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MAR/APR 2019

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A practitioner guide to an in-clinic approach for hay fever

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Comprehensive advice on the key minerals for health

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Welcome

As recently graduated Nutritional Therapists, or perhaps soon to move into practice as you approach the end of your studies, you will be familiar with brands that you are happy to recommend to your clients and of the importance of seeking products which are efficacious and made with high quality ingredients, and of the right levels.

Here at *Nutrition I-Mag*, we are keen to educate readers about the differences that can be found from one brand to another, and about the importance of ingredients used in supplements, and that is why we created the *Nutrition I-Mag* Product Awards, so that we can shine a light on those brands making exceptional products that make a difference to the health and wellbeing of your clients.

And in this issue, we are delighted to be able to reveal those products that have scooped an accolade; click here to find out who won our awards. We wish all our winners and those who were highly commended for such product excellence and we look forward to another year of quality and innovation.

This issue is also packed full of expert advice from leading authorities in the world of nutrition. We have an in-depth look at the issues related to cognitive decline, we delve deeper into the potential solutions you could offer to your clients to help them through the pollen season, and we also highlight the most important minerals, and how to be aware of deficiencies and the impact these can have on your health.

And finally, the team behind *Nutrition I-Mag*, *IHCAN* magazine and the IHCAN Conferences are delighted to announce a brand new conference for 2019. Taking place in London on Saturday, April 27, The Mushroom Conference brings internationally-recognised experts together to discuss mycotherapy solutions to modern day health issues. Early-bird booking is open until April 2. Book your place online by visiting www.themushroomconference.co.uk or telephone 01279 810080.

Rachel
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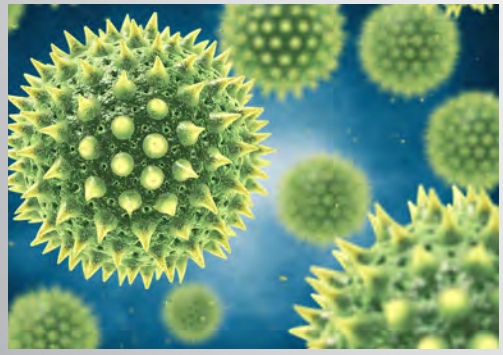

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OUR CONTRIBUTORS

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

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Clare Daley has a degree in Biological Sciences, a Post Postgraduate Diploma in Nutritional Therapy and is a qualified NLP Practitioner. She has completed the IFM's AFMCP and Reversal of Cognitive Decline courses. Clare qualified in 2010 and worked in clinic as a Nutritional Therapist, with clients suffering from a wide range of conditions. She joined Cytoplan in 2015, where she supports practitioner education and runs Cytoplan's Brain Health Programme.

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Rachel Bartholomew BA(Hons) Dip ION MBANT NTCC CNHC has practiced as a Nutritional Therapist since completing her studies with the Institute of Optimum Nutrition in 2004. With a busy clinical practice in Lancashire, Rachel has a particular interest in children's health and nutrition, with a keen focus on improving nutrition education at an early age. Rachel combines her clinical work with a freelance consultant role for Nutri Advanced, where she regularly produces a wide range of technical articles and newsletter items.

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Helen Ford BA(Hons) DipION MBANT CNHC, is Head of In-house Nutrition at Natural Health Practice, a range of supplements which have been formulated by Dr Marilyn Glenville.

Nicola Moore

Nicola Moore DipION, mBANT, CNHC, Registered NT, is Head of Clinics at ION. Nicola graduated from the Institute of Optimum Nutrition in 2005 and has been part of the academic team since 2007. Nicola has worked as the Institute's principle Nutritional Therapist in clinic since 2010. As Head of Clinics, Nicola is responsible for the overall running of the clinic, including the training clinic. She has a special interest in the immune system and its links with hormone function and gut health.

Rose Holmes

Rose Holmes, Dip.ION, BSc (Hons), PGCE, mBANT, CNHC is a Registered Nutritional Therapist, with a special interest in chronic illness, circadian rhythm disruption and healthy ageing. She is the Education and Training Manager at Rio Health and provides training to other practitioners and health professionals on natural therapies.

Joe Welstead

Former international swimmer, Joe Welstead, is a performance expert and co-founder of Motion Nutrition. Joe and his team of neuroscientists develop nootropic supplements, helping to improve decision-making, memory recall and mental performance under stress.

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News bites

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

BNF publishes new report around risk factors for heart disease

A healthy gut microbiome, watching your waist size and getting enough sleep are among the factors listed in a new report from the British Nutrition Foundation.

The findings of a new Task Force report from the BNF, entitled *Cardiovascular Disease: Diet, Nutrition and Emerging Rask Factors: 2nd Edition*, detailed evidence for emerging risk factors that may increase risk, such as being sedentary for long periods, and poor diet in pregnancy.

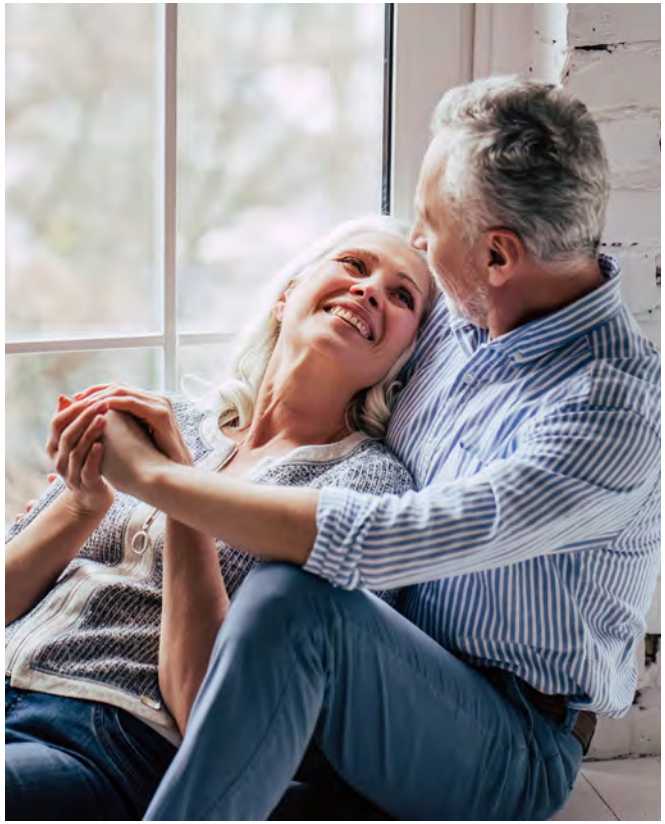
The findings were presented at a conference for academics and health professionals to launch the Task Force report recently, highlighting that eating a diet that encourages a healthy gut microbiome, avoiding central obesity (fat in the stomach region) and getting enough sleep are among the many dietary and lifestyle factors that may help to protect against heart disease and stroke.

Professor Keith Frayn Emeritus, Professor of Human Metabolism, University of Oxford and Chair of the Task Force, commented: "Conventional lifestyle-related risk factors for cardiovascular disease include smoking, raised cholesterol and blood pressure, lack of physical activity, obesity and diabetes. However, these 'classical' risk factors cannot fully explain differences in cardiovascular disease risk and emerging evidence suggests that other novel risk factors may play an important role."

The Task Force report explored some of the emerging and novel risk factors and how they can affect our risk of heart disease and stroke. It specifically discussed gut health, highlighting that the fermentation of fibre by our gut bacteria may also influence our risk of heart disease.

Sara Stanner, Science Director at the BNF and editor of the Task Force report added: "As a nation, we're consuming well below the recommended intake for fibre. Eating plenty of fruit and vegetables, choosing high-fibre or wholegrain varieties of starchy carbohydrates, and eating plenty of pulses, like beans, peas and lentils, will contribute to fibre intakes and can help to keep your gut healthy and decrease your risk of heart disease."

Other matters raised include central fat, explaining that those with excess fat around the stomach are at increased risk because the cells secrete a number of substances that can contribute to risk, workplace stress, and poor quality and interrupted sleep, which may be linked to an increased risk of heart disease, stroke, type 2 diabetes, obesity, and hypertension.



European Commission reclassify CBD products as novel food

Industry has reacted after it was revealed that the European Commission has reclassified CBD products to be novel foods.

The Commission changed the classification of CBD as novel foods in its non-binding Novel Foods Catalogue as part of a general update, but responding, the Health Food Manufacturers' Association (HFMA) has said it is liaising with the authorities to determine the way forward in what it described as a "mystifying" move.

Graham Keen, the HFMA's Executive Director, commented: "The European Commission's U-turn on the classification of CBD products as novel foods in its non-binding Novel Foods Catalogue is mystifying and causing extensive confusion and concern amongst retailers and manufacturers, who have been legally making and selling CBD-based products for several decades.

"Rather than consult food businesses on the presence of products on the market before May 1997, as would be expected, the commission announced its new position on CBD as part of a general update to their Novel Food Catalogue. They have given no further explanation, do not appear to have consulted with stakeholders as they are required to do, and are seeking to apply what would in effect be a blanket requirement for approval, rather than considering products on a case-by-case basis, which is the required approach."

It is an issue that the HFMA has been liaising with the Food Standards Agency (FSA) over, with Keen adding that it has met with officials there.

"It is important to remember that the Novel Food Catalogue provides guidance for regulators, a case-by-case assessment is required, and it is not legally binding," he added. "The Commission has given no detail in support of its new classification and, as well as seeking a solution for UK manufacturers and retailers based on the facts, including the historic use of these products, we shall be urging the FSA to press the Commission for a detailed explanation for this change to the Novel Food Catalogue, and why industry has not been consulted.

"Hemp and hemp-derived products have been used in tinctures and infusions for hundreds of years and only last year, the WHO concluded in an authoritative *Critical Review Report* that CBD is safe and that there is absolutely no evidence that its consumption creates any public health-related problems."

Commenting on the matter, an FSA spokesman said: "There has been a recent change to the EU Novel Food Catalogue which affects some cannabidiol (CBD) products. Food businesses have not been able to show there was a significant history of consumption of these products in food and food supplements prior to May 1997 in the EU.

"Under the Novel Food Regulations, foods or food ingredients which do not have a history of consumption need to be evaluated and authorised before they are permitted to be placed on the market. The FSA are considering the way forward in light of this clarification at EU level. We are meeting with relevant industry representative bodies, local authorities and other stakeholders to clarify how to achieve compliance in the marketplace in a proportionate manner."

Supplement group adds five new members

Food Supplements Europe (FSE) has welcomed five new member organisations.

Four leading European trade bodies joined FSE, in what the organisation FSE says reflects growing recognition of the value of its work on the EU stage.

AFEPADI, of Spain, SANI, of Switzerland, SFSA of Slovenia, and SISTE, of Italy, have all become FSE member associations. In addition, they are joined by Swisse Wellness, an Australia-based supplements supplier, which has become an FSE company member.

Patrick Coppens, Director of Regulatory and Scientific Affairs, said FSE's "positive and dynamic mindset" meant it was increasingly seen as an attractive option for any national association or company with a commitment to making a positive contribution to the supplement sector and consumer wellbeing.

A current priority for FSE is building an understanding of how supplements can benefit public health and be integrated into nutrition policy.

Coppens added: "Our aim is to increase understanding of the correlation between supplementation, wellbeing and lowering the cost of healthcare provision, which continues to rise across the EU."

New research suggests organic farming can feed a growing population

The results of a new study showing an organically farmed Europe can feed a growing population a healthy diet has been welcomed.

Ten Years for Agroecology in Europe, from European think tank, IDDRi, has revealed that pesticides can be phased out and greenhouse gas emissions radically reduced in Europe through agroecological farming, which would still produce enough healthy food for a growing population.

With new agricultural and dietary modelling, the report's authors examined the reduction in yields that would result from a transition to agroecological farming. These reductions can be mitigated by eliminating food-feed competition – reorienting diets towards plant-based proteins and pasture-fed livestock, and away from grain-fed white meat. More than half the cereals and oilseed crops grown in the EU are currently fed to animals.

The paper suggests that agroecology – using ecological principles first and chemicals last in agriculture – presents a credible and holistic way of feeding Europe by 2050.

Commenting on the research, Rob Percival, Head of Food Policy at the Soil Association, explained: "Pesticide-hungry intensive production is not the only way to feed a growing population. *The Ten Years for Agroecology* study shows that agroecological and organic farming can feed Europe a healthy diet, while responding to climate change, phasing out pesticides, and maintaining vital biodiversity.

"The idea of an entirely agroecological Europe is often considered unrealistic in terms of food security because agroecology sometimes means lower yields. But this new research shows that by refocussing diets around plant-based proteins and pasture-fed livestock, a fully agroecological Europe is possible. The UK Government should respond by supporting agroecology within the Agriculture Bill."

The study suggests a future in which meat production in Europe has been reduced by 40 per cent, with the greatest reductions in the production of grain-fed pork and poultry, Europe has achieved protein self-sufficiency, halting the import of protein crops for animal feed, which are often associated with deforestation and greenhouse gas emissions abroad and Europe's biodiverse and carbon-rich grasslands are maintained, nurturing biodiversity and contributing towards a reduction in agricultural greenhouse gas emissions of 40 per cent.

The study is being published in parallel with the UK launch of the EAT-Lancet 'planetary health diet', which proposes a shift towards a more plant-based diet.

Suppliers should be targeted to reduce sugar consumption, briefing finds

A briefing from the Food Research Collaboration has called for action to control the supply of sugar in a bid to reduce consumption.

Total sugar consumption in the UK is three times the Government recommendation, but the collaboration noted that attention to the supply of sugar has been missing.

The briefing, written by Dr Ben Richardson, from Warwick University, and Jack Winkler, Emeritus Professor at London Metropolitan University, argued that policy instruments, such as the restriction of price promotions or advertisements of products that are high in sugar need to be complemented by supply-side measures.

Dr Richardson explained: "Sugar supply in the UK has been governed by EU regulations on agriculture and trade. As a result of Brexit, new agricultural and trade policy in the UK will not only be possible but necessary. Government needs to take this opportunity to restrict the supply of sugar to large manufacturers and instead support the provision of healthier food and drink."

The briefing recommends policies to encourage large food and drink manufacturers to use less sugar in individual products and across their product portfolio as a whole. The authors propose controls on sugar production and imports through the introduction of a marketing quota; a quantitative limit on the amount of sugar that can be sold within a given market. Furthermore, they recommend bringing back a 'minimum price' for sugar.

Professor Winkler added: "Currently, DEFRA is trying to raise the production of sugar, while Public Health England is trying to lower its consumption. We need a joined up sugar policy. Adopting our proposals for new agriculture policies would create one."

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In Research

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

Major new trial confirms power of probiotics to support migraine sufferers

Researchers have revealed that live bacteria supplements may help to bring about improvements in those who suffer with migraine.

Described as the largest-ever double-blind randomised controlled trial of probiotics in both chronic and episodic migraine sufferers, the clinical study has been published in *Cephalalgia*, an international peer reviewed journal covering headaches.

The trial involved 100 patients suffering from chronic migraine (CM) or episodic migraine (EM), or as defined by International Headache Classification ICHD III criteria. The subjects received either the probiotic Bio-Kult Advanced (14 bacteria strains; four billion CFU per day) or placebo capsules for a period of eight weeks.

Regarding CM, the researchers found that in the probiotic group, 21 out of 25 individuals completed the trial, whilst in the placebo group, 18 out of 25 completed the trial. By end of trial, mean frequency of attacks in the probiotic group had fallen by 45 per cent (~22 attacks per month, down to ~12 attacks per month), which was noted as being significantly better than the fall of just one per cent in the placebo group.

The study also found that Visual Analogue Scale (VAS)-assessed migraine intensity significantly improved over the course of the trial in the probiotic group but not in the placebo group (31 per cent reduction, versus two per cent reduction).

When it came to EM, in the probiotic group, 22 of the 25 individuals completed the trial, whilst in the placebo group, 18 out of 25 completed the trial. By the end of the study, the mean frequency of attacks significantly reduced in the probiotic group compared with placebo (40 per cent reduction from baseline, compared to one per cent change). In addition, migraine intensity, measured by visual analogue scale (VAS), was also significantly improved with probiotics compared with placebo (29 per cent reduction, compared to two per cent increase). Furthermore, migraine disability assessment score (MIDAS) by the end of the trial was significantly lower in the probiotic group compared with placebo (~30 per cent reduction versus ~seven per cent increase).

The trial was described as unique in that no previous study has analysed both chronic and acute migraineurs, and in conclusion, the researchers commented: "The multi-strain probiotic Bio-Kult Advanced achieved a significant reduction in the frequency of headaches, and migraine symptom severity in both groups."

Bio-Kult has recently announced the launch of Bio-Kult Migréa, a scientifically developed, advanced multi-action probiotic formulation that targets both the digestive tract and the head and includes magnesium and vitamin B6.

CoQ10 and L-carnitine important for sperm health, study concludes

A new review has ruled that coenzyme Q10 and L-Carnitine are necessary for improving the health of sperm.

The review of studies, published in the journal, *European Urology*, explained that while use of medical and nutritional supplements to improve semen parameters and pregnancy rates in couples with idiopathic infertility has reached global proportions, the evidence base for their use in this setting is controversial. And so, the researchers systematically reviewed evidence comparing the benefits of nutritional and medical therapy on pregnancy rates and semen parameters in men with idiopathic infertility.

Pooled results demonstrated that pentoxyfylline, coenzyme Q10, L-carnitine, follicle-stimulating hormone, tamoxifen, and kallikrein all resulted in improvements in semen parameters. Individual studies identified several other medical and nutritional therapies that improved semen parameters, but data were limited to individual studies with inherent methodological flaws.

"There is some evidence that empiric medical and nutritional supplements may improve semen parameters. There is very limited evidence that empiric therapy leads to better live birth rates, spontaneous pregnancy, or pregnancy following assisted-reproductive techniques. However, the findings should be interpreted with caution as there were some methodological flaws, as a number of studies were judged to be either at high or unclear risk of bias for many domains," the study concluded.

Healthy diet the focus of new study for cancer patients

Maintaining a healthy diet and being physically active is the focus of a new study being launched across the north of Scotland by Robert Gordon University (RGU) and CLAN Cancer Support.

The new study is inviting men and women who have completed their cancer treatment to attend the two-day course – EatWell@CLAN – in either Aberdeen, Elgin or Kirkwall over the next two months. The course will be made up of small, supportive groups and include presentations from health professionals, practical activities and group discussions with other individuals who have been through a cancer diagnosis and treatment.

The team of researchers from RGU's School of Pharmacy and Life Sciences and School of Nursing and Midwifery will collect data from each of the participants and hope to identify barriers people that may face in achieving their dietary and physical activity goals, and possible solutions. This will inform the development of a future study to improve diet and physical activity in cancer survivors.

Dr Lindsey Masson, Registered Nutritionist and Lecturer in the School of Pharmacy and Life Sciences and the principal investigator on the study, commented: "Cancer survivors should aim to be a healthy weight and physically active, eat a diet rich in wholegrains, vegetables, fruits and beans, and limit consumption of fast foods, red and processed meat, sugar sweetened drinks and alcohol.

"Whilst many may be receptive to receiving nutrition advice and making the necessary dietary changes, we need to explore any potential barriers that this particular group may face, so that we can develop strategies for overcoming them."

This is the latest collaboration between Dr Masson and CLAN to benefit individuals across the north of Scotland, including the launch of the Counterweight@CLAN programme in 2017.

Study examines how fat cells change through the day

Researchers at the University of Surrey have found that fat cells have their own internal clocks, with circadian rhythms affecting critical metabolic functions.

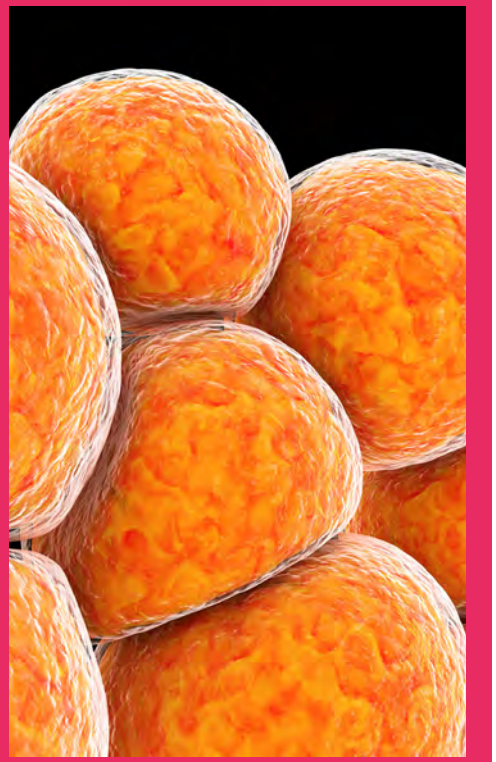
Writing in the journal, *Scientific Reports*, the study, led by Dr Jonathan Johnston, from the University of Surrey, conducted the first ever analysis of circadian rhythms in human fat taken from people isolated from daily environmental changes. Circadian rhythms are approximately 24-hour changes governed by the body's internal clocks. Misalignment of 'human clocks' with each other and the environment is believed to be a major contributor to obesity and poor health.

During the study, seven participants underwent regulated sleep-wake cycles and meal times before entering the laboratory, where they maintained this routine for a further three days. Participants then experienced a 37-hour 'constant routine', during which time they did not experience daily changes in light-dark, feed-fast and sleep-wake cycles. Biopsies of fat tissue were taken at six hourly intervals and then followed by an analysis of gene expression.

Researchers identified 727 genes in the fat tissue that express their own circadian rhythm, many carrying out key metabolic functions. A clear separation in gene rhythms was identified, with approximately a third peaking in the morning and two thirds in the evening.

The researchers explained that morning-peaking transcripts were associated with regulation of gene expression and nucleic acid biology (vital for cell functioning), while evening-peaking transcripts associated with redox activity and organic acid metabolism.

Dr Johnston explained: "Tissues made up of fat cells don't just store excess energy, they are active metabolic tissues, full of their own rhythms. This is the first time that we have been able to identify such rhythms in human fat. This provides us with more information about how human metabolism changes across the day and possibly why the body processes foods differently during day and night."



New to market

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

NPD FROM BIO-KULT WITH LAUNCH OF MIGRAINE RELIEF PRODUCT

New to the portfolio at ADM Protexin is Bio-Kult Migréa, a scientifically developed, advanced multi-action probiotic designed to target the digestive tract and the head.

A recent clinical trial found that the 14 strains of live bacteria in Bio-Kult Migréa significantly reduced both episodic and chronic migraine frequency and severity and reliance on medication in as little as eight weeks. It contains magnesium and vitamin B6, both of which contribute to the normal functioning of the nervous system, and the reduction of tiredness and fatigue (which often accompany migraine attacks).

Commenting on the new launch, Jonathan Sowler, Managing Director at ADM Protexin, which manufactures Bio-Kult, explained: "Migraine is the leading cause of disability among all neurological disorders, with more than 50 per cent of migraine sufferers unhappy with their current treatment. We're excited to bring this scientifically developed product to the market backed by clinical research to give sufferers a natural option."

AYURVEDIC FOCUS FOR NEW SUPPLEMENT LAUNCH

Ashwagandha Botanical Complex is the latest addition to the portfolio at Specialist Supplements.

The formulators say they have expertly blended East and West in this synergistic new food supplement, which combines the best that Ayurvedic wisdom and nutritional science has to offer.

The supplement is a synergistic combination of ashwagandha root extract, other herbs, including rhodiola, Panax ginseng, maca, reishi mushroom and gotu kola, formulated to combat stress and adrenal fatigue, while also supporting the immune system, energy levels, mental performance and a general sense of calm, focus and vitality.

G&G ADDS TO RANGE WITH NEW 5-HTP

The portfolio at G&G Vitamins has expanded further with the creation of a new 5-HTP supplement.

The supplement specialist explains that the supplement is a much more efficient (for serotonin) metabolite of L-tryptophan and precursor to serotonin, which is used to create melatonin and initiate a sleep cycle.

G&G has made the supplement vegetarian and vegan friendly, approved Kosher and does not contain any allergens. It is made with griffonia seed extract, with magnesium taurate.

FANTASTIC FRAPPÉ

The latest addition to the nutritional drinks range at Viridian Nutrition comes in the form of Aronia & Cacao Frappé.

Described as a modern twist on Native American and Mayan traditions, it is a pleasant-tasting phytonutrient-dense beverage, which can be stirred into your favourite 'milk' and enjoyed cool.

Harvested between the 40th and 50th northern parallels by season, the purple, almost black, aronia berries have been carefully blended with raw equatorial cacao. Aronia berry (*Aronia melanocarpa*), commonly known as chokeberry or wild gooseberry, is a vitamin C-rich shrub native to North America, which arrived in Europe in the 1940s. Aronia berries are deep purple in colour, signifying a high anthocyanin content and antioxidant capacity.

Raw cacao seed (*Theobroma cacao* in Latin, meaning literally 'food of the Gods'), is the unfermented, non-heat-treated form of the seed, which provides a high flavanol content. Native to the South American Amazon, cacao is among the most concentrated sources of the well-researched flavonoids, catechin and epicatechin.

BANT News

The latest developments from the leading professional body for Registered Nutritional Therapists, BANT

NUTRITION EVIDENCE DATABASE ALERT – NUTRITION AND NEURODEVELOPMENT

Did you know that you can get a lot more out of *Nutrition Evidence*?

By registering your details and opening a free account, it takes 30 seconds and it will give you access to some great upcoming features. You can register here:

Nutrition plays a crucial role in linking developmental neurobiology and cognitive neuroscience. It has a profound impact on the development of brain structure and function, with nutrition imbalances potentially resulting in developmental dysfunction and disease in later life. Additionally, emerging science is starting to document how the way we feed our gut microbes also has an indisputable effect on brain health.

In BANT's recent issue of the N*utrition Evidence Alert*, you will find 95 plain language summaries, including 50 randomised controlled trials, focusing on the role of nutrition in brain health.

The aim of this issue is to help you achieve a better understanding of the mechanisms underlying the processes involved in neurobehavioral and neurodegenerative disorders. BANT's indexing team was particularly interested in how individualised nutritional strategies might help prevent these conditions, as well as how gut microbial balance might contribute to improved quality of life.

Meet The Editor: Dr Kate Lawrence

After Kate gained her BA (Hons) First Class in Psychology at Oxford University in 1997, she was involved in research work at Great Ormond Street Hospital and the Institute of Child Health. She was awarded a PhD in Developmental Cognitive Neuroscience at UCL in 2003 with a focus on social and emotional skills in individuals with Autistic Spectrum Disorders, Turner syndrome, and typically developing children, adolescents and adults.

Since then, Kate has been involved in a range of national and international multidisciplinary collaborative projects incorporating psychology, genetics and neuroscience.

Since 2013, Kate has been working on the psychology programme at St Mary's University Twickenham, where she has been publishing interesting discoveries about the influence of age, gender and puberty on emotional development, together with collaborators at UCL.

At present, Kate is working on a project with Nutritional Therapist, Jeanette Hyde, looking at the influence of dietary microbiome manipulations on physical and emotional wellbeing.

Kate's editorial picks for you this month are as follows:

Dietary Considerations in Autism Spectrum Disorders: The Potential Role of Protein Digestion and Microbial Putrefaction in the Gut-Brain Axis >

Microbiome-Gut-Brain Axis and Toll-Like Receptors in Parkinson's Disease >

Gut microbiota, cognitive frailty and dementia in older individuals: a systematic review >

Microbiota Transfer Therapy alters gut ecosystem and improves gastrointestinal and autism symptoms: an open-label study >

Dr Kate Lawrence

Garden of Life

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Exciting line-up for 2019 IHCAN Conference series

Be sure you secure your place and enjoy a line-up of world-renowned speakers.

Integrative Healthcare and Applied Nutrition
IHCAN 2019 conferences

The 2019 IHCAN Conference series is in full swing after it got off to a fantastic start on February 16 with Dr Nigel Plummer presenting a great day of learning and networking.

March is going to see us delve deeper into the series, with two fantastic conferences taking place. Saturday, March 9 is already sold out and Saturday, March 30 is filling up fast, Four top speakers will be presenting the most up-to-date information on two significant topics, earning delegates up to nine hours of CPD points.

Join us on March 30

On Saturday, March 30, three excellent speakers will be presenting 'Hidden Mineral Imbalances: Their role in metabolic syndrome, stress and accelerated ageing'.

Professor Juergen Vormann, Dr Tanja Werner, and Paul Kern will be speaking on the day, exclusively sponsored by Bio-Practica and hosted for them by IHCAN Conferences.

Professor Vormann received a doctorate in Pharmacology and Toxicology of Nutrition from the University of Hohenheim, Stuttgart and is currently a Professor at the Institute of Molecular Biology and Biochemisty, University Hospital Centre in Berlin. His main areas of expertise are the pathophysiology and biochemistry of minerals, trace elements and vitamins, as well as the importance of acid-base balance through diet.

Dr Werner is a published author and co-author in numerous scientific publications, including in the areas of nutrition, magnesium supplementation and acid-base balance. Her expertise focuses on nutritional biochemistry and pathophysiology, and the importance of acid-base homeostasis.

Paul Kern Adv Dip. Nat. is former President of the Complementary Medicine Association of Australia and has been running a naturopathic practice for more than 25 years, using nutritional, herbal and homoeopathic medicine to address many complex health issues.

Still to come

Following the March events, the rest of the year is set to be just as exciting.

Our conference on May 11 is already sold out as we welcome Naturopath, Ben Brown, and Dr Allison Siebecker, who is regarded as the natural medicine authority on SIBO (small intestinal bacterial overgrowth) to present on 'SIBO, IBS and beyond: Getting the gut better with first- and second-line therapies'.

We will have our annual IHCAN Summit on June 29, with Dr David Brady and more speakers to be confirmed. On September 14, Dr Dale Bredesen will reveal the latest iteration of his nutrition-based, personalised, precision medicine approach that has succeeded in reversing cognitive decline and further steps needed to make Alzheimer's a rare disease. To be added to the waiting list for this sold out event, visit www.ihcanconferences.co.uk

Lastly, we are thrilled to announce that on November 23, Patrick Holford will be joining Dr Elisabeth Philipps for the day as they individually present on the topic of 'Two approaches to gut, brain and immunity: CBD and the Hybrid Diet for repair and regeneration'.

SECURE YOUR PLACE

Spaces at the 2019 conferences are limited and selling out fast, so secure your place before it's too late.

Previous attendees receive a 15 per cent discount, and association members can claim a 10 per cent discount. A multiple-booking discount is also available when you book more than one conference at a time.

Book now by visiting **www.ihcanconferences.co.uk** or call the team on 01279 810080.

SERIES DATES FOR 2019

- **March 9 – Tom O'Bryan (SOLD OUT).**
- **March 30 – Professor Juergen Vormann, Dr Tanja Werner and Paul Kern.**
- **May 11 – Ben Brown and Allison Siebecker (SOLD OUT).**
- **June 29 – IHCAN Summit, David Brady and more to be confirmed.**
- **September 14 – Dale Bredesen (SOLD OUT).**
- **November 23 – Elisabeth Philipps and Patrick Holford.**

Have you **booked** your place?

Places at conferences are limited and spaces are filling up fast, so secure yours before it's too late

9 March:	Closing the gates to brain deterioration: how to help your 'tired all the time', brain fogged clients - **Tom O'Bryan - SOLD OUT**
30 March:	Hidden mineral imbalances – their role in metabolic syndrome, stress and accelerated ageing - **Prof Juergen Vormann, Tanja Werner and Paul Kern**
11 May:	SIBO, IBS and beyond: getting the gut better with first- and second-line therapies - **Ben Brown and Allison Siebecker - SOLD OUT**
29 June:	IHCAN Summit - **David Brady and more speakers to be confirmed**
14 September:	How to prevent and reverse cognitive decline: using personalised medicine to make Alzheimer's a rare disease - **Dale Bredesen - SOLD OUT**
23 November:	Two approaches to gut, brain and immunity: CBD and the Hybrid Diet for repair and regeneration - **Elisabeth Philipps and Patrick Holford**

To secure your place, go to **www.ihcanconferences.co.uk** or call the team on **01279 810080**

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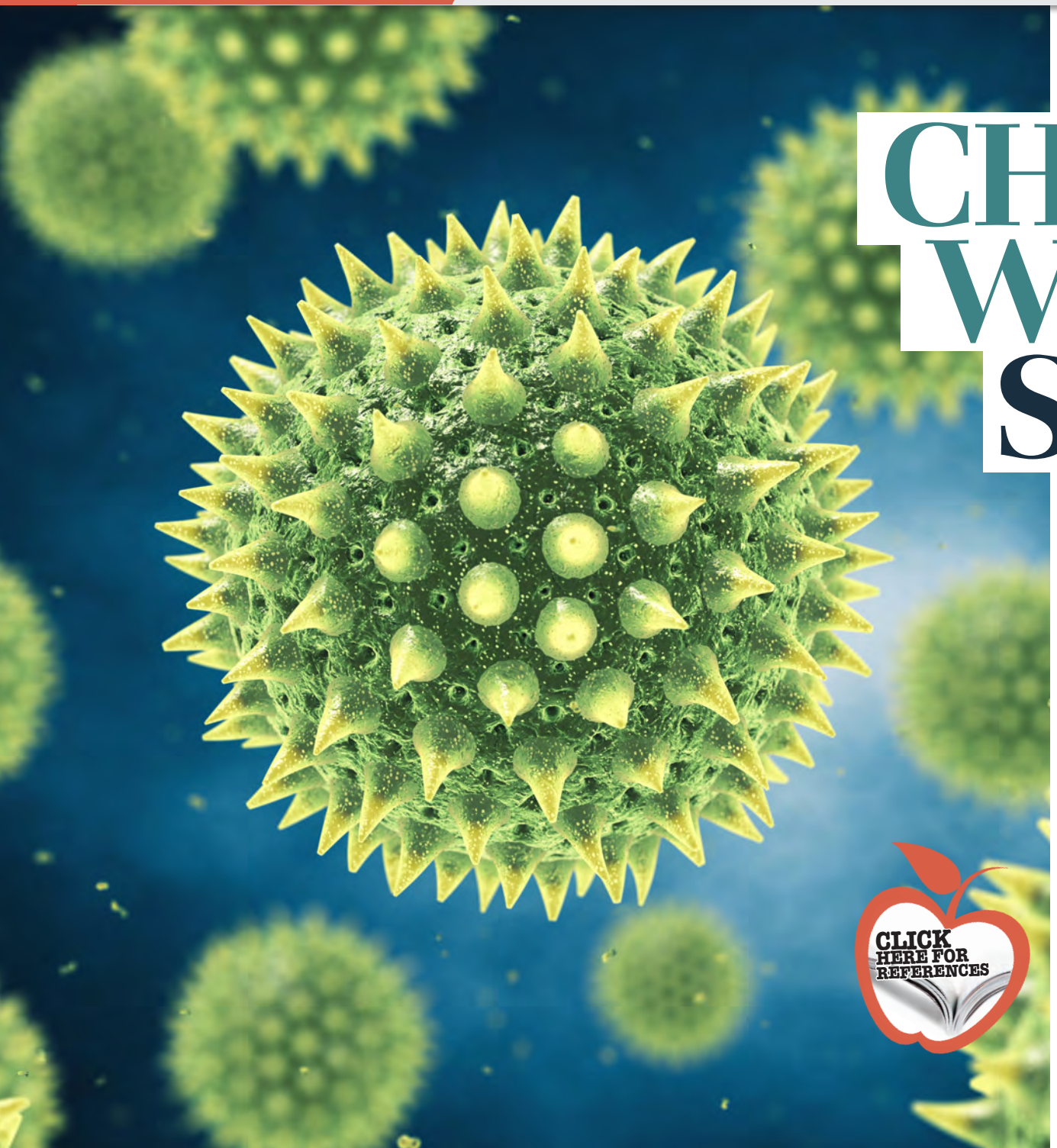

CHANGING WITH THE SEASONS

As we move into the spring time, supporting clients through the effects of the pollen season will be a key focus, the experts advise.

There are many experts who assert that rates of hay fever are on the rise, and there are a multitude of reasons why; environmental pollution is one key factor, as is urbanisation, as well as our overly clean living habits.

Does this mean it's avoidable if we reduce our exposure to these triggers? Or are people going to suffer no matter what?

Rachel Bartholomew BA (Hons), Dip ION, Nutritionist and Health Writer at Nutri Advanced, delved further into why more people appear to be suffering.

"Current research from the National Aerobiology Research Unit suggests a significant increase in the incidence of seasonal allergies over the last 20 years. It is now the most common allergy in Western countries, affecting an estimated 20 per cent of the population in Britain and statistics show that it has been on the rise worldwide for the past two decades,"

CLICK HERE FOR REFERENCES

she commented.

"Researchers suggest that urbanisation, as well as increasing environmental pollution, can increase susceptibility to hay fever, or environmental sensitivity. Overall shifts in global weather patterns negatively affect urban areas because consistently high humidity levels cause pollens to remain low to the ground, which causes further respiratory aggravation for allergy sufferers. And the hygiene hypothesis – is our society becoming too clean?"

Nutritional Therapist, Claire Barnes, Technical Advisor at ADM Protexin, continued: "The development of allergic disease is complex and not well understood, with both environmental and genetic components. Environmental changes are thought to have contributed to the increase in allergies, such as tobacco smoke exposure, respiratory viral infections, use of antibiotics, diet, exposure to allergens[2] and air pollution[3]. Atopic children have a genetic predisposition to develop immunoglobulin E (IgE) antibodies to a variety of dietary and inhalant allergens to which they are exposed.[4] Early food allergies appear to be the strongest predictor of subsequent allergic disease,[5] often referred to as 'the allergic march' where food allergy precedes, asthma, which subsequently precedes seasonal allergy.

"More evidence now supports the 'hygiene hypothesis', which suggests that microbial stimulation can counter-balance allergen-induced Th2 immune responses,[3] therefore, establishing a balanced immune system in terms of Th1, Th2 and Treg cell responses through early microbial stimulation could be important in reducing the later development of allergies.[6]"

CONDITION SPECIFIC

So, what actually causes hay fever and why do people succumb?

Rose Holmes, Nutritionist, BSc, Dip.ION, PGCE, MBANT, Education and Training Manager at Rio Health, explained: "Seasonal allergies can occur any time of the year, depending on which substance(s) trigger an individual's reactions. These types of reactions, which are known medically as allergic rhinitis, do not only relate to pollen (from trees, grasses and weeds) but also to moulds. Even species used as Christmas trees can cause sneezing and wheezing due to mould spores that may be on branches.

"Commonly referred to as hay fever, these reactions do not usually involve fever and do not only occur in summer (when hay is traditionally gathered). When these symptoms occur year-round, it is referred to as perennial rhinitis and allergens involved are often dust mite faeces, cockroaches, and animal dander (from pets).

"The symptoms of hay fever, which is a common seasonal allergy, start with the tree pollen, which in some locations may be in February. In the UK, symptoms are usually worse between late March and September (when pollen count is high and the weather is warm, humid and windy)."

Barnes added: "The pollen season can be separated into three main sections. Individuals who suffer from tree pollen will find their symptoms start from late March to the middle of May. Those who suffer from grass pollen seasonal allergy usually experience their symptoms from the middle of May to July. Whilst the third type of pollen to cause seasonal allergy is weed pollen, which usually occurs from the end of June to September. Obviously, some individuals will unfortunately experience symptoms from two or even three of these pollens.

"Pollen appears to be the main trigger of seasonal

allergy, potentially moulds, which also grow quickly in heat and high humidity could trigger seasonal allergies in some. Certain other allergens may be more prevalent at specific times of the year and trigger symptoms or exacerbate seasonal allergies, such as smoke from campfires in the summer months or fireplaces in the winter, insect bites in the spring and summer months, chlorine from both outdoor and indoor swimming pools, ingredients in sweets from specific seasonal holidays, for example, Halloween, Easter and Christmas and also pine trees and wreaths at Christmas time.[1]"

And in terms of symptoms to expect, unfortunately for sufferers, they are varied and at times debilitating.

"Symptoms can include sneezing and coughing, blocked (or runny) nose, earache, headache, loss of smell, postnasal drip, itchy (and/or red, watery) eyes, itchy throat, mouth, ears and nose. Seasonal allergies also commonly result in feeling tired and can cause swollen, blue-coloured skin under the eyes ('allergic shiners', according to the Mayo Clinic)," Holmes explained.

"Nasal and sinus obstruction may occur and, in children, chronic otitis media (ear infection) may be a problem. Those who have asthma may also experience shortness of breath, wheezing, and a tight feeling in the chest. In addition to worsening asthma, sinus and/or ear infections can be a problem. Poor sleep, fatigue and quality of life can be impacted. Absences from work or school may result in financial or educational consequences."

THE IMMUNE RESPONSE

As you will know, hay fever, better known as seasonal allergic rhinitis, is the immune system's response to pollen, although some people can react to other allergens, such as dust mite.

Holmes advised: "The immune system has a huge role in seasonal allergies since it considers the allergens triggering the reaction as invaders, produces antibodies to the harmless invaders and thus the release of chemical protectants to defend the body against them when subsequently encountered. These chemical protectants include histamine, release of which into the bloodstream causes the variety of symptoms we know as hay fever.

"Preventive measures are important. A strong immune system gives the best chance to counter effects of allergens. And supplements that may provide prophylactic benefit should be recommended."

Barnes continued: "An imbalance between Th1 and Th2 cells is involved in seasonal allergies,[12] with a dominance towards Th2 response. Establishing a balanced immune system in terms of Th1, Th2 and Treg cell responses through early microbial stimulation could be important in reducing the development of allergies.[6] During pregnancy, a natural dominance to Th2 occurs, to avoid rejection of the immunologically incompatible fetus.[14] Following birth, the Th2 phenotype shift to a Th1 phenotype which provides protection from allergic reactions.[9] Recent studies indicate that antibiotic use in infancy,[7],[8] poor exposure to microbes and strict hygiene may be associated with an increased risk of Th2 dominance and therefore developing atopic conditions.[9]

"In seasonal allergy sufferers, the immune system is over-stimulated, perceiving pollen and other allergens as foreign invaders, causing an inflammatory response and the release of histamine. The gut mucosal barrier houses approximately 70 per cent of the body's immune cells and is lined and influenced by a diverse microflora that plays an important role in the development and function of the corresponding immune system. Imbalanced microflora has been observed in those suffering allergic diseases. It is not surprising, therefore, that there appears to be a link between the severity of such allergies and the health of the gut."

THE 'HYGIENE HYPOTHESIS'

Let's now look in further detail at what is known as the hygiene hypothesis, which relates to the too-clean environment we are believed to live in these days.

Bartholemew advised: "Our environment has become increasingly sterile with hand sanitisers, wipes and antibacterial sprays galore. Our overly clean environment, however, is causing real problems for our immune systems, which are struggling to differentiate between real threats and harmless things like pollen and dust-mites.

"Immunologist, Professor Graham Rook, recently commented that people's allergies have got worse because we no longer have the same exposure to dirt. In the 19th century, he says, farm workers rarely suffered from hay fever. 'Sophisticated townies were more likely to get it. Summer sneezing was a sign of culture'.

"Numerous studies have provided very compelling evidence that your body actually benefits from regular exposure to dirt. Being exposed to a bit of bacteria means that the immune system can do what it's supposed to; develop a tolerance to it. Perhaps there is some truth in the age old adage 'a bit of dirt never hurt' and maybe it's something that we as a society need to bear in mind a little more often – as with most things, the key is about finding that happy balance."

And the data makes clear the impact of today's modern living, with Bartholemew pointing out that

NHS Digital data shows that there were over 29,500 hospital admissions for allergic reactions in 2015-16 compared to 22,200 in 2011-12. Doctors say that rising levels of cleanliness and living in a much cleaner world are lowering people's natural resistance to substances such as dust and pollen.[1]

"Children who grow up in extremely clean homes are more likely to develop asthma and hay fever than children who grow up on farms or in houses with a little bit of dirt, according to a 2002 study in The *New England Journal of Medicine*. Children who are overly hygienic are at an increased risk of developing wheezing – a symptom of asthma – and eczema," she explained. "A study in the *Archives of Disease in Childhood* found that children with the highest degree of personal hygiene – those who washed their faces and hands more than five times per day, cleaned before meals, and bathed more than two times each day – were the most likely to develop eczema and wheezing. Children who are raised with pets, or who have older siblings, are less likely to develop allergies, possibly because they are exposed to more bacteria. Maintain a balanced immune system through reducing any potential triggers such as food sensitivities, chlorinated swimming pools and drinking water, air pollution and mould."

HAY FEVER ACTION PLAN

As Nutritional Therapists, you will know there are a number of different facets to the advice you offer clients, both in terms of preparation ahead of the hay fever season, and during to help with symptom reduction.

"Preventing the release of histamine may halt the reaction and reducing congestion may help alleviate symptoms. Diet, lifestyle and supplements may all have contributory effect to reduce histamine reaction, thus preventing the cause of the symptoms," Holmes explained.

From a dietary perspective, some easy changes can make a big difference.

"Start to implement changes to the diet and lifestyle as early as possible to help prevent the onset or severity of seasonal allergies. Eat a rainbow of different coloured vegetables and fruits to provide a range of immune supporting nutrients, such as vitamin A, C and E, zinc and selenium. Antioxidants, such as quercetin, found in onions and apples, act as natural anti-histamines," Barnes explained.

"Anti-inflammatory foods such as ginger, turmeric and omega 3 fats from oily fish, walnuts and flaxseeds should also be increased before the hay fever season sets in. A study investigating the association between antioxidant-related nutrient intake and seasonal allergies in schoolchildren in Korea found a higher vitamin C intake was negatively associated with the condition.[15] A similar study in Crete suggested benefits of a traditional Mediterranean diet during childhood on symptoms of asthma and rhinitis.[16] The authors concluded that their diet may explain the relative lack of allergic symptoms in this population."

Holmes added: "Choose an anti-inflammatory, alkaline, low-histamine diet. An anti-inflammatory, alkaline diet aids balanced bodily functions and supports the immune system, allowing it repair time. A low histamine diet may help by lessening the body burden of this chemical. High-histamine foods to reduce/avoid include processed/cured meats, pickles and leftovers."

And Bartholemew advised: "Many hay fever sufferers find relief from switching to a diet low in wheat, dairy and sugar to support optimal immune function."

Barnes agreed, adding: "If a client hasn't already eliminated dairy, they may be more inclined to try it when they are experiencing some symptoms. A blinded trial published this year found a dairy free diet was associated with a significant reduction in self-reported levels of nasopharyngeal secretions in adults who previously complained of persistent nasopharyngeal mucus hypersecretion.[17]

"Other foods that have been found to exacerbate hay fever symptoms for some people include alcohol, sugar, caffeine, chocolate, peanuts, wheat and citrus fruit, and again eliminating these could help manage symptoms. Certain foods, such as horseradish, chilli, ginger, pepper, thyme, garlic and curry may help balance mucus production and congestion. Providing a client with some recipe ideas including these foods could help to encourage them to cook from scratch, incorporating a variety of seasonal vegetables."

Let's look closely at the key nutrients that need to be built into any effective protocol and why.

Bartholemew highlighted omega 3 essential fatty acids.

"Skin, heart, cognitive and joint health can all benefit from adding these beneficial fats to your diet, and they have also been found to help keep inflammation in check. You need to start early with omega 3 supplementation though, to notice a difference in hay fever season. It can take up to three months for omega 3s to take effect," she explained.

And certain vitamins are also crucial.

Bartholemew added: "Much research has shown that select flavanoids possess anti-allergic, anti-inflammatory, anti-viral and antioxidant activities. Both vitamin C and bioflavanoids are key nutrients to consider for hay fever support as they have been shown to inhibit histamine release. You may need to take up to 3g daily for beneficial effects."

Holmes added: "Vitamins A and E also boost the immune system, flight inflammation and have antihistamine properties[i,ii]. Vitamin C, too, supports immune health and can reduce blood histamine levels[iii]."

We also know that quercetin and bromelain are hay fever essentials.

"Bromelain supports healthy nasal and respiratory airways, may help to increase absorption of quercetin and supports balanced inflammation responses and histamine processes," Bartholemew explained.

Holmes added: "Quercetin is an excellent natural anti-histamine and powerful antioxidant, which can support body neutralisation of free radicals and positively influence immune system and mast cell balance. Studies show the flavonoid quercetin may inhibit histamine release[iv] and help reduce symptoms of allergy[v]. Quercetin is also effective prophylactically[vi], so would be number one to recommend in cases of allergic rhinitis as a preventive measure. Quercetin should be started at least a few weeks before the usual symptomatic period (which varies individually) and is best considered a long-term strategy."

You also need to ensure clients are supporting their immune response and their adrenals, placed under great pressure during hay fever season.

"The amino acid methionine, in combination with calcium, vitamin B6, zinc and selenium, may help to reduce histamine and strengthen the immune system," Bartholemew explained. "And plant sterols; best known for cholesterol balance, yet recently interest has shifted to their immune-balancing properties. Many people report that plant sterols are an effective natural relief for hay fever symptoms."

Vitamin D may also be a beneficial recommendation.

"Studies have shown that vitamin D is associated with seasonal allergies, although the results are not always consistent. Evidence shows a slight tendency that serum vitamin D levels might be inversely associated with the risk of seasonal allergies.[20] Dysbiosis of the gut microbiome and gut inflammation both coincide with the availability and conversion of vitamin D to the host.[21] Therefore, improving the

balance of the gut microbiome could potentially help increase vitamin D levels in the body," Barnes advised.

And don't forget humble honey as a powerful tool, with Bartholemew commenting: "Thousands of people swear by the fact that a spoonful of local honey daily, preferably starting well before the pollen season, has transformed their lives as far as hay fever is concerned. There's no real evidence either way but for some people it really does seem to work. The principle behind it is desensitisation – the pollen that bees collect is the heavy-grained variety that doesn't cause problems and appears to work well as an effective anti-allergen."

LIFESTYLE CHECK

There are some really simple tips to offer clients too that can help to reduce the amount of pollen they are exposed to.

"In the home and work environment, clients may find benefit from swapping commercial cleaning products for homemade natural alternatives, such as lemon, vinegar and bicarbonate of soda. Suggest to clients to spend more regular time outdoors from late winter before the pollen season sets in to allow the immune system to adapt to more environmental microbes," Barnes explained.

Holmes added: "Avoiding pollen/mould exposure may help. Stay indoors on high-pollen-count days, keeping windows shut, vacuum using a HEPA filter, pollen filters for air vents in the car, wear wrap around sunglasses, shower after being outdoors and other evasion tactics. Find someone else to cut the grass and avoid walking on grass. Fresh cut flowers may trigger reactions, as can smoke. Don't dry clothes and bedding outdoors where they might catch pollen."

Bartholemew added: "Avoid traffic fumes as much as possible – incidences of hay fever have risen dramatically in cities, compared to rural areas. Although allergic reactions to pollen are identified as the main cause of hay fever, some researchers have suggested that pollutants, such as exhaust fumes, may actually prime the immune system to react. It is, therefore, recommended that hay fever sufferers avoid exposure to pollutants such as exhaust fumes as much as possible."

Barnes continued: "A lack of plants in our diet could also increase our susceptibility to seasonal allergies. Plants produce natural antioxidant flavonoids, some of which may reduce histamine levels in the body.[11] It appears that increasing our outdoor exposure (whilst avoiding pollution) and increasing our microbial interactions and antioxidants in our diet could help reduce the risk of suffering with seasonal allergies."

GUT SUPPORT

We must also not forget the critical link between the gut and hay fever.

"Approximately 70 per cent of the immune system is located within the gut.[9] The epithelial layer of the digestive tract has an extremely important role in being able to absorb nutrients efficiently, whilst also blocking out viruses, pathogens and allergens. A multi-strain live bacteria supplement helps to keep this epithelial layer intact through inhibiting harmful bacteria and increasing the mucous layer. A healthy epithelial layer could help to reduce immune reactions, as increased intestinal permeability (leaky gut) will require the immune system to be on higher alert and often over-react to harmless particles," Barnes advised.

"A review and meta-analysis looking at the role of probiotics in the treatment of allergic rhinitis in 2016 concluded that those taking probiotics had significant reduction in nasal and ocular signs and symptoms, significantly lower scores of nasal blockage, rhinorrhea, and nasal itching and a significantly lower ratio of T-helper 1 to T-helper 2 ratio when compared with placebo.[18]"

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What's your gut feeling?

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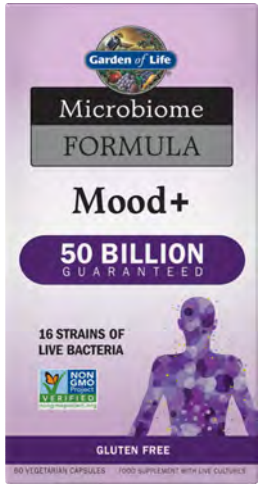

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ESSENTIAL MINERAL ADVICE

Minerals play an essential role in health, yet levels among the general population are known to be low, making them an important recommendation.

CLICK HERE FOR REFERENCES

We know that levels of mineral intake in the UK are low and have fallen greatly, for a variety of reasons. What this means is that many of us are deficient in minerals that are considered absolutely essential for good health.

Vanessa Hitch, Natural Medicine Consultant, Naturopathic Nutrition and Herbal Medicine BHSc (CompMed), Dip. Nat., Dip. BotMed., Dip. Nut, from Bio-Practica, agreed, commenting: "The dietary intake of minerals required for human health is often insufficient and is on the decline. For example, 50 per cent of the current population globally is at risk of zinc deficiency and 50 per cent of the general Western population is not getting enough magnesium in their diet."

Keeley Berry, Nutritional Expert and New Product

Development Executive at BetterYou, added: "According to the British Nutrition Foundation, one in five women aged 19-34 years and more than half of all teenage girls have intakes of magnesium below the Lower Reference Nutrient Intake (LRNI). Those also at risk are 20 per cent of boys aged 11-14 years, which is due to low intakes of magnesium from the diet. Mild blood magnesium is also common in severely ill patients, type 2 diabetics, alcoholics and those with malabsorption disorders.

"Data from the NDNS indicates that our average daily intakes of iron from foods are below the LRNI for women in all age groups, except for older women over the age of 54 years. A significant number of younger women have low intake of iron because women of child bearing age and teenage girls have higher requirements for this nutrient. More than two billion people worldwide suffer from iron deficiency, making it the most common nutritional deficiency condition. Although teenage and adult males typically require more magnesium than women, it seems to be that women are more prone to low magnesium levels. This is most noticeable in children aged 11-18 years, with 53 per cent of females falling short compared to 28 per cent of males. This could be attributed to Western diets which contain processed foods and refined grains, with minimal consumption of leafy green vegetables rich in magnesium and other essential nutrients."

She continued: "The main issue is that over-farming is leading to plant sources that aren't as nutrient rich as what they used to be. This means that we're having to consume more products to obtain the same level of nutrients which, for some, isn't viable. Another consideration is the popularity of following vegan diets which can remove key sources of B12 and iron due to the lack of animal product consumption."

A DEFINITION

There are many different minerals that can be recommended to clients, but what is the definition of a mineral?

Hitch explained: "Minerals are naturally occurring inorganic substances, found in our environment. Generally, minerals found in the soil are taken up into plant matter, which is then eaten by animals. Humans eat those plants or animals, which is how dietary minerals are obtained. The human body needs minerals to survive, for example, magnesium, zinc, iron and potassium have important and specific roles in the body and if they are deficient, chronic health problems may occur."

Rose Holmes, Nutritionist, BSc, Dip.ION, PGCE, MBANT, Education and Training Manager at Rio Health, added: "From a nutritional point of view, minerals are chemical elements required by the body. Like vitamins, minerals are essential nutrients, needed to aid body functions required for life. Unlike vitamins, which are organic and can be broken down by heat, acid or air, minerals are inorganic and hold their chemical structure. Humans don't produce minerals so these must be obtained through the diet; animal and plant foods and water. Essential minerals are classified as major, for example, calcium, magnesium, phosphorus, potassium and sodium, or trace minerals which includes iron, copper, zinc, manganese, iodine, molybdenum, selenium and others.

"The body needs and stores large amounts of the major minerals. Despite their name, these major minerals are no more important to health than trace minerals, which are required in much smaller amounts. Trace minerals have essential functions,

including facilitating biochemical reactions, being crucial as building blocks for hundreds of enzymes, serving as antioxidants, supporting the blood system, being necessary for certain hormones and gonadal development, and being required for normal growth, development and neurological functions. Iron, for example, transports oxygen throughout the body, zinc helps blood clot and boosts immune response, and copper is needed for several enzymes.

"Trace minerals are needed in minute amounts. The difference between 'just enough' and excess is often miniscule, which is why taking one supplement which contains the range of trace minerals is often the best option. Trace minerals can interact with one another, with excess of one contributing to deficiency of another. To avoid triggering such imbalances, avoid taking single-mineral supplements unless there is a known deficiency and levels are monitored."

Berry added: "A mineral is a naturally occurring compound not produced by life processes. This means that we must consume them through diet and supplementation. It's important that we get the right amount of minerals as some can cause knock-on effects if one is out of balance. There are two types of minerals; macrominerals that are required in large amounts, and trace minerals that are needed in much smaller doses.

"Minerals such as calcium are important for healthy bones and teeth, which helps provide structure to the body, allow us to eat and offers protection to our vital organs. Although a micromineral, iron is essential for the transportation of oxygen around the body as it's required for the formation of haemoglobin in red blood cells. Microminerals such as zinc can often be overlooked and only called upon to support skin, hair and nail health. However, zinc is used for many other body processes, including immune support by helping the body fend of illnesses and heal wounds."

And why are they considered so critical for our health?

Hitch explained: "Each mineral has its own unique properties which make it important for health. Take magnesium, for example; it is utilised in over 600 enzyme or cofactor reactions in the body, making it easily one of the most important minerals in the human body. Without sufficient magnesium, our nervous system, musculoskeletal, cardiovascular and endocrine systems would become dysfunctional, leading to disease and even death.

"Many beneficial minerals are utilised as cofactors in detoxification processes. If we have a high toxin load, important minerals are used up in an attempt to detoxify the body from harmful chemicals and toxins. Zinc is well known for its benefits to reproductive, immune and skin health, iron is important for tissue oxygenation and energy levels and potassium is important for cardiovascular and musculoskeletal health and, like magnesium, is also an important alkaline mineral to help balance the body's pH. Iodine is important for thyroid and reproductive health."

Berry went on: "All minerals are important for optimal health, but the ones I would consider the most important include magnesium, zinc, iron and calcium. Each of these individually have an important contribution to human health, but also work together, for example, it is vital for magnesium and calcium to be present together to maximise bone health. These key minerals also serve a wide range of purposes within the body, so it's particularly important to keep levels up as deficiencies could cause multiple consequences.

"Similarly, studies have shown that plant-based

diets can pose an elevated risk of iodine deficiency. This is because the amount of iodine found in vegan foods, such as cereals and grains, is inconsistent and depends on how much iodine is in the soil the plant is grown in. Suboptimal levels of selenium within the diet is widespread throughout Europe and the Middle East, with poor soil conditions being attributed to fruit and vegetables being low in the mineral. Higher selenium intakes have been linked to enhanced immune function, with better outcomes for viral infections, male infertility, mood disorders, cardiovascular disease and bone health, to name a few. This is because selenium is required in the body to make proteins such as antibodies, digestive enzymes, insulin and glutathione peroxidase, which protects haemoglobin from oxidative damage."

Penny Shaw, Nutritional Therapist at G&G Vitamins, advised that mineral needs are quite individual, commenting: "What minerals are the most important for health will depend on the individual. For example, a woman of reproductive age may have higher requirement of iron due to monthly loss, whereas a man of the same age may not need as much. Calcium is extremely important for growing children to help build strong and healthy bones."

MINERAL DEPLETION

Away from the food we are eating, it is known that there

CHANGING FOOD PRACTICES

The way we eat, what we eat and the way we prepare and cook food has changed immeasurably and this is having a big impact on why our mineral intake has fallen.

"It's a common opinion that eating a healthy wholefood diet, will provide sufficient intake of all minerals. Unfortunately, this may not always be the case. The mineral content in our food is only as rich as the soil our food is grown in. Unfortunately, due to modern farming practices, the soils are often deficient in key minerals, such as magnesium, potassium, zinc and iodine, just to name a few. Adding to this problem, toxic minerals known as heavy metals may compete with or directly block beneficial mineral absorption in the body," Hitch explained.

"Another often overlooked aspect of why our mineral intake is low, is that they are often destroyed or lost during food preparation, processing and storage. Some highly processed foods have become devoid of any nutritional value."

Berry added: "The soils where our food is grown are our main source of selenium and when the soil is deficient, this leads to continuing low levels in the food chain. Currently, selenium intakes in the UK are low, meaning we must maintain levels through supplementation."

There are some straightforward recommendations to make, nutritionally, to those clients experiencing low levels.

First, ensure clients are giving themselves the chance to absorb the minerals.

"Mineral absorption can often be enhanced by pairing foods. For example, vitamin C can help improve the absorption of iron by binding to (non-heme) iron, and vitamin D improves the absorption of calcium and phosphorus (for bone health). Vitamin K, like vitamin D, works synergistically with calcium reabsorption," Holmes advised.

Shaw continued: "By researching food content of minerals, you can increase your understanding of mineral content and then ensure you're getting the variety you need. For example, Brazil nuts have a high content of selenium and eating just five a day may help to meet that requirement. Iron, for example, can be low in plant sourced food compared to meat, but if you consume vitamin C in the same meal, you can increase iron's bioavailability by its conversion."

And when it comes to the foods to eat, there are a plethora of foods to recommend.

"Good sources of magnesium include almonds, cashews and peanuts, spinach, brown rice and black beans. In order to have a diet rich in magnesium, it's recommended to have a varied diet with a selection of food groups as this will also provide other essential nutrients the body needs. This is great news for those who follow a vegan diet as magnesium isn't particularly abundant in animal products. For those who do eat meat, pork is a much better source of magnesium in comparison to chicken, for example," Berry advised.

"The most absorbable form of iron, known as heme iron, is primarily derived from meat products, meaning vegans must find iron from other sources. Owing to a diet rich in wholegrains, vegans consume similar amounts of iron as omnivores, however, issues with the absorption of plant-based iron means that sufficiency needs to be prioritised."

Hitch added: "Eating a whole food healthy diet rich in vegetables and fruits, nuts and seeds and moderate amounts of grains and vegetable and or animal protein is ideal. For example, green leafy vegetables, nuts, seeds and legumes contain magnesium, zinc is found in meats, nuts, seeds, eggs and certain shellfish (oysters, for example), bananas, some dried fruits, green leafy vegetables, sweet potatoes and mushrooms are sources of potassium, iron is found in green leafy vegetables, nuts and seeds, legumes, whole grains and animal protein (such as red meat) and iodine is found in seaweed, seafood, eggs, iodised salt and prunes.

"Organic produce may have higher mineral levels in some cases. We do know that foods lower in heavy metals (such as those grown organically) will lead to better beneficial mineral uptake."

are a range of factors that can deplete our mineral levels.

"Each person has different needs and requirements for each mineral. This may vary whether they are male or female, their age and stage of life. In addition, a variety of factors influence each mineral differently," Hitch explained. "Using magnesium as a prime example, pregnant women have a higher demand for magnesium. Adding to this, their urinary excretion is also higher, which may explain why pregnant women are at risk of magnesium deficiency. Magnesium supplementation is known to reduce pregnancy complications, such as pre-eclampsia, premature labour and low birth weight of offspring."

She continued: "A variety of factors can deplete magnesium; stress, ageing, insomnia, alcohol, coffee, sugar, high fat diets, dairy products may increase magnesium excretion, pH imbalance (being too acidic), the oral contraceptive pill, diuretics and other medications, excessive exercise or sweating, and many health conditions are associated with depleted magnesium. Zinc is another mineral often low in soils to start with and further depleted easily during food processing and cooking. Zinc is also depleted by medications such as the oral contraceptive pill, alcohol, coffee consumption and many other factors."

Shaw also advised: "Consuming foods containing high levels of phytates or oxalates may deplete minerals as they bind to them, reducing absorption. Nitrates can reduce iodine absorption which is needed by the thyroid gland. It's also worth knowing that minerals themselves can compete for absorption. Too much iron can deplete zinc and zinc can deplete copper, so it's generally advised that they are taken together to avoid copper deficiency. Quite often, iron deficiency can actually be the result of copper deficiency as it is needed to absorb iron from the gut."

Holmes continued: "Mineral deficiencies often happen gradually over time and can be caused by a number of factors; lack of the mineral in the diet, increased need for the mineral or difficulty in absorbing the mineral from food. Mineral intake is often reduced in diets which rely too heavily on processed foods. Poor diet, alongside insufficient intake of vegetables and fruit, and/or restricted diets, may contribute to mineral deficiencies. Vegan and vegetarian diets can be low in iron.

"Poor mineral absorption may be experienced by those with conditions affecting liver, kidney, pancreas, intestines and gallbladder. Some gastrointestinal conditions, chronic alcoholism and medications including antibiotics, diuretics, laxatives and antacids, may affect mineral absorption. Age may also be a factor; decreased absorption in the elderly may account for deficiencies in this age group. Mineral deficiency may also occur due to variable need, for example, the need for iron varies in pregnancy, with heavy menstruation and post-menopause."

In terms of the symptoms to check if someone is experiencing low mineral levels, it's important to note that each mineral has different deficiency signs and symptoms.

"For example, if someone is low in magnesium they may experience tremors, irritability/anxiety, restless legs, cramps, jumpy/nervous, muscle spasms, tinnitus, hearing loss, mood changes, heart arrhythmias and migraines/headaches," Hitch explained.

"Those with low zinc, on the other hand, are more likely to experience white spots on their finger nails, delayed wound healing, altered stress responses, eye and skin complaints, smell and taste disturbances, behavioural and emotional disturbances, impaired immune function, reproductive issues, loss of appetite and weight loss, digestive complaints, such as diarrhoea, and delayed

growth and development."

Holmes also advised: "Mineral deficiencies can manifest in a variety of ways, depending on the mineral involved. Depleted iron, which can result in anaemia, often manifests as fatigue, whereas depleted calcium may result in osteoporosis.

"Zinc and magnesium are two commonly found mineral deficiencies. Magnesium is needed for hundreds of chemical reactions, for proper function of muscles, nerves, energy metabolism, for brain function, protein production and blood pressure. Low intakes and blood levels of magnesium associate with several conditions; type 2 diabetes, heart disease, metabolic syndrome and osteoporosis[i,ii]. Magnesium deficiency also associates with depression and mental health problems, anxiety, sleeplessness and headache[iii].

"A large variety of symptoms may result from mineral deficiencies, including gut symptoms bloating, constipation, abdominal pain, nausea and vomiting. Fatigue, weakness, poor concentration, muscle spasms and poor immune function are also common in mineral deficiencies.

"Muscle cramping can relate to one of several mineral deficiencies; calcium, magnesium, potassium, sodium. Fatigue can relate to deficiencies of iron, magnesium or iodine. Deficiencies of zinc, iron and selenium may impact immune function. Zinc, selenium, manganese, boron and silicon are important minerals for skin (and connective tissue) health."

ACHIEVING BALANCE

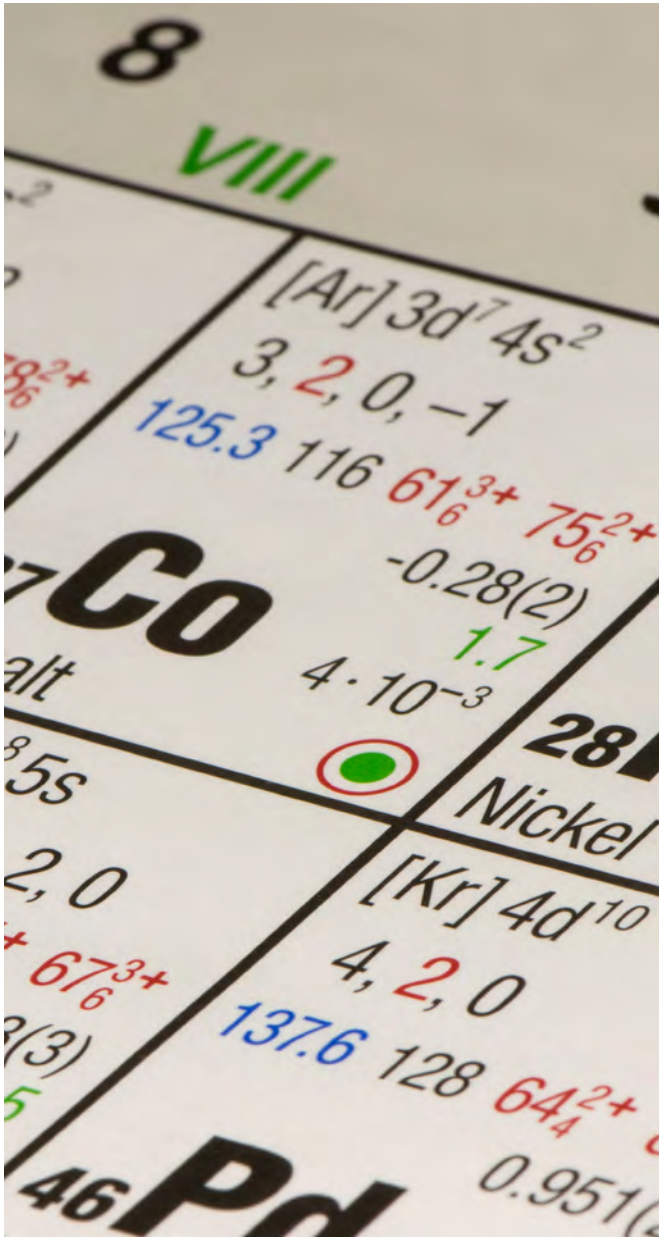
While recommending certain mineral-rich foods is a good suggestion for clients, also keep in mind there will often be a need for additional supplements.

"Minerals interact with each other and it is important to try to achieve mineral balance. Everyone is unique in their requirements for mineral balance. Some key minerals, however, are often seen in low levels which need to be supplemented to bring them back up to optimal levels. Once a person is deficient, food levels of minerals may not be enough to replete their supply, so supplementation is often required. These include magnesium, zinc and iron (particularly in menstruating women), closely followed by potassium and iodine," Hitch advised.

"Low levels of minerals are often very difficult to correct using diet alone because they simply do not contain enough to replete chronically depleted stores. It is usually recommended to use supplementation, however, not all mineral supplements are the same and choosing a good quality supplement is important to get the best results."

When it comes to magnesium, Berry advised: "High dose oral magnesium supplements can cause stomach cramping and diarrhoea as they travel through the digestive tract. Alternatively, transdermal (through the skin) magnesium helps to avoid this discomfort, whilst still being able to supply the body with the nutrients it needs. In this instance, magnesium chloride is a great example of highly bioavailable magnesium that the body can utilise.

"Iron is also another mineral that is poorly absorbed in the gut and can cause gastrointestinal side effects such as abdominal discomfort, nausea, vomiting and constipation. Consequently, compliance with iron supplements is notoriously poor. There are alternatives,such as oral sprays available on the market, which offer a solution to the digestive discomfort and poor absorption experienced from traditional ingested supplements. An intra-oral spray is an effective method of delivering nutrients directly into the bloodstream, rather than relying on primary processing by the digestive system, with absorption beginning immediately."



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COGNITIVE CONNECTION

CLICK HERE FOR REFERENCES

Cognitive decline is caused by a variety of factors, but, given some are modifiable, what role can Nutritional Therapists play?

We are seeing a growing body of research focused around our cognitive health, and what is clear is there are a number of modifiable risk factors when it comes to reducing risk.

When we talk about cognition, there are different conditions that fall under that umbrella, with dementia on one side, and anxiety and depression on the other. In addition, there are a variety of issues centred around age-related decline and brain fog.

"Cognitive disorders are caused by a variety of different factors, it may be genetic, environmental, trauma or use of drugs and alcohol. However, nutrition, particularly in the developmental stages, plays a big role," commented Jenny Logan, Product Development and Training Manager at Natures Aid. "This means that people who struggle to get the nutrition they need will be more susceptible to developing cognitive health issues."

Clare Daley, Clinical Education Manager and Nutritional Therapist at Cytoplan, added: "Dementia has been considered a disease of old age. However, people are being diagnosed at a younger age – it is no longer a condition that solely affects people in their 70s and 80s, people in their 50s are also being diagnosed with so-called 'late onset Alzheimer's, which is primarily a disease of diet and lifestyle, although there are some genes that increase risk."

Joe Welstead, founder of Motion Nutrition, highlighted

one of the biggest modifiable risk factors; stress.

"Stress affects us all, and it affects our entire bodies, touching every organ," he explained. "Stress does not discriminate. It comes from various factors, in various forms, and at all ages. Linking stress to cognitive impairment and degenerative diseases is difficult, but it is certainly a part of the picture. What we know for sure is that changes in the brain which can lead to degenerative diseases can start to unfold 20-30 years before a diagnosis. In other words, while first symptoms of Alzheimer's may appear somewhere between the ages of 50-65, changes in the brain could start in the 20s. This means we need to take serious consideration into how we feed our brain and take care of its health, regardless of external symptoms."

COGNITIVE FUNCTION

When we look at cognition and the issues that relate to it, Logan commented: "A cognitive disorder is defined as a problem which significantly impairs the cognitive function of an individual to the point where normal functioning in society is almost impossible. The issues people would commonly think of when discussing cognitive disorders in this context would include dementia, developmental disorders, motor skill disorders, amnesia and substance-induced cognitive impairment. However, given the definition of a cognitive disorder, in my opinion, the most common issues will include anxiety disorder and depression.

"The most common signs of a cognitive disorder include confusion, poor motor coordination, loss of short-term or long-term memory, identity confusion, impaired judgment and poor concentration. Emotional imbalance is also a prime manifestation, cognitive disfunction is frightening and confusing, leading, in turn, to emotional outbursts."

Daley continued: "Many people complain of 'brain fog', so this is certainly a very common cognitive problem. The medical term for this is Subjective Cognitive Impairment (SCI) – this is where an individual is aware and noticing changes in their cognitive function, perhaps reduced focus and concentration, poor memory, difficulty with word-finding or reduced ability to do certain tasks, but other people might not have noticed any change and the person is able to function quite normally at work and at home and find 'work-arounds' for the impairments they notice.

"SCI may be an early warning of changes that are happening in the brain – the pathology of dementia begins many years before a diagnosis. More than 30 per cent of people aged 85 have Alzheimer's, and the pathology began between the ages of 55 and 65.[1] In 2016, dementia became the number one cause of mortality in England and Wales (overtaking heart disease). There are currently 850,000 people with dementia in the UK, with numbers set to rise to over one million by 2025.[2] There are a number of different types of dementia, including Alzheimer's (the most common), vascular dementia, fronto-temporal dementia, mixed body dementia and Lewy body dementia.

"Other mental health related issues, such as depression and anxiety, are also common and increasing. According to a Care Quality Commission (CQC) report from 2015, at any given time, an average of one in four patients of a full-time GP requires treatment for a mental health condition. In 2014, 57 million prescriptions were written for anti-depressants, a 46 per cent rise from four years earlier.[4]"

FOCUS ON DEMENTIA

Looking closer at one of the biggest conditions related to cognitive decline, dementia, Rose Holmes, Nutritionist, BSc, Dip.ION, PGCE, MBANT, Education and Training Manager at Rio Health, commented: "Dementia and Alzheimer's disease are possibly the most feared conditions humans face. The deterioration of memory, thinking, behaviour, learning capacity, orientation, judgement and the ability to perform everyday activities, alongside the eventual likelihood of identity confusion, mean these are almost incomprehensible.

"Although dementia affects mainly older people, it is not a normal part of ageing. Globally, the numbers of people living with dementia will increase from 50m in 2018 to 152m in 2050, a 204 per cent increase[i]. Dementia results from a variety of diseases that affect the brain."

And dementia has a number of modifiable risk factors.

"In 2014, the World Dementia Council (WDC) requested the Alzheimer's Association evaluate and report on the state of the evidence on modifiable risk factors for cognitive decline and dementia," Logan pointed out. "This report stated that there is enough evidence to support the link between several modifiable risk factors and a reduced risk for cognitive decline. Specifically, the association believes there is sufficiently strong evidence, from a population-based perspective, to conclude that regular physical activity and management of cardiovascular risk factors, especially diabetes, obesity, smoking, and hypertension, all reduce the risk of cognitive decline. They also claimed that there is sufficiently strong evidence to conclude that a healthy diet and lifelong learning/cognitive training may also reduce the risk of cognitive decline (3)."

There are certain considerations to keep in mind relating to risk factors for dementia.

"Factors that increase inflammation in the body increase the risk of dementia – so smoking, excess

alcohol consumption, poor sleep, high stress, toxicity, the inflammatory Western diet and history of depression are some of the factors that increase susceptibility. Females are also more susceptible, possibly due to the more significant hormonal changes that occur and declines in oestrogen post-menopause; oestrogen is a trophic (growth) factor for the brain. Of course, there are also some genes that increase risk and these are discussed below," Daley commented.

"Professor of Neurology, Dale Bredesen, has identified root causes of Alzheimer's and this gives insight into what types of people are more susceptible. His work has identified a number of sub-types of Alzheimer's disease[6]:

- **Inflammatory/infectious (hot):** These people have biomarkers of systemic inflammation, including increased C-reactive protein (C-RP), interleukin 6 (IL-6) and nuclear factor kappaβ (NF-kβ) and are often becoming insulin resistant with high blood circulating insulin.
- **Glycotoxic:** People in this subtype present with features of both type 1 inflammatory Alzheimer's disease and type 2, atrophic. This subtype may be characterised by people with insulin resistance/type 2 diabetes, moving from an inflammatory presentation towards an atrophic one.
- **Atrophic (cold Alzheimer's):** These people do not have markers of inflammation but of low trophic support (low insulin production; insulin is trophic for neuronal and synapse formation), low hormones, low vitamin D, low TNF-alpha (tumour necrosis factor-alpha) and IL-6. Other metabolic abnormalities are often present along with atrophy (shrinkage) of the hippocampus (the area of the brain important for memory consolidation).
- **Toxic:** Distinctly different, tends to affect younger people (45-65 years of age), often non-amnestic, but instead, these people present with dyscalculia or aphasia or executive dysfunction. Often zinc deficient and generally toxic.
- **Vascular:** This subtype is characterised by impaired/reduced blood flow, and damage to the vascular system within the brain. Underlying cardiovascular disease/diabetes is implicated in this subtype."

AT RISK GROUPS

There are a number of factors related to reduced risk with general cognitive decline.

Shawn Bean, also known at The Metabolic Detective, runs Matrix integrative Family Health, and, commenting on behalf of Nouveau Health, explained:

- **"Older population >50:** Studies have shown this can be due to lack of education or participating in activity where they are not utilising their thought process. A lot of medications can cause issues with cognitive impairment. Statin drugs have many clinical studies supporting this. Decline of male and female hormones have been linked to several cognitive issues.
- **Cardiovascular and diabetes:** When there is not proper blood flow to the brain, there may be a situation of pseudo-hypoxia, resulting in decreased oxygen flow to the brain. People who are chronically ill from pathogens, environmental toxins and other health issues are in a constant state of inflammation, which can have a significant impact on neurological inflammation. Mycotoxins have been shown to cause neurological inflammation, which can alter the brain's ability to properly process information.
- **Genetic predisposition to inflammatory cytokines:** If the person has a higher predisposition to increased pro-inflammatory cytokines, this could have an impact on one's cognitive ability."

Away from these risk factors, Holmes highlighted the power of making changes when it comes to reducing risk, commenting: "If addressed early enough through diet and lifestyle change, it has been shown that it is possible to reverse the cognitive decline and memory loss of Alzheimer's disease and its precursors, Mild Cognitive Impairment (MCI) and Subjective Cognitive Impairment (SCI)[iii]. Nutrition and lifestyle are powerful tools. They may help reduce inflammation, improve nutrient availability, toxin excretion and blood flow, and may improve neurological health; diet and lifestyle may help prevent disease and allow healthy ageing. An anti-inflammatory (for example, avoidance of sugar) diet and increased intake of antioxidants are important for brain health."

MIGRAINE MATTERS

Another area to note, and one you will see clients in clinic about, is migraine, a hugely debilitating condition.

Nutritional Therapist, Hannah Braye, Technical Advisor at Bio-Kult, explained: "Migraines are multi-factorial in nature and despite extensive research, their pathophysiology is yet to be fully understood. Different theories regarding the initiation of migraines have been proposed over the years[1]:

- **Vascular theory:** For years, doctors believed that migraine headaches originated with the blood vessels, particularly those that supply the meninges (the thin membranes wrapped around the brain inside the skull). It was thought that when those blood vessels dilated, they impinged on pain receptors on the trigeminal nerves. But now there is near-total agreement that migraines originate in the brain, not within the blood vessels that surround it.
- **Cortical Spreading Depression:** Another theory is that migraines are caused by rapid waves of brain cell hyper-excitability, followed by periods of inhibition/

no activity (known as cortical spreading depression (CSD)). This is suggested to set off inflammatory and other processes that stimulate pain receptors on the trigeminal nerves. However, experimental drugs that inhibit cortical spreading depression have only shown a preventive effect on aura, but not on migraine headache.

■ **Dysfunction in the brainstem:** Some researchers believe migraines are best explained as beginning lower in the brain, in the brainstem. The theory is that if certain areas of the brainstem aren't working properly or are easily excited, they're capable of starting cascades of neurological events, including cortical spreading depression, that account for migraine's multiple symptoms."

Symptom wise, migraines can be described as disabling headaches, usually characterised by one sided pulsating pain.

"Nausea, vomiting and sensitivity to light, noise, movement and smell are often experienced with attacks[2]," Braye advised. "Migraines come in various forms; common migraine (without aura), classic migraine (with aura or additional neurological symptoms), chronic (occurring more than 15 days a month), episodic (less than 15 days a month), menstrual (linked to the menstrual cycle), hemiplegic (involving weakness in one side of the body), abdominal and vomiting migraines.

"They can be broken down into four distinct stages (although not every sufferer will experience all four):

■ **Prodrome (pre-headache):** Many migraine sufferers experience vague affective symptoms as much as 24 hours prior to the onset of a migraine attack. These can act as warning signs.

■ **Aura:** A minority (around 15 per cent) of sufferers also experience the aura phase, consisting of neurological symptoms (for example, visual disturbances, numbness or tingling) that persist up to one hour.

■ **Migraine headache:** Within an hour of resolution of the aura symptoms, the typical migraine headache usually appears. The migraine headache may persist for around four-72 hours, and may be accompanied by various other symptoms (such as digestive upsets, and sensitivity to noise, light and smell), before ending in a resolution phase, often characterised by deep sleep.

■ **Postdrome:** For up to 24 hours after the headache has resolved, many patients may experience tiredness and fatigue, and a transient return of the head pain in a similar location for a few seconds or minutes."

So, who is susceptible and can risk be reduced?

"There is evidence of a genetic predisposition to migraines but other factors, such as environmental influences, also play an important role.[3] Stress,[4] hidden food allergies/intolerances,[5] inflammation,[6-7] obesity,[8] hormone imbalances,[9] blood sugar dysregulation,[10] certain medications[11], poor sleep,[12] elevated homocysteine levels,[13] alcohol,[14] caffeine[15] and nutrient deficiencies,[16] may all contribute to attacks," Braye advised. "It has been observed that varying levels of ovarian hormones, especially oestrogen, may be a factor, making women more predisposed to migraines.[17] Interestingly, research also shows a clear association between migraines and numerous GI disorders,[18],[19],[20],[21], indicating that the health of the gut, and in particular, the gut microbiota, may play an important role in migraine pathogenesis."

In terms of the dietary approach, what should be recommended?

Braye advised: "Evidence suggests magnesium deficiency may contribute to attacks, so clients should be encouraged to increase magnesium intake from leafy green vegetables, avocados, nuts, seeds and legumes. Elevated pro-inflammatory cytokines are often observed in migraine patients during attacks,[22] so following an anti-inflammatory diet, high in omega 3 fatty acids from oily fish, antioxidants from colourful fruit and vegetables and spices, such as turmeric and ginger, whilst cutting out more pro-inflammatory foods, such as processed and high sugar foods, vegetable and sunflower oils and excessive amounts of cereal based grains is also recommended."

Supplements are worthwhile, with Braye adding: "Magnesium is a cofactor in more than 300 enzyme systems that regulate diverse biochemical reactions in the body.[25] There is a strong body of evidence demonstrating a relationship between magnesium status and migraine.[26] Serum magnesium levels have

been found to be reduced in migraine sufferers compared to non-sufferers,[27] and research suggests magnesium deficiency may contribute to migraine development at a biochemical level via a variety of mechanisms.[26]

"Magnesium also contributes towards the reduction of tiredness and fatigue,[29] which often accompany central nervous system (CNS) disturbances. Magnesium citrate has shown most promise in studies for migraine prevention, and appears to be better tolerated than many other commonly used forms.[31]"

And don't forget B vitamins, with Braye continuing: "MTHFR point mutations, especially the C677T variant, have been associated with elevated plasma levels of homocysteine and migraine.[32] It has been shown that reducing levels of homocysteine can diminish headache severity, attack frequency and migraine disability.[33] Homocysteine catalysation requires the presence of vitamins B6, B12, and folate, making these vitamins potentially useful prophylactic agents for preventing migraine."

And then there are probiotics.

"There is a clear association between migraines and numerous GI disorders[18],[19],[20],[21] and prolonged sensitisation of neurons in the trigeminal nerve (a major pain pathway in the brain involved in migraine development) has itself been shown to promote the development of dysbiosis[38], Braye explained.

"A potential solution to rebalance the gut microflora is to supplement with live bacteria. Probiotics have been shown to exert beneficial effects via a number of mechanisms, including modification of the gut microbiota, competitive adherence to the gut lining, assisting absorption of nutrients, strengthening the gut epithelial barrier and modulation of the immune system (including the inflammatory response).[41]"

BRAIN-SUPPORTING NUTRIENTS

The nutrition world offers us much in the way of support for the brain.

Rachel Bartholemew BA (Hons), Dip ION, Nutritionist and Health Writer at Nutri Advanced, commented: "A nutrient-packed diet can nourish and protect this complex organ. Sadly, a typical Western diet leaves the brain starved of essential nutrients and running on empty, and it's not long before the signs of a starving brain start to emerge. Mental fog, low mood, poor memory, tense, agitated, irritable, no motivation, lack of concentration, poor sleep and cognitive decline can all stem from a malnourished brain."

Daley added: "A low glycaemic load diet in order to prevent the development of hypoglycaemia and/or insulin resistance (and conversely to increase insulin sensitivity) is key, therefore, an anti-inflammatory Mediterranean or Paleo diet, with seven to 10 portions of vegetables and fruit per day (the emphasis being on vegetables). Keeping starchy carbohydrate content low is suggested – choosing carbohydrates from vegetables and low sugar fruits (and avoiding or minimising grains). The brain is 60 per cent fat so including healthy monounsaturated fats and essential fatty acids DHA and EPA is important. Some examples of superfoods for brain health are blueberries, beetroot, dark green leafy vegetables, walnuts, small oily fish and spices (including turmeric).

"Intermittent fasting is also suggested – so as a minimum avoiding food three hours before bedtime and for 12 hours overnight; this fast can be extended to 16 hours by skipping breakfast (thus eating in an eight hour window). Ketogenic (i.e. high fat) diets are being used therapeutically in some people with a diagnosis of Alzheimer's."

Looking at key nutrients, Bartholemew started by highlighting essential fats.

"Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are omega 3 fatty acids known to be essential for a healthy brain. The brain is a fat-rich organ and omega 3s make up a significant portion of this. They provide neuroprotection due to their anti-inflammatory properties and play important roles in many neurological functions.

"A number of double-blind, randomised, controlled trials have suggested that omega 3 EPA and DHA may benefit attention deficit hyperactivity disorder (ADHD), anxiety, autism, childhood depression, dyspraxia, dyslexia, aggression, bipolar disorder, schizophrenia, borderline personality disorder, mild cognitive impairment and dementia. Studies in patients with traumatic brain injury have shown that omega 3 fatty acids may help to reduce oxidative stress in the brain following brain injury and could be considered a therapeutic option to reduce neuronal damage."

Logan highlighted certain key vitamins, commenting: "B vitamins, in particular B6, B12 and folic acid, because of their proven benefits on the proper regulation of homocysteine metabolism, which in turn has been shown to reduce 'brain shrinkage with age.' (6) Vitamin D has been shown to be low in at least half the UK adult white population and up to 90 per cent of the multi ethnic population. Vitamin D isn't just important for maintaining bone health as we age, it has also been associated with preserving cognition in the elderly." [7]

Bean added: "Magnesium and zinc deficiency are often common in cognitive issues. Phospholipids protect the brain and its hardwiring. It is crucial to maintain proper levels of lipids in the correct ratio, factoring in multiple factors in making recommendations for the proper omega 3s and 6s. This is not being done in the majority of clients. Cholesterol

is also important for proper cell membrane stability and hormone production."

Also keep in mind magnesium, with Bartholemew commenting: "This essential mineral is often lacking in a typical Western diet, yet is crucial for arterial blood flow through the brain and serotonin production, an important neurotransmitter involved in mood, appetite, sleep and relaxation. A recent 2017 study found that depression and anxiety scores improved in patients taking magnesium supplements for just six weeks. Effects were observed in just two weeks and the authors concluded that magnesium is a safe, effective and well-tolerated treatment for mild to moderate depression."

Holmes pinpointed the need for greater antioxidants to keep the brain healthy.

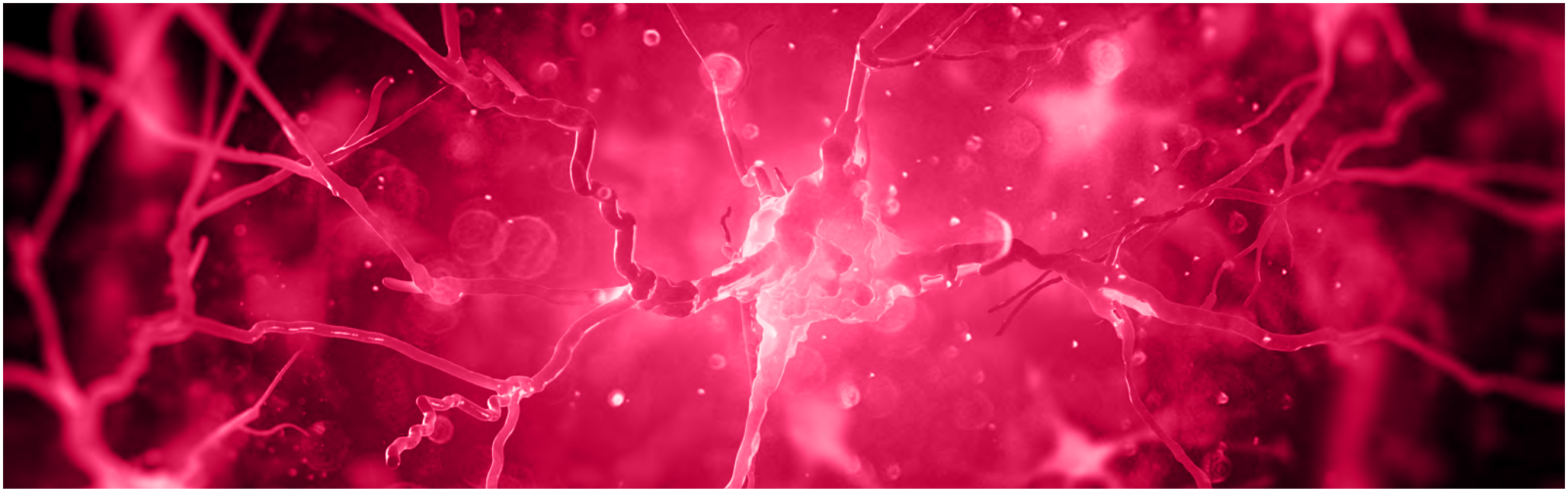
"Particularly recommended supplements include the anti-inflammatory antioxidant curcumin, and other antioxidants, including rosemary, gotu kola, brahmi, ashwagandha and EGCG (epigallocatechin-3-gallate) in green tea. Rosemary (*Rosmarinus officinalis*) is a powerful antioxidant that helps to protect brain cells; carnosic acid (a constituent of rosemary) may be useful in protecting against beta amyloid-induced neurodegeneration in the hippocampus[iii] (the area of the brain responsible for memory and learning)," she advised.

"Brahmi (*Bacopa monnieri*) is a plant commonly used in Ayurvedic medicine, which has a reputation for being a powerful herb to reduce stress and improve memory. *Bacopa monnieri* has been shown antioxidant effect in the hippocampus[iv] and findings further suggest Bacopa is a potential cognitive enhancer and neuroprotectant against Alzheimer's disease[v].

"Gotu kola (*Centella asiatica*), also known as Indian pennywort, has also been used in Ayurvedic medicine for thousands of years to help relieve stress and enhance cognitive function. Gotu kola has been reported to have a comprehensive neuroprotection via different models of action including enzyme inhibition, prevention of amyloid plaque formation in Alzheimer's disease and decreasing oxidative stress[iv]. Ashwagandha (*Withania somnifera*) is a well-known adaptogen shown to protect the brain from degeneration. Research indicates it can reverse plaque pathology via peripheral clearance of beta-amyloid[vii,viii]."

Also on Bartholemew's list of essential nutrients is alpha lipoic acid.

"Advanced glycation end products (AGEs) are produced as a natural by-product of metabolism, however, if levels become too high, this can be



incredibly damaging to the brain. Alpha lipoic acid is both a powerful antioxidant nutrient and protects the brain against the harmful effects of AGEs," she explained.

"Pyridoxal-5-phosphate (vitamin B6) – studies have shown that pyridoxal-5-phosphate (P5P) helps to protect the brain by preventing the formation of AGEs. P5P is considered a promising treatment of AGE-linked disorders, such as neurodegenerative diseases. Folate is a water-soluble B vitamin, essential for the production of neurotransmitters serotonin, adrenaline and dopamine. Folate and vitamin B12 are also crucial for a process called methylation, which helps to protect the brain against homocysteine – a neurotoxic substance that may be linked to depression and dementia. Both folate and vitamin B12 deficiency may cause similar neurological disturbances, including depression and dementia."

She continued: "Citicoline is a brain chemical that occurs naturally in the body, citicoline is considered to be highly neuroprotective and has been shown to improve learning and memory performances in animal models of brain ageing.

"The brain is an energy hungry organ and relies heavily on cellular energy production. Acetyl-l-carnitine is neuroprotective, improves neurological function, supports brain energy metabolism and also supports the production of a neurotransmitter called acetylcholine, which is crucial for memory and mood. Patients with Alzheimer's disease often have low levels of acetylcholine."

LIFESTYLE CONSIDERATIONS

Among the other modifiable factors, aside from nutrition, a sedentary lifestyle is another consideration.

Logan explained: "Although genetic factors do play a role, it is believed that there are steps which we can take to try and maintain healthy cognitive function, these include:

- **Ensuring effective social interaction and activity:** There has been research carried out highlighting the positive correlation between interacting socially, engaging with community social activity and the prevention of cognitive disorders, such as dementia and Alzheimer's. [1] We also know that positive social interaction, as difficult as this can be for some, is beneficial to those suffering from anxiety and depression as well. [2]
- **Engage with regular physical activity:** Studies have shown a positive correlation between moderate to high levels of physical activity and a reduced risk of developing cognitive issues in later life." [4]

Bean continued: "First, identify and reduce mental and emotional, environmental, and biological stressors. We need to be able to absorb assimilate and eliminate the food we eat, otherwise it can cause oxidative stress that has been related with brain fog. Having proper bowel moments is crucial. When a person is full of stool, they cannot think clearly. Exercise, removing negativity from one's life, working on a eating approach focusing moderation and not going to extreme one way or another i.e. finding a balance."

Learning how to cope with stress is also crucial.

"Persistently high levels of the stress hormone, cortisol, can cause death of brain cells.[14] Stress also affects brain function through a number of other mechanisms, including blood sugar regulation, gut health, sleep disruption, hormone balance (for example, thyroid and sex hormones, which are important for cognitive function) and demand for micronutrients," Daley explained.

"Sleep is when cell maintenance and repair occurs. Good quality sleep supports the production of the peptide brain derived neurotrophic factor (BDNF), which promotes growth and regeneration of new nerve cells.[15] Exercise increases blood flow to the brain and thus the delivery of oxygen and nutrients. Moderate exercise upregulates anti-inflammatory pathways and increases BDNF.[16] Challenging and stretching the brain allows new connections to be created and maintained.[17]"

Nutrition I-Mag

Product Showcases

epigenar® Supporting Wellbeing

epigenar® Quercetin 400 - water-soluble bioflavonoid and powerful antioxidant
epigenar® Vitamin A & E Drops - for immune system support, eye health and healthy skin
epigenar® Vitamin D3 & K2 Drops - bioavailable vitamin D3 with vitamin K2 (MK7) in easy to use drops. One drop contains 1000iu Vitamin D3 and 12mcg Vitamin D2
epigenar® ALZ - tincture containing Rosemary (*Rosmarinus officinalis*), Brahmi (*Bacopa monnieri*), Ashwagandha (*Withania somnifera*) and Gotu Kola (*Centella asiatica*)
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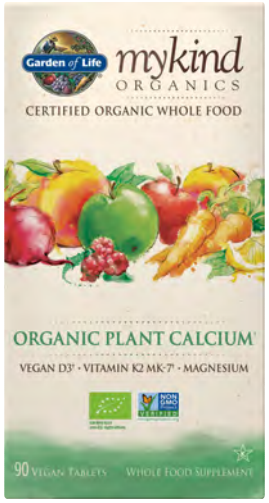

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EXPERT ADVICE

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

CLICK HERE FOR REFERENCES

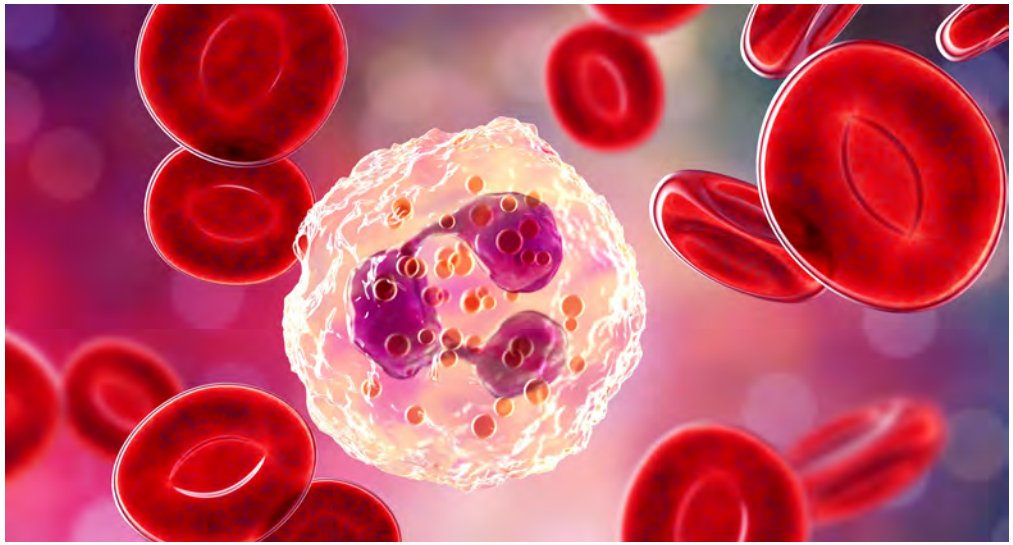
Q What is the impact in the long-term of prolonged inflammation and what is the appropriate protocol in clinic when advising clients in this area?

NICOLA MOORE ADVISED: This is a huge question to answer, given that all chronic health conditions, obesity and mental health conditions have now been acknowledged to have inflammatory drivers. Therefore, a state of chronic, underlying inflammation could lead to the plethora of illnesses that we are burdened with as a society.

Clients with inflammatory illness may well be on medication, so before recommended specific supplements, for example, it would be very important to check for any known interactions.

An anti-inflammatory diet is essentially one that encourages the management of balanced immune function, and the foods you eat and some supplements, herbs and spices can act with an anti-inflammatory action within the cells. An approach that incorporates a wide range of different coloured vegetables and fruits would be helpful, as would foods that contain omega 3 fatty acids. Green vegetables contain some omega 3, but so do some nuts, and a good source is oily fish. Using spices such as turmeric and ginger can be very helpful.

It would be wise to reduce foods with lots of added sugar, because excessive sugar can drive inflammatory processes. I would say to avoid sugars found in sweets, chocolate, cake, biscuits, and to start looking at food labels to see if much added sugar is in the ingredients list of the foods you are buying.



THE EXPERT

Nicola Moore DipION, mBANT, CNHC, Registered NT, is Head of Clinics at ION. Nicola graduated from the Institute of Optimum Nutrition in 2005 and has been part of the academic team since 2007. Nicola has worked as the Institute's principle Nutritional Therapist in clinic since 2010. As Head of Clinics, Nicola is responsible for the overall running of the clinic, including the training clinic. She is an experienced lecturer and public speaker and her lecture subjects include adrenal and thyroid dysfunction and female health. She has a special interest in the immune system and its links with hormone function and gut health. Nicola is also interested in the role emotions play in food choices and has completed additional development work in the area of emotional and binge eating. She has a thriving private practice and runs online food-based nutrition programmes.

Q I have seen a rise in the popularity of people having vitamin B12 injections – what is the best advice I should offer my clients over whether they should take a supplement or an injection?

RACHEL BARTHOLEMEW EXPLAINED: Since vitamin B12 requires both stomach acid and intrinsic factor to be absorbed, there is a common misconception that intramuscular injections, which bypass the need for both of these, are the only way to treat deficiency, especially for people with autoimmune pernicious anaemia who don't produce intrinsic factor.

There are, however, several problems with intramuscular injections:

- **Pain** – intramuscular injections can cause significant pain (especially in people who are very slim) and oral supplements are pain free.
- **Adverse reactions** – whilst serious adverse reactions are rare, injections can be dangerous in those taking blood thinners (anti-coagulants). No adverse reactions of oral B12 supplementation have been reported.
- **Cost** – intramuscular injections are a considerable source of work for healthcare professionals, mainly GPs and community nurses. There is little difference in the cost of oral versus intramuscular therapy when the medication alone is considered. However, intramuscular administration often involves a special trip to a health facility or a home visit by a health professional to administer the injection. Oral treatment could, therefore, save considerable health service resources.
- **Compliance** – for most people, oral supplementation is an easier and more attractive prospect than regular intramuscular injections and this may increase compliance.

Research now shows that high doses of oral vitamin B12 (for example,e 1000mcg daily) can be just as effective at treating deficiency, even in the absence of intrinsic factor, and may be a suitable alternative to intramuscular injections for many people.

So, what's the evidence?

A *Cochrane Review* published in 2005 and updated in 2018, comparing oral with intramuscular vitamin B12, suggested that high doses of oral vitamin B12 may be as effective as intramuscular administration in obtaining short-term haematological and neurological responses in vitamin B12-deficient people.[2,3]

Several case control and case series studies have suggested that oral vitamin B12 has equal efficacy and safety as intramuscular vitamin B12.[4-7]

Kuzminski et al. demonstrated that 2mg of orally administered cyanocobalamin daily was as effective as 1mg administered intramuscularly on a monthly basis and suggested it to possibly be superior.[8]

Two additional systematic reviews have found oral (1,000-2000mcg) vitamin B12 to have similar effectiveness to intramuscular injections for treatment of vitamin B12 deficiency.[9,10] A UK study investigated the effectiveness, safety and acceptability of oral vitamin B12 as a replacement therapy in patients with vitamin B12 deficiency in a city general practice population.[11] Patients previously maintained on vitamin B12 injections were given 1000mcg of oral cobalamin daily for up to 12 months. All patients maintained satisfactory serum B12 levels and showed normal haematology and neurology. Compliance and acceptability was reported to be excellent.

A Canadian qualitative and quantitative assessment of patient perspectives of oral vitamin B12 therapy in primary care concluded switching patients from injection to be both feasible and acceptable to patients.[12] As a result of increased convenience, the authors recommended clinicians should offer oral B12 therapy to patients who are currently receiving injections, as well as newly diagnosed vitamin B12 deficient patients who can tolerate and are compliant with oral medications. Other authors similarly conclude supplementation is a route that best meets patients' lifestyles, which tends to make them more compliant.[13]

These observations have resulted in a review of preventative strategies and key recommendations relating to vitamin B12 deficiency in patients undergoing bariatric surgery, which recommended that high dose oral cyanocobalamin should be given consideration, especially where there are compliance concerns relating to intramuscular therapy or where compliance becomes a problem in asymptomatic patients with vitamin B12 deficiency.[14]

THE EXPERT

Rachel Bartholomew BA(Hons) Dip ION MBANT NTCC CNHC has practiced as a Nutritional Therapist since completing her study with the Institute of Optimum Nutrition in 2004. With a busy clinical practice in Lancashire, Rachel has a particular interest in children's health and nutrition, with a keen focus on improving nutrition education at an early age. Rachel combines her clinical work with a freelance consultant role for Nutri Advanced, where she regularly produces a wide range of technical articles and newsletter items.

Q What signs are there that a client may be lacking in vitamin B6 and what long-term consequences can this cause?

NATALIE LAMB ADVISED: Vitamin B6 (pyridoxine) is a water-soluble B vitamin. Severe deficiency of vitamin B6 is uncommon. Alcoholics are thought to be most at risk of vitamin B6 deficiency due to low dietary intakes and impaired metabolism of the vitamin. Several medications, including anti-tuberculosis drugs, anti-parkinsonians, non-steroidal anti-inflammatory drugs and oral contraceptives[1] have been associated with low levels of vitamin B6.

Vitamin B6 is an important co-factor in hundreds of enzyme processes in the body[2], such as synthesis of two major neurotransmitters, serotonin and dopamine,[2] amino acid metabolism,[3] production of haemoglobin and has been shown to modulate the activities of steroid hormone receptors[3]. It is, therefore, not surprising that low levels of B6 has been associated with inadequacy of immune activation,[4] inflammation[5] and high levels of circulating homocysteine[6] and has been associated with later development of conditions such as anaemia,[7] neurological dysfunction, particularly epilepsy,[2] migraines,[8] low mood or depression,[9,10] morning sickness,[11] and premenstrual syndrome[12].

It is commonly reported that vitamin B6 must be obtained from the diet because humans cannot synthesise it. Vitamin B6 is found in a variety of foods, including fish, poultry, nuts, legumes, potatoes, avocado, spinach and bananas, all readily available foods in the UK. Many of the plant sources contain a unique form of vitamin B6 called pyridoxine glucoside reported to be only half as bioavailable, which can lead to deficiencies in those on a very restricted vegetarian diet. However, as the B vitamins are water soluble, food sources do not remain in the body for long. Although the body cannot synthesise these vitamins itself,[13] nature has provided an effective way to keep levels topped up by the continuous production of B vitamins by certain beneficial microbes resident in the gut.[14]

A 2015 study showed B6 supplementation to significantly decrease migraine headache severity and attack duration.[8] A live bacteria supplement was shown in a recent study to reduce migraine frequency and intensity[15] leading to the formulation of Bio-Migréa containing 14 strains of live bacteria, vitamin B6 and magnesium, which both contribute to the normal functioning of the nervous system.

THE EXPERT

Natalie Lamb Dip NT mBANT is a qualified Nutritional Therapist, who studied a three-year diploma in Nutritional Therapy at the College of Naturopathic Medicine (CNM) and is a member of The British Association of Nutritional Therapists (BANT). Natalie saw clients in a private clinic in London for two years before joining ADM Protexin, manufacturers of Bio-Kult and Lepicol ranges.

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THE VITAL VITAMIN

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Nutritional Therapist, **Helen Ford**, offers a practitioner guide to advising clients on the use of vitamin C and magnesium ascorbate.

Magnesium ascorbate is a non-acidic buffered form of vitamin C and a source of the essential mineral, magnesium. It is a natural neutral salt, has significantly higher gastrointestinal tolerance, as it is less irritating, and provides for better absorption of both vitamin C and magnesium. Most supplements contain the ascorbic acid of vitamin C, which is a known gut irritant and poorly absorbed.

Deficiency can contribute to everything from depression, hormone imbalance, osteoporosis, loss of appetite and headaches to abnormal heart rhythms, fibromyalgia and iron deficiency anaemia as it's vital for absorption. It also plays a vital role in collagen formation, amino acid metabolism, hormone synthesis and the body's immune system.

We cannot make magnesium ascorbate in our bodies, so we need to get it from our food and supplements.

ASCORBIC ACID VS MAGNESIUM ASCORBATE

Ascorbic acid is the proper name for vitamin C. This is vitamin C in its simplest form, but some people find that it upsets their stomach.

Magnesium ascorbate is 'buffered' vitamin C, with magnesium 'mineral salt', which is gentler on the digestive system.

BONE HEALTH

Magnesium ascorbate helps with the manufacture of collagen, which is a sort of 'cement' that holds the bone matrix (the architecture of the bone) together, so it is as important as the minerals for prevention of osteoporosis.

Magnesium is stored primarily in the bones, and plays a role in bone formation, alongside the more commonly talked about calcium.

MUSCULOSKELETAL SYSTEM

Few people get enough magnesium in their diet these days. Meanwhile, calcium tends to be over utilised and taken in high quantities. This can cause more harm than good, as it's very important to have a proper balance between these two minerals.

If you have too much calcium and not enough magnesium, your muscles will tend to go into spasm. The muscle and nerve function that magnesium is responsible for is diminished. If you don't have enough magnesium, your muscles go into spasm. Calcium causes muscles to contract. If you had a balance, the muscles would do their thing. Symptoms of muscle spasm include restless legs and irregular heartbeat.

STRESS

Magnesium ascorbate is crucial for your adrenal gland function. The more cortisol you make, the more vitamin C you use. Under stress, you'll excrete more vitamin C through urine and even a small deficiency in vitamin C can trigger higher levels of cortisol.

A number of studies have shown that giving magnesium ascorbate to people undergoing stress (such as surgery or a sporting event) can bring cortisol levels back to normal fairly quickly.

EXERCISE

Vitamin C could have a beneficial effect on your heart, similar to the effects of regular exercise. A recent study presented at the International Conference on Endothelin: Physiology, Pathophysiology and Therapeutics looked at the effects of vitamin C on cardiovascular health.

Overweight and obese adults have a high level of a protein that can constrict blood vessels (endothelin (ET)-1). The vessels constricting can reduce blood flow and increase the risk of vascular disease. Exercise can reduce ET-1 but this study, carried out by the University of Colorado, Boulder, showed that taking vitamin C daily reduced ET-1 as much as exercise did. The scientists used 500mg of vitamin C and concluded that it could help overweight or obese adults lower their risk of heart disease.

SKIN

Skin health comes from the inside out and is especially important during the winter when your skin has to combat both cold and windy weather and central heating.

Free radicals are part and parcel of being alive and there's nothing we can do to stop them. They are, in a nutshell, the by-product of our body's cells breathing. However, we don't want them to linger because they can bounce around, causing damage to neighbouring cells.

Certain nutrients, antioxidants, can neutralise free radicals, and one of the best is vitamin C. Make sure that the diet is packed with vitamin C-rich, lightly steamed vegetables that retain their nutrients. Because vitamin C is vital to the creation of collagen – the main protein in our skin and other connective tissue – it can help us to stay younger looking too.

IMMUNE BOOSTING

When an infection strikes, take vitamin C as it could shorten the length of your cold. A study published in the journal, *Nutrients*, described the findings of two randomised trials that looked at the relationship between vitamin C and the common cold. The first study gave participants either 3g or 6g of vitamin C daily or a placebo. Those who were given 6g/ day shortened their colds by 17 per cent, twice as much as the 3g/day groups. The second study gave 4g/8g or placebo but this time on the first day of a cold and again, the higher amount was found to be more effective at reducing the length of the cold.

SUPPLEMENT

Although you can get the magnesium and vitamin C you need by eating a diet rich in whole grains, nuts, fish, beans and dark green vegetables, many people don't get enough of the mineral and suffer from low levels of these nutrients. This is due to lifestyle, increased stress and the fact these nutrients are water soluble.

That's why supplements are essential. A good daily amount of magnesium ascorbate is 1000mg, providing 800mg vitamin C and 60mg elemental magnesium. This can be doubled when the body has extra demands.

Helen Ford BA(Hons) DipION MBANT CNHC, is Head of In-house Nutrition at Natural Health Practice.

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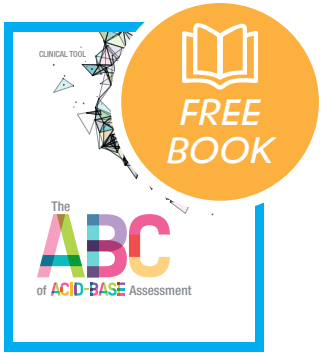

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Bio-Practica in practice

As a leading educator and formulator of nutritional supplements in its native Australia, **Bio-Practica** is bringing its mission to the UK market. Rachel Symonds reports.

Founded by leading nutritional experts in the field of integrative and complementary therapies, Bio-Practica has established itself as a leading light in nutritional supplements in its native Australia. And now the business is launching to the UK, backed with a range of high quality products, not to mention expert educators.

Vanessa Hitch, Naturopath, Clinical Nutrition, Herbal medicine (Australia), has over two decades of experience as a highly regarded clinician, speaker and educator. She explained: "Bio-Practica specialises in providing healthcare practitioners with evidence-based nutraceuticals and education of the highest quality. We are dedicated to empowering and supporting healthcare professionals in their clinical setting with innovative integrative and complementary therapeutic solutions.

"Bio-Practica saw a need to support the health practitioner industry and clinics who are at the forefront of helping the health and wellness of the wider population. In addition, Bio-Practica believes in drawing upon all levels of available evidence – traditional use, clinical experience, robust scientific research – thereby developing a comprehensive, holistic approach to natural medicine, remaining at the forefront of healthcare solutions."

THE PHILOSOPHY

Bio-Practica was founded in Australia by natural healthcare professional in various modalities, including nutrition, naturopathy, herbal medicine and homeopathy.

"Bio-Practica is one of Australia's leading educators and suppliers of quality chain verified natural medicines, which was founded by expert health practitioners dedicated to empowering and supporting healthcare professionals in their clinical setting with innovative integrative and complementary therapeutic solutions," Vanessa explained.

"Bio-Practica's formulas are developed by world-leading experts and clinicians in practice, ensuring innovatively designed products. Many of the formulas are clinically trialled, offering proven efficacy, which practitioners can trust.

Vanessa Hitch, Naturopath, Clinical Nutrition, Herbal medicine (Australia)

"Bio-Practica formulations use the highest quality and most biologically active raw materials, which comply to the highest quality controlled Good Manufacturing Practice standards in the world, which includes in-depth testing, microbial analysis, validation and verification."

Bio-Practica brings with it a strong ethos, which places the focus on systems, rather than symptoms.

Vanessa explained: "Multisystem medicine is about the optimal health of multiple body systems, looking at underlying causes of dysfunction and enhancing the health of the whole body, not just focusing on eradicating symptoms or approaching health from a single organ treatment model."

She continued: "Our aim is to support and empower practitioners with integrative and complementary therapeutic solutions that focuses on a multi system approach – using 'positive biology' and treating 'systems' rather than just 'symptoms'.

"A lot of medical research is conducted from the framework that presumes that the most important question to answer is, what causes pathology? Disease being its central focus. While this endeavour is valid, positive biology, on the other hand, focuses on a different set of questions and priorities. Positive biology seeks to understand what constitutes optimal health; why do some individuals live longer and without suffering from chronic disease? Why are some individuals more happy, talented, or have a better cognitive function? How can we move closer to a better life?"

PRODUCT FOCUS

In terms of formulation of products, Bio-Practica relies on the expertise of a dynamic team comprised of practitioners, wellness professionals and team members dedicated to making a difference in the wellness field.

"In addition, with the support and collaboration of world-leading experts, we are proud to provide our clients with cutting-edge and foundational products that revolutionise clinical practice," Vanessa added.

Looking in greater detail at the product range, there are some set facets to the portfolio.

"The key products in the Bio-Practica range are targeted towards providing comprehensive 'multi-system medicine'," Vanessa explained.

But what does this mean in practice? Vanessa explained that there are three core elements needed to be taken into account when practicing multisystem medicine.

■ **"Correct pH and nutrition:** Correct pH and nutrition are the foundation of treatment. All body systems and biological processes in the human body require the appropriate acid-base balance and adequate nutrition to function and maintain health. Every enzyme in the body requires the correct pH, and without this many biological pathways are reduced or shut down. Also, a balanced pH means increased effectiveness of other nutritional and herbal therapies.

■ **Adaptive resilience:** We are living in a stressful modern world, where we are all challenged on a daily basis. Being in flight or fight mode is now a normal part of most people's day. To maintain health within this climate, we need to improve the resilience capacity of ourselves and our patients. Only then can the body systems adapt and deal adequately with an ever-growing allostatic load in a healthy and productive way. With increased adaptive resilience comes better ageing and less risk of chronic disease.

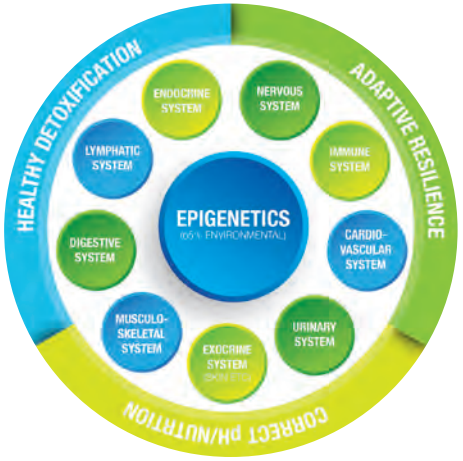
■ **Healthy detoxification:** Our worlds are not only stressful, they are equally toxic. With more food processing, chemical interventions and environmental pollutants, there has never before been a greater need for improved and healthy body detoxification. And by improving the detoxification ability of the body, every organ, tissue and cell has a greater chance of survival, with increased functionality and overall health."

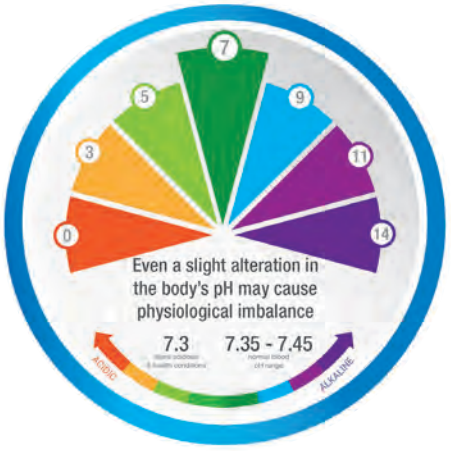
The Bio-Practica range is ever-growing, with existing and new products being introduced regularly into the UK practitioner-only market. And with the new products comes a company that offers plenty of support for practitioners recommending the products.

"Bio-Practica offers a range of innovative support, such as seminars, webinars, workshops, written information and clinical tools that incorporate our philosophy of Tradition + Evidence, highlighting new clinical assessment techniques and novel insights into addressing health issues commonly seen in clinical practice," Vanessa advised.

And 2019 is shaping up to be a hugely busy and exciting one for the brand in the UK, with practitioner support and education being a key focus.

Vanessa continued: "We have exciting new educational events and product releases planned for 2019 and beyond. These include educational and natural medicine solutions for stress, pH imbalance, for healthy detoxification, to support the microbiome and gastrointestinal tract and formulas to provide nutritional balance and optimal health."





NENAH SYLVER PhD

Saturday 25th May 2019, 10.00 a.m.to 5.00 p.m.

ONLY EUROPEAN SEMINAR

"Rife Therapy, Natural Approaches to Illness and Beyond"

Venue: 65 Queen's Gate, South Kensington, London SW7 5JS

Recognised as one of the world's foremost authorities on Rife treatment and electromedicine generally, Nenah Sylver has worked and lectured for decades in the fields of alternative therapies and natural medicine. The Rife Handbook, written by Dr Sylver, is recognized worldwide today as the 'bible' of Rife Technology. But her work and approach to conditions encompasses much more…including naturopathy, herbalism, vitamin therapy, detoxification and nutrition. In this one day presentation Nenah will share her insights and approaches to many different ailments, including Lyme, cancer, infectious diseases and degenerative conditions.

Tickets £150. Early bird discount £135.
Discounts are also available for groups and couples.

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- Unique opportunity to upgrade to Registered Naturopath (ND) with the GNC

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NATUROPATHIC NUTRITION ASSOCIATION

CPD DIRECTORY

If you want to top up your CPD points, take inspiration from these forthcoming events.

BANT Professional Supervision – Birmingham
February 28 – Birmingham

CPD hours: BANT two hours
Speakers: Felicia Jones
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Felicia_Jones

BANT Professional Supervision – Milton Keynes
March 7 – Milton Keynes

CPD hours: BANT two hours
Speakers: Felicia Jones
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Felicia_Jones

BANT Professional Supervision – Lewes
March 13 – Lewes

CPD hours: BANT two hours
Speakers: Carmel Buckley
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Carmel_Buckley

BANT Professional Supervision – Biolab London Group A
March 1 – London

CPD hours: BANT two hours
Speakers: Lisa Patient
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Lisa_Patient

BANT Professional Supervision – Biolab London Group D
March 11 – London

CPD hours: BANT two hours
Speakers: Lisa Patient
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Lisa_Patient

BANT Professional Supervision – Biolab London Group B
March 15 – London

CPD hours: BANT two hours
Speakers: Lisa Patient
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Lisa_Patient

BANT Professional Supervision – Tunbridge Wells
March 6 – Tunbridge Wells

CPD hours: BANT two hours
Speakers: Carmel Buckley
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Carmel_Buckley

BANT Professional Supervision – Biolab London Group C
March 12 – London

CPD hours: BANT two hours
Speakers: Lisa Patient
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Lisa_Patient

BANT Professional Supervision – Bucks
March 15 – Chesham

CPD hours: BANT two hours
Speakers: Tracey Harper
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Tracey_Harper

BANT Professional Supervision – London Evening Group

March 18 – London

CPD hours: BANT two hours
Speakers: Kate Delmar-Morgan
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Kate_Delmar-Morgan

BANT Professional Supervision – Online Group (AM and PM)

March 20 – online

CPD hours: BANT two hours
Speakers: Beatrice Cutler
Cost: £30

BANT AGM

March 23 – London

CPD hours: BANT two hours
Speakers: BANT
Website: www.eventbrite.co.uk/e/bant-agm-conference-2019-tickets-52221182964

Kindergarten to Healthy Adulthood – Nutrition And Lifestyle Medicine Across Lifespan BANT AGM/Conference/ Workshop

March 23 – London

CPD hours: BANT three hours
Speakers: Dr Deanna Minich and Dr Kate Lawrence
Cost: £50 plus booking fee (BANT Members); £70 plus booking fee (Non-BANT Members). Lunch is included
Website: www.eventbrite.co.uk/e/bant-agm-conference-2019-tickets-52221182964

FORTHCOMING WEBINARS

Target Publishing, which publishes *Nutrition I-Mag*, hosts a series of free webinars for practitioners.

Register at www.ihcanconferences.co.uk/webinar

Botanical Support for Lyme Disease and Co-Infections: Natural Therapies

Rio Health
Tuesday, March 5, 6.30pm-7.30pm
Presented by Rose Holmes

Lyme disease is a multi-microbial inflammatory infection with systemic multi-symptom and often chronic effect. Caused by *Borrelia* bacteria predominantly transmitted by ticks and other biting insects, this chronic illness can have a debilitating effect. Because it mimics other chronic illnesses, Lyme disease often is misdiagnosed by the medical profession, whose tests often yield false negatives. The co-infections complicate the disease and make its control challenging.

In this webinar, we will look at:

- Lyme disease as an emerging disease.
- Lyme disease as mimic and imitator.
- The stealth mode of Lyme.
- The stages of Lyme disease.
- Neuroborreliosis.
- Biofilm.
- Dental and ocular associations.
- Addressing Lyme with antimicrobials.
- Dealing with co-infections and biofilm.
- Detox and die-off.
- Why immune support is so important.
- Nutrition for Lyme disease.
- Association with kryptopyrolluria.
- Some of the main strategies – diet, lifestyle and botanicals – which may help in cases of Lyme disease.

Anxiety and depression through the eyes of a functional medicine practitioner

Nutri Advanced
Tuesday, April 2, 6.30pm-7.30pm
Presented by Jo Gamble BA (HONS) DIP CNM cFMP ABAAHP fellow ICT

With anxiety and depression being a common theme amongst clients accessing functional medicine practitioners, we need to be equipped with scientific knowledge and clinical expertise to take our clients on a journey to ascertain functional imbalances driving symptoms and to give them therapeutic interventions based around dietary modification, lifestyle recommendations and supplements.
Jo will be reviewing some functional testing and sharing her first-hand clinical expertise, where she has drawn on her skills of her functional medicine, behavioural strategies, and empowerment to make a difference. Jo will support you to feel confident to also utilise skills to work with your clients in this field.

In this webinar, we will look at:

- A systems-based approach to anxiety and depression, connecting the dots.
- Functional testing, what, when and why.
- Supplementing with and without the use of pharmaceutical medication.

HEARTY, HEALTHY AND VEGAN

Pack your food with goodness with the help of these health-fuelled vegan dishes by Jessica Prescott.

Health bomb – carrot and apple

Mushroom and jackfruit party pies

Crumbed chickpea burgers

Health bomb – carrot and apple

(Makes 12 small or six large)

A staple of my childhood, muffins have been my friends for as long as I can remember. The recipe was developed with little ones in mind. It follows the same easy method that my mum taught me when I was a kid, and they are easy to transport, making them perfect for lakeside picnics and afternoon playdates alike.

INGREDIENTS:

Wet ingredients:

- **250ml (8½ fl oz/1 cup) soy milk (or any other plant-based milk, except rice milk)**
- **1tsp apple cider vinegar**
- **1tsp pure vanilla extract**
- **3tbsp melted coconut oil or olive oil**
- **1 ripe and spotty banana, mashed until smooth**
- **150g (5oz/1 cup) grated (shredded) apple**
- **135g (4oz/1 cup) grated (shredded) carrot**
- **1tbsp maple or date syrup (optional)**

Dry ingredients:

- **185g (6½ oz/1½ cup) spelt flour**
- **50g (1¾ oz/½ cup) almond flour**
- **¾ tsp bicarbonate of soda (baking soda)**
- **¾ tsp baking powder**
- **1tsp ground cinnamon pinch of salt**

Chunky ingredients:

- **70g (2½ oz/½ cup) raisins**

Topping:

- **3tbsp oats**

METHOD:

1 Preheat the oven to 180°C (350°F/Gas 4).
2 Either grease a muffin tin (pan) or line the cups with paper muffin cups or baking paper.
3 Combine all the wet ingredients in a large mixing bowl and set aside.
4 Sift all the dry ingredients into a separate large mixing bowl. Add the chunky ingredients and roughly combine.
5 Make a well in the centre of the mixture and pour in the wet ingredients, stirring until just combined. This is a trick my mum taught me when I was a child – you don't want to over-mix the ingredients or the muffins will be tough instead of fluffy. Spoon the mixture into the muffin cups and sprinkle with the toppings.
6 Bake in the oven for the designated cooking time (20 minutes for small, 30 minutes for large). Check that they are cooked by inserting a toothpick into the centre of a muffin – if some batter sticks to it, pop them back in the oven for another two to five minutes.

Mushroom and jackfruit party pies

Crumbed chickpea burgers

Mushroom and jackfruit party pies (Makes 16 pies)

In Australia and New Zealand, 'party pies' are a staple of children's birthday parties. Traditionally, they are filled with minced (ground) meat, but I've filled mine with the winning combo of mushrooms and jackfruit. I use store-bought puff pastry – I've been harbouring a mini obsession with it since finding out that most puff pastry is, in fact, vegan. No, it's not a wholefood and it's got pretty much zero nutritional value, but goddamn it's delicious and that makes it good for the soul. Just be sure to buy a brand that doesn't contain palm oil and is preferably organic.

INGREDIENTS:

- **1tbsp olive oil**
- **1 shallot, finely chopped**
- **250g (9oz) brown mushrooms, finely chopped**
- **565g (20oz) tin jackfruit in brine, drained and rinsed**
- **2tbsp tomato paste**
- **1tbsp maple syrup**
- **1tsp onion powder**
- **1tsp garlic granules**
- **½ tsp ground coriander**
- **½ tsp freshly ground black pepper**
- **¾ tsp dried thyme**
- **¾ tsp sea salt**
- **2tbsp plain (all-purpose) flour**
- **125ml (4fl oz/½ cup) plant-based milk, plus additional milk for brushing**
- **4 (30 x 30cm/12 x 12in) sheets puff pastry**

To serve:

- **Tomato ketchup**

METHOD:

1 Preheat the oven to 200°C (400°F/Gas 6) and line a baking tray (sheet) with baking paper.

2 Heat the oil in a large frying pan (skillet) over a medium heat. Add the shallot and cook for two to three minutes, then add the mushrooms and cook for about five minutes, until soft.

3 Meanwhile, cut the tough bits off the jackfruit and set aside. Crumble the soft jackfruit pieces into the pan. Finely chop the tough bits and add to the pan, along with the tomato paste and maple syrup, and stir to combine.

4 In a small bowl, combine the spices, herbs, salt, flour and milk to make a gravy, stirring until no clumps remain. Add the gravy to the mushrooms and jackfruit, and cook for about two minutes, stirring, until the mixture has thickened and is well combined.

5 Cut each puff pastry sheet into four smaller squares. Take a square of pastry and place one generous teaspoon of filling on top, positioning it to one side of the centre. Fold the other side of the pastry over to encase the filling, then crimp the edges with a fork to seal. Gently transfer the pie to the lined baking tray and poke generous holes in the top of each pie with a small, sharp knife (the holes will reduce in size as the pastry puffs up).

6 Repeat, until all of your filling and pastry is used up, then brush the tops of the pies with milk. Bake in the hot oven for 15-20 minutes, or until puffed up and golden. The final cooking time will depend on the brand of puff pastry, which varies from country to country. Check the packet for guidance.

7 Enjoy warm or cold, dunked in good old-fashioned tomato ketchup.

Health bomb – carrot and apple

Crumbed chickpea burgers

Crumbed chickpea burgers Serves 8

Vegan Goodness: Feasts by Jessica Prescott (Hardie Grant, £15). Photographer: Jessica Prescott

These burgers are next-level delicious. This is the closest I have ever come to deep frying something, which makes this the naughtiest dish in my repertoire. For that reason, I always cook double the rice for these burgers, as it's always nice to follow a decadent meal like this with a light meal of rice and steamed veggies, or simple sushi. I've written this recipe with a crowd in mind, but you can easily halve it if you are just cooking for a small family.

INGREDIENTS:

For the chickpea patties:

- **2 × 400g (14oz) tins chickpeas (garbanzo beans), drained and liquid reserved in a shallow dish**
- **200g (7oz/1 cup) brown rice, cooked (to obtain 3 cups)**
- **65g (2¼ oz/½ cup) chickpea (gram) flour**
- **1tbsp onion powder**
- **1tbsp garlic powder**
- **1tbsp smoked paprika**
- **1tbsp maple syrup**
- **1tsp salt**
- **10g (½ oz/¼ cup) chopped coriander (cilantro) leaves**
- **10g (½ oz/½ cup) cornflakes**
- **125ml (4fl oz/½ cup) canola oil, for cooking**

To build and serve:

- **8 burger buns**
- **Garlic mayo, almond butter satay sauce, pink pickled onions, lettuce and cucumber smashed potatoes, simple green salad (optional)**

METHOD:

1 Rinse the drained chickpeas well, place in a large bowl and mash until most of the chickpeas are broken down but some whole ones remain. Add the cooked rice, mash a few times to combine, then add the chickpea flour, spices, maple syrup and salt and stir until well combined. Finally, add the chopped coriander (cilantro) and stir until well combined. Place in the refrigerator for 30 minutes.

2 Meanwhile, use your hands or a mortar and pestle to crush the cornflakes and place them in a shallow dish. Remove the chickpea mixture from the refrigerator and form into eight evenly sized balls. Flatten into patties, then dip first into the reserved chickpea liquid, then into the cornflake crumbs to coat.

3 Heat half the oil in a frying pan (skillet) over a medium heat. Fry three to four patties at a time until golden brown, about five minutes on each side, and then transfer on to paper towels to drain. Repeat with the remaining oil and patties.

4 Meanwhile, lightly toast the burger buns. Build the burgers by smearing garlic mayo on the bottom bun, then top with lettuce, a cooked patty, cucumber, pink pickled onions, almond butter satay sauce and finally the top bun. Enjoy with smashed potatoes.

5 Note: This recipe also makes amazing nuggets, which are wildly popular amongst the kids in my gang. You can get three to four smaller nuggets for each burger patty, so, depending on your kid-to-adult ratio, prepare the mixture accordingly. I usually skip the coriander (cilantro) and cornflake crumbs when making nuggets and cook them for about three minutes on each side. There's no shame in picking up chip-shop fries to serve with this burger, especially if it's a hot day and you don't want to turn on your oven.

Health bomb – carrot and apple

Mushroom and jackfruit party pies

I-Mag giveaways

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

CLICK HERE TO WIN

EPIGENAR QUERCETIN 400

This water-soluble bioflavonoid naturally occurs in the skin of red apples and red onions. Quercetin is a potent antioxidant with numerous immune system benefits. Each epigenar Quercetin capsule contains 400mg of quercetin derived from Sophora japonica. Epigenar Quercetin vegicaps are suitable for vegetarians and gluten free.

I:Win: **We have five to give away.**

ORGANICO AND FISH4EVER HAMPER

Organico and Fish4Ever believe that quality begins with ethics. Whether it is grower-makers producing fantastic Mediterranean staple products, using techniques passed down through generations, or fishing communities using small boats and precise methods to sustainably source good fish, you can guarantee that the products will have been created in the most ethical manner, and to the highest quality standards.

I:Win: **We have one hamper to give away.**

HIFAS DA TERRA MICO-LEO AND MICO-REI

Mico-Leo is a high quality supplement made with 100 per cent lion's mane extract, produced using only the best raw material. Research shows lion's mane to support chronic digestive issues, including permeability, dysbiosis, IBS, IBD and the gut-brain interaction. Restorative to both the GI tract and the central nervous systems, the organically certified mushrooms are standardised to guarantee purity and efficacy. Mico-Rei is a powerful, organic formula that enhances the body's natural defence mechanisms. Reishi is an ancient medicinal mushroom that is rich in β-glucans and antioxidant compounds that regulate the immune system. Supports inflammatory conditions, including psoriasis, acne, allergies and thyroid health. The extracts in reishi have scientifically shown to lower inflammation and stress.

I:Win: **We have two sets of each to give away.**

PHARMA NORD BIO-QUINONE

The gold standard for Q10 supplements, Pharma Nord's Bio-Quinone supplement is the result of over 30 years of research and has been used in scores of clinical trials, including the prestigious Kisel 10 and Q Symbio studies. Little wonder Bio-Quinone is the reference product for the International Coenzyme Q10 Association. Find out for yourself what makes them the gold standard with this 20-capsule starter pack.

I:Win: **We have 10 starter packs to give away.**

ALTRIENT

Magnesium L-Threonate (Magtein) is the only magnesium shown to raise levels in the brain. After several years of development, Altrient has finally launched its premier Liposomal formulation, containing 1000mg of Magtein, combined with 1000mg of essential phospholipids. Magnesium supports bone health and nervous system function, supports a healthy brain and memory, promotes optimal cognitive function and may facilitate learning and a relaxed mood.

I:Win: **We have 50 Altrient sachets including the Magnesium L-Threonate to give away.**

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