and cognitive function. Adopting a diverse, whole-food, plant-rich diet, complemented with adequate protein and omega-3 fatty acids, is a practical way to support the microbiome and the gut-brain axis.



ABOUT THE EXPERT

Rebecca Fousset is a UK-born expat living in Bangkok and is completing a BSc in Nutritional Science at CNELM. Nutrition has been a passion of Rebecca's for many years and studying it formally has deepened her interest in the role food and lifestyle play in health. Rebecca is interested in gut health, cognitive function, and the role of nutrition in child development and lifelong health.

EXPERT ADVICE

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

Q What considerations does a person need to make for their gut when taking a course of antibiotics?

ADRIENNE BENJAMIN SUGGESTED: Whilst antibiotics can be supportive, they also have a significant impact on the gut microbiome, affecting the balance and diversity of bacteria in our digestive tract. Whilst some antibiotics are considered narrow-spectrum and targeted, the mechanisms of action of all oral antibiotics mean they impact the environment the bacteria thrive in and their replication and colonisation.

Alteration to gut microbiome balance is known as dysbiosis and can involve a reduction in microbial diversity, which may lead to bloating, abdominal pain, constipation and/or diarrhoea. Long-term changes in the gut microbiome have been associated with increased risk of developing chronic conditions, such as allergies, obesity and inflammatory bowel disease.

Evidence shows that antibiotics can very quickly lead to dysbiosis in the gut microbiota, and once antibiotic treatment is complete, the microbiota may show some resilience and return to a composition similar to that seen prior, but often this is not a complete recovery to the original state. Supporting the gut is important both whilst taking antibiotics and for a period following, to support this return to balance. Diet is crucial and should include the following:

- Fermented foods (kefir, sauerkraut, natural yoghurt) to provide large numbers and varieties of live bacteria.
- Fibrous prebiotic plant foods, including leafy green vegetables, garlic, onions and leeks, to feed the live bacteria.
- Foods for general gut support, including bone broth, stewed apples, flaxseed and healthy fats, such as coconut oil, olive oil and avocado.
- Reduced intake of sugar and processed foods that may feed unwelcome bacteria species.
- Hydration to support stool consistency and gut motility.

Live bacteria provide billions of targeted strains and species and act as 'proxies' (substitutes) for the natural bacteria in the microbiome. Evidence indicates that, when used alongside and following antibiotics, certain research-backed live bacteria strains may be effective in both maintaining bacterial balance in the microbiome and reducing levels of antibiotic resistance in the re-growth bacteria.

When taken alongside and following a course of antibiotics, these bacteria help to fill the gaps left by those killed by the antibiotics. This effect is likely to be temporary, as the antibiotic may impact all bacteria, but the benefit is maintained through daily supplementation throughout and following the antibiotic course. The result is a significant mitigation of damage to the microbes in our gut, particularly in the small intestine, which contains less microbes than the large intestine, but is arguably more important from a functional perspective.

Studies have also shown that taking live bacteria alongside antibiotics can support effectiveness and reduce side effects of the antibiotics, helping to ensure the full course is completed. Taking them for at least two weeks after finishing a course of antibiotics can help re-establish natural gut microbiome balance.





ABOUT THE EXPERT

Adrienne Benjamin is a Nutritionist at Pro-Ven Biotics and specialises in understanding and sharing the ways in which our gut and microbiome help to support our health.



Q What do you consider the most important nutrients to help balance mood as we move into the winter months?

BERNIE HARRISON ADVISED: Several nutrients can support mood through their roles in neurotransmitter synthesis, mitochondrial function, methylation and neuronal health. Sleep, movement, daylight exposure and blood glucose regulation also play important roles in emotional wellbeing.

B vitamins are a great place to start. Vitamins B6, B12 and folate work together across interconnected biochemical pathways that are important for neurological function, energy metabolism and neurotransmitter activity. B6 is involved in the synthesis of serotonin, dopamine and GABA, while folate and B12 support one-carbon metabolism, methylation and homocysteine. Together, they provide an important nutritional foundation for normal psychological and nervous system function[1,2]

Magnesium is another key nutrient I'd have on the radar. It is involved in hundreds of enzymatic reactions, supporting the nervous system, energy metabolism and neuronal signalling. There is also growing research exploring the relationship between magnesium status and mood, making it vital to consider when dietary intake is low.[3,4]

Zinc and copper are easy to overlook, but both play important roles in the nervous system. Zinc is required for the catalytic activity of hundreds of enzymes, including polymerases and antioxidant enzymes.[5] It serves a vital structural and protective role in proteins and cell membranes, stabilising macromolecules through motifs like zinc fingers and protecting sulfhydryl groups from oxidation.[6,7,8] Copper is critical for energy metabolism, antioxidant defence, and connective tissue functions.[9,10,11] In the nervous system, it acts as a vital cofactor for key enzymes involved in oxidative metabolism and neurotransmitter synthesis, making it essential for neuronal development, proper neurological function, and synaptic activity.[12]

Amino acids are another important piece of the puzzle. Tyrosine, for example, is a precursor to the neurotransmitters, dopamine and noradrenaline, while glycine has important roles in neurotransmission. This is one reason why ensuring adequate, good-quality protein remains such an important nutritional foundation.[13,14]

And there's an exciting area of research around botanicals. Saffron can reduce symptoms of depression, anxiety and general psychological distress, with research suggesting that 15-30mg/day can improve depressive symptoms compared to placebo,[15] and it may show comparable effects to antidepressant medication, in some populations.[16,17,18]

Rhodiola contains over 140 active compounds that provide diverse benefits, including antioxidant, immune-regulating, and neuro-protective properties.[19] Supplementation has been shown to reduce stress, fatigue and anxiety while improving mental performance, concentration and mood.[20,21,22,23] Additionally, it supports energy levels and immune function, with less reported side effects than traditional antidepressant medication.

Ashwagandha is rich in bioactive compounds like withanolides that support resilience, vitality, and nervous system function.[24] Clinical research demonstrates its ability to modulate both innate and adaptive immune responses while reducing inflammatory markers.[24,25] Additionally, it helps regulate the hypothalamic-pituitary-adrenal (HPA) axis to significantly reduce stress, anxiety, and cortisol levels, while supporting sleep, cognitive function, and mood.[26]

For practitioners, I think the key is to look at the bigger picture, rather than searching for a single 'mood' nutrient. Ensuring nutritional adequacy across these pathways alongside a varied diet, adequate protein, movement, restorative sleep and daylight exposure, can provide a strong foundation for supporting clients through the winter months.



ABOUT THE EXPERT

Bernie Harrison BA Hons, DipCNM, mBANT, CNHC is a BANT and CNHC-registered Nutritional Therapist. Bernie's interest in nutrition began in the 1990s after her father's diagnosis with non-Hodgkin's lymphoma, inspiring a lasting interest in the role of nutrition in health and wellbeing. Bernie has a particular interest in gut health, children's skin, and nutritional support during cancer recovery. She takes a personalised, evidence-informed approach to help clients achieve their health goals.



Q What are adaptogens and where are they most relevant in terms of including in a client protocol?

LUCY PEEL EXPLAINED: Herbal adaptogens are a unique group of botanicals that help the body adapt to physical, emotional and environmental stressors while promoting physiological balance and resilience. Unlike stimulants, which force a response, or sedatives, which suppress activity, adaptogens work by modulating the stress response and supporting homeostasis.

The primary actions of adaptogens are thought to occur through the neuroendocrine-system, particularly the hypothalamic-pituitary-adrenal (HPA) axis and sympathetic nervous system. Research suggests that adaptogens exert a mild stress-like stimulus that enhances the body's ability to adapt to future stressors. Over time, this may improve resilience, endurance and overall stress tolerance. Adaptogens should be used in practice as resilience-building tools, rather than symptom-specific, as their value lies in helping your clients become more adaptable to ongoing stress while you support them with nutritional and lifestyle interventions to address the underlying drivers.

Adaptogenic herbs include *Rhodiola rosea,* holy basil (*Ocimum tenuiflorum*), ashwagandha (*Withania somnifera*) and Siberian ginseng (*Eleutherococcus senticosus*) and these herbs can help regulate stress hormones, improve stress tolerance, support cognitive function and reduce the negative physiological consequences of chronic stress.

From a clinical perspective, chronic stress and HPA axis dysregulation would be the primary indication for using adaptogenic support. Clients coming to you after, or during, prolonged periods of stress might be presenting with fatigue, poor stress tolerance, recurrent illness, reduced motivation, sleep disturbances, anxiety, low mood or cognitive difficulties. In these situations, there is a place for using adaptogens in your protocol, to help normalise or balance the stress response and improve resilience.

Rhodiola is particularly useful for clients experiencing exhaustion, reduced concentration, brain fog, decreased productivity and feelings of being overwhelmed. Research suggests benefits for both physical and mental fatigue, making it a valuable tool when the client might be under sustained cognitive demands.

Where stress manifests as nervous tension, irritability, poor sleep quality or anxious thinking, holy basil (tulsi) may be especially beneficial. It appears to influence cortisol regulation while also supporting mood and cognitive function. Nutrients such as magnesium, taurine and glycine can provide complementary calming support.

It is important to remind our clients that using adaptogens does not remove the source of stress, but they may help the body respond more appropriately to it. They are valuable for clients with chronic stress, burnout, anxiety, poor resilience and HPA axis dysregulation. Once dietary foundations, sleep hygiene, blood sugar balance and lifestyle factors are in place, adaptogens can help restore adaptive capacity and reduce vulnerability to future stressors. However, it must always be highlighted that recommending adaptogens is not going to address the reason for that person being under stress and where appropriate, guidance around what extra support that person might benefit from is advised (for example, direction towards appropriate psychological therapies such as relationship counselling, grief counselling, workplace support or career coaching).



ABOUT THE EXPERT

Lucy Peel has a BSc in Naturopathic Medicine from the University of Westminster and a MSc in Nutritional Therapy from Worcester University. She practices as a Naturopath in Somerset, is the UK Practitioner support for BioMedica Nutraceuticals and current president of the General Council and Register of Naturopaths (GCRN).

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Practitioner guide to CREATINE

With a Master's degree in Sports and Exercise Nutrition and BSc in Food and Nutrition, Will Jordan explains how creatine goes far beyond the sporting community.

Creatine is one of the most popular supplements worldwide today but was relatively unknown to the public until the 1990s.

Creatine was originally discovered in 1832 and then later chemically identified in 1847.[1] In 1926, it was used in the first human trial, which demonstrated that it can be absorbed in the intestines.[2] The first study on creatine's effect on muscles was conducted in 1975, finding that supplementation significantly increased creatine muscle saturation with research exploding from there.[3] It gained popularity in elite-level sport settings following the 1992 Barcelona Olympic Games, where several British medal winners were reported to have used creatine. Because creatine occurs naturally in the body and in food, it has never been classed as a prohibited substance and remains permitted under World Anti-Doping Agency (WADA) rules.[4]

Since the rise of social media and influencers, creatine's popularity has skyrocketed further in the mainstream as a supplement that can increase muscle growth and physical performance.

The biology of creatine

Creatine is a non-protein amino acid made from three amino acids, glycine, arginine, and methionine, with only the latter being an essential amino acid.[5]

Creatine is synthesised mainly in the kidneys and liver, with smaller amounts made in the pancreas. It is then stored predominantly in skeletal muscle (around 95 per cent of the body's total), but also the brain, heart, and other organ tissues.[6] Even though we produce our own creatine, there are dietary sources, which are primarily red meat and seafood, with very little found in plant-based foods, with those following a plant-based diet generally having lower muscle creatine stores.

Creatine is utilised in the body's fastest energy system, the phosphagen (ATP–PCr) system, which makes energy rapidly and fuels explosive and high intensity movements and brain activity.[7] Creatine is bound to phosphate in the cell, making phosphocreatine, which acts as a rapid anaerobic energy reserve in the muscles and brain.[8] The mechanism behind this is that phosphocreatine acts as a buffer for adenosine triphosphate (ATP), the energy currency of the body, and helps to maintain energy levels when the demand is greater than the rate of production. Additionally, creatine serves as an energy shuttle between where ATP is produced in the mitochondria, and where the energy needs to be utilised.[9]

Creatine and brain health

While creatine is known for its benefits for sports and exercise, there is growing evidence that it may be beneficial for brain health in areas such as cognitive functioning, neuroprotection, and mental health, as well as its potential to act as a neuromodulator, a chemical messenger that regulates groups of neurons in the brain.[10 11]

Creatine's energy-buffering role operates not only in skeletal muscle but also in the brain, where it is also thought to act as an antioxidant and neuroprotective agent.[12] Creatine has been proposed to have both direct and indirect antioxidant properties, the indirect effects relating to its bioenergetic role in the mitochondria.[12] Traumatic brain injuries (TBIs) and concussions are linked to increased oxidative stress in the brain, and the cellular role of creatine in the brain can help to mitigate this.[13] In mechanistic studies, creatine supplementation reduced neuronal damage and protected against cellular energy crisis (a shortfall in cellular energy), and small clinical studies, mainly in children and adolescents with TBI, have reported improvements in post-injury symptoms, suggesting a neuroprotective effect.[14] In addition, creatine helps to promote energy homeostasis in the brain in the absence of brain injury, meaning it aids in maintaining energy levels, which can improve cognitive functioning.[15]

Creatine and mental health

There is growing evidence for supplementation of creatine to support mental health conditions, including major depressive disorder. These conditions have been associated with disrupted brain energy production, storage and utilisation, which creatine can help support.[16] Additionally, creatine may play a role in neurotransmission in the brain, where information is relayed from one neuron to another by neurotransmitters, through its interaction with various receptors.[11] Pilot studies lasting four and eight weeks in participants with major depressive disorder found that 5g of creatine per day, added to antidepressant medication or cognitive behavioural therapy, improved symptoms.[17 18]

Creatine may also enhance the response to selective serotonin reuptake inhibitors (SSRIs); in a placebo-controlled trial in women with major depressive disorder, 5g of creatine per day alongside an SSRI for eight weeks produced significant benefits from week two, which were sustained for the duration of the trial.[19]

Creatine and sport

The bulk of creatine's research has been in relation to sports performance, with weightlifters commonly using it to improve maximal power and strength, and performance in repeated bouts of high-intensity exercise.[4] In addition, creatine may moderately improve sprint and endurance performance by enhancing high-intensity surges, such as the explosive movements needed in many sports, supporting glycogen replenishment, and aiding post-exercise recovery, as it may lower

markers of muscle damage.[21]

Creatine benefits both men and women, although most research to date has been conducted in men.[22] There are several mechanisms of action that are responsible for the performance benefits; these include increased muscle stores of free creatine and phosphocreatine, direct and indirect antioxidant effects, and faster resynthesis of ATP during maximal exercise.[23 24]

Creatine for older adults

Creatine may be seen as a supplement for young, active people, however, there have been many successful trials in older adults.

Ageing is associated with reductions in muscle and bone mass, which may be counteracted by several lifestyle factors, such as exercise. However, older adults often do not meet the recommended amount of resistance training, which is at least two sessions per week. Creatine has been found to have potentially favourable effects on muscle and bone health in older adults.[25] Alongside resistance training in older adults, creatine supplementation led to greater gains in muscle mass, strength and functional performance, such as rising from a seated position, than resistance training alone.[26]

In addition to supporting functional strength, creatine may help support cognitive function in later life. While the research is still in its infancy, the current evidence suggests that creatine supplementation may provide beneficial effects on memory, attention, and information processing speed.[27] Furthering this, an early pilot study in people with Alzheimer's disease found that supplementation increased brain creatine levels, with potential improvements in cognition.[28]

What should you look for in a creatine supplement?

When looking for a creatine supplement, look for a 99.9 per cent pure creatine monohydrate. Choosing a product that has been third-party tested and comes from a reputable brand is key to making sure you get what you are paying for.

Look for evidence of purity: no detectable dihydrotriazine (DHT), and less than 0.1 per cent creatinine, an inactive breakdown product. While there are other forms of creatine, monohydrate is by far the most researched form, with over 30 years of dedicated research, and has been found to be the most effective and practical form to supplement with, at a dose of 3-5g per day.[29]



ABOUT THE EXPERT

Will Jordan, BSc (Hons) MSc, is a Nutrition Advisor at Viridian Nutrition. He holds a Master's degree in Sports and Exercise Nutrition and a BSc in Food and Nutrition. Having worked in the NHS, Will has a hand-on approach in providing nutritional advice to a wide range of people.



"An early pilot study in people with Alzheimer's disease found that supplementation increased brain creatine levels, with potential improvements in cognition."

Bare Biology – building trust and transparency

Struggling to find a quality fish oil supplement, Melanie Lawson was inspired to make her own and Bare Biology was born. Thirteen years later, this female-founded British brand has gone from strength to strength, with plenty more plans for growth.

Inspired by her own mental health journey, and that of her family's, Melanie Lawson went on a path of discovery to learn how to support her own health. When she went in search of a fish oil, she couldn't find what she wanted.

And, like many brand founders in this industry, she was inspired to start her own company, one that put quality, sourcing and transparency at the heart. From its origins in 2013, today, Bare Biology is a trusted brand within the practitioner community with plenty of plans for the future.

Recalling her inspiration, Melanie *(pictured)* who is CEO, commented: "After starting a family, I was ill with postnatal depression and OCD, and my family history of mental illness reared its ugly head and moved into my home. I grew up with two mentally ill parents, and I wasn't doing that to my children. I went looking for a decent fish oil and got hacked off. This was the mid-2000s, when the wellness world was a few dusty books in incense-infused health food shops, and there was no transparency about ingredients, sources, purity or ethics. The only brand that met my standards for strength and certified purity was American. I was astonished at the





difference omega-3 made to me, and I wanted the absolute best, so I did what a lot of women do, and I did it myself. I launched in August 2013 – yes, from the cliché kitchen table – and have bootstrapped the entire business ever since."

And its relationship with the practitioner community remains important to the brand.

"Bare Biology would not be here today without the help of the incredible network of practitioners that love and have recommended us over the years. Right when I first started the company, the Natural Dispensary took a chance on us and was the first company to stock and sell our supplements – and through them, practitioners have been a huge part of our growth and journey, helping us to become the brand we are today," Melanie added.

Best of British

Bare Biology is a British brand, based in Brighton, remains family-owned, with no investors. But what are the founding principles and why do they remain important?

"Sustainability, transparency and ethical sourcing have shaped everything we've done over the last 13 years, even our name," Melanie explained. "Since day one, we have been sourcing our fish oil range from certified fisheries, holding ourselves to rigorous independent testing standards, and developing the UK's first MSC Certified marine collagen. We continue to scrutinise every part of our supply chain, from fish oil and creatine to capsule coatings, pouches and ink. We believe people have the right to clear information, fair and safe claims, and better products. We don't put up with the rubbish and misinformation of the wellness industry, and don't believe our customers should, either."

Famous for its fish oils, there is a range of eight omega-3 products, from a clinical grade liquid through to a kids and pregnancy product. Bare Biology also makes a high quality Magnesium Bisglycinate, Vitamin D3 + K2, Marine Collagen, Bovine Collagen and most recently, added Creatine Monohydrate. And with quality such an important facet of the 15-strong product range, how does the brand ensure it continues to deliver in this area?

Melanie explained: "We prioritise sourcing the very best ingredients – we meet every single supplier we work with and ensure we visit their factory. This is surprisingly rare in the supplement industry because many brands buy 'off the shelf' products. We also aim to source ingredients from the EU and manufacture everything in the UK. We prioritise meaningful doses and the best possible forms of each ingredient. That often means our products are slightly more expensive than competitors, but we're offering a really powerful product. Our fish oils are intentionally only ever triglyceride form.

"We don't use any unnecessary ingredients, fillers or bulkers. And we're entirely transparent on our product labels – we tell you exactly





what's in the product. Every single batch we make is third party tested, and we publish the results on our website for our customers."

Education and expertise

Bare Biology takes pride in educating practitioners and consumers, and has a team of experts within the business.

Melanie commented: "We're very lucky at Bare Biology that we have a team of mainly women, who are all incredible at what they do. We're still a relatively small team, with under 20 employees. Because we have no investors, I can run the company and make decisions without the need to check in with a board of people, allowing for more flexibility and freedom to try new things and work in a more creative way."

Melanie comes from an advertising background, so brings her expertise from the marketing world to her role as CEO, supported by the senior management team of Izzy Jacobs and Katy Ferguson, Brand and Marketing Director and E-commerce Director, and Joe Mangan, Head of Operations and Supply Chain, who has worked in the supplement industry for many years. In the B2B department, Kirsten Humphreys is Business Development Manager and Nutritional Therapist, who has worked in the wellness industry for over 10 years.

"After struggling with her own health challenges, Kirsten studied Nutritional Therapy at the College of Naturopathic Medicine and is a BANT-registered nutritionist," Melanie explained. "Kirsten looks after our retail and practitioner network and provides training, resources and education to help support business growth, and has done additional training in health coaching, mindfulness-based stress management, NLP, reiki and, more recently, a year-long women's health mastery with the incredible Tanya Borowski. Kirsten offers one to one training for practitioners. We also have Charlie Stead, another nutritional therapist in our customer service team, Dr Fiona Miller, our brilliant copywriter with a PhD in sound, music, and the body, and so many more wonderful humans who are the heart and soul of Bare Biology."

And education is something the company offers practitioners in a range of ways.

"We love to give them a chance to try the brand for themselves. We also regularly attend and exhibit at practitioner events where we get to walk you through the products, giving each person we speak to the opportunity to try something new if you sign up to our email list," Melanie explained. "Education is a huge part of how we grow. We're dedicated to providing unbiased, evidence-based training about our supplements. We have big plans, but with a small team, we can only do so much – 2027 has some exciting things in store education-wise, and we can't wait to share more."

And this will also form a key part of the future development of Bare Biology.

Melanie added: "It's very clear to us that education is the way forward. We want to continue to contribute to women's health in a positive and meaningful way. We're not going to do that by acting like the kind of brand we've spent 13 years actively avoiding. One that sells whatever's trending, that stops publishing its test results because growth got in the way, that starts talking to women like a marketing department. Our big goal in 2027 is to create and nurture an education program worthy of the trust and respect of our brilliant practitioner network, our customers and the industry as a whole. With our brilliant team behind this, along with the many amazing health practitioners we partner with, we aim to do just that!"

FISH OIL SOURCING

Looking in more detail at the fish oil industry, Kirsten explained: "We've all heard the narrative that eating farmed fish is bad and wild fish is good, particularly when it comes to contaminants and pollutants. As a nutritionist, whilst I can support this in some ways, the conversation is slightly more nuanced. We know omega-3, in particular DHA, is important for our brains, but in reality, farmed fish is a lot easier to come by and, in some cases, more affordable than wild fish. Avoiding these important nutrients is likely much worse for our health than exposure to contaminants. That said, higher quality sourcing of food, and high-quality sourcing of omega-3 supplements (wild fish in particular), if you're able to, is always great."

Melanie added: "The tube is covered in ads to call for the end of salmon farming. I have mixed emotions about this because on one hand, I personally don't buy farmed salmon, mass farmed animal meat, eggs or dairy, for ethical and health reasons. I buy wild fish and organically produced animal products. On the other hand, demonising a source of protein and, importantly, omega-3, is a concern when poor nutrition has a major impact on health. One thing that has always been non-negotiable is the source of our fish oils and marine collagen. Both have always been both wild and certified sustainable."

Its omega-3 supplements are made with oil from wild, sustainably caught fish and it only works with fish oil manufacturers that have been certified by Friends of the Sea and Marin Trust.

"Our fish-based products are manufactured in Norway under a HACCP system, in an establishment approved by the Norwegian Food Safety Authorities," Melanie explained. "We source marine collagen from the first MSC-certified manufacturer in the world, and we're MSC Certified. These are the standards we live by, and we believe they're the only way to produce the best supplements. We hope the day comes when they're simply regarded as the minimum standard."

FOOD FOR MOOD

The groundbreaking new cookbook from scientist and bestselling author, Tim Spector, *Good Mood Food* shows how what we eat shapes how we feel, think and age.



SPICY BEETROOT AND GINGER SOUP



CHOCOLATE PECAN BITES



FRAGRANT THAI CURRY



SPICY BEETROOT AND GINGER SOUP

Serves 4
Plants: 10
Fibre: 5-10g

This soup is hard to beat: it contains four of my top ingredients, plus plenty of miso, and I love the strong flavours and bright colour. Recipes like this one will make you glad you've got a portion of soffritto stored in your freezer. A 15-minute recipe that is utterly delicious. As a bonus, both main ingredients have been shown to reduce blood pressure.

INGREDIENTS:

- 30g ginger, peeled and coarsely grated
- ¼ tsp chilli flakes
- 350g soffritto mix, defrosted if frozen
- 350g cooked beetroot (use vacuum-packed for ease), quartered
- 3tbsp miso
- 2tbsp balsamic vinegar
- 100g beetroot sauerkraut or standard sauerkraut will also work.
- 100g Greek yoghurt
- 4tbsp mixed seeds
- Salt and black pepper
- Drizzle of extra virgin olive oil (optional)

METHOD:

- Put the ginger, chilli flakes, soffritto, beetroot, miso and balsamic vinegar in a medium saucepan with 700ml water. Heat until simmering, then cover with a lid and cook for 10 minutes.
- Using a hand-held blender, blitz until smooth, then stir in the sauerkraut and season with salt and pepper.
- Serve topped with a swirl of yoghurt and mixed seeds and a drizzle of olive oil, if you wish.

FRAGRANT THAI CURRY

Serves 4
Plants: 16
Fibre: ~10g

This ever-popular curry can be a wonderfully nutritious meal if you avoid the white rice it is typically served with. It's a great opportunity to add more plants to your plate and the bright colours always cheer me up. Try making double the amount of paste and freezing it for another time.

INGREDIENTS:

- 2tbsp extra virgin olive oil
- 4 peppers, deseeded and sliced into 8
- 2 x 400g tins coconut milk
- 300g cherry tomatoes
- 2 large corn on the cob, kernels removed with a sharp knife
- 200g tenderstem broccoli, stems sliced into 3
- 2tbsp fish sauce (omit to make this vegan)
- 500g grains of your choice

FOR THE PASTE:

- 2 lemongrass stalks, tough outer leaves discarded, roughly chopped
- 150g bunch of spring onions, trimmed and halved
- 3 garlic cloves, peeled
- 2 mild green chillies (deseeded if you want less heat)
- 15g ginger, peeled
- Zest and juice of 2 limes
- 1tsp ground coriander
- 1tsp ground cumin
- 80g coriander
- Salt and black pepper

METHOD:

- Begin by making the paste. Put all the ingredients except for 20g of the coriander in a food processor and blitz until you have a thick paste. You may need to stop and scrape the sides down a few times with a spatula.
- Heat the olive oil in a large deep saucepan or casserole dish over a medium heat. Sauté the peppers for four to five minutes until starting to soften slightly.
- Add the paste and cook for three to four minutes, stirring often.
- Pour in the coconut milk, along with 200ml of water. Bring to a gentle simmer and cook for 10 minutes.
- Add the cherry tomatoes and sweetcorn and cook for five minutes. Finally, add the broccoli and fish sauce (if using), and cook for five minutes more. Taste for seasoning – add some freshly ground black pepper and a touch more fish sauce if needed.
- Chop the remaining coriander and stir into the curry just before serving. Serve with grains.







CHOCOLATE PECAN BITES

Makes 12
Plants: 6
Fibre: <5g

These chocolatey bites taste as good as they look and are best enjoyed with a cup of freshly brewed coffee. Make sure you use a high-quality peanut butter that is 100 per cent peanuts as the labels can look very similar to cheaper varieties that often have added salt, sugar and palm oil. The same goes for the chocolate.

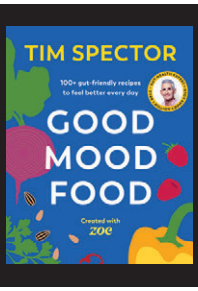
INGREDIENTS:

- 80g dark chocolate (70% cocoa solids)
- 70g crunchy (100 per cent) peanut butter
- 70g chia jam
- 12 pecan nuts
- Pinch of sea salt

METHOD:

- Line a baking tray with baking parchment.
- Break the chocolate into small pieces and add to a heatproof bowl set over a saucepan of barely simmering water, making sure the base of the bowl doesn't touch the water. Stir until melted. Alternatively, microwave in 30-second bursts, stirring as it melts.
- When ready, spoon 12 circles, each about 3cm in diameter, onto the lined baking tray, making sure you leave enough space between each one.
- Place a teaspoon of peanut butter on top of each, followed by a teaspoon of jam. Cover each one with the remaining melted chocolate. Place a pecan nut on the centre and press down gently. Sprinkle some sea salt over the top, then freeze on the tray for one to two hours until set. Gently peel the bites off the baking parchment and store in a container in the freezer.

Extracted from *Good Mood Food* by Tim Spector (Jonathan Cape, £30). All photography by Issy Croker.



I-MAG GIVEAWAYS

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

Nutri-Link bundle



Support your body's natural detoxification processes with Metabolic Detox. This targeted formula combines three well-established nutrients for liver and antioxidant support: milk thistle, N-acetyl-L-cysteine (NAC) and alpha lipoic acid (ALA). Each daily serving provides 400mg of silymarin from milk thistle, 400mg of NAC and 400mg of ALA. Milk thistle supports liver health, while NAC provides a precursor to glutathione, one of the body's key antioxidants. ALA provides complementary antioxidant support, creating a convenient three-in-one approach to supporting healthy liver function and natural detoxification pathways. Each pot contains 60 vegetarian capsules (30 servings).

I:Win: We have three to give away.

Pure Encapsulations Metabolic Xtra



Multi-Award Winning Metabolic Xtra with Svetol green coffee extract with chromium for maintenance of normal blood glucose. Featuring Svetol, a clinically studied decaffeinated green coffee bean extract, with ResVida resveratrol and alpha lipoic acid. Chromium contributes to the maintenance of normal blood glucose levels. Metabolic Xtra is vegan, and free from gluten, dairy, GMO, and soya.

I:Win: We have five to give away.

BioCare Complete Collagen Powder

BioCare Complete Collagen Powder provides comprehensive support for skin, hair, nails, joints and bones. Each 3g serving combines 2.5g of clinically researched VERISOL bioactive collagen peptides (types I and III) with 300mg of Ovomet eggshell membrane, providing collagen types I, V and X plus elastin. VERISOL supports visible improvements in skin elasticity and wrinkle appearance within four weeks, while Ovomet supports joint function. Bamboo-derived silica and 150mg of vitamin C complete the formula, with vitamin C supporting normal collagen formation for cartilage, bone and skin. The tasteless powder mixes easily into food or drinks, with no unnecessary additives.

I:Win: We have five to give away.



Wild Nutrition Creatine Complex

Power is more than muscle. It's having more in the tank – physically and mentally – to meet the demands of life. It's the creatine rethink. Introducing Wild Nutrition's Creatine Complex, pairing 5g highly micronised Creavitalis Creatine Monohydrate – the world's purest source – with marine-sourced magnesium, organic acerola cherry vitamin C and patented botanical blend, AstraGin. Every ingredient has earned its place through scientific research. From busy, active years to peri and post menopause and beyond, Creatine Complex is holistically designed to nourish what's next.



I.Win: We have five to give away.

NaturesPlus BioAdvanced Joint Complex



BioAdvanced Joint Complex is expertly formulated with a powerful blend of herbs and nutrients to nourish, protect, and support your body. This advanced formula features ApresFlex (*Boswellia serrata* gum resin extract) and Phytodroitin (vegan chondroitin) combined with vitamin C and manganese, plus bromelain, glucosamine, hyaluronic acid, and the traditionally used botanicals ginger, tart cherry, and turmeric. Together, these targeted ingredients work in synergy to deliver a unique and highly effective formula.

I:Win: We have six to give away.



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Food supplements should not be used instead of a varied and balanced diet and a healthy lifestyle.