



Nutrition I-Mag

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JULY/AUGUST 2022

Skin nutrition

How to support the
skin from within

ADDRESS STRESS

Nutrition protocols to help
clients manage excess stress

Guide to children's health

Key advice for the
younger population

IHCAN CONFERENCES – DR DALE BREDESEN CONFIRMED ♦ ASIAN FLAVOURS IN THE KITCHEN
♦ VITAMIN K2 AND OMEGA 3 – THE LATEST RESEARCH ♦ READER GIVEAWAYS ♦ NEW PRODUCTS TO MARKET

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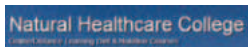


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Welcome



It is such a key issue it is our focus for this issue of *Nutrition I-Mag*, where we have gathered a range of leading nutrition experts who offer

Stress has almost become a by-product of 21st century living, so commonplace that it is now something we believe is almost inevitable to experience. But the knock-on effect this is having on such a wide spectrum of health is staggering, and not to be underestimated. In fact, when you as students move into practice, it is likely that stress and other associated issues are key complaints you will see clients seeking help for.

important insights in the effects of stress, and the idea protocols that could be recommended. **Click here** to read more about it.

Also in this issue, and turning to ongoing training and education, we are delighted to be confirming that we will be welcoming Dr Dale Bredesen back to the IHCAN Conference series. The fan favourite will be discussing Alzheimer's disease when he headlines our September conference. Find out more and book your tickets by **clicking here**.

And finally, don't forget that *Nutrition I-Mag* offers the opportunity to earn CPD points, simply for reading the magazine. All you need to do is visit **www.nutritionimag.com** and answer some questions to secure your points. And as always, we welcome comments from readers about what you have seen in the magazine, what you liked, and what you would like to see more of. Feel free to email me at **rachel.symonds@targetpublishing.com**

RACHEL SYMONDS, EDITOR

Rachel

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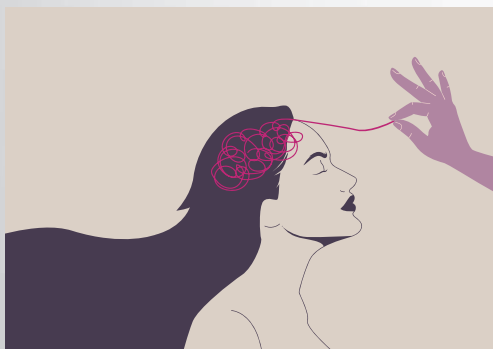
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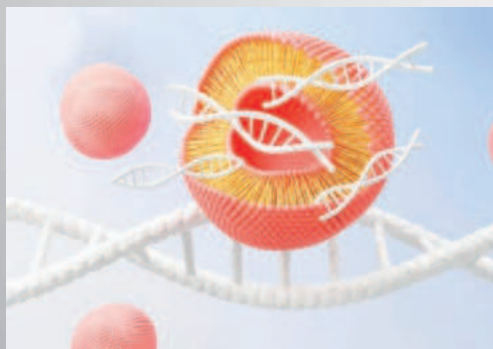
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NUTRITION I-MAG GIVEAWAYS

OUR CONTRIBUTORS

Each issue, *Nutrition I-Mag* enjoys contributions from many leading authorities in the nutrition world.

This issue, our writers include:



Dr Katarzyna Maresz

Dr Katarzyna Maresz is the President of the International Science and Health Foundation and the Scientific Coordinator of the educational portal, VitaminK2.org. Having published more than 30 scientific papers, she is involved in clinical trials with vitamin K2 in Poland and Europe.



Ben Makeham

Ben Makeham is a qualified Naturopath and Science & Research Communication Manager for Activated Probiotics in Australia. Ben has experience within many facets of the complementary medicine industry, including product research and development, and regulatory affairs, which he uses to create highly practical and educational resources for the healthcare practitioner community.



Vanessa Núñez Cruz

Vanessa Núñez Cruz has a Bachelor's degree in Biological Sciences, health specialty, from the University of Barcelona and a Master's in Scientific, Medical and Environmental Communication from Pompeu Fabra University. She has undertaken undergraduate and post-graduate research projects at University of Manchester and University of Barcelona and has 10 years' experience as a food supplement consultant. She is Scientific Content Manager at Hifas da Terra.



Isabelle Nunn

Isabelle Nunn MPHARM (Hons) Dip NT, BANT AFMCP Graduate, is Head Nutritionist at Kinetic Enterprises, which specialises in natural health brands, including Nature's Answer and Garden of Life.



Rachel Hoyle

Rachel Hoyle BSc, a science graduate, has pioneered the development of nucleotide-based products since the 1990s in collaboration with Dr Peter Köppel, renowned Swiss nucleotide researcher. Her initial responsibility was to develop natural products that reduce dependency on antibiotics in animal nutrition. More recently, Rachel has researched and developed nucleotide supplements for human health. Her company, Nucleotide Nutrition, was awarded innovation grants to fund clinical research.



Elouise Bauskis

Elouise Bauskis ND, BSc, DN, DBM is a Naturopath and Technical Support at Nutri Advanced. She is an Australian-trained Naturopath, Nutritional Therapist and Herbalist with 15 years' experience in private clinical practice and 20 years' experience within the complementary and alternative medicine industry. She is a member of the Association of Master Herbalists and the General Naturopathic Council. Elouise has a wealth of knowledge and experience, expanded and honed over many years.

News Bites

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

Widespread confusion revealed over healthy eating among children and adults

New research has revealed that some Brits believe chicken and cheese counts towards your five-a-day.

Published to tie in with the recent Healthy Eating Week, findings from the new survey, conducted by the British Nutrition Foundation, reveal widespread confusion among people of all ages, including adults and children, about which foods do and do not count towards your five-a-day or provide certain nutrients, including fibre and protein.

The survey suggests that nearly a quarter (24 per cent) of primary schoolchildren (aged seven-11) and 17 per cent of older children (11-16) think that chicken counts towards the goal, while nearly a fifth (19 per cent) of primary school children think that cheese can be one of your five-a-day. Only 38 per cent of all UK adults and 23 per cent of older children know that carrots contain fibre, while only 60 per cent of secondary schoolchildren and 36 per cent of primary schoolchildren believe that wholemeal bread is a source of fibre. Nearly a quarter (24 per cent) of all schoolchildren think that chicken is a source of fibre, although it provides no fibre at all.

Furthermore, 79 per cent of adults, 91 per cent of secondary schoolchildren and 70 per cent of primary schoolchildren correctly say that chicken provides protein but only half of all adults, 46 per cent of older children and 29 per cent of younger children think that chickpeas



are a source of protein.

The survey also shows that many people do not currently eat, or have never tried, a range of plant foods, such as beans and lentils. One third of adults and more than half (55 per cent) of schoolchildren reported that they have never tried lentils, one third of adults and 46 per cent of schoolchildren have never tried chickpeas and over a quarter (28 per cent) of adults and 48 per cent of children have never tried kidney beans.

Sara Stanner, Science Director at the British Nutrition Foundation,

commented: "Government advice is for us all to eat more plant-based foods because they're good for us and for the environment. It is concerning that there is confusion across the UK about the nutritional contents of some common foods, including plant-based foods. Lack of knowledge means people are less empowered to make informed choices, and achieving a healthy diet, with a good balance of the right types of foods, is more difficult if you don't know which key nutrients the foods that we eat provide."

Awards of honour bestowed on nutrition leaders

Two leading nutrition experts have been honoured for their contributions to the natural health industry with the Health Food Manufacturers' Association's (HFMA) annual awards.

Dr Marilyn Glenville, the UK's leading nutritionist specialising in women's health, was awarded the highest accolade for services to the natural health industry when she was announced as the deserving winner of this year's Maurice Hanssen Award of Honour.

Dr Marilyn Glenville PhD (Cantab), AFBPsS, FBANT has been working in the natural health industry for over 35 years in clinical practice and is the author of 17 internationally best-selling books, which have sold more than one million copies worldwide and translated into over 20 languages. She is the former President of the Food and Health Forum at the Royal Society of Medicine and was an observer on the Food Standards Agency's Expert Group on the safety of vitamins and minerals, and is highly regarded throughout the industry.

Speaking of Marilyn's contribution to the industry, Steve Mann, HFMA Chair, commented: "Marilyn's work has touched millions of people in the UK and around the world, improving their health, happiness and empowering them to better manage their own health and wellbeing."

Dr Glenville added: "Winning this award is such an honour and it has been a privilege to work in the natural health industry for over 35 years and I am very proud to join the list of previous recipients. I would also like to thank the HFMA Council for their confidence in awarding me this honour, which was an unexpected and very welcome surprise."

"I would like to thank everyone in the industry and those members of the HFMA for continuing to maintain such high standards. Maintaining the high standards and integrity of the industry is so important when we consider the real benefits people gain from using good quality products."

Also being honoured was Rob Hobson, who won the Health Journalist of the Year Award.

Esther Mills-Roberts, HFMA Director of Communications, commented: "Rob has been a beacon of responsible, scientifically sound and qualified advice for consumers around natural health, including supplementation. His profile in the national press, as well as print and online channels, makes him a worthy recipient of this year's award, as he champions health and wellness within the general population."

As a registered nutritionist and author of two successful books, Rob is passionate about using his knowledge to help people make sense of the ever-



From left to right: Graham Kenn, Rob Hobson, Dr Marilyn Glenville, Steve Mann

evolving science of nutrition. He has written extensively across all media.

Rob added: "It's a huge honour to be recognised for my work in the media. As a nutritionist, my work is varied but writing makes up a big part of what I do, and I feel it's hugely important to ensure people are getting the right information about diet and health. I have worked closely alongside the HFMA this year helping to create a series of resources on key health topics including menopause and veganism. It's great to see organisations like the HFMA put the effort into providing a trusted source of information for consumers to turn to."

And in other HFMA news, the organisation has revealed a new brand update. The updated logo and tag line demonstrate the clear and precise approach the HFMA takes and emphasises the core pillars of the organisation, more succinctly describing what it is and what it does. The HFMA is 'The Voice of UK Natural Health' with the key pillars of 'leading, supporting and promoting' its members and the industry as a whole. The website has also been refreshed and updated to enable greater accessibility and ease for both members and interested parties.

And speaking of internal promotions within the HFMA team, Graham Keen, Executive Director, announced the creation of two news roles to further support members and enhance the services the HFMA can offer. Dr Katie Burren has been made Director of Technical & Regulatory Affairs and Esther Mills-Roberts is now Director of Communications.



Ester C announces new distributor

Natumin Pharma has been confirmed as the European distributor of Ester-C raw material.

The agreement consolidates distribution of Ester-C into just one European distributor, Natumin Pharma, in Sweden. This important development reinforces a 40-year relationship between the companies and means that all Ester-C raw material supply in Europe will be handled by Natumin Pharma only. This will not only provide economies of scale but also improve Ester-C raw material supply channels to EU customers.

Xavier Busquets, Head of Ester-C International, commented: "We are delighted to confirm this new development with such a long standing and excellent partner."

Jeff Canny, International Export Manager for Natumin Pharma, added: "Our Ester-C sales have been growing consistently over recent years and now with the territory expanded to all of Europe, we see even more opportunities for growth. This extended cooperation between our companies is a positive and welcome development which only has benefits to all."

Living Planet expands team

Karen Santamouris has joined the team at Living Planet Distribution.

Karen (pictured) joins as Territory Account Manager for London and the South East, bringing her important skillset to bear on expanding the recognition of Living Planet's growing portfolio of natural products and supporting customers to communicate and position these effectively for consumers.

Karen joins Living Planet Distribution at an exciting phase in its development; Living Nutrition has recently added several new lines to its range of organic fermented herbs, now entirely produced and fermented on site in its ambitious dedicated laboratory. Living Planet Distribution's other flagship brand, Planet Paleo, is about to launch a new suite of practitioner-led products.

Karen has been working in the natural health industry for 24 years, including in her own naturopathic clinic, managing health food stores and in product development. She came over to the UK from Australia 12 years ago.



Service launched to support practice management

A new platform has been announced by Power Diary to support private practice safety, compliance and growth.

The online practice management software specialist announced the release of the Health Practice Operations Manual, a new feature available to Power Diary's global customer base of private health practices.

This industry-first feature allows practice owners to create, implement and update a set of policies and procedures that support operational consistency, enable sustainable growth, and ensure compliance with their professional, ethical and regulatory obligations.

"Governance is not typically considered an exciting topic but it is vitally important for the safe operations of an efficient business and can lead to stellar growth," explained Damien Adler, Power Diary Co-Founder.

"Practice owners often know they need a practice manual but simply don't have time or resources to create one from scratch. It can be an overwhelming task. Having had the opportunity to

support thousands of practitioners globally, we are thrilled to provide them with both the technology to create and manage a practice manual, along with over 100 pre-written policies and procedures that can be used straight away. We think this will be an absolute game-changer for many practices."

The operations manual was developed by a team of healthcare practice managers and administrative experts with more than 50 years of combined experience. Within the operations manual, users have access to a core set of policies and procedures for areas including Team Support & Development, Health & Safety, Security, Confidentiality & Privacy, Customer Service, and Physical Environment, plus many more – each configurable to the business.

Tercyus Ribeiro, Power Diary's Data Protection Officer, added: "The legal vulnerability that practices are exposed to due to a lack of policies and procedures could potentially put them at risk. When practices configure this feature, they are adding an important extra layer of protection to their business."

Food agencies offer consumer advice around use of oils

Two leading food agencies have provided consumer guidance as more fully refined oils may be used as ingredient substitutions.

As the UK's supply of sunflower oil continues to be severely impacted by the conflict in Ukraine, further information is being issued to consumers and retailers about oil substitutions and product labelling.

Food Standards Scotland (FSS) and the Food Standards Agency (FSA) have advised consumers that some food products may now contain other refined or fully refined food grade vegetable oils, despite being labelled as containing sunflower oil.

This update provides advice to consumers that fully refined palm oil, fully refined coconut oil and fully refined soyabean oil are being used in some products without changes to the label being made.

Geoff Ogle, Chief Executive of FSS, explained: "Consumer safety

is our absolute priority. As such, we have jointly carried out a further, comprehensive risk assessment on an additional three refined oils that are being proposed as alternative substitutions for sunflower oil, supplies of which are being restricted by the conflict in Ukraine. The risk assessment has shown that the immediate risk to those with a food allergy is very low or negligible, reactions to these fully refined oils are very rare and, if they do occur, are mild.

"We are working closely with industry to raise awareness among consumers of any potential changes to ingredients and are encouraging industry to consider using the healthier and more sustainable oils from this list if substituting their ingredients. Steps are also being taken to ensure that labelling is updated to reflect any changes to ingredients, and potential allergens, so that consumers have confidence in the products they are buying."

Falling levels of exercise in children identified

New research has revealed that children's physical activity levels have fallen below national guidelines in the wake of the pandemic.

The study, led by the University of Bristol, revealed that children's physical activity levels in the UK were significantly lower by the time the Covid-19 pandemic public lockdown restrictions were lifted.

It found that by the end of 2021, little more than a third (36 per cent) were meeting the national recommended physical activity guidelines. While there was no change in their parents' physical activity levels, the National Institute for Health and Care Research-funded study findings showed those aged 10-11 took part in on average just 56 minutes – less than the recommended hour – of moderate to vigorous intensity physical activity during weekdays from last April to December. That's around eight minutes on average less, a drop of 13 per cent, than children of a similar age were doing before the pandemic.

The study recruited 393 children and their parents, from 23 schools in the Bristol area, who wore an accelerometer to measure intensity of physical activity and answered a questionnaire. This information was compared with data from 1,296 children and their parents who were recruited from 50 schools in the same area before the pandemic.

The findings also showed children were less active at the weekend than during the week, taking part in 46 minutes of moderate to vigorous physical activity during weekend days. The study, published in the *International Journal of Behavioural Nutrition and Physical Activity*, also revealed a marked increase in sedentary time, with children spending 25 minutes longer being sedentary per day, than previously during the week.

Senior author, Russ Jago, Professor of Physical Activity and Public Health, commented: "It was surprising the extent children's physical activity levels had fallen after the pandemic, indicating that changes in physical activity patterns did not revert to previous levels once freedoms had been restored. These findings highlight a greater need to work with children, families, schools, and communities to maximise the opportunities for children to be physically active, as we emerge from the Covid-19 pandemic."

The study's first author, Dr Ruth Salway, a Statistician at the university's School for Policy Studies, added: "The key strength of this study was we used data collected before and after the pandemic, using the same methods and in the same schools. The data clearly demonstrates children's physical activity had deteriorated once the restrictions were lifted. This emphasises the importance of understanding how such habits change over time, so appropriate support and interventions can be introduced as normality resumes."



In Research

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

Researchers find cranberry could play a role in warding off dementia

A new trial has suggested that cranberries could help improve memory and brain function, and lower 'bad' cholesterol. The new research from the University of East Anglia and published in the journal, *Frontiers in Nutrition*, highlights the neuroprotective potential of cranberries, after the researchers studied the benefits of consuming the equivalent of a cup of cranberries a day among 50- to 80-year-olds.

Lead researcher, Dr David Vauzour, from UEA's Norwich Medical School, explained: "Past studies have shown that higher dietary flavonoid intake is associated with slower rates of cognitive decline and dementia. And foods rich in anthocyanins and proanthocyanidins, which give berries their red, blue, or purple colour, have been found to improve cognition. Cranberries are rich in these micronutrients and have been recognised for their antioxidant and anti-inflammatory properties. We wanted to find out more about how cranberries could help reduce age-related neurodegeneration."

The research team investigated the impact of eating cranberries for 12 weeks on brain function and cholesterol among 60 cognitively healthy participants. Half the participants consumed freeze-dried cranberry powder, equivalent to a cup or 100g of fresh cranberries, daily. The other half consumed a placebo.

The results showed that consuming cranberries significantly improved participants' memory of everyday events (visual episodic memory), neural functioning and delivery of blood to the brain (brain perfusion).

Dr Vauzour added: "We found that the participants who consumed the cranberry powder showed significantly improved episodic memory performance in combination with improved circulation of essential

nutrients such as oxygen and glucose to important parts of the brain that support cognition – specifically memory consolidation and retrieval.

"The cranberry group also exhibited a significant decrease in LDL or 'bad' cholesterol levels, known to contribute to atherosclerosis – the thickening or hardening of the arteries caused by a build-up of plaque in the inner lining of an artery. This supports the idea that cranberries can improve vascular health and may in part contribute to the improvement in brain perfusion and cognition.

"Demonstrating in humans that cranberry supplementation can improve cognitive performance and identifying some of the mechanisms responsible is an important step for this research field. The findings of this study are very encouraging, especially considering that a relatively short 12-week cranberry intervention was able to produce significant improvements in memory and neural function. This establishes an important foundation for future research in the area of cranberries and

neurological health."

The study was supported by a grant from The Cranberry Institute. It was led by the University of East Anglia in collaboration with researchers at the Leiden University Medical Center (Netherlands), the University of Parma (Italy) and the Quadram Institute (UK).





Type 1 diabetes risk increased by childhood obesity

Being overweight as a child can increase the chances of developing type 1 diabetes, according to new research.

The new study that analysed genetic data on over 400,000 individuals was co-led by researchers from the Universities of Bristol and Oxford and also provides evidence that being overweight over many years from childhood influences risk of other diseases, including asthma, eczema and hypothyroidism.

The findings, published in the journal, *Nature Communications*, explained that the number of individuals being diagnosed with type 1 diabetes has increased drastically in the last 20 years. One possible explanation is the rising prevalence of childhood obesity in an increasingly obesogenic environment. Poor diets with high fat, salt and carbohydrate may compromise early life health-promoting effects of the bacteria in the gut and pancreatic beta-cell fragility in childhood and subsequently increase type 1 diabetes risk.

Researchers analysed human genetic data from 454,023 individuals from the UK Biobank and 15,573 type 1 diabetes cases from other cohorts and applied a scientific technique called Mendelian Randomization (MR) to provide evidence that childhood adiposity increases type 1 diabetes risk.

The authors of the study have pioneered a recent advancement in the field using MR to separate the independent contributions of adiposity at distinct timepoints in life (i.e., during childhood and adulthood). By applying this technique, the study's findings support the inference that greater adiposity in early life increases the risk of type 1 diabetes among individuals and that the increasing prevalence of childhood obesity likely contributes to the rising numbers of type 1 diabetes cases. For



comparative purposes, the team also investigated the consequences of childhood adiposity on other diseases with an immune component, such as asthma, eczema and hypothyroidism. They show, that whilst childhood obesity increases risk of these other diseases, this is likely due to a long-term consequence of being overweight for many years over the life course.

Dr Tom Richardson, a Research Fellow at Bristol's MRC Integrative Epidemiology Unit and Bristol Medical School's Population Health Sciences, and the study's lead author, commented: "The effect of childhood obesity directly increases type 1 diabetes risk, emphasising the importance of implementing preventative policies to lower the prevalence of childhood obesity and its subsequent influence on the rising numbers of cases for this lifelong disease.

"A critical window exists in childhood to mitigate the influence of adiposity on the escalating numbers of type 1 diabetes diagnoses. A 22 per cent reduction in the number of these cases is plausible if the proportion of children within the highest obesity category were to be reduced by 10 per cent, from 15.9 to 5.9 per cent. This will help ease healthcare burdens and also potentially improve the quality of life for individuals living with this lifelong disease."

Zinc intake for children assessed in new research

The safe upper levels (UL) of zinc intake for children should be reassessed, researchers have suggested.

A new study published in the *Nutrients* journal explained that safe UL of zinc intake for children were established based on either limited data from just one study among children, or extrapolations from studies in adults. Resulting ULs are less than amounts of zinc consumed by children in many studies that reported benefits of zinc interventions, and usual dietary zinc intakes often exceed the UL, with no apparent adverse effects. Therefore, existing ULs may be too low.

And so, the researchers conducted a systematic bibliographic review of studies among preadolescent children, in which additional zinc was provided versus no additional zinc provided, and the effect of zinc on serum or plasma copper, ceruloplasmin, ferritin, transferrin receptor, lipids, or haemoglobin or erythrocyte super-oxide dismutase were assessed. Data was extracted from 44 relevant studies with 141 comparisons.

Meta-analyses found no significant overall effect of providing additional zinc, except for a significant negative effect on ferritin, albeit not consistent in relation to the zinc dose.

The study concluded: "Current zinc ULs should be reassessed and potentially revised using data now available for preadolescent children and considering challenges regarding interpretation of results."



Krill oil linked to muscle function in older people

The results of a new study have found that krill oil could be beneficial to muscle function and size in those over 65.

The study, which was led by the University of Glasgow's Institute of Cardiovascular and Medical Sciences (ICAMS) and published in the journal, *Clinical Nutrition*, found that krill oil supplementation of 4g per day could have beneficial effects on skeletal muscle function and size in this age group.

The randomised, double blind, controlled trial included 102 men and women all above 65 years of age. The participants were relatively inactive to engaging in less than one hour of self-reported exercise each week on entry to the study. The participants were randomly divided into two groups, a control group that received the placebo and a test group that received 4g per day of Superba krill oil from industry collaborator Aker BioMarine. Prior to the start of the study, researchers measured baseline levels for thigh muscle strength, grip strength and thigh muscle thickness, as well as short performance physical function and a range of factors, such as body fat and

blood lipid levels.

The research found that healthy adult participants who had received daily krill oil supplementation for six months showed statistically and clinically significant increases in muscle function and size. Looking in detail, it was found there was an increase in thigh muscle strength (9.3 per cent), grip strength (10.9 per cent) and thigh muscle thickness (3.5 per cent), relative to control group.

There was also an increase in red blood cell fatty acid profile for EPA 214 per cent, DHA 36 per cent and the omega 3 index 61 per cent, relative to control group. Finally, there was increased M-Wave of 17 per cent (relative to the control group), which shows the excitability of muscle membranes.

Dr Stuart Gray, Senior Lecturer at the University of Glasgow's ICAMS, commented: "This is yet another strong indication that the omega 3 fatty acids, EPA and DHA, are important nutrients for adults as we age, and we are keen to investigate this further, particularly whether this could be a useful treatment for those who already have muscle weakness."



New to market

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

CYTOPLAN UNVEILS NEW CBD

A CBD capsule product is the latest addition to the range at Cytoplan.

Premium CBD is a new high-quality, bio-effective CBD gel capsule created by the supplement brand, made from organically grown, 100 per cent natural hemp. It is THC-free and contains 25mg of pure CBD and 40mg of MCT delivered in a soft gel capsule. It is also vegan and GMO, pesticide and herbicide free. Furthermore, it is free from soy, dairy, added sugar, wheat and contains no artificial flavouring or colouring.

Cytoplan also points out it is produced to consistently high standards with the rigorous quality controls in place using batch-testing to ensure a product entirely free from THC.

Amanda Williams, CEO at Cytoplan, explained: "In order to add a CBD product to our trusted range of products at Cytoplan, we needed to work with a key industry consultant for some time to ensure we could offer the highest-quality premium and organically-grown CBD.

"Through recent welcome changes in legislation around CBD products, we are pleased to be able to offer a bio-effective form of pure CBD organically grown from hemp that meets legislative requirements and we feel proud to offer this product to both health practitioners and customers alike."



UDO'S ADDITION

A new immune product has been launched under the Udo's Choice Microbiotics range.

The brand has developed Super 8 Immune, made with the same blend of eight bacteria strains, specially selected to reach the gut alive, alongside added vitamin C for supporting immunity.

Each vegicap of Super 8 Immune contains a high cell count blend of human-adapted bacteria, including *Lactobacillus* and *Bifidobacterium*, much-studied for their role in assisting the large (colon) and small intestine.

The product is also free of fructooligosaccharides (FOS), which can create bloating for some people.



Time for turmeric

New to the True Veda range is this Organic Turmeric supplement.

The natural, full-spectrum supplement is designed to provide your body with the richness and goodness of the whole turmeric plant, including curcumin, while being kinder to sensitive systems. Packed with over 200 active turmeric compounds, including curcuminoids, it has no additives or preservatives. It is manufactured to GMP certified standards in state-of-the-art UK facilities and is independently tested at multiple stages of the production process.

True Veda explains that it is softer on sensitive stomachs, with a lighter quantity of organic ginger and black pepper.



Organic Magnesium joins Viridian line-up

Viridian Nutrition has announced the launch of the UK's first organic magnesium.

The ethical vitamin company has developed a plant-sourced form of the essential micronutrient, derived from a type of wild seaweed known as sea lettuce (*Ulva lactuca*).

Viridian's organic sea lettuce is sustainably grown without the need of land, fresh water, fertilisers or pesticides. The marine plant grows on rocky shores and seabeds in the Mediterranean Sea and is harvested by hand to ensure regrowth. The sea lettuce is carefully dried to preserve the rich levels of magnesium.

The innovation is the first certified organic magnesium food supplement in the UK, having been produced without the use of fertilisers, pesticides, or other chemicals. The certification by the Soil Association guarantees its purity and eco-friendliness. It is also vegan.

Magnesium contributes to a reduction of tiredness and fatigue, supports electrolyte balance, the nervous system, normal muscle function, normal psychological function and the maintenance of normal bones and teeth.

Also new to the range is Magnesium Bisglycinate, featuring an easily absorbable and gentle form of magnesium. In this formulation, magnesium is bound to the amino acid, glycine, to enable optimal absorption and utilisation by the body. This bioavailable form of magnesium is gentle on the digestive system. It is vegan certified.

Like all supplements in the Viridian range, Organic Magnesium and Magnesium Bisglycinate contain 100 per cent active ingredients and are formulated by expert nutritionists with no artificial fillers and no nasties. They are sourced according to Viridian's strict ethical criteria including no animal testing, GMO or palm oil.



DR DALE BREDESEN IS BACK TO HEADLINE SEPTEMBER'S IH CAN CONFERENCE

We are delighted to announce Dr Dale Bredeesen will be appearing at the forthcoming conference on the theme of Making Alzheimer's Optional.



IHCAN Conference fan-favourite, Dr Dale Bredesen, returns to the stage in London on September 3 to headline with his ground-breaking talk, Making Alzheimer's Optional.

Dr Bredesen will review studies showing that personalised, precision medicine protocols are the most effective at alleviating symptoms of cognitive decline, as well as addressing the pathophysiology of Alzheimer's disease and thus preventing progression of pre-Alzheimer's conditions to Alzheimer's disease.

Dr Bredesen is joined by Bredesen-trained practitioner, Pete Williams M. Med. Sci, CSCS. The founder of Functional Medicine Associates in London will take to the stage with his talk, Bad mouth – bad brain, the oral systemic link and the risk of Alzheimer's.

Gum disease exists in 40 per cent of the adult population. The link between poor oral health and many chronic diseases, including Alzheimer's, is becoming more established. And so, this lecture explores emerging concepts on oral bacteria, oral genomics, bacterial translocation and compromised barrier function at the mouth, gut and brain that can increase Alzheimer's risk.

Using a systems thinking approach based on the Bredesen protocol, it highlights how oral bacteria, oral gene variants and lifestyle combine to amplify risk, filled with practical case study examples of these concepts and their application to patients



BOOK NOW

Tickets for the event are limited and sold on a first-come-first-served basis, so book yours at www.ihcanconferences.co.uk/september-2022 or telephone **01279 810080**. Additional discounts are available for members of associations and students.



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- IHCAN magazine.

CATCH UP

Exclusive for *Nutrition I-Mag* readers, here is Dr Dale Bredesen's talk at the virtual IH CAN Conference from September 2020, *Educated Hacking: Scaling the Prevention and Reversal of Cognitive Decline*.

Educated Hacking:
Scaling the Prevention and
Reversal of Cognitive Decline

Dale E. Bredesen, M.D.
Professor, Department of Molecular and Medical
Pharmacology
UCLA
Founding President and Prof. Emeritus, Buck
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Author of the New York Times Bestseller, *The End
of Alzheimer's*





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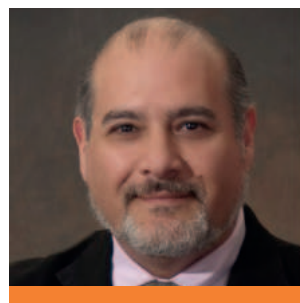
Dr Dale Bredesen

*'Making
Alzheimer's
optional'*



Pete Williams

*'Bad mouth –
bad brain. The
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THE EFFECTS OF EXCESS STRESS

The levels of stress in society today are at an all-time high, not helped by the pandemic, leaving people at risk of a range of associated health issues. Here, *Nutrition I-Mag* examines the effects of stress, and the potential protocols for your clients.



While eliminating stress totally from our lives is an almost impossible task, the levels of stress that many people feel routinely and on a prolonged basis is simply too much for our bodies to cope with – and simply put, our systems are not designed to take this level of stress.

And we must consider the very real effects that prolonged stress is having not just on our immediate health but over the longer-term; gut disruption, lowered immunity, poor skin health, lack of sleep and anxiety, and dwindling energy are all issues that can be so interlinked with stress.

Ben Makeham, Naturopath (BHSc) and Science Communication Manager at Activated Probiotics, commented: "Stress is, unfortunately, a by-product of our busy modern day lives. Our inability to slow down due to external pressures or an unwillingness to prioritise rest leads to chronic overactivation of the sympathetic nervous system.

"As well as obvious and common stressors, including busy work and family-life schedules and inflammatory diets lacking essential nutrients, so many other facets of our day-to-day lives act as a stimuli for the stress response. This means it's essential for people to actively pursue stress-reducing activities."

Isabelle Nunn, Head Nutritionist at Kinetic, which has brands in its portfolio including Natures Answer, continued: "Stress has and will always be a part of our life. However, what matters is how we cope with it or bounce back from it.

"According to a recent study by the Mental Health Organisation, over 70 per cent of the nation has experienced feelings of extreme stress, only accentuated in the past two pandemic years. Interestingly, it is women who make up the majority, from feelings of stress to even self-harm with a range of reasons mentioned, including income and health complications.

"Now that we are currently on the other side of the

pandemic, many of us find ourselves struggling with the rising cost of living, which can be a huge stressor. Although money can be secondary to happiness for most, it is the gateway to offering us the things we enjoy the most."

And we also know that stress is so intertwined with anxiety, as Louise Bauskis, Naturopath and Technical Support at Nutri Advanced, explained.

"Natural moments of anxiety that resolve are normal. But sustained anxiety or heightened, excessive anxiety is not. Unfortunately, anxiety is on the rise, and there are many reasons for this. I believe that social media has a definite role in the increased anxiety amongst many, especially the youth. The pressure seems overwhelming for them to be 'liked', the pressure to always look good, and it's all about how you are perceived, as people only show their perfect filtered life on social media - what a never-ending challenge it is to live up to that," she commented.



WHAT STRESS DOES TO US

We know that our bodies were designed to deal with stress when, for example, we were under threat. What it isn't able to do is cope with the excessive and often prolonged levels that we face these days.

In terms of what this does to the body, Makeham explained: "Day-to-day stress leads to the release of two key stress hormones: adrenaline, which subsides quickly; and cortisol, which is longer-acting. Due to their stimulatory effects, they help our body respond quickly to stressful situations and sharpen our senses in the event that they become life-threatening – this is the 'fight or flight' response. Emotionally, it activates feelings of stress, anxiety and fear. Our cardiovascular system is also stimulated, with our blood vessels constricting and our blood pressure, heart rate and breathing rate increasing. These effects are designed to help us survive threats, and 'fight' or 'take flight'.

"As cortisol has longer-lasting effects, repeated stressful events can accumulate and start to disrupt the normal rhythm of cortisol. In response to an extended stress response and increasing levels of cortisol, functions in our body that aren't essential to our short-term survival will be suppressed, including our immune system, our digestive system and our reproductive system. We are therefore more likely to experience unwanted physical symptoms associated with these systems, such as poor sleep, digestive upset (e.g., nausea, constipation, diarrhoea, etc.), shaking or heart palpitations, sexual and reproductive dysfunction, and an increased number of days unwell."

He went on: "As our cortisol builds up, our ability to cope with stress diminishes and we become more sensitive and reactive to stressful events. With chronic, unresolved stress, we can also see long-term health effects. In some people, the body can become numb to our stress hormones and resistant to their important stimulatory effects. This can manifest as chronic fatigue, tiredness and 'burn out'. Because of its effect on our heart and blood vessels, it also creates an increased risk for cardiovascular disease. It may also contribute to weight gain, insulin resistance and diabetes. Shrinking and 'atrophy' of parts of the brain,



such as the hippocampus, the amygdala and the frontal lobe, may also occur and predispose us to depression and reduce our ability to switch off stress."

Nunn went on: "When feeling overwhelmed and stressed, our body mounts a fight or flight response. Fight or flight is an activity mode which is stimulated by a rise in cortisol and adrenaline that makes the body alert in response to stressors. This is normal in short bursts and is still essential when we face threats today. Those stressors used to be termed as sporadic, when back in the days we could consider an animal predator or an approaching tribe to be one of those. However, today, we face minor stressors all day and every day.

"If feeling overwhelmed, some of us just carry on, and ignore the fact that we should take a break to gain some perspective. When we do so, whether it's working really late into the night, during lunch breaks or on weekends whilst feeling tired, we may risk depleting our body's energy resources."

Iona Leigh, Advanced Flower Essence Practitioner with the BFVEA, from Findhorn Essences, went on:

"Stress is the body's reaction when it feels threatened or under pressure and is known medically as the 'fight or flight reaction' where the body's sympathetic nervous system is activated by the sudden release of hormones by our adrenal glands. Stress can be used as a tool for motivating us to achieve things in our daily life, and can help us meet the demands of home, work and family life. But if we 'ride this train' too often, we experience adrenal fatigue."

And what of the knock-on effects to our health of stress-related anxiety?

Bauskis commented: "If anxiety is so great that it is negatively impacting your life and especially if it is longstanding, then this may be defined as an anxiety disorder. Here, the body may be stuck or trapped in fight or flight mode, unable to switch off and relax. Physiologically, this puts a huge strain on our nervous system and our adrenal glands, which are super important as they help to modulate our stress response, especially the release of adrenaline and cortisol."

SIGNS OF EXCESS STRESS

There are some obvious signs a client may present with if they are overly stressed, but there are other associated issues that may not be so obvious.

"Prolonged stress comes with the risk of depleting the body's energy resources and this is a road to prolonged burnout. In a stress response, the sympathetic nervous system down regulates the systems of the body involved in digestion, rest, and repair," Nunn explained.

"Stress can adversely affect quality of sleep and relaxation, perpetuating a negative cycle, making it even harder to recover. The long-term effects of chronically high levels of cortisol can really take a toll on the body – it is considered a major contributing factor in many chronic illnesses, such as heart disease, depression, chronic fatigue and immune-related conditions. The body's ability to adapt to daily stressors is dependent on a number of factors, including nutritional status."

We must also address the fact that excess stress can leave us lacking in key nutrients.

"Stress leads to an increased demand on the production of stress hormones and neurotransmitters and can therefore lead to the

depletion of key nutrients that act as building blocks and cofactors for their production," Makeham advised.

"Some of the most obvious nutrients that come to mind include protein, such as taurine, glycine and creatine, magnesium, zinc, B vitamins and vitamin C. Compounding the problem, stress hormones can also increase the urinary secretion of some key nutrients as well, such as magnesium. By impacting digestive function and the composition of the gut microbiome, stress can negatively affect digestive health and can therefore compromise the absorption of many different nutrients."

Lindsay Clark, Nutritionist at Pharma Nord, added: "Stress absolutely can and does deplete nutrients such as magnesium, zinc and B vitamins (particularly B12), which in some cases can result in deficiency for those with elevated stress levels. Primarily, stress triggers the fight or flight response, which decreases blood flow to the digestive system and can result in interrupted digestion and a reduction in key nutrient absorption."

STRESS MANAGEMENT PROTOCOL

Diet, lifestyle and a focus on key nutrients all play a role in helping to manage stress effectively. But what should this look like in terms of a suggested programme for clients?

Makeham recommended: "Repleting nutrients which are both depleted by stress and needed for a healthy stress response is key, as this dynamic can create vicious cycles of unresolvable stress. For example, stress hormones will increase excretion of magnesium, but we need magnesium to promote calming GABA activity in the brain to counteract this stress. Therefore, increasing wholefoods rich in magnesium is always a good approach."

"Reducing caffeine intake is also key, as it excites nerve cells in the brain, which can activate the sympathetic nervous system. The effects of caffeine will be exaggerated for those with higher cortisol, and avoiding excessive intake is key to wind back chronic stress responses. Eating regular and nutritionally balanced meals is also vital due to the link between blood sugar levels, insulin and the cortisol response."

"Because of the growing body of evidence that links gut microbiome dysbiosis to impaired cognitive performance and mental health, supporting a diverse and rich community of gut bacteria is also key. This can be done by eating a diet high in fibre and antioxidant polyphenols i.e., lots of wholegrains and colourful fruits and vegetables. The gut microbiota also interfaces with nerve cells in the gut, which can stimulate the vagus nerve, and produce metabolites such as butyrate, which are known to cross the blood-brain barrier, reduce neuroinflammation and improve brain function."

Bauskis went on: "Nutritionally, it's super important to nourish your body and mind, which will support your stress responses and nervous system. Balanced blood sugar levels are also key to stabilising your mind, mood and energy levels. Ensure your meals and any snacks all contain good quality protein and

fats. Reduce refined carbohydrates and sugars, as these destabilise your blood sugar levels, which may exacerbate anxiety."

Looking at specific areas of nutrients, Makeham pointed out: "Supplementation of specific nutrients in therapeutic doses is sometimes needed in the short-term, while also working on ensuring adequate dietary intake going forward. The selection of nutrients will always be different for each individual, but I often see a need for protein powder and magnesium supplementation in many of my stressed patients."

"Patients with stress also often present with digestive symptoms and signs of gut microbiota dysbiosis. Selecting a probiotic which acts on the gut-brain axis can help to improve the gut microbiota's influence on the stress response, and also assist with any digestive symptoms they may be experiencing as well."

Nunn pointed towards the importance of a good intake of essential fats.

"The brain needs omega 3 fatty acids for the formation of healthy nerve cells. It has also been reported that omega 3 fatty acids are associated with a lower risk of depression [14]. Evidence from epidemiological, laboratory and clinical studies suggest that dietary lipids and other associated nutritional factors may influence vulnerability and outcome in depressive disorders [15]. Flaxseed, hemp, canola and walnut oils are all generally rich sources of the parent omega 3, alpha linolenic acid (ALA). Dietary ALA can be metabolised in the liver to the longer-chain omega 3 eicosapentaenoic (EPA) and docosahexaenoic acid (DHA). This conversion is limited in human beings, it is estimated that only five-15 per cent of ALA is ultimately converted to DHA [16]. Stress compromises this conversion [17].

"DHA is an essential component of the membrane of brain cells, enhances the brain to



utilise various chemicals and can turn on the genes that make serotonin. It is a good natural antidepressant. The brain needs omega 3 for the formation of healthy nerve cells. Research has shown that omega 3 fatty acids are associated with a lower risk of depression."

She also highlighted vitamin C, explaining: "Both

emotional and physical stress may affect a person's vitamin C status. It can increase required for vitamin C to maintain normal blood levels. When stress depletes vitamin C levels in the body, it reduces our resistance to infection and disease and increases the likelihood of further stress. When vitamin C intake is increased, the harmful effects of the stress hormones are reduced and the body's ability to cope

with the stress response improves.

"Since the intake of vitamin C can speed up recovery, this is very important as otherwise our adrenal glands can weaken, and this could increase fatigue. Peters et al., carried out a randomised placebo-controlled study which found that when marathon runners received 1500mg of vitamin C per day, they recovered normal

cortisol levels more rapidly than those who only took 500mg or the placebo. Essentially, since pumping out of cortisol stresses the adrenal glands, faster recovery means less fatigue. Nutritional sources of vitamin C include strawberries, bell peppers, broccoli, butternut squash, amongst others.

"Vitamin C is a water-soluble vitamin and needs to be replenished. Hence why a supplement is recommended along lifestyle changes. Liposomal vitamin C offers a well absorbed form of sodium ascorbate. Liposomes are made of phospholipids, the same material that is a crucial part of our cell membranes."

Bauskis went on: "Magnesium is known as nature's tranquiliser, as it helps to calm and relax muscles and the nervous system. It does over 600 different functions in the body, so we need adequate amounts on a daily basis so that we don't become deficient, which, unfortunately, many people are – especially those suffering with anxiety. Increase your green leafy vegetables, as well as nuts and seeds. Consider taking a magnesium supplement daily. Theanine is an amino acid that has been shown to increase the alpha brain waves, bringing us into a more meditative brainwave state of being. Theanine is found in green tea, which explains why despite green tea containing caffeine, you may feel calmer and more peaceful when drinking it.

"The B complex vitamins are extremely important for our nervous system and our ability to handle stress. We may not be able to control the stressors in our lives, but we can help the way we respond to it! A vitamin B complex will help you feel calmer and more grounded, whilst helping with memory, concentration and focus, as well as energy levels."

And Clark suggested: "Some supplements to consider include magnesium, fish oil and B vitamins, particularly B12. All of these contribute to the normal functioning of the brain and nervous system, which may help to regulate the body's stress response."



GUT FOCUS



We must specifically address the gut and the effect that stress can have.

"The parasympathetic nervous system, which includes the vagus nerve, is the part of our nervous system that is responsible for 'rest and digest' – it stimulates the salivary glands, digestive secretions of the stomach, and activity of the intestines, which allows for proper functioning of the digestive system," Makeham explained.

"Opposing the parasympathetic nervous system is the sympathetic nervous system, which is responsible

for diverting energy away from 'unnecessary' physical processes during times of stress so that we are prepared to fight or take flight. As a result, stress can compromise our digestive capacity and lead to IBS-like symptoms, such as abdominal pain, bloating, and alternating or inconsistent bowel habits.

"Increased levels of stress hormones are also known to alter gut microbiota composition and the integrity of the intestinal epithelial barrier, which can increase immune-mediated inflammation and further disrupt digestive function."

BOTANICAL SUPPORT

There are also some excellent botanicals that can be recommended.

Nunn suggested: "Rhodiola contains natural compounds that include rosavins and salidroside, which may have a positive effect on the body, particularly in times of stress. Rhodiola root is referred to as adaptogen, a term used to describe compounds that have an ability to help normalise body functions and strengthen bodily systems that are compromised by stress.

"Chamomile is thought to have a calming nervine action and may help to reduce overactive stress responses in the body, in turn, helping the body to

return to a resting, relaxing, digestive and sleeping phase. Nervines in general have the property to establish a normal nerve function, as well as to provide balance.

"Passionflower and valerian are two botanical herbs that may help support those with a busy and anxious mind, particularly prior to having their rest at night. We know that it is also when we sleep that the body goes into repair mode, which is very important in coping with a stressful lifestyle. While other nutrition and lifestyle changes come first, these herbs may help provide relief for calmer and better evenings."



ADDRESSING LIFE CHOICES

Lifestyle will play a big part in how well our body deals with stress and it's hugely important that changes are emphasised as part of an overall plan.

"From a lifestyle medicine approach, incorporating deep breathing exercises, even if starting with a few minutes per day, can help to activate the parasympathetic nervous system and tone the vagus nerve. This will help to build stress resilience," Makeham suggested.

Nunn added: "Lifestyle changes and activities that can help alleviate and help control stress levels include being out in fresh air, breathing exercises, gentle movement such as Pilates, rest, digital detox, eating mindfully, reading positive affirmations or books and wild swimming."

And Bauskis also suggested how to tackle anxiety, commenting: "One of the quickest ways to move from fight or flight into rest and digest is through the breath. When we are anxious, we may be mouth-breathing. This will only increase anxiety. Really focus on deep, slow breathing, in through the nose and out through the mouth. Slow your breathing down. Focus on it, deep breathe continuously for as long as needed to help bring about calm."

Meanwhile, Leigh explained the supportive effects of flower essences.

"In order to understand and improve our health, we need to be nourished on the mental, emotional and spiritual level (as well as the physical) to create the most harmonious environment around ourselves in our home and work environments," she advised. "Flower essences help support us when we may feel held back by our own behaviour or

stuck in a certain pattern of the way we live and lead our life. So, from a lifestyle perspective, flower essence therapy offers us an insight into the ways we may be unconsciously operating with particular focus on our primary relationships as these so often have a major impact on everyday lives. Flower essences are very gentle and can be used by children and animals, as well as adults and can be combined with any other medication and therapy. They are natural and by using the energetic imprint of a plant or gemstone in water and preserved in organic cognac. Flower essences work on the energy bodies meridians,

"in a similar way to other forms of Chinese medicine (like acupuncture), Trained Flower Essence Practitioners (like myself) are able to help guide you through a process to address which key life issues, emotions and mental patterns you would like support with. Alternatively, some clients become confident with choosing for themselves by simply reading the essence descriptions and keynotes."

In terms of the best flower essences to use for stress, Leigh suggested: "Three solo flower essences that can help during times of stress are Scottish primrose essence for peace in the heart when we feel our emotions are up and down, watercress essence for emotional purification and wellbeing when we feel unwell on an energetic level, and sea rocket essence, which is for regeneration to help us feel emotionally and mentally rejuvenate after feeling down."



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Nutrition and the skin

Nutrition I-Mag gathers expert advice to help practitioners understand the science behind our skin, and the nutrients of importance.

We know that the skin is considered to be the largest organ in the body, acting as our barrier to guard against external elements, whether the sun's damaging rays, harmful chemicals, and pollutants. We also know that far from being just about appearance, poor skin health can actually be an indicator of other health issues, not to mention demonstrating potential nutrient deficiencies.

It's important that we consider the amount of factors involved in our skin, and the elements that can lead it into poor health – nutrient depleted diets, stress, every day pollutants and chemically heavy skincare products are all factors that can help determine our skin health.



IN-CLINIC ASSESSMENT

When it comes to addressing poor skin health among clients, there is much to take into account. In terms of the most common symptoms, these can be quite obvious.

Helen Drake, Nutritional Therapist at Cytoplan, advised: "Unhealthy skin can manifest in many different ways – most people know when their skin feels unhealthy. Most often, you will see or experience redness, dryness, spots, acne, irritation, itching, rashes or pale/greyness. All of these are signs that the skin needs some support. Healthy skin will have a glow and feel soft and smooth to touch."

Kay Tomlinson, Co-founder of Absolute Aromas, added: "The signs that our skin isn't at its healthiest vary from person to person. Some examples include congested skin resulting in bothersome bumps and blemishes, flare-ups of dry and uncomfortable skin, or even just a general dull and lacklustre complexion. These can all be signs that other areas of our health or lifestyle are having a knock-on effect on our skin health."

When it comes to the key reasons skin can fall into poor health, this is clearly a multi-faceted issue.

"Inflammation is a major driver of most skin conditions, including rosacea, eczema, psoriasis, and acne. Therefore, including healthy fats such as omega 3 are important for helping to moderate the inflammatory response. Also, avoiding proinflammatory fats, such as oxidised, trans and hydrogenated fats found in heavily processed foods, as well as sugar, is important," Drake explained.

"The skin has its own microbiome (layer of bacteria), which protects the health of the skin and is closely related to the microbiome in the gut.

Therefore, digestive dysfunction can have a strong influence on the health of the skin and supporting the gut microbiome can help support skin health. Anything that disturbs digestive health can affect skin health and can contribute to inflammation.

"Finally, also in relation to digestive health, is nutritional status (if the gut is not working effectively, nutrient absorption is reduced). The availability of nutrients is essential, the skin is the largest organ in the body and is highly metabolically active as it regenerates approximately every three weeks. Zinc, selenium, vitamins A, C, E, B5 and B6 are particularly important, as well as omega 3 fatty acids. The nutrition gap is the difference between optimal levels of nutrients for health compared to what you are obtaining from the diet – it is hard to meet this gap from diet alone due to soil depletion, farming methods and food choices, to name a few. Ensuring optimal levels of nutrients are obtained with a multivitamin and mineral is important for all aspects of health, including skin."

Tomlinson went on: "Many contributors can play into making our skin less than healthy, these can include lifestyle factors such as poor diet, lack of drinking water, not getting enough sleep, and having regularly elevated stress levels. Environmental factors such as harsh weather conditions and pollutants will also take their toll on our skin. The key to helping to protect against these contributors is to maintain your skin's moisture barrier, microbiome, and natural pH balance. These make up your skin's first line of defence and can be supported through maintaining a regular and suitable skincare routine."

ASSOCIATED ISSUES

Much research tells us that poor skin health can be linked to other functions in the body.

"As mentioned, the gut is strongly associated with the health of the skin. The gut exerts and systemic effects and influences the skin microbiome by activation of the immune system and also by the production of short chain fatty acids. Skin conditions often come hand in hand with digestive dysfunction and supporting digestive health is a major focus of nutritional support for skin health," Drake explained.

"The skin is also an organ of detoxification as is the gut, liver and kidneys. Therefore, if any of these other routes of detoxification are under pressure, excess waste products are excreted via the skin, which can affect skin health."

And Tomlinson commented: "It's important to consider all other areas of your health when assessing why you may be having problems maintaining healthy skin. Many factors of health come into the picture; when trying to assess skin health, genetics, medical conditions, and hormonal changes can all have an effect on our skin. For this reason, it's important to seek professional medical advice if you are having any concerns, or if traditional skincare and advice is not helping to improve your skin's condition."



NUTRIENT STATUS

As practitioners, you will be well aware of the role diet plays in skin health. So, nutritionally, what elements can deplete skin health?

Drake set out the most important considerations nutritionally, explaining: "If there is reduced stomach acid or digestive enzymes, nutrient absorption can be affected, particularly of minerals, which can deplete nutrients available to the skin. Stress is also a major driver of skin conditions and uses up certain nutrients much more quickly, including B5, B6, vitamin C and magnesium, all of which play role in skin health. Again, as mentioned, dysfunction of excretion pathways such as gut, liver or kidneys will also affect the health of the skin."

"Whilst there is no one-size fits all diet for clear skin, a general eating plan for optimal skin health is likely to include:

- Plenty of pure water and herb teas (two litres a day).
- Foods naturally high in fibre (wholegrains, beans, lentils, veg).
- Rich in antioxidants (carrots, tomatoes, peppers, watercress, berries, grapes, beetroot, broccoli, kale, onions, garlic, seeds, nuts).
- Essential fatty acids (seeds, nuts, fish).
- Fresh, unprocessed foods.
- Minimise refined foods (sugar) also coffee, tea, and alcohol.
- Minimise trans-fats, avoid excess saturated fat.
- Eat organic as much as possible.
- Eat simple meals – chew thoroughly."

There are also supplements that are of critical importance to support healthy skin, as Drake suggested: "Supplements that support skin health include:

- A multivitamin and mineral with good levels of B vitamins, vitamin D3, zinc and selenium.
- Potentially an additional hair, skin and nails supplement which includes phytonutrients such as bilberry, cacao, lycopene, lutein and astaxanthin (all of which have been shown to protect skin from damage), as well as B5, biotic, MSM (provides sulphur), silica (which are important for skin structure) and iodine and selenium, which support thyroid function, important for normal skin health.
- An omega 3 supplement such as vegan omega 3 or krill oil, which is important for modulating inflammation but also support the skin's structural integrity.
- Finally, a probiotic supplement to support the gut microbiome, which has an influence on the microbiome of the skin."



SUPPORT TOOLS

There are other elements you could incorporate into a client protocol for healthy skin, away from supplements. One such option is aromatherapy.

"Aromatherapy can be used to help both the mind and body here. If high levels of stress and difficulty sleeping are having a negative effect on skin health, reach for some balancing and relaxing oils such as lavender, vetiver and chamomile to help to relax and comfort the mind during stressful times or restless nights," Tomlinson advised.

"Typically, aromatherapy can be used to gently support, nourish and balance the skin. When used as part of a body or facial massage, this can also help to boost circulation to the skin, lymphatic flow and drainage, aiding the efficient removal of toxins and fluids. Leaving you feeling refreshed and relaxed whilst supporting general skin health from the outside and inside."

Looking at the specifics of what could be suggested for skin health, Tomlinson went on:

"The best essential oils and carrier oils for your skin will vary depending on your skin type and concern. If you suffer with dry skin, this can be dried out further by the sun during the summer months. Applying vitamin rich oils such as avocado or apricot kernel onto damp skin can help to deeply nourish and restore moisture levels. In terms of essential oils, rose or neroli are beautifully supportive and gentle for dry skin."

"Oily and congested skin types may need to go for lighter oils such as grapeseed, alongside clarifying and balancing essential oils like geranium or lavender. It's important to remember that when using essential oils on the skin, you must always use the correct dilutions. If you are concerned about your skin health, we always recommend working with a qualified aromatherapist, to work with you on a holistic approach to treating your skin health and to select the best oils and treatments for your individual needs."



A CLOSER LOOK AT COLLAGEN

Collagen is considered an essential component of healthy skin, and its levels need to be monitored to ensure we're getting enough.

Louis Soteriou, a Naturopathic Nutritional Therapist who works for NaturesPlus as a Nutritionist and Business Development Manager, explained: "When we think of collagen, we should think of structure. Every structure in the body has as its back-bone collagen and it's what gives these structures their strength. The higher the quality of collagen, the stronger, tighter and more youthful our skin will be. Skin is composed mainly of type I collagen and because it is the biggest organ in our body, this type of collagen is also most abundant."

But what are the reasons that people can be lacking in collagen?

"Collagen is protein, so vegetarians or vegans who do not combine their plant-based foods right may lack some of the essential amino acids required to make it. Proteins are made of different amino acids," Soteriou explained.

"We can think of a protein like a long spiralling train with the amino acids being the carriages. Collagen-rich foods, which always come from animals, are very hard to digest and require a high amount of stomach acid and sufficient digestive enzyme output from the pancreas to break down the proteins into smaller peptide chains and finally, amino acids. Once in the body, the amino acids will then be rebuilt into collagen where necessary.

Food sources can be found to top up, with Soteriou advising: "Only animal sources contain collagen, and so a vegetarian or vegan cannot acquire it in any form. It will come mainly from the hide of animals such as cows, eggshell membrane, fish skin and/or bones, chicken sternum and connective tissue. People who get enough protein in

their diet and have healthy absorption will also be able to make collagen, but it requires a few more steps by the body to do so and requires certain nutrients to aid the process."

If we consider supplementation here, there are things to factor into recommendations.

Soteriou explained: "It is definitely a great idea to supplement with a broad-spectrum collagen and I have seen incredible improvements not only in skin quality but also in joint health and hair growth with a product that contains types I, II, III, IV, V and X for full body support.

"As mentioned earlier, collagen is very difficult to digest, especially for older people who might have lower stomach acid levels, those on proton pump inhibitors like omeprazole or those who have digestive insufficiency. Look for hydrolysed collagen peptides, as most of the hard work in breaking down the proteins into smaller and easier to absorb parts has already been done. Further processing with various protease digestive

enzymes makes sure that it is broken down further for maximum absorption. A clean, neutral taste is also very important, so we know that the product is clean and doesn't contain rancid by-product. Be aware of those collagens that add flavouring in order to mask its poor quality."

Be aware of other nutrients we need to support natural production of collagen.

"Actually, collagen or protein in our diet is only half the story when it comes to making collagen in the body. Vitamin C is crucial to help build collagen. Scurvy, which is a disease that sailors suffered from hundreds of years ago, was due to a lack of vitamin C in their diet and it caused their bodies to actually fall apart as the collagen structures became weak. They were given lemons to combat this. I recommend at least 500mg of wholefood vitamin C per day," Soteriou suggested.

"Amla berry is my favourite source of vitamin C and co-factors for collagen. In vitro studies, it was shown to increase SOD and glutathione by around 35 per cent. Both of these antioxidants are essential to slow the body's ageing. SOD actually sticks to the collagen in our bodies and stops it breaking down. When the collagen in our skin breaks down, we form wrinkles.

"There have been numerous studies done on the power of amla berry and its ability to aid in collagen maintenance and production. Look out for a whole food organic supplement that is standardised and comes directly from the plant, rather than those using lab made ascorbic acid with bioflavonoids added back in. Vitamin K2 is also necessary for collagen production due to its role in GLA-protein metabolism."



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GutCare - the whole in your soul?

Chris Newbold, Head of Nutrition Strategy at BioCare, turns the spotlight on digestive health as the leading practitioner brand launches a range of gut-related products and educational events.

In many senses, the true heart and soul of the body is the gut. Yet the gut is so much more than merely an organ. It's a dynamic, hybrid ecosystem, riven through the very core of us, forming a metabolic interface where two complex biological and chemical worlds – ours and that of the external environment – collide. It occupies a unique position as our metabolic interface with the external world, literally the outside world, inside.

Unsurprisingly, this unique 'fourth dimension' of health, formed in that empty space we call the gut, can do almost anything. A biological foundry where other organisms cooperate with our own body cells in complex ways to work magic. Potentially, our most powerful sensory organ, the gut is where we feel the deepest of all emotions before our brain can recognise them. It also senses and neutralises threats, the foundation of immunity. It's a terrain as complex as any environmental ecosystem, that nourishes all body processes, digesting, analysing, processing, and absorbing. It's the safe space for dumping waste

and toxins. It's even a whole other huge pool of genetic potential, producing many metabolites we've evolved to depend upon.

A complex system

It's almost a cliché to say the gut is at the centre of health, and probably still too much a simplification. Certainly, there are complex two-way interactions between gut and the rest of the body. As our gut function affects our nervous response, so nervous response impacts gut. As immune function supports the balance of our microbiome, so the microbiome is essential for immunity. And so on!

But has our thinking about gut health become a bit too compartmentalised as well? As we've learnt more about elements of it, it can become reduced to a set of functions and parts to be analysed and targeted. In concluding gut is where it's all at, we need to take care not to also limit our thinking to one dimensional, specific elements of *only* the gut when thinking about all health. Noticing one part of

something does not explain everything about it. You might as well blame the bucket catching the water for the leak in your roof.

BioCare has always believed that, to truly transform health, we need to use a whole gut, whole health approach. Seeing the gut from an ecological perspective enables us to use an adaptive approach to develop synergistic products that really work, as well as providing unique, free education events to support you.

BioCare has some great new innovations right now and coming up this autumn, such as brand new probiotic products that support specific microbiome needs for female and baby health. Make sure you book the Microbiome Webinar or join BioCare in person for the Gut Unravelling seminar.

And watch this space for even more fantastic new gut health and other products coming soon.

BioCare is working with you, to help you support the whole in everyone's soul!



BioCare Education Series Autumn 2022

This autumn we take apart the complex subject of gut health and take a deep dive into the intricate world of the human microbiome. As always, we take the science, but distil it into practical protocols, exemplified by real case studies. And we have online and face to face events to suit your preference. Enjoy education from the comfort of your own home or have a day out to learn and network with other professionals in a friendly and welcoming environment! It's CPD with a heart, and a fun side.

The Microbiome Summit **ONLINE**

10.00am -2.00pm BST, 7th September

It's not just your own biology that influences your health.

We've evolved to live alongside a complex internalised ecosystem of microorganisms, and are functionally interconnected. The resulting metabolome produced by all cells is the key to health. But what is the nature of that ecosystem, how exactly does it influence health and how does it develop? What is the role of probiotics, prebiotics and even post-biotics? After busting some myths about the microbiome, we will also look beyond the adult gut, at the specifics of the infant microbiome and its importance to baby health, as well as the skin and genitourinary microbiome.

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IF YOU'RE NOT ABLE TO WATCH LIVE, A RECORDING WILL BE AVAILABLE TO ALL REGISTRANTS 24HRS LATER.

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The Gut, Unravelled **FACE-TO-FACE**

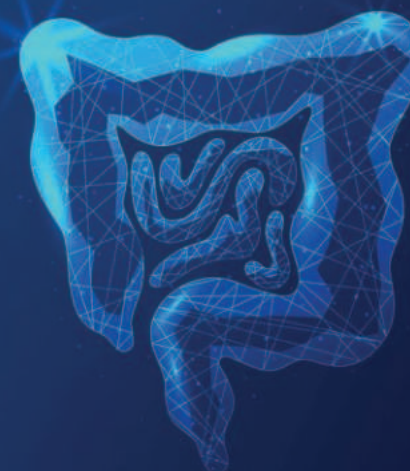
Seminar with Alessandro Ferretti & Chris Newbold - 10.00am - 3.00pm BST

Time to get to the core of all human physiology as we unravel the complex subject of gut health and its multifaceted links with other systems! Gut is our 'outside inside', the metabolic interface where two complex biological and chemical worlds interact in a dynamic, hybrid ecosystem, part human, part other.

Its active barrier function enables it to play multiple roles sensing, defending, ingesting, detoxifying, and creating, such that gut impacts everything, and everything can impact the gut. In this seminar we examine the adaptive role of the gut, taking a holistic ecological perspective, touching on digestion, motility, integrity and microbial balance, using case study examples, and equipping you to take an effective whole system approach to improving clients' health.

Wed	21 Sep	Bute Park Education Centre	Cardif
Wed	28 Sep	Midlands Arts Centre	Birmingham
Wed	12 Oct	Penny Brohn	Bristol
Tue	8 Nov	Exeter Library	Exeter
Sat	12 Nov	Cavendish Conference Centre	London
Tue	22 Nov	York Medical Society	York
Wed	23 Nov	Apex International	Edinburgh
Wed	30 Nov	Pendulum Hotel	Manchester
Tue	6 Dec	Jurys Inn (near the station)	Brighton

4 hours CPD (BANT, ANP, NNA, NTOI). Drinks and snacks provided; lunch available to purchase locally.





Early years health education

The UK's collective children's health is a cause for concern, exacerbated by the pandemic. So, what do you need to know from a nutritional perspective? Our experts offer their insights.





There is little doubt that the health of children today is worse than even a generation ago; rising obesity levels, declining diets, and lowered immunity, as well as mental health issues, are among the concerns affecting the younger population in our modern age.

And this is before we factor in the impact that Covid-19 has had on children; poor quality diets, lack of exercise, and feelings of isolation were all matters that rose to the fore during the lockdowns – which makes the UK's collective children's health quite a cause for concern.

"This is a big subject and is key to the future health of society," commented Adrienne Benjamin, Nutritionist at ProVen Probiotics. "We are all aware of the move towards excess sugar intake and lack of vegetables and fruit and the latest study from the

University of Birmingham has shown that 70 per cent of British teens don't consume 100g of fruit or even one apple a day, 91 per cent don't eat 200g of vegetables (which would equate to around 2.5 portions) and 73 per cent exceed recommended limits for sugar intake.

"It is a similar picture for younger children, with diets high in saturated fat, sugars and salt, with little fibre, fruit and veg. According to UK Government statistics, more than 40 per cent of 10-11 year olds are now either overweight (15.4 per cent) or obese (25.5 per cent) – and these figures are growing year-on-year. And a recent NetMums survey used to guide the Government's New Better Health campaign showed that 58 per cent of parents say they are giving their children more sugary or fatty snacks than before the pandemic."

Rachel Bartholomew, Nutritionist and Health Writer at Nutri Advanced, went on: "In our fast-paced 21st century world, where everything is available in an instant and distractions are everywhere, it can be a real challenge for children and teenagers to stay focused and concentrate in a learning environment. The worry and uncertainty of the last 18 months has added to the pressures on young minds too, with increasing numbers of children and teenagers finding it difficult to achieve and maintain a sense of calm and balance. Nurturing healthy, growing minds that are able to learn well, be resilient in the face of adversity and have reserves of inner calm has become a high priority in our busy modern world."

There are some standard issues we see among children these days, and much of this is centred around concern about weight. When considering the

common health complaints you may be dealing with, Benjamin went on: "There has been much discussion around an increase in common childhood respiratory illnesses over the past year and, in particular, an increase in Respiratory Syncytial Virus (RSV), which is a very common winter virus. Much of this increase has been blamed on the fact that children have been unable to build immunity due to lockdown, increased hygiene measures (particularly handwashing with antibacterial gels) and, in some instances, mask wearing. There have also been reports of increases in hepatitis and other viruses for many of the same reasons.

"Alongside this, the past couple of years have seen growth in the rates at which chronic diseases are increasing in children, particularly obesity and mental health problems, which in turn increase children's vulnerability to acute illnesses and lifelong health issues."



SPOTLIGHT ON NUTRITION

There has been concern in recent years about the state of childhood nutrition – who can forget Jamie Oliver's campaign shining the light on the poor quality food served in schools? Today, it seems sugar consumption is still high, as are rates of overweight and obesity.

So, nutritionally, what areas of concern are there about children's diets these days?

"Clearly, environmental influences have a part to play when it comes to nurturing healthy, growing minds; factors such as helping children and teenagers to set boundaries around digital distractions, finding time to get moving regularly and building in opportunities to switch off completely are absolutely key," Bartholomew commented.

"And there are nutritional factors to consider too; the brain is a hungry organ and needs feeding well to perform at its optimal best. There are key nutrients and ingredients that can specifically help to support vital cognitive functions such as focus, concentration, learning, memory, calm and balance in children and teenagers."

When it comes to effective recommendations for a healthy children's diet, what is the best guidance?

Benjamin commented: "If a lack of fruit and vegetables and an excess of sugar and fast foods are known to be the key issues relating to children's diets, this is the place to start. Clearly, existing campaigns and approaches, such as five-a-day (vegetables) and Change4Life, have not worked in driving action, despite high levels of awareness. The latest New Better Health campaign, launched in January this year, is based on a food scanner app, which allows people to identify 'healthier' alternatives for pre-packaged food and gives tips on making better choices.

"My personal view is that educating children about real food (and not packaged supermarket food) is key. Teaching children to grow, identify and cook food is a crucial element of this education, particularly how to use vegetables, fruits and herbs to prepare healthy,

tasty meals and enjoyable desserts without the vast amounts of sugar and salt added to packaged food. Including this as a core part of the education curriculum for all age groups, working out ways to involve parents and using even the smallest plots of land, backyards or window sills to grow food could make a massive difference."

And Bartholomew went on: "Top three nutrients to help growing minds thrive in a busy world are:



■ **Magnesium:** At the top of the list is magnesium, a mighty mineral that is a co-factor in over 300 enzyme reactions in the body, including many involved in energy production, sleep, calm and a balanced stress response. Magnesium's vital role in energy production is highly relevant for cognitive functions such as concentration, focus, learning and memory; this is because the brain is one of the body's largest consumers of energy. Without enough energy, the brain cannot function optimally, and magnesium is required to fire these processes. Not only is magnesium needed as a foundation nutrient to support concentration, memory and focus, this mighty mineral is also essential for calming things down. In fact, magnesium is often nicknamed 'nature's tranquiliser' for the many roles it has to play in helping to support a balanced stress response, good quality sleep and for



■ **Vitamin B5 (pantothenic acid):** B vitamins often work together in the body and are typically referred to as the B complex vitamins. They are found in differing amounts in food sources such as whole grains, leafy green vegetables, vegetables, meat, fish and dairy products. B vitamins are water soluble, and most can't be stored in the body, which means they must be regularly supplied by the diet. B vitamins are intricately involved in energy production, and like magnesium, are required to nourish the energy hungry brain to support optimal cognitive processes such as concentration, memory and focus. Of particular note is vitamin B5 (pantothenic acid), which is not only involved in energy production but also helps to support the structure and function of brain cells, is involved in the production of many brain signalling messengers (neurotransmitters)

and needed to make stress hormones too. Low levels of B vitamins can influence memory, cognitive function, energy levels, mood, anxiety and the ability to cope with stress. It is important therefore to pay particular attention to regular dietary intake, especially during childhood and teenage years when B vitamins are in high demand. B vitamins can be safely supplemented as a group, and this may be particularly helpful to support the increased needs of growing minds.



■ **Lemon balm:** Although not a nutrient, the incredible benefits of the herb, lemon balm, make it almost essential for children and teenagers as they navigate the demands of school and growing up. Bluenesse lemon balm is an exclusive, innovative extract of lemon balm (*Melissa officinalis*) which has been studied in research trials. Research has demonstrated that Bluenesse lemon balm supports cognitive performance, improving alertness, concentration, mental focus, and working memory. In addition, it supports inner calm, balanced mood and improves the ability to cope with stress. Lemon balm is an incredible herb, with an impressive safety profile and wide-ranging benefits, which makes it ideal for children and teenagers."



SPECIFIC DEFICIENCIES

Children do have a higher need for certain nutrients, and many critical ones are known to be lacking in the diet.

Benjamin advised: "The limited diets that many children now eat put them at risk of nutrient deficiencies, particularly vitamins, minerals and phytonutrients found in fruit and vegetables, but also omega 3 fatty acids, found in oily fish, nuts and seeds and even healthy saturated fats from grass-fed meat, free-range eggs and real butter. In addition, protein is required for muscle and bone growth and complex carbohydrates for long-term energy requirements, and these are both lacking in children's diets mainly comprised of simple processed foods.

"Spending too much time indoors can also lead to deficiency in vitamin D and a lack of healthy fats can further result in difficulty absorbing fat soluble vitamins (A, D and E)."

And when it comes to supplements, there are some essential ones to recommend.

Bartholomew advised: "Whilst it is always important to look to the diet first to optimise nutrient intake, the heavy demands of a busy Western world on children and teenagers, especially during school years, coupled with a typically nutrient poor Western diet mean that supplementation with targeted nutrition to support focus, concentration, learning, balance and calm may deliver significant benefits. Lemon balm combines well with magnesium, B vitamins and even other essential nutrients, such as vitamin C, zinc, vitamin D3 and K2, to provide synergistic and much-needed support for growing minds in a busy world.

"Whilst increasing the magnesium content of children and teenagers' diets is always the first port of call, it may also be useful to add

some extra magnesium in supplement form to ensure they're consuming enough to meet these extensive needs. And this may be even more important if they have periods of intense learning ahead, such as exams and tests, or are going through a growth spurt, which puts additional pressure on energy production processes. Magnesium is best supplemented in glycinate form, as this is well absorbed and tolerated by even the most sensitive tummies. A powdered supplement is beneficial as many children struggle to take tablets or capsules and allows for flexible dosing too."

Benjamin went on: "I would always look to support a child's diet first and foremost, improving the balance and variety of nutrients at each meal. It can be useful to start with breakfast and then move on to other meals – once a child notices how different they feel following a better breakfast and how easy it is to do in real terms, they are more inclined to want to improve other meals.

"To support these dietary changes, for the first four-12 weeks (depending on dietary change), I would also recommend a child specific food-based multi-nutrient, cod liver oil (or a fish oil capsule may be more palatable), specific cell salts (minerals) as co-factors for biochemical pathways and a probiotic to support gut health."





FOCUS ON THE GUT

Gut health also requires consideration at a young age as the microbiome is still developing.

"The abundance and diversity of the gut microbiome correlates to overall health and has been shown to link directly to brain health and mood, hormonal health, immunity and skin health, all of which directly influence children and adolescents," Benjamin advised. "Many specific conditions such as atopic dermatitis, asthma, overweight, obesity, inflammatory diseases and metabolic syndrome have now been linked to gut dysbiosis."

In terms of the specific recommendations to keep a child's gut healthy, Benjamin commented: "There are many, but again, they are primarily diet-based and include the following: vegetable fibre is crucial to provide prebiotics to support the gut microbiome, feeding the good bacteria and supporting microbial proliferation and diversification. Cell health is key to a healthy intestinal lining and both saturated and unsaturated fats are needed for robust flexible cell membranes.

"Both lifestyle and diet support a healthy microbiome and spending time outdoors, allowing children to get dirty and grow their own food can help with exposure to a wider range of microbes and can also encourage them to eat what they have cultured themselves. It can also be useful to teach children traditional fermenting methods to encourage them to try fermented and pickled foods like sauerkraut, kefir, kombucha and pickled vegetables."



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EXPERT ADVICE

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



What makes vitamin K2 and omega 3 such a potent combination for adults and children?

DR KATARZYNA MARESZ SUGGESTED: There are some nutraceuticals that work in harmony, providing a benefit that is greater together than alone. An excellent example is vitamins K2 and D3. Then there are nutrients that pair well because they deliver benefits that the other does not. This is the case for omega 3s and vitamin K2 as MK-7.

Omega 3s – docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) – are well-recognised as cardio-protective, earning a qualified health claim for the reduction in risk of coronary heart disease and for the ability to lower blood pressure in the U.S., and four EFSA claims for cardiovascular health.

While the omega 3 mechanism of action is linked to these important outcomes by supporting healthy inflammation, triglycerides, blood pressure, and promotion of arterial health, it is not recognised for impacting vascular calcification, which health experts believe may cause blood vessels to narrow and lead to the development of heart disease. As vitamin K2 has been shown to impact vascular calcification, it is the perfect complementary nutrient to support optimal heart health.

A specific vitamin K2 as MK-7, MenaQ7 has been clinically shown to increase arterial flexibility by activating the most potent inhibitor of arterial calcification: Matrix Gla Protein (MGP). [1-4] But what K2 as MK-7 delivers that omega 3 does not is bone support – it promotes the activation of the K-dependent protein, osteocalcin, which helps bind calcium in the healthy bone matrix. MenaQ7 has been shown in clinical study to deliver this benefit, validating a structure-function claim and an EFSA



claim for bone health.

Combining these two complementary and synergistic nutrients offers essential support for those seeking to age in a healthy way. By balancing calcium metabolism, vitamin K2 offers a synergistic role with omega 3 that could result in unsurpassed cardiovascular support that also delivers bone health benefits.

Even more noteworthy is that this specific combination of nutrients provides essential support for children's early development. While omega 3 supports learning, cognitive function and vision health, vitamin K2 is needed to support optimal bone development in children.

MenaQ7 is the only vitamin K2 as MK-7 studied in healthy child populations, showing a measurable benefit for improved bone health with only 45mcg a day.[5]

Vitamin K2 and omega 3 work well in kid-friendly applications like droplets and liquids. A clinical study showed that a yogurt drink fortified with MenaQ7 and omega 3 PUFA was an effective vehicle for increasing vitamin K status and activating bone-building osteocalcin.[6]



ABOUT THE EXPERT

Dr Katarzyna Maresz is the president of the International Science and Health Foundation and the scientific coordinator of the educational portal, Vitamink2.org. Having published more than 30 scientific papers, she is involved in clinical trials with vitamin K2 in Poland and Europe.



What are the mechanisms of medicinal mushrooms and their role in supporting immunity and which would you specifically recommend?

VANESSA NÚÑEZ CRUZ

RECOMMENDED: Medicinal mushrooms are immunomodulators. They contain natural substances which can support the body to adapt to immunological stress by increasing immune activity or decreasing an overactivation of the immune system, according to the physiological needs of the moment (pathogen attack, allergies or cancer, all related to the immune system). Therefore, they promote immunological homeostasis.

Their immune enhancing functions come in major part from their high concentration of polysaccharides and triterpenes.

■ Polysaccharides, particularly β -D-glucans, activate macrophages, NK cells, and T-cells, offering protection against viral, bacterial, and fungal infections, as well as regulating cancerous cells (Zhao et al., 2020). Reishi, shiitake and maitake are medicinal mushrooms that stand out in synergy as immunomodulators (Mallard et al., 2019), helping the immune system as a whole, while the combination of reishi and cordyceps act as powerful antivirals.

■ Triterpenes, or triterpenoids, protect the liver and have antioxidant and anti-inflammatory properties that help manage pain. Reishi, rich in triterpenes, is one of the best mushrooms for these effects (Cai et al., 2016). Its triterpenes have also been identified as sedative compounds that help calm down the nervous system (Qui et al., 2021).

Reishi mushroom is well-known for its immunomodulatory properties that can help reduce the risk of chronic inflammation and inflammatory responses following viral infection, seen in conditions like long Covid. The antiviral capacity of *G. lucidum* has been demonstrated against a number of different types of viruses, such as various coronaviruses, herpes viruses,

influenza A viruses, hepatitis B virus (HBV), HIV, and more (Ahmad MF et al. 2021 and Arunachalam et al. 2022).

In addition, research demonstrates synergistic effects from the use of reishi in conjunction with conventional antivirals, such as acyclovir, enhancing overall antiviral action (Oh KW et al. 2000). Cordyceps is a well-known antiviral and energy-enhancing mushroom. Cordycepin, an active compound exclusive to cordyceps, has been shown to have antiviral activity against several viruses, including Epstein-Barr virus (EBV), gamma-herpes viruses, virus latently infected host cells (Ryu E,

et al., 2014), dengue virus (DENV) protein (Panya A. et al., 2021), as well as in vitro effects against HIV-1 (Zhu Y, et al., 2016).

Medicinal mushrooms are also a safe and well-established source of natural prebiotics that help modulate the gut microbiota (Li et al., 2021 and Yin, Chaomin et al., 2020). Their polysaccharide content indicates their appropriateness as prebiotics (Jayachandran et al. 2017). There is evidence of the use of mushrooms being associated with changes in the microbiota, such as the promotion of beneficial bacteria, in parallel with improvements in inflammatory parameters (Diling et al., 2017). Prebiotics promote the proliferation of the body's innate microbial populations, forming a useful long-term, preventative strategy. As opposed to just adding 'outsider' probiotics in the hope they will colonise, prebiotics encourage the strengthening of existing endogenous host microbial populations. Mushrooms that stand out for their prebiotic effect are lion's mane (*Hericium erinaceus*), oyster and king oyster mushrooms (*Pleurotus spp.*) (Yang et al, 2018 and Synytsya et al, 2009).

Medicinal mushrooms can also downregulate the immune system as necessary. AbM (*Agaricus blazei*), can balance Th1 and Th2 immune response in allergies (Hetland et al., 2020) thanks to its high content in beta-glucans and other polysaccharides.

Medicinal mushrooms are adaptogens or, in other words, biological response modifiers (BRMs) because they restore the body's immune functions, as well as supporting adaptation to stress.



ABOUT THE EXPERT

Vanessa Núñez Cruz has a Bachelor's degree in Biological Sciences, health specialty, from the University of Barcelona and a Master's Degree in Scientific, Medical and Environmental Communication from Pompeu Fabra University. She has undertaken both undergraduate and post-graduate research projects at University of Manchester and University of Barcelona and has 10 years' experience as a food supplement consultant. She is currently Scientific Content Manager at Hifas da Terra.



What is the research telling us about the link between the skin and the gut, and what protocol can you recommend to support clients with problem skin, such as acne?

BEN MAKEHAM ADVISED: A growing body of evidence is indicating that the health of the gut microbiota influences skin health and the development of acne through its effects on the immune system and systemic inflammation, as well as the interactions between its metabolites and the skin microbiome¹.

Acne is primarily an inflammatory disease of the pilosebaceous unit (PSU), the hair follicle and associated oil glands, which involves secondary overgrowth of *Cutibacterium acnes* (previously *Propionibacterium acnes*) and various immunochemical pathways which cause inflammatory skin lesions². In acne, underlying inflammatory mediators drive excessive sebum production and hyperkeratinisation, creating blocked PSUs and the formation of early acne skin lesions². Opportunistic overgrowth of *C. acnes* in a sebum-rich environment triggers immune-mediated inflammatory responses, which then create more inflammatory acne lesions, for example, papules and pustules¹.

Factors which influence inflammation, such as the gut microbiome, can therefore influence the progression of acne. Research has demonstrated that the gut microbiota can significantly influence systemic inflammatory responses, including those within the pilosebaceous unit, by modulating the types of inflammatory cytokines being produced by the immune system³. It does this through its communication with local mucosal immune cells within the gut and the maintenance of epithelial barrier integrity, which prevents bacterial translocation. These effects are transferred to distal immune cells, including those in the skin¹. Studies on individuals with acne have demonstrated altered gut microbiota compositions, with lower microbial diversity and a higher ratio of Bacteroidetes to

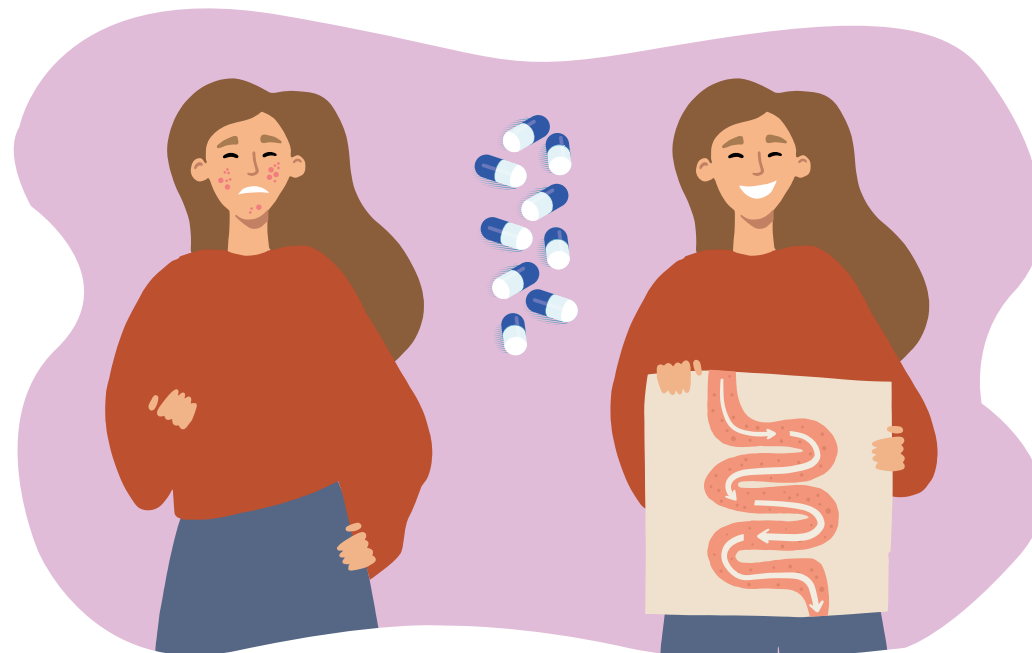
Firmicutes, which may predispose these individuals to immune dysregulation, greater inflammatory responses and thus acne¹.

Metabolites produced by the gut microbiota, such as the short chain fatty acid, propionic acid and antimicrobial peptides, such as bacteriocins, can also reach the skin via systemic circulation and are believed to shape the skin's own microbiota and inhibit overgrowth of *C. acnes* via antimicrobial effects¹⁻⁴.

Therefore, supporting a healthy gut microbiome can reduce activation of inflammatory immune responses, including those caused by *C. acnes*, and thus help to manage inflammatory skin conditions, such as acne.

As well as the gut microbiome, holistic management of acne should consider all underlying contributors to inflammation and excessive sebum production, such as endocrine balance, psychological stress, poor nutrition and cosmetics. Regardless of the root cause, incorporating an anti-inflammatory and immune-modulatory approach can help to break the self-perpetuating inflammatory cycles in the skin of acne patients.

Specific probiotic strains known to target these pathways via their activity within the gut are one strategy that clinical trials have demonstrated can make a significant impact. For example, a combination of *Lactobacillus salivarius* LS03, *Lactobacillus casei* LC03 and *Bifidobacterium breve* BR03 was found to reduce acne severity by 31 per cent after four weeks, and 39 per cent after eight weeks of treatment, which was statistically significant when compared to placebo ($p < 0.05$)⁵. Mechanistic studies have shown that one of these strains, *L. salivarius* LS03, can directly inhibit *Cutibacterium acnes* via the production of bioactive antimicrobial bacteriocins and downregulate the immune system's inflammatory response to *C. acnes*⁶.



ABOUT THE EXPERT



Ben Makeham is a qualified Naturopath and the Science & Research Communication Manager for Activated Probiotics in Australia. His writing, which has been featured in a number of industry publications, aims to explain the science behind evidence-based complementary medicines and highlight the clinical relevance that exists within this research. Ben has experience within many facets of the complementary medicine industry, including product research and development and regulatory affairs, which he uses to create highly practical and educational resources for the healthcare practitioner community.



An in-depth guide to nucleotides

Rachel Hoyle turns the attention on nucleotides, and the critical roles they play in our health.

Nucleotides are nutrients in their own right, but they are also a foundation for the effects of many micro- and macro-nutrients. We shall discuss why people can be lacking in nucleotides, and what this can cause. We will find out about their various functions in the body, where they are derived from, and what needs to be considered when choosing a supplement.

WHAT ARE NUCLEOTIDES?

Nucleotides are a micronutrient class composed of three subunit molecules: a nucleobase, a five-carbon sugar (ribose or deoxyribose), and a phosphate group, consisting of one to three phosphates. They are divided into two groups: purines, in which the bases consist of a double ring structure; and pyrimidines, in which the bases consist of a single ring structure.

These are the main nucleotide types found in the body:

- **Purines:** Adenosine and guanosine.
- **Pyrimidines:** Cytidine, thymidine and uridine.

A balanced available pool of all five nucleotides is required for successful cellular replication i.e., the formation of DNA and RNA molecules. Put simply, the highest demand for dietary nucleotides is where there is a rapid demand for new cells, energy, and protein synthesis. It is important to know that some cells and organs in the body lack the ability to produce nucleotides, or de novo/salvage pathway cannot cover their needs. These include bone marrow derived cells, such as white blood cells (leukocytes) and red blood cells (erythrocytes), intestinal mucosa cells (epithelial), cells of the intestinal flora (for example, *bifidobacteria*), and certain brain cells.

So, dietary nucleotides are required for RNA and DNA replication^{1,2,3,4}, especially pertaining to cells of the immune system and gut², but they are also important for:

- The synthesis of protein.
 - Hormones and lipids.
 - Energy stores and metabolism.
 - Co-factors to metabolise fat.
 - Carbohydrates and proteins.
 - And cell membranes (red blood cells).
- Our human body is not a static entity. It is subject to constant decay and renewal at the cellular level, where old cells continually die and are replaced by new ones. So, cellular replication and the building blocks, nucleotides are a science of extremely large numbers:
- 100 trillion – total number of cells in a human body.
 - 50m/min – number of new cells required every minute.
 - 3bn – nucleotides in every strand of DNA.



NUTRITIONAL RECOMMENDATIONS

It is rare to find one type of nutrient that is common to all the functions of the body already listed.

When we consider nutrients, what normally comes to mind are the macros, proteins, fats, and sugar, or the micro-nutrients, vitamins, minerals and trace elements, and there are RDAs for most of the nutrients in these two groups.

Since nucleotides are also a foundation for the effects of many micro- and macro-nutrients, they should really be considered as a crucial micro-nutrient class. Despite this, nucleotides are still not included in nutritional recommendations.

Although nucleotides have no RDA, they make up a category in the EU regulation Food for Specific Groups (FSG). Indeed, nucleotides are a mandatory ingredient in infant formula (zero-six months) and some intensive care medical recovery foods. As a little aside, it will interest sports men and women that nucleotides are regularly supplemented into animal nutrition in order to support immune and gut health, whilst maximising nutrient absorption and muscle production (as opposed to fat deposition).

You may be asking yourself, 'So, why if nucleotides are so ubiquitous in their involvement in our bodily functions, are they so rarely supplemented in adult diets?'. To put it simply, nutritionists, scientists, and medics are trained to believe that adult bodies can make (de-novo) or salvage enough nucleotides to cover all their needs, apart from when recovering in accident and emergency.

Along with production and salvage pathways, nucleotides can be obtained from our diet, which is generally considered to be adequate to cover the body's needs. However, when nucleotide production is most important, during an infection, recovery from injury, chronic disease, and during times of high stress and performance, this is unlikely^{5,6,7}. This means that nucleotides are conditionally essential.

Additionally, no account has been taken for how our modern diets have moved away from evolutionary times. Humans have historically eaten parts of animals that have high levels of nucleotides in organ meats, the tissues, such as the liver, stomach, intestines, and brain (in other words, the offal). It has now become common practice to discard the offal and eat the less nutritious meat. In 2015, DEFRA published a survey of 150,000 households from the time period 1974-2014. It was observed that liver and other offal was purchased 92-87 per cent less by the end of this period compared to the start. For example, a weekly consumption of 36g of liver dropped to just 3g. What's more, vegetarian and vegan diets have been found to be particularly devoid of nucleotide dense foods.

It has been determined that the minimum level of nucleotides required



to support good health is 1500mg a day. For people under stress or disease challenge, the number of nucleotides required goes up appreciably to between 2000-2500mg daily.

Circumstances dietary nucleotides can become conditionally essential:

- During periods of insufficient intake – malnutrition/eating disorders.
- Where there is a high demand – stress/sports recovery and performance.
- Where there is a high rate of growth – infants/pregnancy.
- In the presence of infection or chronic disease – viruses, bacterial and GI distress.
- Inadequate nutrition – specialised or restrictive diets.
- In older age, the cell's own production of nucleotides decreases and leads to an even faster ageing process.

Other situations where nucleotides can become conditionally essential includes:

- Poor methylation, affecting nucleotide production.
- Impacts of environment on cellular methylation, including foods.
- Genetic SNPs affecting methylation cycles, including the folate and methionine cycles, directly affect de novo synthesis of nucleotides.
- With a prevalence towards stress in modern society and a downturn in nucleotide production, the end result will be a propensity towards a deficient immune system as pyrimidine synthesis is impaired and the pools are drained.

www.nucleotide4health.org is an independent website with contributions from scientists and health professionals from around the world, including reports on the clinical trials and published papers pertaining to nucleotide research.

TO CONCLUDE

What would you expect to observe when the body cannot meet its nucleotide demand?

If you do not reach the level of nucleotides needed in your daily diet for healthy living, the body's systems that rely on fast replicating cells become less effective. The immune response will become more sluggish, and the repair and maintenance of the gut lining is reduced, leading to an impaired nutrient uptake and gut function.

You will have less energy, as the body will spend more energy on producing nucleotides by de novo means. In time, chronic health conditions become more likely. Additionally, poor nucleotide reserves lead to poor DNA expression, poor protein synthesis etc.

These are situations where a therapist needs to consider adding balanced, purified nucleotides (which are predominantly of the pyrimidine type), to their patient supplement protocol. Only five-15 per cent of nucleotides derived from food are absorbed by the body. Pure forms of nucleotides, derived from sustainable yeast sources, can be easily degraded by digestive enzymes to the forms that are easily absorbed, with the availability around 80 per cent. Fortunately, nowadays, health professionals have very well researched nucleotide-based supplements available to add to their nutritional toolbox, enhancing the effectiveness of supplementation/treatment protocols.

The evidence behind nucleotide supplementation is now very strong. Research started over 20 years ago with infant formula that has led to the mandatory inclusion of purified nucleotides in formula milk (zero-six months)^{8,9,10,11}. Certain intensive care medical recovery foods now include nucleotides, and over the last decade, food supplements have been tested in human clinical trials of enteral foods, and the independent clinical studies with IBS¹², URTIs¹³, stress (intensive¹⁴, moderate endurance¹⁵, and resistance¹⁶).



Rachel Hoyle BSc, a science graduate, has pioneered the development of nucleotide-based products since the 1990s in collaboration with Dr Peter Köppel, renowned Swiss nucleotide researcher. Her initial responsibility was to develop natural products that reduce dependency on antibiotics in animal nutrition. More recently, Rachel has researched and developed nucleotide supplements for human health. Her company, Nucleotide Nutrition, was awarded innovation grants to fund clinical research.

A sustainable practitioner partnership

A busy few years for Cytoplan has seen the business make huge strides in its sustainability mission. This, coupled with an exciting innovation programme, means there's much more to come from this practitioner brand.

So many facets are involved in being a more sustainable business, and, in the supplements industry, there are certain challenges in making greener choices that don't affect the quality of a product.

It is something that has been high on the agenda for Cytoplan, a leading practitioner brand in the UK, as the company has made huge strides forward in making its products greener and more sustainable. This switch has come alongside an innovative NPD programme, which has seen a range of unique and exciting products come to market.

Amanda Williams, CEO of Cytoplan, commented: "It's been an exciting couple of years for Cytoplan as a business, challenging at times, but we've thrived under the market challenges and demands. In 2021, we began our initiative to significantly reduce our environmental footprint, which starts with our packaging and in 2022, we will remove over one million conventional plastic

pots from circulation and have changed all our shipping materials to compostable materials.

"We are committed to reducing our environmental impact and have been able to source biodegradable pots, made from natural, sustainable sugar cane that utilises the waste from the sugar cane industry, thus helping with more stable sugar cane pricing. The launch of our sugar cane pots was really successful and we're so excited about the rest of our journey towards supporting our eco-friendly motivation and hence, our environment."

Today, there are 50 members of the team, across the company's two sites, with many members of staff having worked for the business for over 15 years. Staff is something, the business says, it is incredibly proud of. As CEO and a Nutritional Therapist, Amanda herself has been with Cytoplan for over 23 years and dedicates much of her time to refining and developing the unique product range.



DEVELOPING THE PORTFOLIO

CytoPlan is a brand that innovates, and despite the pandemic, this product development has continued. Currently, the range stands at more than 150 products – and still growing.

Amanda explained: “We’ve launched some exciting new products to the market, including Premium CBD, Omega Protect with CoQ10, a sustainable vegan omega oil to replace our fish oil and much more. We have also recently opened our second warehouse and state-of-the-art production facility to help maintain our fast and efficient deliveries, as demand continues to grow for our high-quality nutritional supplements.”

And when it comes to the current portfolio, as well as in any future NPD, Amanda explained that there is a set of principles that make the products unique.

“When we are considering new products, they need to fit within our philosophy of working in harmony with the body, fit with other products in our range, the ingredients need to be supported by research, which also underpins their metabolic mechanism of action, they should be bio-effective, gentle, safe and the very best quality possible. Ideally, they should be affordable and the best of their kind,” Amanda commented.

And speaking of the overall portfolio, what is it that makes a CytoPlan product unique?

“We are the pioneers of food state and wholefood supplements, which we launched 30 years ago. The wholefood supplements in our range are made from specially grown or nutrient dense foods, whereas food state



nutrients are classified as raw food and made via a proprietary ‘re-naturing’ process,” she advised.

“Both deliver nutrients to the body in the same form as they occur in wholefoods, which is our signature. We are always looking to evolve our range whilst staying consistent to our aims and philosophy and have recently launched the first Superfood Multi, with organic fruits, vegetables, vitamins and

minerals. We’re incredibly proud of our unique approach to nutritional supplements and our approach to business.

“We are wholly owned by a charitable foundation – The AIM Foundation – which work closely with health and wellness projects across the UK. This means as a business, we are driven by doing good, helping people to be informed and self-empowered for their health, rather than in search of profit.”

PRACTITIONER SUPPORT

A key element of the CytoPlan business is its rich history with practitioners, and there is a huge amount of support on offer.

“CytoPlan is and always has been a practitioner-focused company and our primary goal is to provide a supportive and efficient service to meet the needs of our practitioners,” Amanda pointed out. “Key within this is the supply of optimally bio-effective products which give trusted results, and education from industry professionals to help continuing practice development.

“CytoPlan was founded and continues to be led by practitioners who understand the needs of health professionals in practice and hence the company has been moulded around meeting their needs. We work closely with our practitioners to help them grow their practices and have many nurturing and incentivised schemes in place.”

And looking in greater detail at the support package offered to you as practitioners, Amanda went on: “Our thriving practitioner community are able to shop at discounted prices; up to 40 per cent less than RRP, the option to earn up to 33 per cent commission, free educational resources on our practitioner hub section of the website (including webinars, booklets and product training), a £200 credit when a practitioner has 50 clients linked to their account, plus much more.

“We host live CPD webinars with renowned guest speakers throughout the year too. We also have a team of medical doctors and experienced nutritional therapists on hand to help support practitioners with cases and on understanding the therapeutic application of our products. We are always looking to add more value to our practitioner support packages and we continually develop new opportunities for this. At this time, we are working closely with many of our practitioners who specialise in different areas of health and are commissioning their particular skills and knowledge to bolster our blogs and therapeutic protocols in different areas of health.”

ADAPTING FOR THE FUTURE



As a well-established brand in the practitioner market, the company saw huge increases in demand during the pandemic.

Amanda commented: "Like many others, the last couple of years has been quite different for us as a business. As a health and wellness company, we experienced huge demand throughout the pandemic and continue to notice that growth as more research is made public for key nutrients shown to be supportive to health and protection from disease. We noticed huge uptake for vitamin D products, vitamin C, zinc and all immune-related ingredients as new research was commissioned and published as to their benefit against Covid-19."

But in terms of where we are now, as we adapt to newer trading patterns, what trends is CytoPlan seeing?

"With the cost-of-living crisis looming, we've noticed trends picking up across our multivitamin ranges as people look to maintain their wellbeing and nutritional needs in a simple and cost-effective way. But we also notice people are spend-conscious so we are endeavouring to hold our prices where we can and also offer better value alternatives for essential

nutrients. We have also noticed our customers switching from animal-based EFAs to our vegan alternatives," Amanda noted.

CytoPlan is clearly not a business that plans to stand still. So, as we look ahead, what is on the horizon?

"We will continue to be pioneers within the market and will remain consistent and true to our ethos and philosophy, which encompass a passion to optimise people's health, ethically and sustainably. We are committed to building our customer networks, as well as continuing to support and nurture our practitioners, so that we can spread the word and more people can benefit from our approach to nutrition and the products we develop," Amanda explained.

"As we grow, we will continue to offer a personal service to our customers, aiming to fulfil their nutritional needs wherever possible. We will remain true to our practitioner roots, providing much more than just high-quality products. We will endeavour to retain our primary focus towards the provision of health supplements that really work and deliver a wide and relevant product range that is effective and in harmony with the human body and nature."



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Flavours from Asia

Discover Leemei Tan-Boisgillot's fresh and vibrant dishes, inspired from Asia, from Kuala Lumpur to Kyoto.



Korean-style makizushi



Steamed rice cakes



Vietnamese prawn rice paper rolls



Korean-style makizushi

Serves 4

Preparation time: 45 minutes, plus 20 minutes cooling time

Cooking time: 10 minutes, plus cooking the rice

Ingredients:

- 4tsp sesame seeds
- 1 recipe quantity boiled short grain rice
- 2tbsp sesame oil
- 4 nori sheets (20 x 18cm/8 x 7in)

Filling:

- 2 eggs
- 1tsp sunflower oil
- 200g/7oz baby leaf spinach
- ½ carrot, cut into matchsticks
- ½ cucumber, halved lengthways, deseeded and cut into strips
- 12 crabsticks
- fine sea salt

Dipping sauce:

- 2tbsp light soy sauce
- 1tbsp rice vinegar, generous
- 1tbsp lemon juice

Method:

- Heat a frying pan over a medium-high heat, then add the sesame seeds and dry-fry for a few minutes until the seeds begin to pop.

- Tip half the sesame seeds into a mini food processor and grind to a fine powder. Leave the other half of the sesame seeds to one side.

- To make the dipping sauce, whisk all the ingredients together with the ground sesame seeds until well combined. Leave to one side.
- Transfer the cooked rice to a large wooden bowl or a non-metal baking dish. Add the sesame oil and remaining toasted sesame seeds and gently fold through the rice using a spatula. Level the rice, cover with a damp dish towel and leave to cool to room temperature.

- To make the filling, beat the eggs together with a pinch of fine salt in a small bowl. Pour the sunflower oil into a large, heavy-based frying pan over a medium-high heat, then use a paper towel to grease the pan evenly and soak up any excess oil. When the pan is hot, pour in the beaten eggs and turn the heat down to low.
- Cook the omelette for three minutes on each side until cooked through but not coloured. Leave to one side to cool, then cut into strips.

- Meanwhile, bring a saucepan of salted water to the boil, add the spinach and cook for about 30 seconds. Drain and refresh under

running cold water. Squeeze out any excess liquid and pat dry with paper towels. Leave to one side.

- Cover a bamboo sushi mat with cling film/plastic wrap and put on a clean surface with a long side closest to you. Leaving a gap of about 2cm/¾ in at the edge nearest to you, place a nori sheet, rough side up, on the mat. Moisten one of your hands to help stop the rice sticking to it, then scoop up one-quarter of the rice and spread it evenly over two-thirds of the nori sheet, leaving a small gap at each end. Place four to six strips of omelette, a small handful of spinach, two to three strips of carrot, two to three strips of cucumber and three crabsticks horizontally along the middle of the rice.
- Bring up the bottom edge of the mat, fold it over the filling and then roll the nori up into a cylinder, pressing firmly at the same time to make sure the makizushi is tight and compact. Put a few kernels of cooked rice along the end of the nori sheet and press firmly to seal. Give the mat a final press to create a tight roll. Leave the roll to one side and cover with cling film/plastic wrap. Repeat to make three more rolls.
- To finish, lightly moisten the blade of a sharp knife and cut each roll into five or six rounds. Serve with the dipping sauce.



STEAMED RICE CAKES



VIETNAMESE PRAWN
RICE PAPER ROLLS



Steamed rice cakes

Steamed rice cakes, known as Puto, is a traditional Filipino dessert. The most popular natural colouring for these is extract of pandan leaves, which is usually used for its bright green colour and its sweet fragrance. However, I've used green tea powder because it is much easier to prepare. Usually eaten as an afternoon snack with a cup of tea or coffee, they are also often served during breakfast.

Serves 12

Preparation time: 20 minutes, plus 30 minutes resting time

Cooking time: 15 minutes

Ingredients:

- 300g/10½ oz/generous 1 cups rice flour
- 50g/5½ oz/scant 1¼ cups self-raising/self-rising flour
- 1tbsp baking powder
- 1tsp instant yeast powder
- 190g/6¾ oz/heaped ¾ cup caster/superfine sugar
- Pinch of sea salt
- 400ml/14fl oz/generous 1½ cups coconut milk
- 1½ tsp green tea powder, for colouring
- 2tbsp freshly grated coconut or desiccated/dried shredded coconut, to serve grated palm sugar or soft light brown sugar, to serve (optional)

Method:

- Combine the rice flour, self-raising flour, baking powder, instant yeast powder, sugar and salt in a mixing bowl. Add the coconut milk and three tablespoons water and stir until the sugar is dissolved. Pour half of the mixture into a separate bowl, add the green tea powder and mix well. Leave both the green and white mixtures to stand at room temperature for 30 minutes.
- Divide the white mixture into six individual muffin moulds or 100ml/3½fl oz/generous ½ cup ramekins. Repeat with the green mixture to give a total of 12 rice cakes.
- Arrange the moulds in a bamboo or electric steamer and steam for 15 minutes, or until the cakes are nicely risen. Depending on the size of the steamer, you may need to cook the rice cakes in batches. Serve hot or cold with the coconut scattered over and a sprinkling of sugar, if you like.



KOREAN-STYLE
MAKIZUSHI



VIETNAMESE PRAWN
RICE PAPER ROLLS

Vietnamese prawn rice paper rolls

These spring rolls, neatly wrapped in translucent rice paper, look stunning with a hint of orange and green colours from the ingredients inside showing through. Each bite of these healthy finger foods reveals a mouth-watering combination of the fresh, clean flavours of the rice paper rolls against the gentle tang of the Nuoc Cham Dipping Sauce.

Makes 12

Preparation time: 45 minutes

Cooking time: 3 minutes

Ingredients:

- 120g/4¼ oz dried rice vermicelli
- 12 x 16cm/6¼ in round rice paper sheets
- 36 Thai basil leaves or mint leaves
- 24 cooked, peeled large king prawns/jumbo shrimp
- 20g/¾ oz/scant ¼ cup bean sprouts
- 24 garlic chives, cut into 16cm/6¼ in lengths

Method:

- Bring a saucepan of water to the boil and cook the rice vermicelli for two to three minutes until softened. Drain, refresh under running cold water and pat dry with paper towels. Transfer to a bowl and roughly cut into 6cm/2½ in pieces.
- Lay a damp, clean dish towel on a chopping/cutting board and place a large

bowl of warm water to the side. Take a sheet of rice paper and submerge in the warm water for about 10 seconds. Don't soak the rice paper for too long, as it will tear.

- Lay a soaked rice paper sheet flat on the dish towel. Arrange three basil leaves along the centre of the sheet, then place two prawns roughly on top of the basil leaves. Next, put a few bean sprouts on the prawns and then a large pinch of cooked rice vermicelli. Mould the ingredients into an oblong shape. Fold the bottom of the sheet over the filling, then fold in the two sides. Add two garlic chives to the centre, crossways, so one end of each of the chives sticks over the edge.
- Roll the spring roll and chives up as tightly as possible. Put the spring roll on a serving plate and cover with a damp dish towel, then repeat until all the ingredients are used. Serve at room temperature with Nuoc Cham Dipping Sauce on the side.



KOREAN-STYLE
MAKIZUSHI



STEAMED RICE CAKES

THE
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HOME
KITCHEN**

FRESH, VIBRANT DISHES FROM
KUALA LUMPUR TO KYOTO

LEEMEI TAN-BOISGILLOT

The Asian Home Kitchen,
by Leemei Tan-Boisgillot,
is published by Watkins
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I-Mag giveaways



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



Rio Health Cilantro Plus

The latest addition to the Rio Health Tinctures range, Cilantro Plus is a formulation that contains the extracts of cilantro (*Coriandrum sativum*) leaf with chlorella (*Chlorella vulgaris*) and seaweed (*Chondracanthus chamissoi*). This botanical blend is provided with a calibrated dropper for easy dispensing. Cilantro Plus features in the new Rio Health Support Program (RHSP).

I:Win: We have three to give away.

RHYTHM NUTRITION LIPOSOMAL DEFLAME

Rhythm Nutrition has a clear mission: to help people keep moving so they can keep doing the things they love! This award-winning supplement from Gold Nourish is a fiery blend of curcumin (from turmeric), ginger, vegan omega 3 (from seaweed) and Indian frankincense and is designed to fight inflammation and oxidative stress in the body to naturally reduce pain. Vegan, and with 30 servings.

I:Win: We have three to give away.



Activated Probiotics Practitioner Consultation

Activated Probiotics is an evidence-based range of live bacteria supplements that have been scientifically formulated to support specific areas of health. Passionate about educating health professionals on the systemic health effects of the gut microbiota and providing practitioners with innovative and evidence-based solutions.

I:Win: Activated Probiotics is offering readers a chance of winning one of three free practitioner consultations, along with one product.



BIOCARE CALM COMPLEX

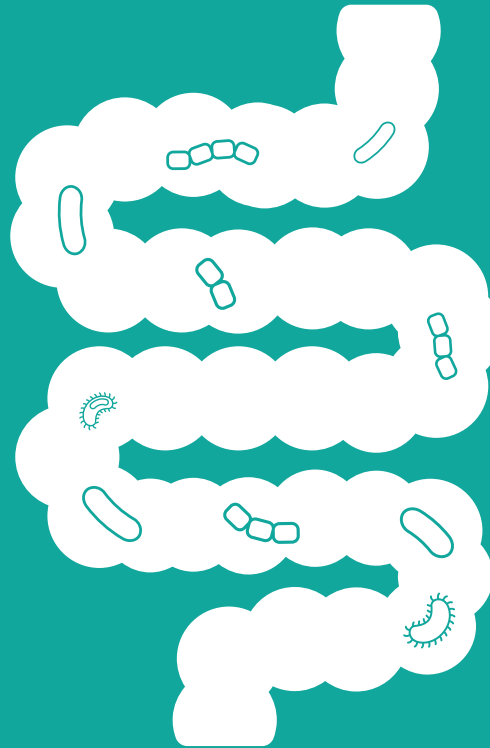
Calm Complex is a blend of herbs and nutrients to support the nervous system, especially due to stress, worry, irritability, or difficulty sleeping, including during the pre-menstrual period, or when studying for exams. It contains magnesium, in an easy for the body to absorb glycinate form, which supports the nervous system, and helps reduce tiredness and fatigue, alongside lemon balm, L-theanine, and holy basil to reduce stress, support brain health, relaxation, mental and physical wellbeing, and healthy sleep. Lemon balm also decreases tenseness, restlessness, and irritability.

I:Win: We have three to give away.



ADVANCED PRO-VEFLORA™

60 CAPSULES • 500MG PER CAPSULE



14 STRAINS

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VEGAN

AND DAIRY FREE

50 BILLION

LIVE ORGANISMS PER GRAM

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