



Nutrition I-Mag

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NOVEMBER/DECEMBER 2020



THE GUT CONNECTION

An in-depth guide to the gut and its critical link to health

Superfood suggestions

Experts discuss the role of superfoods in the diet

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Welcome



It's hard to believe that at the time of writing, some eight months have passed since the UK entered a full nationwide lockdown at the hands of the Covid-19 pandemic. And as we put this issue to press, we are seeing the predicted second wave come to life, and vast swathes of Great Britain go back into various forms of lockdown.

This has clearly had a huge impact on all our lives – how could it not – and for many people, it has affected their physical and mental health in a number of ways. What

we have seen come through as a clear 'trend' is the increased focus people are placing on their own health, finally seeing the importance of taking responsibility for their nutrition, and this is, of course, to be welcomed.

And we are seeing growing evidence to back up why nutrition is so

crucial – let's take vitamin D as a prime example. Research is building to demonstrate the importance of vitamin D for the immune system and in relation to respiratory illness. Most recently, Health Secretary, Matt Hancock, has confirmed that not only has he asked scientists to look once again at the impact of vitamin D on resistance and immunity, the Government will also be increasing the public messaging around vitamin D.

Going further, we have also heard this month that researchers at Queen Mary University of London are conducting a new clinical trial to examine if vitamin D can reduce Covid-19 risk. We bring you details of the latest vitamin D news [here](#).

It's also that time of year when we welcome our annual mentoring scheme candidate; *Nutrition I-Mag* is extremely proud to run this scheme, which gives a final year student with an interest in writing the opportunity to have their work published, and we are delighted to once again be working with CNELM on this. This year, Kate Fleming is the author and she examines how NTs can support their clients' joint and bone health – you can read her work by clicking [here](#).

RACHEL SYMONDS, EDITOR

Rachel

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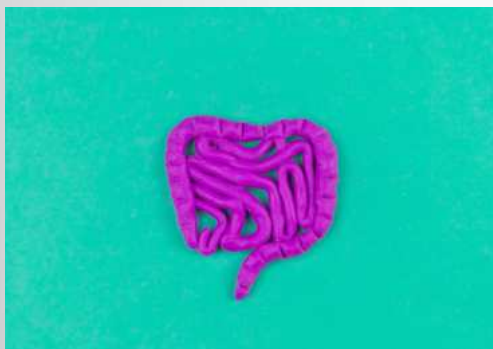
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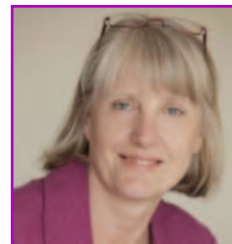
OUR CONTRIBUTORS

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



Colette Healy

Colette Healy is a herbalist in Cork, Ireland. She has a degree in Herbal Science, as well as having studied herbalism more traditionally. She works with native herbs as much as possible, as well as medicinal mushrooms. She is a Practitioner Health Advisor with Hifas da Terra UK.



Dr Marilyn Glenville PhD

Dr Marilyn Glenville PhD is one of the UK's leading Nutritionists. She is the author of 16 internationally bestselling books, including *The Natural Health Bible for Women*. Dr Glenville runs clinics in Harley Street, London, Kent and Ireland by phone and Skype.



Dr Thomas Wnorowski

Dr Thomas Wnorowski is a widely published Biomedical Nutritionist, Board Certified in Integrative Medicine, with post-doctoral study from Purdue, Tufts and Johns Hopkins Universities. A member of the Academy of Nutrition and Dietetics and the American Association of Integrative Medicine, he sits on the board of Mohr Results Sports Nutrition and the Integrative and Function Nutrition Academy. Dr Wnorowski is Research Director at BodyBio, a nutritional supplement company.



Alice Bradshaw

Alice Bradshaw is a qualified Nutritional Therapist with a passion for health writing. She has worked in the natural health industry for 25 years and is Head of Education and Nutrition Information at Terranova Nutrition.



Rose Holmes

Rose Holmes, Registered Nutritionist, mBANT, BSc, Dip.ION, PGCE, has a special interest in chronic illness, circadian rhythm disruption and healthy ageing. She is the Education and Training Manager at Rio Health, which specialises in South American teas and supplements.



Karen Jones

Karen Jones BSc, BA, DipCNM, CNHC, mBANT, is a Registered Nutritional Therapist practicing in London and specialising in gut health. After completing her diploma at CNM in 2018, she studied the research on the microbiome in a study group under the guidance of Adam Greer (senior lecturer at CNM) for nine months. Karen also provides practitioner support for Microbiome Labs and Enzyme Science brands in the UK.

News Bites

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



CLINICAL TRIAL ANNOUNCED TO INVESTIGATE IF VITAMIN D CAN PROTECT AGAINST COVID-19

Researchers at Queen Mary University of London have announced a clinical trial to ascertain whether taking vitamin D could protect people from Covid-19.

The CORONAVIT trial will study more than 5,000 people over six months to find out whether a 'test-and-treat' approach to correct people's vitamin D deficiency during winter will reduce the risk and severity of Covid-19 and other acute respiratory infections.

The researchers explained that until an effective vaccine has been developed for Covid-19, strategies to boost the UK population's immunity to respiratory infections are urgently needed. There have been recent debates as to whether vitamin D could play a key role in protecting people from Covid-19, but so far, definite evidence on this is lacking.

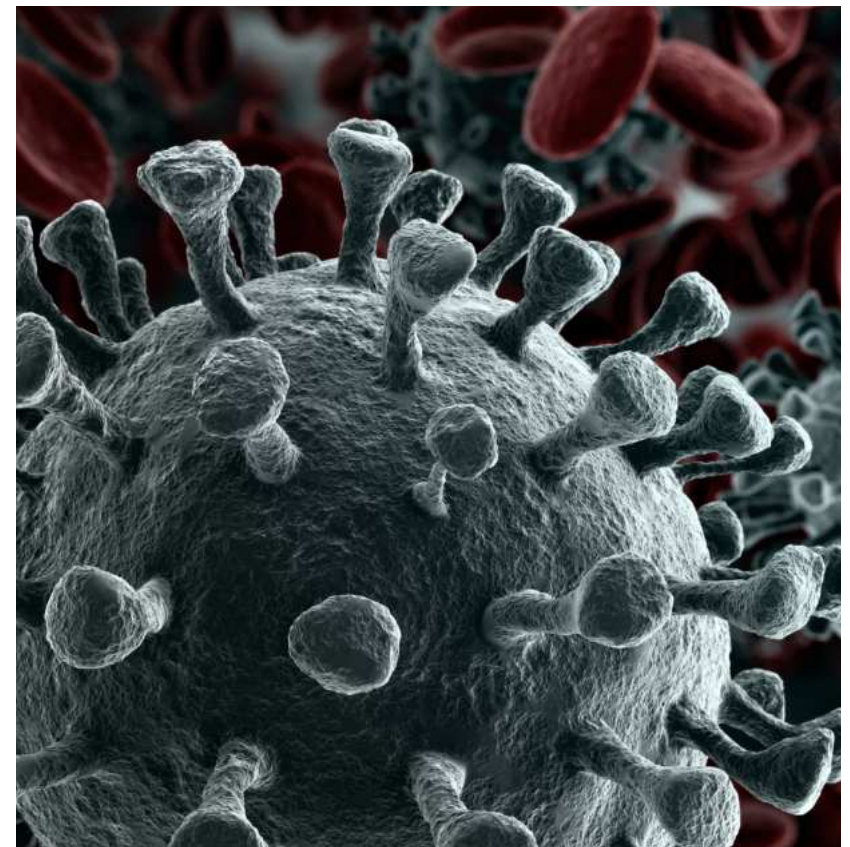
Dietary sources of vitamin D are limited, so around two in five of the UK adult population have inadequate levels of vitamin D over winter and spring. The UK Government recommends that the general population considers taking vitamin D supplements during winter and spring, which has recently been extended to a recommendation of year-round supplementation due to decreased sun exposure during lockdown. However, early unpublished data from the Queen Mary team shows that two

in three people are not following this advice, potentially due to a reluctance to buy and take a supplement without a test result that shows they are vitamin D deficient.

People will take part in the study from their homes, without any face-to-face visits needed, as all vitamin D tests and supplements will be sent via the post. Any UK resident aged 16 or more can participate if they are not already taking high-dose vitamin D.

The intervention involves doing a postal finger prick vitamin D test, which will be processed in an NHS lab. Participants who are found to have low levels of vitamin D in their blood will be given a six months' supply of vitamins. The research team will then track the incidence of doctor-diagnosed or laboratory-confirmed acute respiratory infection in the participants, including Covid-19, to see whether vitamin D supplementation has had an effect on their risk and severity of infection.

Principal investigator of the study, Dr David Jolliffe, from Queen Mary University of London, commented: "The CORONAVIT trial has the potential to give a definitive answer to the question of whether vitamin D offers protection against Covid-19. Vitamin D supplements are low in cost, low in risk and widely accessible; if proven effective, they could significantly aid



in our global fight against the virus.”

Professor Adrian Martineau, from Queen Mary University of London, the lead researcher, added: “There is mounting evidence that vitamin D might reduce the risk of respiratory infections, with some recent studies suggesting that people with lower vitamin D levels may be more susceptible to Coronavirus. Many people in the UK have low vitamin D levels, particularly in the winter and spring, when respiratory infections are most common. Vitamin D deficiency is more common in older people, in people who are overweight, and in Black and Asian people – all of the groups who are at increased risk of becoming very ill with Covid-19.

“The UK Government already recommends that people take a low-dose vitamin D supplement over the winter to protect their bone health, but we do not know if this will have effect on Covid-19 or if higher doses might be able to provide protection against the virus. The CORONAVIT trial will test whether higher doses of vitamin D might offer protection against winter respiratory infections, including Covid-19.”

In other vitamin D news, MPs calling for a review of evidence on vitamin D have welcomed news that a public health campaign will take place.

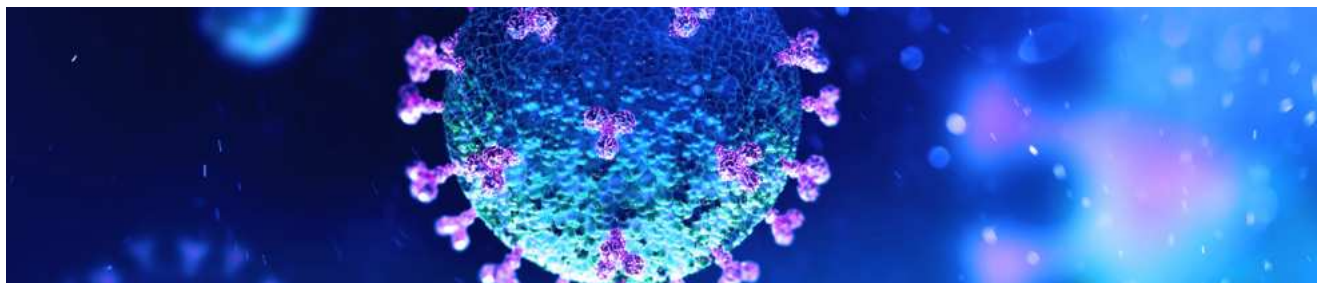
Tory MP, David Davies, and Labour MP, Rupa Huq, have been calling for action on vitamin D as an intervention.

In a recent House of Commons debate, Huq asked Health Secretary, Matt Hancock: “He knows my position on vitamin D. Has he considered that that could be a high-impact, low-risk, virtually cost-free thing that would make him a hero? What is he waiting for?”

To which Hancock responded: “On the point about vitamin D, I have asked the scientists to look once again at the impact of vitamin D on resistance and immunity. There has been some updated evidence that has come to light in the past few weeks, and I want to ensure that is fully taken into account. I can also tell the hon. Lady that we will be increasing the public messaging around vitamin D to make sure that people get the message that vitamin D can help with broad health and that there is no downside to taking it, and therefore people should consider that.”

Speaking afterwards, in a joint statement, Huq and Davis commented: “It is brilliant news that Matt Hancock is encouraging people to consider taking vitamin D supplements and has accepted there are no downsides to taking it. It is also encouraging the Government is now reviewing the evidence on Vitamin D and Covid-19.

“What needs to happen now is all the groups that are vitamin D deficient and susceptible to Covid-19, including the elderly, black and ethnic minorities, the obese and those with co-morbidities such as diabetes, should be given free vitamin D supplements as a matter of urgency.”



Nutrition focus among most popular Google searches during pandemic

The huge interest in immune-related products and herbs triggered by the Covid-19 pandemic has been revealed.

A new study, Behaviors: An Analytical Study of Google Trends-Based Query Volumes, has been published in the journal, *Nutrients*, utilising Google Trends to obtain worldwide relative search volumes (RSVs) covering a timeframe from before the Covid-19 pandemic, June 1, 2019 to April 27, 2020, and analysing relevant keywords related to these topics.

RSV curves showed increased interest in multiple keywords related to dietary and lifestyle behaviours during the Covid-19 lockdown period in March and April 2020. Spearman's correlation analysis showed that the strongest variables in each keyword category were, in order, food security (food shortage, food bank, and free food), dietary behaviours (delivery, restaurant, takeaway, and food delivery), outdoor-related behaviours, and immune-related nutrients/herbs/foods (vitamin C, vitamin A, zinc, immune, vitamin E, garlic, omega 3 fatty acid, vitamin D, and turmeric).

The researchers explained how the pandemic is not only having profound effects on healthcare systems but also on global economies, world trade, tourism, and social restrictions. They highlighted that a joint statement on Covid-19 impacts on food security and nutrition was recently released by the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the World Bank, and the World Food Program (WFP) on the occasion of the Extraordinary G20 Agriculture Minister's Meeting, which concluded that the “pandemic is already affecting the entire food system and collective action is needed to ensure that markets are well-

functioning”.

The study explained that globally, an estimated 3.4bn people have access to the internet. The accessibility of the internet and the rise of social media have affected social lives and dietary and lifestyle behaviours.

The researchers reported: “Our study found that during the Covid-19 pandemic, people were highly concerned about food security and immune-boosting interventions. This suggests that the lockdown has greatly affected the economy, food industry, and behavioural/nutritional choices.

“We have observed worldwide concerns with immune-boosting nutrients/herbs during the Covid-19 pandemic. An adequate and balanced diet provides sufficient nutrients to support a healthy immune system against respiratory tract infections, such as Coronavirus infection. Vitamins and minerals play vital roles in energy metabolism and maintaining an effective immunological defence system.”

And the study concluded: “In conclusion, this study provides insights into human behaviours during the 2020 Covid-19 pandemic. Specifically, our study showed profound effects of Covid-19 on sedentary indoor behaviours and global concerns with immune-boosting nutrients/herbs, and food security.

“Swift action is needed to strengthen the resilience of food systems, especially targeting those most vulnerable groups and food-insecure regions. Authors should discuss the results and how they can be interpreted from the perspective of previous studies and of the working hypotheses. The findings and their implications should be discussed in the broadest context possible.”



Brands failing to offer clear labelling, research finds

Many food and beverage products do not offer the clear labelling that consumers want.

That is according to new research of adults in the UK and USA, commissioned by Ingredient Communications and conducted by SurveyGoo, which found that 50 per cent of people said they are more likely to buy a product if they can recognise all of the ingredients listed on the label. However, in a sign that their needs are not being met, only 19 per cent of respondents said they always recognise all of the ingredients on the pack.

Demonstrating the risks of this, more than one third of respondents (36 per cent) admitted they are less likely to buy a product made with an ingredient they do not recognise. Conversely, 44 per cent said they are happy to pay a higher price for a product when they recognise all of the ingredients it contains.

The findings of the survey indicate that a large number of consumers consider clear labelling to be a priority but also raise questions about how successfully the industry is catering to their preferences.

Most respondents to the survey, which was conducted in September 2020, also expressed a preference for natural ingredients and an aversion to artificial additives. As many as 81 per cent of consumers said they consider the label claim 'made with natural ingredients' to be very appealing or quite appealing. A similar number (78 per cent) said they consider the label claim 'free from artificial ingredients' to be very appealing or quite appealing.

Richard Clarke, Managing Director of Ingredient Communications, advised: "Ingredients companies have taken big steps forward to optimise their portfolios to include clean label ingredients that can be declared on-pack in clear language that most consumers will recognise. Manufacturers of finished products should consider formulating – or reformulating – their products to include these ingredients, or they risk being left behind."

Cambridge Commodities expands technical expertise

A new Head of Quality has joined Cambridge Commodities.

The global ingredient supplier has appointed Becky Smith (pictured) to the role, who brings with her more than eight years' experience in the industry.

The quality team ensure that high standards are upheld at all times, with new materials being subject to analysis both within the company's in-house lab and at external accredited labs. Its site is AA grade certified against the BRC Global Standard for Food Safety Issue 8 and is an Informed-Sport registered facility. The company also holds ISO 9001:2008, ISO 14001 and ISO 22000 for quality management, Hazard Analysis and Critical Control Point (HACCP) and environmental management.

"I'm excited to be joining such a vibrant business during a really key stage in its growth and development," Becky commented.

"Cambridge Commodities is genuinely committed



to setting the quality standard within the industry and providing the best possible ingredients. This commitment has been demonstrated in the few months since I joined the business, from the support of the board to the large and dynamic team of quality specialists to the financial investment in future projects. I'm looking forward to seeing how we can continue to drive the quality standards to exceed customer expectations in the future."

New Chairman joins prebiotic brand

Henning Sogaard has been appointed as the Chairman of the Board at Clasado.

Clasado Biosciences, a global leader in the development of prebiotic ingredient and product solutions, welcomed Sogaard (pictured) to the board, who brings with him more than 30 years' experience in the food, pharmaceutical, biotech and personal care sectors. Highly experienced in top-level management and business acquisitions, Sogaard has held high-profile roles in recent years with NutraQ, Impilo and Apoteka.

Per Rehné, CEO at Clasado Biosciences, commented: "We are delighted to welcome Henning to the board, in what is a very exciting time for the business. He has extensive experience in driving commercial growth and his emphasis on meaningful, targeted development over 'growth for

growth's sake' is absolutely in line with our core strategy. We look forward to Henning's contribution to the business as we execute our vision for the future of microbiome science."



Sogaard added: "Around the world, consumers are engaging with the prebiotic category on a level unseen before. The team at Clasado is primed and perfectly placed to help food and nutraceutical brands deliver what today's consumers are demanding."



In Research

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

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Action called for to address vitamin D deficiency in care homes

The results of a new study from the University of Brighton has found that more needs to be done to prevent vitamin D deficiency in care home residents.

Writing in the *British Medical Journal (BMJ) Nutrition, Prevention & Health*, Joe Williams, Brighton and Sussex Medical School (BSMS) MSc Public Health graduate, and the university's Principal Lecturer for Health Promotion and Public Health, Carol Williams, focused on the residential care sector and highlighted a problem in the understanding of vitamin D supplements as medicines rather than food supplements.

With residents in elderly care homes particularly at risk of vitamin D deficiency and with limited ability to make lifestyle decisions, the paper found that a gap exists between public health guidance and practice around vitamin D supplements.

To conduct the study, interviews took place with members of care home staff, GPs, members of local authority public health departments and other relevant professionals in two areas of southern England.

Carol Williams commented: "Recommendations that residents in elderly care homes should take 10mcg vitamin D each day have been around for more than 30 years. Moving into a care home should not mean an inevitable drift into vitamin D deficiency.

"The study found that under the current guidance, care homes are only allowed to give residents vitamin supplements that have been prescribed. But doctors have also been advised by the NHS not to prescribe preventative vitamins because they can be bought cheaply over the counter. This means that elderly care home residents often do not get the

vitamin D they require, leaving them at increased risk of falls.

"Other commentators in the *BMJ Nutrition, Prevention & Health* have noted that policies and recommendations on vitamin D do not seem to be taken seriously enough. The Covid-19 pandemic has brought conditions in care homes into the public eye and on to the political agenda. There is an urgent need for widespread vitamin D supplementation, and in particular in care homes."

Joe Williams added: "Those out of sight, including older adults in residential care settings, can often be forgotten. The Coronavirus pandemic has brought the health and vulnerability of those in elderly care homes to the fore. The problems with vitamin D supplementation in care homes reveals both a failure to implement evidence-based recommendations and a social injustice in urgent need of public health advocacy and resolution."



Nutrients confirmed for importance in respiratory health

A study linking vitamins A and D with fewer respiratory complaints has been welcomed.

The study, published in *BMJ Nutrition Prevention & Health*, found supplementing with the fat-soluble vitamins – on top of dietary sources – is linked with significant reduction in risk of respiratory infections.

The study, conducted by a team from the NNEdPro Global Centre for Nutrition & Health in Cambridge and Imperial College London, analysed data from 6,115 adults in the Government's National Diet and Nutrition Survey. Participants with higher intakes of vitamin A and E from dietary sources were significantly less likely to report respiratory complaints compared with lower intakes. It was also found those taking supplements with vitamins A and D were significantly likely to report fewer respiratory problems.

Commenting on the study, Dr Carrie Ruxton, from the Health and Food Supplements Information Service, said: "With winter approaching, we need to ensure that our immunity nutrients – vitamin A, C and D – are at optimal levels. We also know off the back of a report HSIS has just published, *Plant Based Diets – Nutritional Challenges and Future Health Worries – An A-Z Analysis*, which reviewed data from 17,262 people, we are all woefully short of vital nutrients in our diets with the nutrient picture being even worse for those on a plant-based diet. In fact, no-one quizzed by HSIS on a plant-based diet name-checked vitamin D, despite the fact that nearly all major dietary sources of the sunshine vitamin are animal or fish based. Only a fifth of people currently take a multivitamin or vitamin D – despite today's stronger messages about topping up on vitamin D."

Research examines mental health impact of pandemics

New research from the University of East Anglia has highlighted how common mental health problems are in healthcare staff during and immediately after pandemics.

The researchers investigated how treating patients in past pandemics, such as SARS and MERS, affected the mental health of frontline staff. They found that almost a quarter of healthcare workers (23.4 per cent) experienced PTSD symptoms during the most intense 'acute' phase of previous pandemic outbreaks – with 11.9 per cent of carers still experiencing symptoms a year on.

They also looked at data about elevated levels of mental distress and found that more than a third of health workers (34.1 per cent) experienced symptoms such as anxiety or depression during the acute phase, dropping to 17.9 per cent after six months. This figure increased again to 29.3 per cent after 12 months or longer.

Prof Richard Meiser-Stedman, from UEA's Norwich Medical School, commented: "We know that Covid-19 poses unprecedented challenges to the NHS and to healthcare staff worldwide.



Nurses, doctors, allied health professionals and all support staff based in hospitals where patients with Covid-19 are treated are facing considerable pressure, over a sustained period.

"The media has reported that healthcare workers treating Coronavirus patients will face a 'tsunami' of mental health problems as a result of their work. We wanted to examine this by looking closely at the existing data from previous pandemics to better understand the potential impact of Covid-19. We estimated the prevalence of common mental health disorders in health care workers based in pandemic-affected hospitals. And we hope our work will help inform hospital managers of the level of resources required to support staff through these difficult times."

Symptoms of conditions relieved with Q10, research suggests

A new study has revealed that supplementation with coenzyme Q10 can relieve symptoms of chronic conditions.

The scientific review, Disorders of Human Coenzyme Q10 Metabolism: An Overview, published in the *International Journal of Molecular Sciences*, looks at the role CoQ10 plays in the body, what effects a deficiency of CoQ10 can have on human health and what results supplementing CoQ10 has been shown to produce.

The review authors wrote that significant symptomatic improvement had been recorded in people suffering from cardiovascular disease, chronic kidney disease, liver disease and Type 2 diabetes after taking supplements of CoQ10. They also noted that patients suffering from ataxia, myopathy and nephrotic syndrome "may show remarkable clinical improvement following CoQ10 supplementation when administered at an early stage of the disease".

While the study authors say the full effects of Q10 deficiency in contributing to conditions including liver disease, chronic kidney disease, cardiovascular disease and Type 2 diabetes have yet been properly outlined, they note that a number of studies involving patients with these conditions taking Q10 supplements have yielded positive results. For example, in one randomised, double-blind clinical trial, called Q-SYMBIO 2, patients who had suffered heart failure were given 300mg of CoQ10

supplements a day, in addition to their conventional medication over a two-year period and their conditions were monitored.

Cardiac-related deaths and deaths from all causes fell by 43 per cent and 42 per cent respectively among patients who had taken Q10 supplements. A follow-up study looking at the European patients who had taken part in the trial found these measures dropped by 53 per cent and 55 per cent respectively with major adverse cardiovascular events (MACE) falling by 67 per cent.

And, as the *International Journal of Molecular Sciences* overview notes, CoQ10 levels have been found to be significantly lower among kidney disease patients, with supplementation demonstrated to have benefits in a number of trials. In one randomised controlled study, five chronic kidney disease (CKD) patients were given either a placebo or 300mg of CoQ10 supplement every day for three months.

Scientists found a significant improvement in markers of kidney function among those who had taken CoQ10 supplements while the number of patients requiring dialysis fell from 21 to 12 in the CoQ10 group, and remaining unchanged in the placebo group.





Vitamin K2 latest nutrient to be investigated in relation to Covid-19

A new study has suggested that a deficiency in vitamin K2 could be linked to worse Covid-19 outcomes.

The new study, published in *Biocatalysis and Agricultural Biotechnology* and carried out by researchers in New Zealand, has suggested an association between K2 and recovery rates in individuals with Covid-19.

According to the authors, a profound increase in inactive matrix Gla protein (MGP) levels were observed in Covid-19 patients, indicating a poor K2 status and associated increased risk of mortality from comorbidities (for example, obesity, diabetes, hypertension, and cardiovascular diseases). MGP is dependent upon vitamin K2 menaquinone-7 (MK-7) to become active, and the more circulating MGP that is active, the more calcification in arteries is inhibited.

The researchers wrote: "Therefore, MK-7 deficiency can be a risk factor for increasing the severity of the Covid-19 disease, and SARS-CoV-2 infected patients with comorbid conditions tend to develop acute manifestations."

They say it supports an earlier study published in April that evaluated MK-7 in 123 patients with the virus and 184 controls, revealing a link between vitamin K2 deficiency and disease severity.

Dr Hogne Vik, Chief Medical Officer at NattoPharma, which leads MenaQ7 development, commented: "Of course, a dietary supplement is not a cure or a treatment, but over time, MK-7 can fortify the body's resilience to age-related conditions and viral infection. This is the second study that associates K2 status with outcomes in Covid-19 patients. More research in this area is warranted and necessary."

Vitamin K2 has also been a focus in a new review published in the *British Journal of Nutrition*, which presents vitamin K metabolism as the potential missing link between lung damage and thromboembolism, two of the most serious outcomes observed in Covid-19 patients.

The 'triage theory' implies that because vitamin K1 is preferentially transported to the liver, carboxylation grades are higher in hepatic coagulation factors than in extra-hepatic proteins. Yet, these extrahepatic proteins play a decisive role during Covid-19 infection. Insufficient activation of protein S in blood vessel walls and matrix Gla protein (MGP) in the lungs may lead to an increased risk for thrombosis, and lung damage, respectively.

Kappa Bioscience, which supported the study, is entering research agreements with several research centres, both in Europe and in the US. The company aims to support research to generate a better understanding around vitamin K2 deficiency and Covid-19 pathogenesis.

Ten-year study finds skin bacteria triggers eczema

The results of a decade-long study identifying the factor produced by a common species of skin bacteria that triggers eczema has been described as a breakthrough.

The international team led by University of Manchester scientists say the findings could lead to new treatments for the skin condition, which affects 20-30 per cent of children.

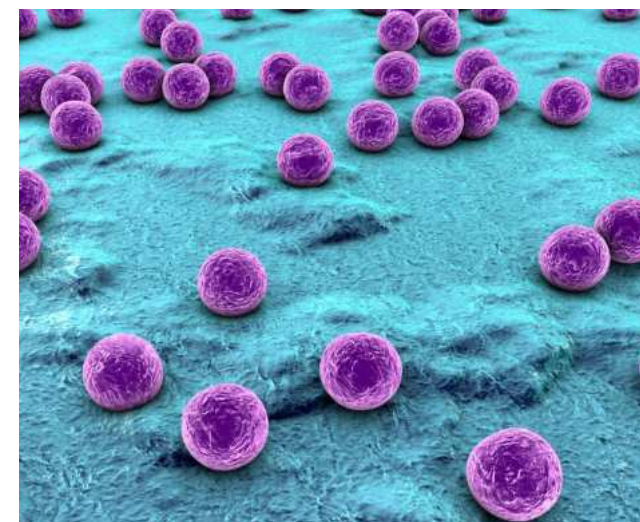
Principle investigators, Dr Peter Arkwright and Dr Joanne Pennock, both senior scientists at the university, identified 'second immunoglobulin-binding protein' – or 'Sbi' – as a unique trigger of eczema by *Staphylococcus aureus*, also known as golden Staph.

In the paper, published in the *Journal of Allergy and Clinical Immunology*, the search for the missing link involved mouse eczema model studies led by Tokyo University of Agriculture and Technology, and bench work on cells and human skin tissue at Manchester. The scientists also studied six other species of *staphylococci*, as well as the common Group A strep, which causes tonsillitis and scarlet fever, but none generated allergic responses. In each part of the study, the results pointed to Sbi – first discovered in 1998 – as the trigger.

The researchers show that the bacterial species is unique in producing Sbi, which triggers allergic inflammation in the skin. Specifically, they found Sbi is the molecule that induces rapid release

of interleukin-33, a key component of the immune response in childhood eczema.

"Our study shows beyond any doubt that Sbi is the dominant infective trigger of eczema and that is incredibly exciting," commented Dr Arkwright, who is also Consultant in Paediatric Allergy & Immunology at Royal Manchester Children's Hospital. "Scientists have long known that *Staphylococcus aureus* is the dominant pathogen on human skin, causing the majority of skin and soft tissue infections worldwide. But only now do we understand that it is only because it expresses predominant virulence factor Sbi that allergic eczema is triggered."



Researchers study power of mindfulness on obesity

Researchers have been examining whether mindfulness can help tackle obesity.

A team of psychologists at Birmingham City University are leading new research looking at how mindfulness interventions can contribute to a healthy eating regime and improve advice, treatment and access to services.

Dr Michael Mantzios and Dr Helen Egan, Readers in Psychology at Birmingham City University, have created the package of new tools, which are designed to facilitate healthier eating, including the Mindful Construal Diary and the Mindful Chocolate Practice.

Designed for use whilst eating, The Construal Diary encourages mindful eating practices and previous research has demonstrated its effectiveness in moderating the intake of calorific foods as an alternative practice to the typical meditation-based interventions. And The Mindful Chocolate Practice uses traditional contemplative practices to encourage reflection on the experience of eating and the sensations that arise during this process. Results demonstrated that people ate less chocolate both immediately after the mindfulness exercise and during an enforced waiting period at the end of the experiment.





New to market

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

Bravura Foods focuses on vegan sports nutrition

A vegan range of functional sports nutrition products has been added to the portfolio at Bravura Foods.

CNP Plant has partnered with Bravura, which will distribute the range of products that includes protein powder in vanilla and chocolate flavours, a collagen booster in vanilla flavour, EAAs in watermelon and tropical variants, pre-workouts in blood orange and mixed berries and ready-to-eat plant slices in birthday cake and salted caramel flavours.

CNP has been manufacturing sports nutrition since 1998 and the new plant-based range has been vegan certified by the Vegetarian Society, with each product rigorously tested and developed to be as functional as possible, whilst boasting exceptional taste and texture.



Winter wellness

Kinetic Natural Products Distributor has added to its line-up with new winter herbal products.

Wellness Herbal Resistance features a powerful herbal formula combining traditionally used and increasingly researched echinacea, elderberry and goldenseal with yin chiao, a valued traditional Chinese herbal complex used in TCM to help maintain balance in the body.

The liquid form makes this product convenient for mixing in your favourite drink, or is easy to swallow from the spoon, making it ideal for those who struggle with capsules.

Wellness Herbal Throat Spray contains a powerful combination of herbs specially formulated to provide soothing immune support for your throat health. The formula includes osha root, echinacea angustifolia root, licorice root, thyme herb, mullein leaf, myrrh, aloe vera juice, and propolis, along with delicious natural raspberry and spearmint flavour.

ALL ABOUT ASTAXANTHIN

Viridian Nutrition has continued to develop its offering with the launch of a new astaxanthin product.

Viridian Astaxanthin is sourced from freshwater microalgae (*Haematococcus pluvialis*), one of the highest concentrations of natural astaxanthin available.

The microalgae is cultivated close to the Stone Forest, near Burma, using natural light and pristine waters from the Himalayas.

Aimee Benbow, Technical Director at Viridian, commented: "As with all new product development, this potent formulation has been created to ensure the ingredients are sourced sustainably, leaving a minimal ecological footprint. Viridian Astaxanthin is derived from the

richest natural source of freshwater microalgae and grown using natural light in an ideal climate. There is no need for artificial lighting or cooling, so the process has a low environmental impact."

The supplement is formulated in a base of marigold flower, naturally rich in the carotenoids, lutein, zeaxanthin and meso-zeaxanthin. It is vegan and contains 100 per cent active ingredients with no fillers, binders or nasties. It is GMO free, palm oil free, not animal tested and ethically made.



EXCITING INNOVATION FROM ENZYMEDICA

A new range of fish oils using purifying technology has been announced by Enzymedica.

The company researched the fish oil market and found there had been no major innovation or exciting new product development in this space for a long time, and so its R&D team, headed by Dr Michael Murray, ND, decided to create a new and unique range of fish oil supplements that are unmatched for purity, achieved by using a proprietary purifying method called Targeted Molecular Enrichment Technology (TMET).

During this process, the fish oil molecules are separated by polarity and weight. This process allows for a superior separation and removal of lipid peroxides, heavy metals and other organic pollutants due to their different electrical charges. TMET is also the first technology that enables the preservation of docosapentaenoic acid.

Other innovations in this fish oil range includes the introduction of a new ratio of DPA:EPA:DHA, with a higher percentage of DPA in the ingredients and the introduction of Phytosome botanical extracts.

Products in the Aqua Biome range includes Fish Oil + Merica Curcumin Phytosome for joint and brain function, Fish Oil + Boswellia Phytosome for digestive support, Fish Oil + Quercetin Phytosome, targeted at sports performance.



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VIRTUAL LEARNING

The IHCAN Conferences have made a welcome return with a new virtual concept, bringing education back to practitioners.



With live education paused for 2020, the IHCAN Conferences have welcomed practitioners to the first virtual event.

Held on Saturday, September 12, and using new bespoke virtual event software, the conference brought the in-person experience to the screen, with three keynote speakers, four session speakers and 14 virtual exhibition booths.

With the theme of the day on 'Building immunity and resilience: key learnings for the post-pandemic practitioner your clients need you to be', Alex Manos took to the stage first with his talk, 'Resilience: where the mind and body converge', which connected the dots between emotional, mental, spiritual and physical resilience.

Following Alex, the day split into four individual breakout sessions on

a number of different topics, including chronic inflammation, migraines, viral infections and immune support.

The second headline speaker of the day, Samuel Yanuck DC, then took to the virtual stage to walk through the core functional immunology landscape, including the core navigational elements of functional immunology, how to recognise the type of functional immunological imbalance your patient has, how to manage complex autoimmune cases and how parts of the picture form a roadmap you can use to navigate any case. His second part then focused on clinical applications and case studies as a template to understand how to apply the roadmap.

The final speaker and IHCAN Conference favourite, Dr Dale Bredesen, then closed the day by identifying and addressing the underlying contributors

to cognitive decline. With the introduction of many quantified self-technologies, such as ketone monitoring, heart rate variability analysis, and oxygen saturation assessment, population-based scaling of the prevention and early reversal of cognitive decline is becoming increasingly feasible.

Ben Brown ND, IHCAN Conference speaker and Director of Clinical Education at the Platinum Sponsor, Pure Encapsulations, commented in his capacity as a speaker: "The IHCAN Conferences Virtual Event was an ambitious response to challenging times. It proved we can remain connected with colleagues, committed to learning, and resilient to adversity by achieving a really great event with the buzz usually unique to a live experience. The networking, quality of presentations and feeling



of connectedness was refreshing. I was honoured to speak at and support the event."

If you missed out on the event, you can catch up with all the recordings; for more information and to buy access, visit www.ihtcanconferences.co.uk/virtualevent. And follow @IHCanmagazine on Twitter and Instagram to keep up to date with the date of the next virtual event.

POSITIVE FEEDBACK

- 100 per cent of attendees rated the event good or excellent.

- 85 per cent found the event platform easy to use.

Comments from attendees, taken from the attendee evaluation forms, included:

- "I thought the content of this conference was exceptional!"

- "I really enjoyed the ability to attend the conference in the comfort of my own home."

- "I thought it was very well organised, just like the live events are. I really enjoyed it just as much – surprisingly!"

- "Awesome! Thank you. Amazing information, amazing insights!"

All statistics and feedback are taken from the evaluation form sent to all attendees.

Here, we bring you a taster of the recent virtual IHCan Conference with Ben Brown's breakout session. And we are delighted to announce that the virtual IHCan Conference returns on Saturday, November 14, featuring Alessio Fasano, MD, and others. For the full schedule and to book your place, visit www.ihtcanconferences.co.uk/virtualevent



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M.D.



'The Canary's Song'
TOM O'BRYAN,
DC, CCN, DACBN



**'How can Mindfulness
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KATIE SHEEN FdSc,
DipION, PGCE,
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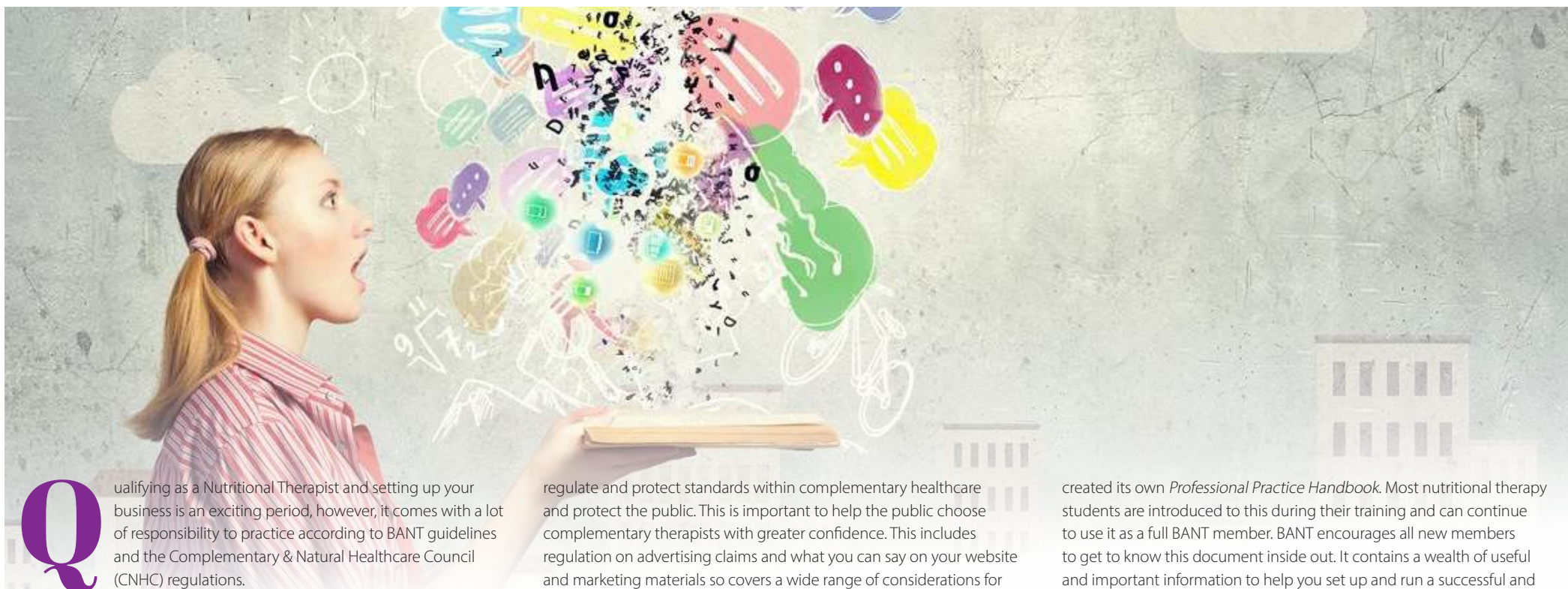
ICF
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BANT News

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



Practice governance and setting up your nutritional therapy business



Qualifying as a Nutritional Therapist and setting up your business is an exciting period, however, it comes with a lot of responsibility to practice according to BANT guidelines and the Complementary & Natural Healthcare Council (CNHC) regulations.

CNHC is the only independent accredited register for complementary healthcare set up with the support of Government. All BANT members are required to sign up to the voluntary CNHC register, created to help

regulate and protect standards within complementary healthcare and protect the public. This is important to help the public choose complementary therapists with greater confidence. This includes regulation on advertising claims and what you can say on your website and marketing materials so covers a wide range of considerations for setting up your business.

To help new Nutritional Therapists navigate this important first step of setting up in business and adhering to practice governance, BANT has

created its own *Professional Practice Handbook*. Most nutritional therapy students are introduced to this during their training and can continue to use it as a full BANT member. BANT encourages all new members to get to know this document inside out. It contains a wealth of useful and important information to help you set up and run a successful and professional nutritional therapy practice.

The BANT Handbook is a reflection of the CNHC Code of Conduct, Ethics and Performance and serves to make the CNHC guidelines more

relevant for nutritional therapy. In addition, UK and EU legislation provides the basis for many of the guidelines, for example, in relation to supplements, which we incorporate into our handbook to help you to practice within the law. As well as highlighting the CNHC guidelines and relevant legislation, we aim to cover the most frequently asked questions to the PPP on how you incorporate these guidelines into your day-to-day work. The guidelines in the handbook have evolved over many years and it is regularly updated to ensure it reflects the most recent and appropriate advice to support our members. BANT is continually improving the handbook and is excited to announce that it will be launched as a digital version online in 2021 with easier navigation.

In addition to the *Professional Practice Handbook*, BANT also provides its members with multiple resources to access professional practice information, view webinars on how to set up in practice, access continual professional development (CPD), and join closed members groups on LinkedIn and Facebook, where members can ask for further

help. These forums are priceless for sharing information with fellow therapists and gaining greater insights into professional practice.

There is also a dedicated section on the BANT website for Professional Practice guidance. It is here you can find the handbook and useful guidelines and templates to assist you in your work as a nutrition practitioner, including:

- Frequently asked questions of the PPP.
- GDPR information and FAQs.
- BANT cancer guidelines.
- BANT complaints and disciplinary procedures.
- BANT template forms for use in practice such as the Terms of Engagement document, GDPR consents form and consent to consult a child form.

If you cannot find what you are looking for in the *Professional Practice Handbook* or on the website, you are welcome to contact the PPP for advice and support. The team are on hand to guide BANT members in all aspects of nutritional therapy, including day-to-day

practice, work carried-out outside a one-to-one consultation setting and supporting you through any difficulties experienced with your clients. Keeping in regular contact with our members also helps the PPP understand the wider issues relating to professional practice to ensure the handbook reflects current good practice. You can contact the team at bantpractice@bant.org.uk

Practice governance is the serious but necessary part of setting up a nutritional therapy business. Ensuring you do this part well leaves you plenty of scope to enjoy developing the rest of your business and begin working with clients safely and professionally. As a membership association, BANT is committed to help you through this transition into working in Nutritional Therapy so you can focus on your clinical practice.

If you are not already a member, Nutritional Therapy students can join the BANT community of over 3,000 members as a student member. In this way, you can network with full members, access our resources, and begin your professional foray into Nutritional Therapy.





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A gut health protocol

So many factors control the health of the gut, all of which appear to have been compounded by the far-reaching effects of the Coronavirus pandemic and resulting lockdown.

Anxiety, stress and poor quality diets for a multitude of reasons are among the most commonly reported issues triggered by the ongoing Coronavirus pandemic. All of these issues (and more) can have a direct effect on the health of our gut, leading to a range of health impacts and poor overall health.

Gaya Neault, BSc Chemistry with Medicinal Chemistry, who works in Clinical Education at Nouveau Health, commented: "All the uncertainty and worry caused by the Covid-19 pandemic/ lockdown would no doubt have had a detrimental effect on gut health, which, in turn, would then increase stress levels and affect moods. Eating habits may also have changed for the worse, which again would lead to poorer gut health which would, in turn, affect the mind and anxiety levels. It's that vicious cycle!

"This is not great because in a time when a lot

of things are out of our control and the threat of a virus attacking us is very present, our focus should be on things we can control and what we can do to protect ourselves and our loved ones. Our focus should be on maintaining a calm mind and strengthening our immune system and since a huge portion of our immunity resides within the gut, we can and should be concentrating on maintaining a healthy gut environment, free of toxins, so that we can all give ourselves the best chance of fighting the virus, both mentally and physically."

Dr Marilyn Glenville PhD, one of the UK's leading Nutritionists, who runs clinics in Harley Street, London, Kent and Ireland, added: "The lockdown and pandemic have caused people to feel very stressed and anxious because what is happening in the world now is out of our control. We are living in very unusual times and our sense of what is normal



is changing day to day. This uncertainty and the stress it brings can have a profound effect on the health of the gut. Stress can affect digestion and the effectiveness of the intestines to absorb nutrients efficiently. It can make the intestinal barrier weaker, causing gut permeability and allowing bacteria in the gut to enter the body, causing inflammatory and immune reactions. Stress can cause irritable bowel symptoms and alter the balance of the gut microbiome."

Nutrition expert and author, Patrick Holford, who founded the Institute for Optimum Nutrition, highlighted the fact that gut-related issues have been reported in those with Coronavirus.

He explained: "To start with, gastrointestinal symptoms are a relatively common feature of Covid-19. In one study, more than half of those with the disease reported digestive symptoms, including diarrhoea and vomiting. The pandemic has caused people to become more anxious and stressed, which affects our gut health. Stress has a direct effect on the gut, making the digestive system less tolerant. When you go into a state of stress, hormones feed your state back to the gut, shutting down digestion and promoting inflammation.

"During lockdown, people's eating habits changed. A study of lockdown eating found contrasting trends for more unhealthy snacks, such as grazing on crisps and chocolate. The report describes snacking as the 'biggest negative consequence' in eating habits during the pandemic, with a 40 per cent increase in snacks. Unhealthy snacks can disturb the balance of bacteria in your gut, allowing unhealthy strains to grow."

Lindsay Powers, Nutritional Therapist and Health Coach at Good Health Naturally, pointed towards the important link between the brain and the gut in relation to concerns we are seeing.

"There is a close connection between gut and brain health, called the gut/brain axis. This pathway consists of two-way communication between the central and enteric nervous system, linking emotional and cognitive parts of the brain with peripheral intestinal functions. More and more research studies are uncovering the important role

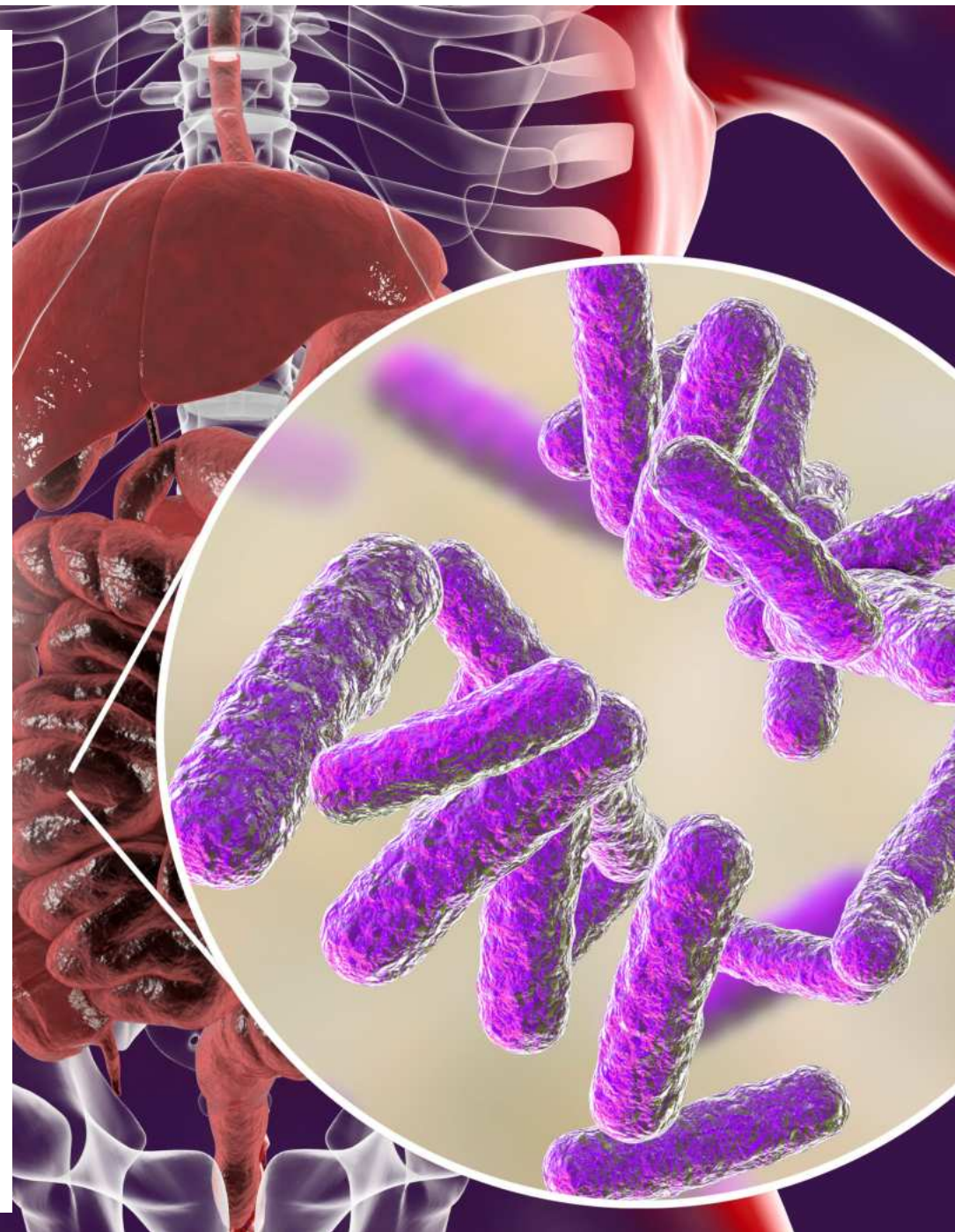
of the gut microbiota in influencing these interactions," she commented.

"The reason it is significant to highlight this interaction is as we've seen an increase in stress, anxiety and depression during the Covid-19 pandemic, which may impact the health of our gut. When we are stressed or anxious, our digestive system struggles to work at its best, and it can even affect the balance of the gut microflora. Likewise, an imbalance of good/bad bacteria (dysbiosis) in the gut can also affect our mood and mental wellbeing, so it is a two-way street. When our digestive system is not performing optimally, we struggle to break down and absorb nutrients, creating symptoms such as gas, bloating, acid reflux, constipation and diarrhoea, as well as potential vitamin and mineral deficiencies. Poor nutrient status and dysbiosis can have a knock-on effect on many areas of our health, such as energy and immunity."

And Alice Bradshaw, Head of Nutrition Education and Information at Terranova Nutrition, pointed out that there is still so much we don't know about the impact of Covid-19.

"The effects on our health of Covid-19 are still being discovered. Although the primary concerns pertaining to the virus involve the respiratory system, some medical experts are concerned about the fact that many organs and body systems seem also to be detrimentally affected. Some of those who contracted Covid-19 reported digestive disturbances such as nausea and diarrhoea," she advised.

"The lockdown itself may have inadvertently impacted gut health in several ways. The lack of normal routine was a challenge for most people in different ways. Many complained of weight gain caused by constant snacking, comfort eating and an increase in alcohol intake. These dietary changes are enough to cause imbalances within the digestive tract, as well as disrupt the delicate balance within the microbiome. It has been reported that the lockdown (as well as living through the pandemic) was a significant source of stress and anxiety – factors which have a significant impact on the functioning of the digestive system."





MODERN CONDITIONS

There are a vast number of gut-related conditions (and that's before you take into account the knock-on effect a poorly functioning gut has in other areas of health). According to experts, such conditions appear to be on the rise.

"They are on the on the increase," Holford agreed. "Every other person, it seems, suffers from bloating, indigestion or irritable bowel syndrome (IBS), a food intolerance or an allergy. Many are constipated, and colorectal cancer is fast becoming the number one killer of people under the age of 50. There is a quiet epidemic of digestive problems, including indigestion, infections, acid reflux, IBS, stomach bugs, ulcers, Crohn's disease, colitis and diverticulitis, candidiasis and consequent chronic fatigue."

And he places a lot of this at the hands of the modern way we eat.

"Much of the Western world's illness is the consequence of eating too much and eating the wrong kinds of food," Holford explained. "Most digestive problems are a consequence of one or more of the following issues:

- Poor digestion (irritation, intoxication, lack of enzymes, lack of stomach acid).
- Poor absorption (increased gut permeability).
- Poor protection (dysbiosis, inflammation, food intolerances).
- Poor elimination (clogged up colon, liver detoxification problems)."

Powers specifically highlighted irritable bowel syndrome, commenting: "According to epidemiological studies, IBS affects around 11 per cent of the global population, with around 30 per cent seeking medical assistance for their symptoms. In the UK, this figure rises to an estimated 20 per cent of the population, with over half of these seeking help from their GP. IBS tends to affect more women than men, and often begins in young adulthood.

"IBS itself is actually an umbrella term that can encompass a variety of symptoms, with many factors contributing to its expression. As a highly functional bowel disorder, patients present with symptoms such as abdominal pain and disordered defecation, with pain, bloating, constipation and diarrhoea being the four main symptoms identified by medical assessments. It isn't clear if the prevalence of this condition is on the rise or if there has been an increase in those seeking help. Treatment options have increased, which may also suggest that people may be more inclined to seek medical help. The Rome III criteria was introduced in 2006, and updated again in 2016 to Rome IV, and this led to an increase in research in the field and a greater understanding of the different and complex pathophysiologicals that underly the causation of IBS symptoms."

Nutritional Therapist, Jenny Logan, Product Development and Training Manager at Natures Aid, continued: "The most common issues we will

see will include heartburn/indigestion, changes in bowel habits such as constipation or diarrhoea, as well as bloating and wind. Given the stressful times we are living through, and the fact that stress, alcohol, and diet changes can all impact these conditions, we should not be surprised to see an increase in cases. Many people who have previously not had gut or digestive related disorders could well now be suffering, due to the ongoing lifestyle and economic impact of Covid-19.

"The most common causes are related to lifestyle and diet, as well as mental wellbeing. The fight or flight reaction to stress reduces the amount of energy available for the digestion of foods, leaving those people with stress and anxiety often suffering from indigestion. Diets high in caffeine, alcohol or sugar will kill off vital microflora."

And Dr Glenville added: "In clinical practice, I am also seeing an increase in SIBO and intestinal permeability. Research has shown that many of these common gut-related conditions are on the increase, particularly with regards to inflammatory bowel problems. Both ulcerative colitis and Crohn's disease increased by 55 per cent and 83 per cent respectively between 2000 and 2017 and IBD is predicted to rise by almost a quarter between 2017 to 2025."

Penny Shaw, Nutritional Therapist at G&G Vitamins, went on: "SIBO seems like it's on the rise, with sluggish digestion that results in food fermenting in the wrong part of the digestive tract, leading to bloating."

Neault highlighted just how complex the gut is, and, in turn, how difficult it can be to identify a gut-related condition.

She advised: "It isn't straightforward to identify the most common gut-related conditions in the UK because there are many conditions that may not be considered gut-related due to the way in which they present symptoms – ranging from allergies, to eczema to skin issues to issues relating to the mind.

"We could talk about a common gut-related condition in the UK, which is that of IBS and related issues. There is such a large variation on the definition of IBS and that is understandable due to the nature of the varying range of symptoms and the difficulty in pinpointing the root cause of it. The term IBS first came into use in around 1944 and is also sometimes referred to as FBD (functional bowel disorder). As is probably widely accepted, IBS tends to be the given diagnosis by GPs when they are presented with bowel issues that have no obvious diagnosis. It is estimated that 10-20 per cent of the UK population suffer from IBS symptoms (according to the IBS Network charity)."

Let's not forget the longer-term impacts too.

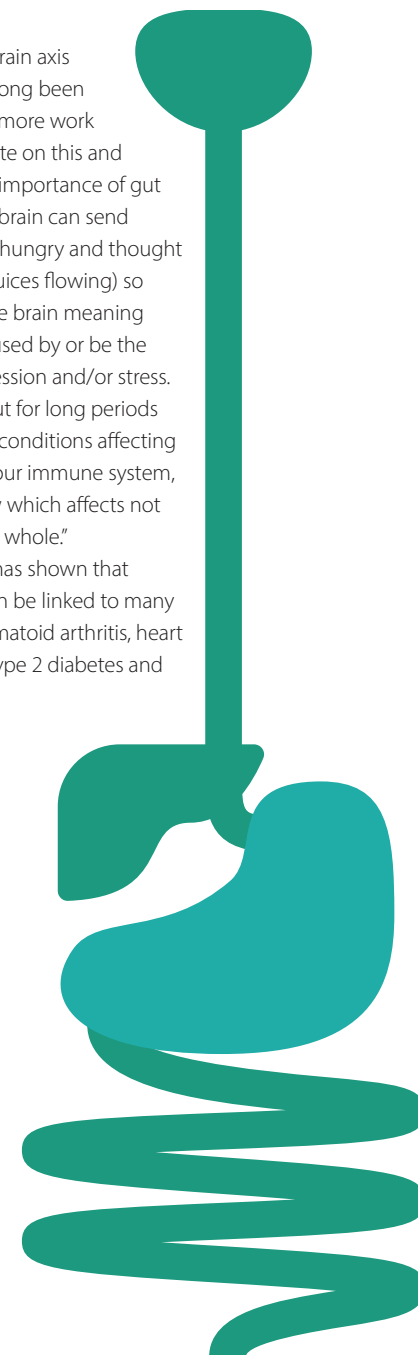
Neault commented: "A poorly functioning gut can have long-term effects on different conditions affecting not only the body but the mind

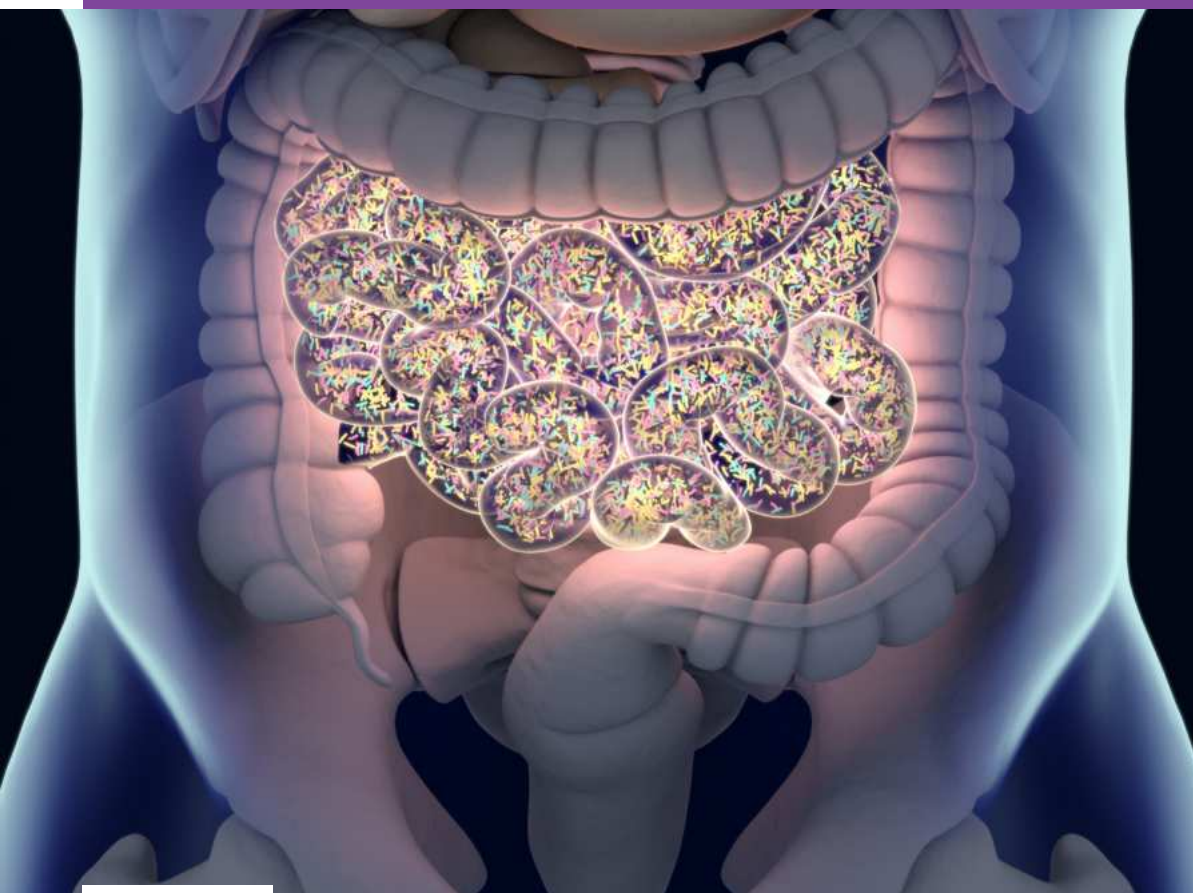
too. The importance of the gut-brain axis in maintaining homeostasis has long been recognised and appreciated but more work has been done recently to educate on this and more work is being done on the importance of gut microbiota and the brain. As the brain can send messages to the gut (e.g. feeling hungry and thought of eating can start the stomach juices flowing) so can the gut send messages to the brain meaning a person's gut distress can be caused by or be the cause of a person's anxiety, depression and/or stress.

"Ignoring the health of your gut for long periods of time can lead to more serious conditions affecting all areas of the body, including your immune system, skin and mind just to name a few which affects not only health but wellbeing on the whole."

Dr Glenville added: "Research has shown that poor gut health and dysbiosis can be linked to many chronic diseases, including rheumatoid arthritis, heart disease, mental health, obesity, type 2 diabetes and cancer."

Powers went on: "We have around 70 per cent of our immune cells in the gut, and gut issues such as dysbiosis and leaky gut can have a detrimental effect on our immunity. There is a strong link between autoimmune diseases, for example, and gut health, with damage to the gut mucosal lining being a possible root cause. There's also a strong link between our gut health and our skin health, and patients who present with skin conditions such as acne, eczema and psoriasis often have gut issues. Gut work should form a vital part of any skin healing protocol, a factor that is often overlooked in conventional medicine."





THE ROLE OF FOOD

As Nutritional Therapists, the importance of a healthy diet as the cornerstone of any client protocol will be obvious to you but educating such clients on both the short and long-term effects of a poor quality diet is crucial.

"As the old saying goes, 'you are what you eat' but beyond that, you are what you eat, digest and excrete actually and a healthy gut is crucial to good health. Although there is more awareness around this realisation, there is still not enough," Neault advised. "People do not need to follow crazy diets to have a healthy gut. Maintaining good gut health is as simple as eating the right foods, making sure your body is able to digest the food properly and absorb nutrients effectively and ensuring that your body is also effectively detoxing and eliminating the unwanted particles.

"Eating the right foods means avoiding sugar, eating a balanced diet

whilst trying to eat seasonally and locally, keeping well hydrated and eating at the right times. As well as avoiding foods high in sugar, try and avoid foods high in histamine, especially if you are prone to allergies, intolerances, irritability or have skin conditions. Ensuring your body is able to digest food properly can be done by eating the right amounts at the right time, not mixing certain foods which can make digestion harder, keeping well hydrated and ensuring your digestive tract is looked after by eliminating any toxins build up, such as any heavy metals, histamine and other toxins which can be found in certain foods."

She continued:

"Ensuring that unwanted waste is eliminated effectively via natural bowel movements at least once a day helps to maintain a healthy gut as a build-up of toxins from not having daily bowel movements can lead to some of the conditions mentioned above. Drinking hot water first thing in the morning works a treat to get the bowels moving. Ensuring your digestive tract is clear of toxins, heavy metals, excess histamine etc., also helps with the digestive and elimination process."

Dr Glenville added: "A person's diet has a profound effect on the health of the gut. The aim is to eat a wide range of plant-based foods. For a healthy gut, a person needs a diverse ecosystem of bacteria and these will flourish on a wide variety of food. Unrefined foods are important as beneficial bacteria will thrive on the fibre. Fermented foods can be useful, such as kefir and sauerkraut, in order to promote the growth of these

important microbes.

"Foods that should be avoided are refined foods where there is a lack of natural fibre which should be contained within the foods. Other culprits can include fizzy drinks, too much alcohol, too much coffee or tea, spicy and high fat foods, like chocolate, and drinking lots of liquids with meals, which dilutes the digestive fluids and makes it harder for food to be digested."

Bradshaw continued: "It's important that individuals do not resort to extreme, self-prescribed dietary measures, which may cause stress or further digestive imbalances. Basic advice regarding eating small, regular meals and eating slowly should be initially addressed. Fodmaps are fermentable sugars that have been shown to increase gas production within the gut and exacerbate symptoms of IBS.

"Temporarily reducing or avoiding the most common gut irritants, including caffeine, alcohol, dairy produce, gluten (some people may do better with no grains) and nuts is often helpful. Some individuals do better with more fibre, while some do better temporarily limiting fibre. Although fermented foods such as kefir and sauerkraut are recommended for impaired digestive function, a health professional will help to determine when these are appropriate to be added to the diet."

Logan pointed towards some of the more specific dietary considerations:

- "Research has shown that both sugar, and its common replacement artificial sweetener, can affect the health of the microbiome.(1) Therefore, these should be avoided as far as possible.

- It has additionally been shown that the gut of a meat eater can be very differently balanced to that of a vegetarian.(2) Significantly reducing meat animal-based proteins with plant sourced proteins and following a more vegetarian diet can have a huge impact on the wellbeing of the gut and microbiome. In one study, those following a strict diet which eliminated meat, dairy and eggs for a month had significant reduction in gut inflammation, which was linked to the alteration in their gut microbes as a result of the dietary changes.(3)

- Prebiotics feed the good bacteria of the gut, which, in turn, helps to support the health and integrity of the gut wall. Therefore, including foods which provide a healthy level of prebiotic fibre, such as asparagus, bananas, chicory, garlic, Jerusalem artichoke, onions and whole grains will be beneficial to supporting a healthy gut (4)."

And Shaw continued: "Make sure you're producing enough stomach acid to kill off unwanted bacteria and able to break down food properly. Remove hydrogenated fats, processed foods, high sugar foods and simple carbohydrates. Increase diversity in fruit and vegetables, omega 3s and



probiotics."

Investigating food intolerances is also crucial.

"Eliminate food intolerances as they can cause an immune-based antibody response," Holford suggested. "Eliminate or reduce digestive irritants like alcohol, modern wheat, coffee and tea. Coffee contains a group of substances known as methylxanthines that can irritate the digestive tract. Eat a healthy diet, which means whole, unrefined and chemical free foods that your digestive system is designed to work with, digest and absorb. Increase intake of soluble fibre like oats and chia seeds to improve elimination."

Powers added: "Gluten, in particular, is highly problematic as it has the potential to damage the gut mucosal barrier and increase intestinal permeability, known as leaky gut. The prevalence of coeliac disease and gluten sensitivity has increased significantly over the past 50 years. It is thought this can be partly due to the way wheat is now produced, as it is a much faster growing 'hybridised' crop with new proteins that were not found in original wheat plants. These new proteins may be part of the problem of creating widespread inflammation, increased gluten intolerance and coeliac disease."

She continued: "Foods high in lectins can also cause digestive disruption in some people. These are naturally occurring proteins found in plants, which protect them as they grow, but which can bind to the gut wall and cause damage. Foods high in lectins include beans, peanuts, tomatoes, potatoes, aubergine and wheat and other grains. These foods can also be removed from the diet whilst healing takes place."

"Patients can look more closely at foods which are causing them a potential issue by taking an IgG food intolerance test. These tests can identify problem foods, which are advised to be eliminated from the diet for a period of time, whilst healing takes place. If they don't want to go down the route of testing, then elimination diets are a useful way of identifying problem foods."

GUT SUPPORT

Supplementary wise, what should be recommended as part of a client protocol?

Naturally, probiotics will form a key part of any recommendations you make, but there is a lot to consider here as the research moves on.

"The gut microbiome needs to be in a state of balance for good health. A lack of beneficial bacteria can exacerbate an overgrowth of yeast or detrimental species of bacteria. Typically, digestive symptoms such as those experienced in IBS may be the initial symptoms, but because the influence of probiotics is felt throughout the whole body, any health condition (including brain fog, skin eruptions and hormonal disruption) can be a sign of an imbalance," Bradshaw explained.

"The diverse role of probiotics within the human body are still being discovered. Initially, research focused on the benefits to the GI tract and digestive health, however, it is now widely accepted that the balance of microorganisms within the gut microbiome is a determinant for the health of the entire body. Although most people could benefit from probiotic supplementation, those with health conditions including GI issues, skin problems, inflammatory ailments and compromised mental function may be among those who could benefit greatly."

"Probiotic supplements need to be able to reach the intestines in order to be effective, however, they must be able to survive in the presence of gastric acid and bile that are found in the upper gastrointestinal tract. Although studies do show that many strains of probiotics do not survive these conditions, there are well-researched strains that have demonstrated effective acid and bile tolerance."

Logan went into more specifics, commenting:

■ **"For leaky gut:** Research into the roles of specific good bacteria has highlighted the role of *Lactobacillus plantarum* in supporting the health and integrity of the gut wall. Clinical trials have indicated that supplementing with *L. plantarum* can help to reduce the symptoms associated with leaky gut and restore the integrity of the gut wall.(6)

■ **Constipation and IBS-C:** When supplementing good bacteria to support constipation and IBS-C, look for a product that combines the good bacteria with prebiotic fibre, such as inulin. The specific strains to look out for include *L. plantarum*, *L. rhamnosus* and *B. animalis subsp. lactis*. In human clinical trials carried out on people suffering with IBS-C, a combination of *L. plantarum*, *L. rhamnosus* and *B. animalis subsp. lactis* in a base on inulin was found to be effective for inflammation, bloating, abdominal pain, constipation, cramps and flatulence.(7)

■ **Diarrhoea, IBS-D and inflammatory bowel:** Certain bacteria have been found to be extremely effective against diarrhoea – helping problems like IBS-D,



infective diarrhoea, food poisoning and even inflammatory bowel conditions. The bacteria you need to look for include *S. boulardii*, *L. casei*, *L. rhamnosus* and *S. thermophilus*. *Saccharomyces boulardii* has been shown in research to slow down the bowel by reducing inflammation and preventing infection. *S. boulardii* may also help to encourage the growth of other friendly bacteria. The suggested level is around five billion bacteria per dose.(8) *L. casei*, *L. rhamnosus* and *S. thermophilus* have all been researched for their potential effect on reducing diarrhoea and encouraging the health of the intestinal mucosa (9, 10)." Dr Glenville continued: "The species that I think are the most useful are those that have good evidence behind them, including *Lactobacillus acidophilus*, *Bifidobacterium breve*, *Bifidobacterium longum* and *Bifidobacterium infantis*. With IBS, research has shown that people with this condition have low levels in general of both *Lactobacillus* and *Bifidobacterium*."

"*Saccharomyces boulardii*, which is a probiotic yeast rather than a bacterium, has good evidence in reducing antibiotic associated diarrhoea. Research is looking into the effects of taking multiple probiotic species rather than a single species. As the gut contains many hundreds of species, it is thought that consuming multiple species would be more beneficial. And it is important to know that that the probiotic is going to survive the journey through the GI tract."

"Ideally, you need a probiotic with different species of both *Lactobacillus* and *Bifidobacterium* (about 22bn in total) as well as an added prebiotic (FOS). And there are different strains of each species of probiotic and this is important when aiming to target specific conditions."

Dr Glenville also highlighted the power of certain herbs for soothing

Powers also suggested: "L-glutamine can also be used to help improve gut barrier function. Curcumin can be used to support those with IBS and

[illegible]



UNDERSTAND THE SYSTEM

Evidence is continually building around the gut and nutrition, and its link to other issues.

Dr Glenville particularly highlighted work being done around the mind, commenting: "Where I have seen some excellent recent research is the area of mental health. It is known that the gut microbiota can help regulate brain function. In 2019, a systematic review in *BMJ General Psychiatry* showed that 14 studies have used probiotics as the intervention, with more than one third finding them to be effective in reducing anxiety symptoms.

"Species of *Bifidobacterium* have generated the best results so far and in one study, *Bifidobacterium* was more effective than escitalopram (Lexapro) at treating anxious and depressive behaviour in a lab mouse strain known for pathological anxiety. Another study, which was a RCT trial with 44 patients with mild to moderate depression over six weeks, showed a significant reduction in depression in the probiotic group. A quote in 2019 in the journal, *Gastroenterology Clinics of North America*, stated, 'The integration of the gut microbiota, as a mediator, in the complex trajectory of depression, may enhance the possibility of personalised precision psychiatry.'

Holford agreed, pointing out: "More than 2,000 years ago, Hippocrates – the father of modern medicine – suggested that all disease begins in the gut. Depression can be a sign that you have problems with your gut health. It's hard to believe our gut and the bacteria in it could affect our mental health, but this is exactly what new research is showing. Scientists have discovered that the digestive system acts like a 'second brain', producing neurotransmitters such as serotonin, a contributor to feelings of wellbeing and happiness. In fact, scientists estimate that 90 per cent of serotonin is produced in the gut. If the gut is damaged in any way, this pathway will be disturbed.

"Multiple studies published in the *Journal of Dermatology* have linked gastrointestinal symptoms like constipation, bloating, bad breath and acid reflux to the development of skin issues like dermatitis, acne and rosacea."

Immune health too has been under the spotlight, with Logan commenting: "Given the situation we find ourselves in this year, possibly one of the most important and interesting areas of research is into the role of the gut in our immune response.(11). Scientists are currently investigating a potential link between gut health and severity of Covid-19 infections, and the UK Government has been urged to further investigate the role of the gut in coronavirus (12)."



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Musculoskeletal matters

Our skeleton is a complex structure which supports the body in many ways, and the nutritional contributors are varied. So, how can Nutritional Therapists support clients improve their musculoskeletal health and reduce their chances of developing bone conditions as they age? Our annual Mentoring Scheme candidate, Kate Fleming, reports.

Bone and joint health are often overlooked as part of our overall wellbeing. Rarely demanding our attention until something goes wrong, as is so often the case with our lifestyles, ill health due to troublesome joints and bones is a problem often encountered as we age, predominantly caused by wear and tear, as well as systematic inflammation.

Falls suffered by adults are most often as a result of poor bone and joint health and impose a large strain on the medical systems worldwide. Over 37m falls require medical attention annually worldwide and adults over the age of 65 experience the highest death rates due to falls worldwide (1). The World Health Organization (WHO) reports that falls are the second leading cause of unintentional injury-related deaths globally (2).





UNDERSTAND THE SYSTEM

The musculoskeletal system is a living, regenerative tissue, where our muscles, joints and bones work together to maintain balance and carry out body movement.

The bone matrix of all 206 of our bones is continuously broken down throughout our life by resorption and rebuilt by formation. When the resorption rate surpasses the rate of formation, often the case as we age, bone loss can occur (3).

Joints are formed when two bones come together. The major moveable joints in the body include the shoulders, hips and knees. Cartilage is a protective coating, which covers the bone in moving joints and helps prevent painful rubbing. A joint capsule protects the cartilage-covered end of bones. It's lined with a synovial membrane, which produces synovial fluid, reducing friction between the articular cartilage of synovial joints during movement. Tendons allow the formation of joints by connecting the muscle to the bones to allow joint movement.

In order to maintain healthy joints, it is imperative to have healthy muscles to stabilise the joint, as well as healthy bones and cartilage to prevent inflammation in the fluids surrounding the joint (1).

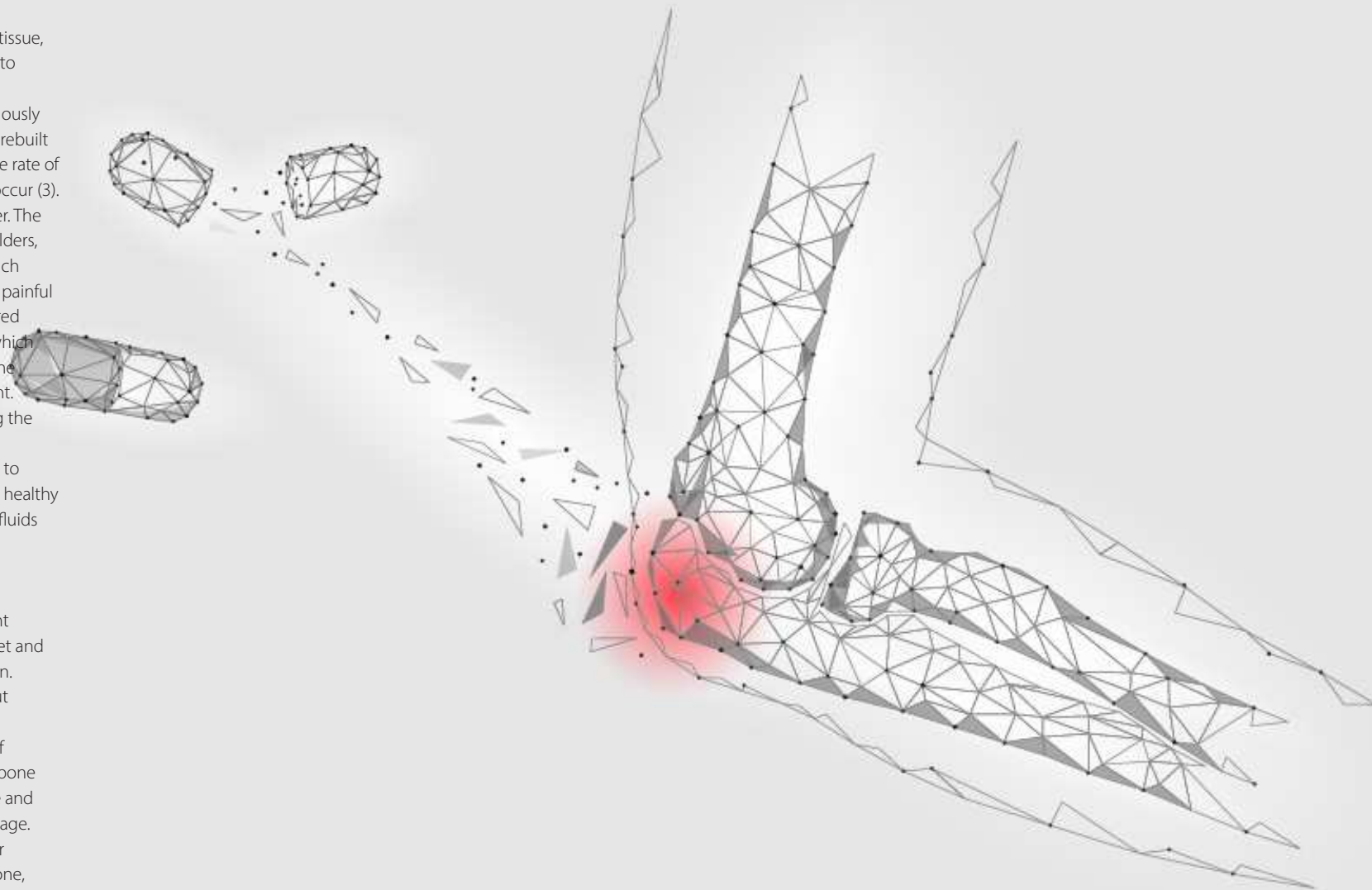
BONE REPAIR

Bone formation and resorption take place at different rates throughout the lifecycle and factors such as diet and physical activity influence the rate of bone resorption.

We usually achieve peak bone mass in our 20s, but adequate amounts of calcium and vitamin D during childhood and adolescence can improve the level of peak bone mass achieved in adulthood. The rate of bone formation slows as we progress through our lifetime and this leads to a gradual decrease in bone mass as we age.

Menopause is a cause of accelerated bone loss for women due to a decrease in the levels of the hormone, oestrogen, in the body. Oestrogen is involved in protecting bone and it affects the rate of bone formation and resorption.

Age-related muscle loss can also contribute to issues with joint health. Impaired strength and power of ageing muscles can lead to a decreased ability to stabilise joints, causing joint misalignment and mechanical stress upon movement of the joint.





OSTEOPOROSIS

Bone conditions such as osteoporosis are an increasing problem worldwide. The number of people with osteoporosis is steadily increasing because of an ageing population (4); about 200m individuals are diagnosed with osteoporosis in the world and approximately 8.9m fractures are as a result of osteoporosis (4).

As a result of an ageing population and ever-increasing lifespans, osteoporosis is steadily developing into a global epidemic (5). Statistics from the International Osteoporosis Foundation show that one in three women above the age of 50 years and one in five men in their lifetime will experience an osteoporotic fracture (5).

Osteoporosis is a condition where increased bone fragility and low bone mineral density (BMD) can lead to an increased risk of fractures occurring. Osteoporosis is considered a silent disease as there aren't any clinical manifestations before a breakage of a bone. When weakened bone is overloaded, sometimes due to a fall, a fracture can occur (6). Bone tissue is continuously broken down by resorption and remodelled by formation, and there is a deterioration in the bone matrix when the resorption rate surpasses the formation rate (5).

Many factors including advancing age and menopause can result in an imbalance between resorption and formation and, therefore, the risk of fracture increases (5). Osteoporotic bone is weak and brittle compared to healthy bone, which is dense and compact. Osteoporosis can be caused by hormonal changes, vitamin deficiency and decreased mobility with ageing, superimposed on a genetic susceptibility (7). Osteoporosis can result in a decreased quality of life and can reduce a person's life expectancy. It also causes a big financial burden to healthcare systems worldwide (5). Osteoporosis is preventable and treatable, provided it is diagnosed in the early phase of the disease, allowing time to receive effective therapy.

The stage before osteoporosis is called osteopenia, when bone density scans show lower bone density than the average person that age but not low enough to be classed as osteoporosis.

OSTEOARTHRITIS

Approximately one in five adults aged over 45 years in England have osteoarthritis (OA) of the knee and one in nine adults have osteoarthritis of the hip (8). In the USA, OA is responsible for total joint replacement in half a million Americans each year (9).

Osteoarthritis is a common form of joint degeneration characterised by a progressive loss of joint tissue. Loss of cartilage, remodelling of the periarticular bone and inflammation of the synovial membrane can result in friction between the bones and cause pain and swelling. OA can occur in any joint but predominates in weight-bearing joints, such as the knee and hip.

OA is not only a burden on patients but also a financial burden on medical systems around the world. The condition is commonly treated with nonsteroidal anti-inflammatory drugs (NSAIDs), which generally only treat the symptoms, such as pain reduction, and not the cause.

Therapeutic approaches using treatment with chondroprotectives can be effective at delaying cartilage degeneration and helping to regenerate the cartilage structure. Glucosamine, chondroitin, hyaluronic acid and collagen hydrolysate, as well as nutrients such as antioxidants and anti-inflammatory omega 3 fatty acids, can also be as therapeutic options. Chondroprotectives work as a dual mechanism: they are basic components of cartilage and synovial fluid, they stimulate the anabolic process of the cartilage metabolism, and their anti-inflammatory action can delay many inflammation-induced catabolic processes in the cartilage. Cartilage destruction can be slowed through these two mechanisms and they may help to regenerate joint structure, leading to reduced pain and increased mobility of the affected joint.

Data from five meta-analyses and one comprehensive review were evaluated and it was concluded that long-term treatment of OA with glucosamine reduces pain, improves function/mobility of the joint, reduces OA progression and reduces risk of total joint replacement (10).





FIBROMYALGIA

Fibromyalgia (FM) is a chronic autoimmune musculoskeletal disorder characterised by widespread pain, asthenia, fatigue and sleep disturbance. It is generally considered to be a stress-related disorder that involves abnormal functioning in the hypothalamic-pituitary-adrenal (HPA) axis.

FM has been associated with the inability to suppress cortisol. It is common for patients with FM to also suffer from osteoporosis due to a lack of weight bearing exercise. Levels of inflammatory cytokines are elevated in people with FM.

OBESITY

Obesity appears to be a double risk factor for bone and joint health. The impact of extra body weight on the joints can add to the normal wear and tear associated with ageing, as well as the metabolic stresses associated with body fat (7).

Balancing calorie intake with energy expenditure to prevent weight gain and to maintain lean body muscle is a good first step to healthy bones and joints. Obesity is one of the main modifiable factors for osteoarthritis. A meta-analysis in 2009 addressed the incidence of comorbidity of OA to obesity. It showed that obesity led to a significantly higher OA risk (11).

GENERAL NUTRITION

In terms of the most crucial aspects of diet needed for joint and bone health support, let's start with protein, which contributes to the maintenance of normal bones and growth of muscle. Spread intake across the day to ensure a constant supply for active muscles and joints. Quality is also important.

In terms of sources, those to recommend includes grass fed meat, full fat dairy products, such as milk, cheese and yoghurt, wild fish, preferably fatty varieties such as salmon, mackerel, tuna and sardines and free range organic eggs, while nuts, seeds, beans and lentils are also excellent sources.

Fruit and vegetables are important; leafy greens are a great source of calcium, magnesium and vitamin K – all important bone health micronutrients.

In terms of what you drink, a diet heavy in alcohol can lead to bone loss, and so it is recommended to limit alcohol consumption. Drinks containing caffeine such as coffee, tea and fizzy drinks can decrease calcium absorption and contribute to bone loss. Hydration is crucial with plain water.





MICRONUTRIENTS

Certain vitamins and minerals are linked to musculoskeletal health. Below are some options for supplements which you could recommend.

■ **Calcium:** Calcium is the first mineral people think of associated with bone health. Adults require 700mg of calcium a day (12). Good dietary sources include dairy, green leafy vegetables such as broccoli (not spinach as it contains oxalic acid which reduces calcium absorption ((12))), soya beans, nuts, and fish where you eat the bones, such as sardines. Calcium is stored in the bone so if the body doesn't have sufficient calcium, in order to return homeostasis, the body mobilises the bone to release calcium into the bloodstream to return blood calcium levels to normal.

■ **Vitamin C:** Essential for the body to make collagen, which is an integrative part of cartilage, it protects the end of bones within joints. Vitamin C is found in a wide variety of fruit and vegetables such as citrus fruit, peppers, strawberries, blackcurrants, broccoli etc. Adults aged 19-64 require 40mg of vitamin C a day. It is attainable to receive the recommended level of vitamin C through diet but it cannot be stored in the body so it needs to be in the diet every day (13). If you do take a vitamin C supplement, it is not recommended to take over 1,000mg daily.

■ **Vitamin D:** Also essential for good bone and joint health, the NHS advises everyone to consider taking a vitamin D supplement. Vitamin D is obtained through diet and the action of UVB sunlight on the skin. Environmental factors such as skin colour, latitude and age can affect a person's ability to synthesise vitamin D (14). Dietary sources rich in vitamin D include oily fish, cod liver oil, fortified foods, egg yolk and UV-expose mushrooms (14). There are certain groups of people who are considered at a greater risk of not getting enough vitamin D and it is recommended they take a daily vitamin D supplement. Vitamin D increases intestinal absorption of calcium and stimulates calcium resorption in the kidneys. Vitamin D deficiency can cause decreased calcium levels in the blood. Decreased exposure to sunlight, increased alcohol intake, decreased dietary intake, malabsorption, IBS and increasing age can all contribute to a vitamin D deficiency.

■ **Vitamin K:** Vitamin K is a fat-soluble vitamin which is obtained through dietary sources and is also synthesised by bacteria in the small intestine (15). Vitamin K deficiency can cause a decrease in the carboxylation of osteocalcin, a bone formation marker, which causes an increase in osteoclastogenesis, which leads to increased bone turnover and a decreased BMD, increasing the risk of development of bone conditions such as osteoporosis. Adults need 1mcg a day for every kilogram of body weight.

OTHER FACTORS

There are a range of factors that need to be considered in relation to healthy joints and bones, to be taken in partnership with diet and supplementation.

■ **Hormones:** Women require normal levels of oestrogen to promote healthy bone structure. Deficiency in oestrogen can cause a decrease in osteoprotegerin, a receptor which neutralises RANKL (Receptor Activator of Nuclear Factor-Kappa B), leading to an increase in osteoclast productions, which increases bone turnover, decreases BMD and increases the risk of decreased bone health (16).

■ **Functional testing:** Tests such as bone resorption assessments, hormonal health checks and vitamin D tests would all be helpful for practitioners to utilise in order to assess a person's health status with regard to bone and joint health.

■ **Physical activity:** Physical, load-bearing activity is a very important aspect to utilise to ensure bone and joint health as we age.

■ **Prevention is key:** Preventative measures are far more effective than treatments for musculoskeletal health conditions. Taking action now to prevent future problems is well worth the investment of time and money. Minimising exposure to risk factors and being aware of tell-tale signs of the above conditions may prevent future trouble with your bone and joint health.



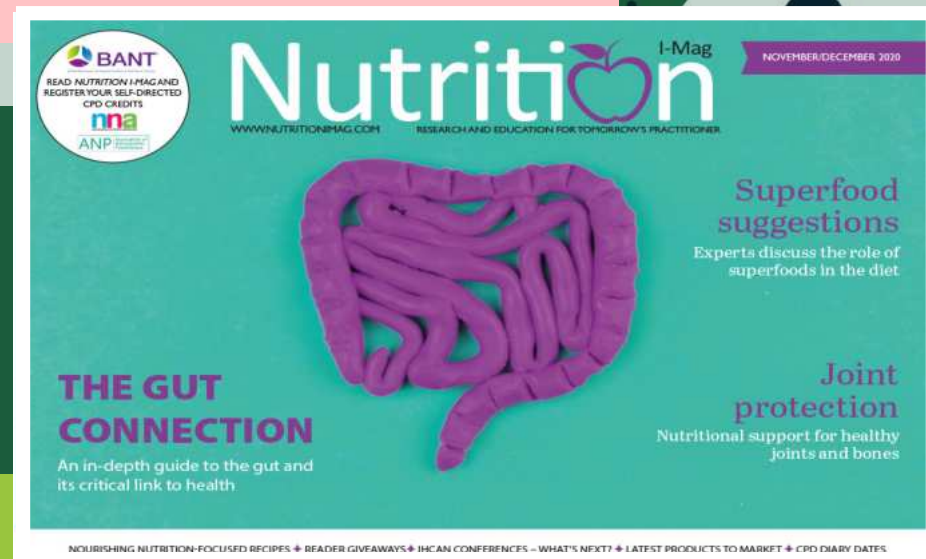
Kate Fleming is a final year student studying Nutritional Science online with CNELM. She has spent the last four years travelling and living in Australia, New Zealand and the Cook Islands and now lives in a small fishing village in Cork on the south east coast of Ireland. She works part time at Ballymaloe Cookery School and loves nothing more than swimming in the sea and eating delicious food.

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THE SCIENCE OF SUPERFOODS

Superfoods provide a plentiful supply of nutrients but as many brands have taken to using the term in their marketing pursuits, questions have been raised about their use. Here, experts explain why genuine superfoods remain an important recommendation.

When you Google the term 'superfoods', it returns more than 200m responses, all suggesting different products constitute this term. Some entries on Google describe it as a marketing term, which is used to confer health benefits, while others offer insights into a particular superfood's ability to boost health in a range of areas.

So, what is right? Is this simply a clever marketing strategy that perhaps gets around health claims regulations but doesn't actually mean much? Or, are superfoods a genuine and worthwhile product recommendation to make in support of clients in your practice? The answer, it seems from our experts, sits somewhere in between the two – and being aware of the quality issues that need to be kept in mind when advising clients is crucial.

Alice Bradshaw is Head of Nutrition Education and Information at Terranova Nutrition, and commented: "The term 'superfood' has been used in the nutrition world for many years and several sources assume credit for coining the term. However, the term is universally recognised to refer to foods that have a very high nutritional density. Typically, they contain a broad spectrum of vitamins and minerals, but also are rich in antioxidant compounds. Many of these superfoods and the key compounds that they

contain have been researched for their effects on health. It's usually very easy to add superfoods to the diet in order to gain the health benefits that they offer.

"Superfoods by definition are rich in a broad range of nutrients, phytonutrients and other health-promoting compounds. These actives do not work in isolation, but rather in a synergistic manner that create an effect that exceeds the potential of any individual compound."

Hannah Sharpe Da Rosa, Nutritional Therapist and Health Coach at Good Health Naturally, agreed, adding: "Superfoods are extremely beneficial for health, although it is wise to focus on a super plate than single out specific foods alone in the context of good health. Superfoods can be recommended for a range of conditions and stages of life, such as recovering from illness or surgery, during preconception, and helping athletes to improve training performances."

Rose Holmes, Nutritionist, BSc, Dip.ION, PGCE, MBANT, Education and Training Manager at Rio Health, continued: "Superfoods are not new, but their immense nutritive value is being highlighted by referring to them as superfoods. They play an important role in health and wellbeing. In some parts of the world, specific

superfoods are recognised for their important contribution to health, wellbeing, strength and survival.

"Whilst there is no scientifically-based definition of the term 'superfood', the term is defined in the *Merriam-Webster Dictionary* as 'a food that is rich in compounds (such as antioxidants, fibre or fatty acids) considered beneficial to a person's health'. Generally, superfood status refers to high levels of desirable nutrients, or a link to prevention of disease, or some similar health benefit beyond its nutritional value. People seem to understand these descriptions of the term, even without specific scientifically determined definition."

She continued: "Although there is no scientifically-based or regulated definition of the term, there is a general understanding that superfoods are individual natural foods that have high nutritive value and/or beneficial health effect and are quite different from processed foods. So, although a suggestion of superfood status for specific ingredients/foods could be viewed as a marketing tactic, it can also be an indication that interest in these natural superfoods may represent a shift in outlook – perhaps people are beginning to understand (and value) food as medicine."

Interestingly, superfoods are not new, and have been around for years.

"Bananas are possibly the first food to have been given superfood status, when, in the early 20th century, bananas were advertised by the United Fruit Company to be practical, inexpensive, easily digested, versatile and readily available. The popularity of bananas soared when the American Medical Association then announced bananas may provide relief for coeliac disease in a child's diet, giving bananas an emblem of health. Popularity of the fruit soared," Rose added.

SUPERFOOD CHOICE

There are so many different superfoods around now, some more powerful than others. The recommendations to make in this regard depend very much on the individual client and their needs.

Holmes commented: "Every one of us could potentially benefit from choosing superfoods. Superfood foods are natural foods, not processed foods. Superfoods offer hugely beneficial effect compared with the processed foods many people consume. Young people often eat more 'naughty' foods than they should, university students often choose nutrient-depleted foods and nutrient-depleted drinks, and older individuals often need more nutrients in their later years. Athletes, pregnant women, vegetarians and so many others may potentially benefit from the nutrient-boost superfoods can provide.

"One of the reasons for the popularity of superfoods is that, as real food, they taste great! The body recognises real food and responds positively to the nutrients provided. Most people today know that they should be consuming a minimum of five vegetables/fruit daily. Many do not even achieve this and don't come anywhere near achieving the higher recommended numbers (of 14-17) set by other governments. For some people, consuming superfoods may be a compensatory means of ensuring their recommended daily intake of fruit and veg."

So, what would be on the list?

"Superfoods are easy to incorporate into the diet, either by swapping nutrient-depleted foods with nutrient-rich superfoods, for example, a fizzy sports energy drink to a coconut water-based drink or to yerba maté tea (like the footballers who use it for sustained energy) or by adding superfood ingredients to favourite recipes, for example, adding maca powder to porridge," Holmes suggested.

"Many superfoods can be added to smoothies or make drinks in their own right (for example, green barley grass shots, yerba mate tea). Superfood fruits (for example, powdered açai and maqui berry) can be added to smoothies, fruit bowls, porridge oats and yoghurt."

She added: "The Andean superfood, maca, which grows high in the Peruvian Andes in mineral-rich soil, has been a staple part of the diets of the Andean people since before the time of the Incas, more than 2,000 years ago. The Inca believed maca could impart Kalpa, meaning stamina or strength and reserved its use as a royal food.

"Maca can be used to help maintain optimal stamina, feels and vitality. Maca is naturally difficult to digest raw, some of the enzymes in raw maca inhibit digestion and assimilation. Gelatinised maca is especially useful for those with sensitive digestion or trouble digesting carbohydrates. Maca is a tasty addition to beverages and recipes, providing adaptogenic properties and boosting energy. When choosing a maca product, in addition to opting for organic and gelatinised, choose one which is grown in Peru – some maca is grown in parts of China that struggles with pollution issues and may be exposed to pesticides and chemical contaminants

(including heavy metals)."

Sharpe Da Rosa added: "Readily available foods such as avocados, beetroot and broccoli are all excellent superfoods. Avocado is a rich source of potassium, monounsaturated fats, fibre and vitamin E and research shows its regular consumption can reduce LDL and increase HDL cholesterol. Beetroot provides high levels of folate, manganese, potassium, and fibre. High in phytonutrients and nitrates, beets are excellent for improving exercise tolerance and reducing muscle fatigue. Broccoli is a great source of vitamin C, vitamin K and calcium, which are essential nutrients for our bones."

And Alice continued: "Some of my top superfoods are:

- **Cruciferous vegetables**, which belong to the Brassica family of vegetables and include broccoli (and broccoli sprouts) kale, watercress, mustard and Brussels sprouts. They are rich sources of folic acid, potassium, vitamins A, C and K and dietary fibre. Unique to this classification of vegetables is the presence of sulphur-containing phytochemicals known as glucosinolates, which have been found to protect healthy cells, while inhibiting the proliferation of diseased cells. Additionally, they offer antioxidant and anti-inflammatory protection and have been linked to improved cardiovascular health. Cruciferous vegetables are also known for their ability to support the liver's role in detoxification.

- **Beetroot and beet greens** are known for their role in supporting liver health. Betacyanin is the pigment responsible for the rich purple-crimson colour of beet and is a powerful cell-protective agent. Beetroot is a dietary source of betaine (trimethylglycine) and folic acid, potassium and the fibre found in beetroot combined with betacyanin is



thought to be responsible for the protective effect that beets exert on the cells of the colon. Beetroot also contains good levels of manganese and beet greens are an abundant source of calcium, iron, vitamin A and vitamin C. Beetroots and beetroot juice contain high levels of inorganic nitrite. In the body, this is converted to nitric oxide, a substance with many health benefits. Primarily, nitric oxide facilitates relaxation of the artery walls, causing blood vessels to dilate, resulting in a lowering of blood pressure. As such, beetroot can play an important role in supporting cardiovascular health."

✘ **Berries** are amongst the richest sources of nutrients of any food and boast some of the highest ORAC score (Oxygen Radical Absorbance Capacity – a measurement of total antioxidant capacity within foods). As well as vitamins and minerals, they are rich in flavonoids and anthocyanidins, which are responsible for the blue purple and red pigments of berries and exert exceptional antioxidant activity. Their nutrient profile generally includes exceptionally high levels of vitamin C, ellagic acid, polyphenols, as well as soluble and insoluble fibre."

Holmes agreed with the power of berries, adding: "Maqui berry is an exotic, dark-purple fruit that grows wild in South America and sometimes is referred to as the Chilean blackberry or Chilean wineberry. Maqui berries have been used by the Mapuche Indians of Chile for thousands of years. Another very important group of superfoods are the dark-skinned berries, which are very rich in anthocyanidins: blueberries, cranberries, blackcurrants, açai and camu-camu, which is the richest source of vitamin C of all fruit.

"Camu-camu is the large berry of *Myricaria dubia* from the Amazon Rainforest basin and is exceedingly high in vitamin C, as well as being rich in anthocyanidins, catechins, ellagic acid and rutin; these phytonutrients work synergistically with vitamin C and optimise absorption. Camu-

camu is also rich in carotenoids including lutein, beta-carotene and zeaxanthin. As a food source of vitamin C, the superfood camu-camu is gentle on the stomach, highly bioavailable and optimally absorbed.

"A fruit like açai is vitamin-rich, with high levels of anthocyanin, a flavonoid with antioxidant effect, also found in pomegranates and blueberries. The polyphenol and anthocyanidin content and antioxidant properties of these foods may account for their inclusion in healthy ageing protocols. Choose açai products with stated polyphenol content to ensure antioxidant quality."

Grasses are also considered useful superfoods, with Holmes highlighting barley grass.

"This chlorophyll-rich superfood is useful for everyone as it gently aids detoxification, alkalises, and is nutrient dense. Look for barley grass juice that is organic and rich in live enzymes," she commented.

She also highlighted the ease of incorporating superfoods with hot drinks.

"Teas are one of the simplest to understand superfoods. When it comes to superfoods teas, both polyphenol-rich yerba maté and guaraná make excellent energy-boosting teas. Both are popular superfoods, with histories of long-term use by indigenous peoples who valued their use to provide sustained energy and strength and, in the case of guaraná, for mental focus. Quebra pedra teas are often recommended for those with gallstones or kidney stones," Holmes explained.

"Green matcha tea is alkalising, energising and rejuvenating. Rich in EGCG (epigallocatechin gallate, a powerful catechin and polyphenol), matcha provides potent antioxidants to help strengthen the immune system by protecting against free radicals. Matcha is also rich in chlorophyll for helping to alkalise and detox the blood and L-theanine to help improve cognition and mood, while reducing physical and mental stress."



SUPER SPICES

One area that is well accepted as offering some potent superfoods is spices.

“Ginger is possibly best known for its ability to support digestive health. It acts as a carminative and intestinal spasmolytic, eliminating gas and soothing the intestinal tract. Ginger contains volatile compounds, including gingerol, shogaol and zingerone, which contribute to the antioxidant and anti-inflammatory properties that this herb has demonstrated,” Bradshaw explained.

“Studies show that ginger consumption may reduce the pain and inflammation experienced by people with osteoarthritis and rheumatoid arthritis. Gingerols have been shown to inhibit the formation of inflammatory cytokines. Many health conditions are linked to inflammation and studies show that age-related cognitive decline, post exercise muscle soreness, menstrual pain and some cardiovascular conditions (inflammation influences all these conditions), may be alleviated by the regular consumption of ginger. The activity of ginger root against various infective microbes is well established and consequently, ginger is a powerful anti-fungal agent.”

And we cannot forget that increasingly popular super spice, turmeric, beneficial for so many areas of our health.

Bradshaw pointed out: “Turmeric root is a well-established superfood with a history of use in India, China and throughout the tropics. Turmeric root has been heavily researched for its antioxidant, antimicrobial and liver supportive properties, as well as its potential role in helping to maintain proper inflammatory response and healthy detoxification.

“Turmeric root consists of over 100 different compounds, including volatile oils, sesquiterpenes, polysaccharides and curcuminoids. However, most studies have focused solely on the curcumin, which has been considered to be the primary active. Curcumin does not occur in nature as a single component, and, therefore, a simpler and more effective way is to consume turmeric root as a whole food (fresh or dried powder).

“The whole spice contains all the compounds naturally in balance with each other, including all of the curcuminoid group and a high percentage of volatile oils. Typically, whole dried turmeric root is approximately 10 per cent fat content by weight, and this means that this naturally-occurring fat can assist in the absorption of the curcumin contained in the dried turmeric.”



QUALITY CONTROL

Superfoods come from all over the world, some are single ingredients that boast a rich variety of nutrients, while other superfood products you can buy in the UK are often a combination of a number of powerful ingredients. Being aware of some of the issues that can come from the lower quality variants is important.

“When possible, opt for organic products. Many superfoods are grown in far-away places and to obtain the highest nutrients from these, powders are a good choice,” Holmes commented.

Sharpe Da Rosa added: “If people are buying supplementary superfoods, for example, wheatgrass, acai or turmeric it is recommended that they buy products from a reputable company and that are preferably organically certified.”

Also be aware of what form they come in to ensure people gain the most benefit from it.

“Many superfoods can be purchased as fresh foods. It’s best to choose organic sources in order to avoid health-depleting pesticides,” Bradshaw advised.

“When choosing powdered superfoods or encapsulated supplements, it’s imperative to preserve their vitality, nutrient profile and potency and to retain the enzymatic activity of the plant. For this reason, fresh freeze dried is the preferred method of choice. Fresh freeze drying produces a food supplement that closely resembles the profile of the original fresh plant, but substantially more concentrated due to the removal of the plant’s moisture. Additionally, freeze dried plants are more soluble and have superior shelf stability.”



Make your vote count

We are delighted to launch the annual *Nutrition I-Mag* Product Awards – and we need your votes.

What a year it has been for the world so far, what with contending with a global pandemic.

But what this year has taught much of the nation is the importance of looking after our own health, and we have seen many nutritional products come to the fore as the general public recognises the importance of taking responsibility for their own health.

And we believe that the brands making these products, across a range of

categories, deserve recognition for the excellence and innovation they show – and that is what the *Nutrition I-Mag* Product Awards is here to celebrate.

Over the following pages, you can discover all the products that are in the running for an accolade, and then we are asking you to make your views known and cast your vote. Simply **click here** to make your vote count.

And look out for our March-April issue, in which we will be revealing the winners.

BEST VMS PRODUCT



Altrient Liposomal Vitamin C

Altrient's pioneering liposomal vitamin C formula, made by LivOn Labs, uses a patented process that protects vitamin C from being broken down in the digestive system, delivering maximised absorption, into the bloodstream and cells. Each sachet contains 1000mg of vitamin C and high quality phospholipids, of which 500 phosphatidylcholine. Altrient C has been clinically tested in a double-blind placebo-controlled skin study and undergone multiple quality control and absorption studies. Altrient C delivers TRUE liposomal advantage and is the gold standard in liposomal delivery. Altrient C is vegan, non-gmo and doesn't contain, added sugar, artificial sweeteners, colours or flavours. Gluten free.



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CBDfx's CBD + CBG Wellness 2:1 Tinctures contain the most effective ratio of broad spectrum CBD to CBG in a revolutionary formula that's jam-packed with the wellness-boosting benefits of two powerhouse antioxidant nutrients, curcumin and coenzyme Q10, along with a proprietary blend of 18 different terpenes for increased absorption and efficacy. With a vibrant flavour profile and health benefits, these tinctures are vegan and gluten-free. Grown in the USA, CBDfx's pure, single-pass CO2 extraction method produces an ultra-premium CBD oil from some of the finest organic hemp plants in the world — guaranteeing a safe and high-quality experience for maximum benefit.

For further information please visit www.CBDfx.co.uk



Immuno-4

Immuno4 (I-4) is a unique synergistic blend of organically certified nutritional ingredients which aim to help maintain the proper functioning of the immune system when taken as a food supplement. The ingredients in I-4 are known to support the immune system on four levels:

- Physically with shiitake mushroom, Egyptian black cumin seed oil and apple cider vinegar
 - Emotionally with flower essences
 - On a cellular level with energized colloidal silica
 - On a vibrational level with homoeopathic levels of Anas Barbariae
- Made with 70% ingredients from organic farming. Certified by ECOCERT SAS F-32600.

For more information or to place an order, visit www.kinetic4health.co.uk or email sales@kinetic4health.co.uk



Curcumin 400x

Curcumin 400x is a revolutionary curcumin supplement featuring innovative BioCurc®—a patented ingredient that has been shown in clinical studies to surpass the bioavailability of virtually every other curcumin/turmeric extract product on the market.

400mg of BioCurc® curcumin, found in Curcumin 400x (one softgel), a soluble liquid curcumin, formulated using no enzymatic hydrolysis, has been shown to be equivalent to 2,000,000mg of Turmeric and 45,000mg of 95% Curcumin formulations.

Stohs SJ, et al. J Am Coll Nutr. 2018;37(1):51-59

For further information please visit www.nutri-dyn.co.uk/product/curcumin-400x/

BEST VMS PRODUCT



BEST VMS PRODUCT



Liver-G.I.

Liver-G.I. provides a comprehensive blend of phytonutrients and nutritional factors. Featuring N-acetyl-L-cysteine and alpha lipoic acid. With milk thistle and turmeric extracts as well as broccoli sprout extract standardized to sulforaphane. Provides the amino acids glutamine, glycine, taurine and methionine. Also, featuring chlorella, the most studied "green super food."

- provides a comprehensive blend of phytonutrients and nutritional factors
- featuring N-acetyl-L-cysteine and alpha lipoic acid
- with standardised milk thistle and turmeric extracts
- broccoli sprout extract guaranteed to provide 400ug of sulforaphane
- provides the amino acids glutamine, glycine, taurine and methionine
- with chlorella, the green super food

For further information please visit www.pure-encapsulations.co.uk



BioBran

Biobran MGN-3 has been clinically proven to increase Natural Killer Cell production by as much as 300% in a just a couple of weeks. T and B cell activity are increased by 200 and 150% respectively. Research has also shown that it can help significantly boost natural antibody production, as well as other parameters of the immune system.

Biobran's immune enhancing effects kick in in just a few days, and it takes only a few weeks for the immunomodulatory effect to reach 90% of its peak.

Biobran is a non-toxic arabinoxylan food supplement made from breaking down rice bran with enzymes from the shiitake mushroom.

For further information please visit www.healthy.co.uk



Organic ParActin® Andrographis

Andrographis is an annual herbaceous plant that has been used for centuries in traditional Chinese and Ayurvedic systems of medicine for its immune boosting properties. ParActin® is a premium form of andrographis and the result of 20 years of research. Clinical studies into ParActin® have shown it to be effective at reducing the occurrence, intensity, symptoms and signs of the common cold. Our andrographis is entirely natural and free from any additives such as fillers, binders or flow agents.

For further information please visit www.timehealth.co.uk



Recondition the Gut with MegaSporeBiotic (TM)

MegaSporeBiotic™, a 100% spore-based, broad-spectrum probiotic consisting of 5 Bacillus spores, has been shown in a double-blind placebo-based published study to drastically reduce metabolic endotoxemia (by 60% compared to placebo) in just 30 days by shifting users to a more protective microbiome. This also led to significant reductions in many systemic inflammatory markers: IL-6, IL-8, MCP-1, IL-1B and IL-12. This unique all-spore formula effectively RECONDITIONS the gut by promoting microbial diversity and maintaining key health-promoting, commensal gut bacteria. MegaSporeBiotic™ boasts a 5-year shelf-life, does not require refrigeration, and maintains efficacy during antibiotic therapy.

For further information please visit www.microbiomelabs.co.uk

BEST VMS PRODUCT



BEST NEW PRODUCT



Targeting the digestive and immune systems

Bio-Kult Boosted is a unique multi-strain live bacteria formulation targeting the digestive and immune systems. With the same great 14 strains of live bacteria found in Bio-Kult Advanced, proven to survive the high acidity of the stomach, but at 4 times the concentration. In addition, Bio-Kult Boosted also contains vitamin B₁₂ which contributes to the normal function of the immune system. Bio-Kult Boosted can be taken every day as part of a healthy lifestyle, it does not need to be refrigerated and can be taken alongside antibiotics, whilst travelling and by vegetarians.

For further information please visit www.bio-kult.com or email us, info@bio-kult.com

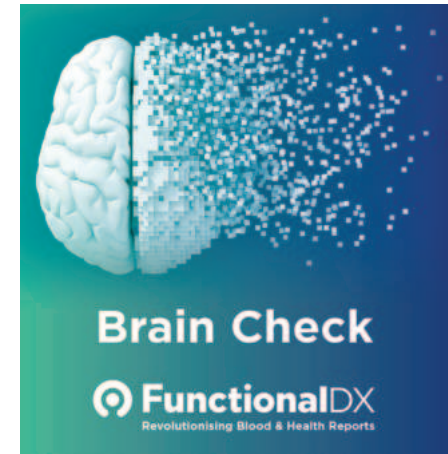


Protect Your Gut with BodyBio Butyrate

Butyrate is a short-chain fatty acid that promotes a healthy microbiome, improves gut function, supports a healthy inflammation response, and improves cell health on the genetic level by protecting DNA.

Butyrate repairs the damage that pesticides, toxins, processed foods, drugs, etcetera has done to the lining of the gut. Butyrate helps to heal the gut lining and promotes healthy DNA to support genetic function against damage, which may lead to disease.

www.bodybio.co.uk



FunctionalDX Brain Check: Advanced brain & cognitive health profile

FunctionalDX Brain Check is formulated to provide a comprehensive investigation into factors affecting the health of the brain including; stress resilience, glycation, chronic inflammation, detoxification, immune function, mitochondrial function, hormone balance and physical and mental inactivity along with nutritional status.

FDX Brain Check reviews over 100 biomarkers using our sophisticated blood science reporting to analyse 13 body systems, 7 accessory systems, 7 macro nutrient systems and 14+ nutrient assessments and over 40 clinical dysfunctions to provide the most advanced and comprehensive health reporting on the market today.

Find out more at www.functionaldx.com/product/fdx-brain-check/

BEST NEW PRODUCT



BEST NEW PRODUCT



Wellness Formula Herbal Resistance Liquid with Echinacea, Coptis & Yin Chiao

Wellness Herbal Resistance calls upon time-honoured herbal traditions of three continents - Traditional Chinese, Native American and European - and features a powerful herbal formula combining traditionally-used and increasingly researched echinacea, elderberry and goldenseal with Yin Chiao, a valued traditional Chinese herbal complex used in TCM to help maintain balance in the body.

The liquid form makes this product convenient for mixing in your favourite drink, or is easy to swallow from the spoon, making it ideal for those who struggle with capsules.

Approx. 23 servings per bottle. Suitable for vegetarians; contains honey.

For more information visit www.kinetic4health.co.uk



MegaMag® PeriMeno Plus Magnesium Powder

MegaMag® PeriMeno Plus is the newest product in our popular MegaMag® range of powders. It can be taken from the earliest stages of the perimenopause, supporting a smoother transition through to the end of a woman's reproductive years. The product features a combination of well-researched herbs, including ashwagandha, rhodiola, sage, shatavari and red clover. Ashwagandha supports optimal cognitive function, as well as relaxation; and rhodiola is an adaptogenic herb used to support cognitive function, low mood and burnout. Sage is a herb with a long history of use for supporting excessive sweating, a symptom common during the perimenopause. Shatavari and red clover are two herbs with a long history of traditional use in women's health.

For further information please visit www.nutriadvanced.co.uk



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epigenar® presents the new Liposomal Vitamin C powder capsule with LipoCellTech® natural liposomes.

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For further information please visit www.riohealth.co.uk



BEST NEW PRODUCT

BEST ALTERNATIVE PRODUCT



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For further information please visit www.bio-kult.com



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FunctionalDX

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Nutri-tide®NT – harnessing nucleotide power

Nucleotide Nutrition Ltd is recognised as the UK pioneer of nucleotide-based health supplements, achieved through winning clinical research grants exposing a lifestyle-induced essentiality. Food supplement, Nutri-tide®NT, developed purely for health professionals, harnesses the power of nucleotides. This quality tested product contains therapeutic levels of these breakthrough micronutrients, in the form of the sophisticated and balanced Nutri-tide®NT nucleotide blend, delivering a high concentration of purified, soluble and balanced pyrimidine and purine nucleotides to support the natural proliferation of cells integral to the digestive tract and immune system.

Contact: rachel.hoyle@nucleotidenutrition.com
& visit www.nucleotidenutrition.com.
Tel: +44 (0)1299 405485

BEST ALTERNATIVE PRODUCT



EXPERT ADVICE

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



With immune health so high on people's agenda at the moment, what do you consider the most important recommendations for children?

COLETTE HEALY SUGGESTED: As we approach winter this year, there is more anxiety than usual about pathogens circulating. Some simple support for children will benefit them and calm parents, and medicinal mushrooms have much to offer.

The typical issues facing children in winter are seasonal colds and 'flu, social anxiety and lack of adequate nutrition and sunlight. The immunomodulatory effects of mushrooms will help keep the defences tuned and able to deal with the typical winter challenges to immunity. This regulatory effect can help with allergies and autoimmune conditions as well.

As mushrooms are biological response modifiers, they can stimulate or dampen down response, as is more favourable in a given situation. This ability gives them huge scope of applicability.

Vitamin D is always a solid recommendation. If children can get some daylight every day on exposed skin, that is best. As that is limited depending on latitude and lifestyle, supplementation is an aid. Ergosterol is a provitamin of vitamin D, naturally occurring in mushrooms. Exposure of ergosterol to ultraviolet light results in its conversion to ergocalciferol (vitamin D2).

The most well-known compound from mushrooms is perhaps the alpha and beta glucans. These polysaccharides have been shown to positively affect immunity, as well as improving blood sugar management and cholesterol. Mushrooms are also a source of some B vitamins, prebiotics,

natural antibiotics, and minerals such as selenium and zinc. These are some of the 150 plus bioactive compounds contained and the fact that these are from a food source means they are bioavailable and identifiable to the body.

Two popular mushrooms for children are reishi (*Ganoderma lucidum*) and lion's mane (*Hericium erinaceus*). Reishi is renowned as it has such a broad range of applications and is helpful for children with depleted immunity or those getting repeated infections. Also noteworthy is its calming, anxiolytic effect; it is used for hyperactivity.

Lion's mane has a tropism for both the digestive system and central nervous system. It acts as a gastric protector, gastric mucosa regenerator and prebiotic. It has also been shown to improve the development of brain cells and show a promoting effect on the myelin production process. It's recommended in children with attention deficit, food intolerances and intestinal imbalances.

Most importantly at this time is to reassure children as they may be unsettled by the current situation and changing everyday regulations.



ABOUT THE EXPERT

Colette Healy is a herbalist in Cork, Ireland. She has a degree in Herbal Science, as well as having studied herbalism more traditionally. She works with native herbs as much as possible, as well as medicinal mushrooms. She is a Practitioner Health Advisor with Hifas da Terra UK.



How important are probiotics in weight loss, and what is the research telling us in this area?

ADRIENNE BENJAMIN ADVISED: The relationship between the gut microbiota and weight was first reported by Wostmann et al., in 1983, following studies with germ-free rats. Since then, research with both animals and humans has shown that the gut microbiota plays a key role in the development and progression of obesity and that overweight people appear to have less diversity (20-40 per cent decrease) in the range of bacteria in their microbiome compared to people of a normal weight.

Whilst the ways in which the microbiome affects weight are still not clearly identified, the mechanisms suggested to date include immune dysregulation, altered energy regulation, pro-inflammatory mechanisms and modified gut hormone regulation.

In particular, the gut microbiota play an essential role in modulating energy metabolism and both animal and human studies have shown that changes in the bacterial strains in the gut may help to reshape the metabolic profile in the host. Furthermore, ghrelin (the orexigenic (appetite-stimulating) peptide hormone) is negatively correlated with *Bifidobacterium* and *Lactobacillus*, whilst leptin (the anorexigenic (appetite-lowering) hormone) is positively correlated with these bacterial species.

This suggests that restoring the numbers, species and diversity of commensal bacteria in the gut microbiota through dietary or other means may help to reverse the dysbiosis that is found in overweight and thus impact associated metabolic changes.

One recent clinical trial showed that a blend of five strains of probiotics (Lab4P) supported weight loss when taken daily for six months, with no other changes to diet or exercise. The best results were achieved by the overweight, as opposed to obese, people over 50 and those with high cholesterol.

One of the proposed modes of action identified in this study was the interaction of the probiotics with cholesterol and bile. The probiotics increased the excretion of bile acids in faeces, leading to an increase in bile acid production from cholesterol (to replace the excreted bile) and hence a reduction in cholesterol levels. As bile absorbs fat into the body, the suggestion is that a lower availability of bile may lead to more fat being excreted from the body.

Further to this, the probiotics may prove more beneficial in



supporting the microbiome of those over 50 as microbiome diversity generally diminishes as we age and the higher levels of systemic inflammation and dysregulation present in obese people might account for the reduced effect compared with the overweight.

Whilst the research into the mechanisms is still exploratory, the link between probiotics and weight loss is now undeniable.



ABOUT THE EXPERT

Adrienne Benjamin is a Nutritionist at ProVen Probiotics and is committed to understanding (and sharing) the ways in which the gut and the microbiome support health.



Can you detail the importance of including DPA in a fish oil supplement?

KAREN JONES EXPLAINED: The benefits of fish oils are clear from the wealth of research available, most of which has focused on the two best known omega 3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). However, there is a third omega 3 fatty acid, docosapentaenoic acid or DPA, which is increasingly being shown by research to be critical to human health. But why have most of us never even heard of it?

The answer lies in technology. It is only with the recent advances in purifying fish oil that it has become possible to extract consistent and standardised levels of DPA, as well as EPA and DHA. This has led to an increasing number of studies into DPA's effects.

It is now understood that DPA acts as a reserve of both EPA and DHA in the body. DPA can be thought of as an intermediary between EPA and DHA in the metabolic pathway and can convert easily to either, depending on need. The body preferentially stores DPA as it is less easily oxidised and its shape (as defined by its double bonds) when incorporated into the cell membrane has a different effect on the molecular organisation than EPA or DHA. Forty per cent of the omega 3 fatty acids in human breast milk are in DPA form, probably for these very reasons.

Including a standardised amount of DPA in a fish oil supplement allows the body to improve its omega 3 status more quickly. One study showed that supplementing DPA alongside DHA and EPA for just 14 days increased tissue omega 3 levels by 63 per cent, as compared to 41 per cent in those not receiving the DPA.

So, what other benefits of DPA has the research shown?

DPA enhances the ability of DHA to:

- Improve cognitive development in the first two years of life.

- Slow cognitive decline.

- Reduce the risk for mood disorders.

- Support optimal eye health.

DPA enhances the ability of EPA to:

- Repair damaged blood vessels.

DPA itself has been shown to:

- Reduce the risk of thrombosis.

- Improve wound healing.

- Turn on fat-burning genes.

- Turn off genes that lead to excessive inflammation.

Another recent interesting area of research into omega 3 metabolites has looked at the importance of Specialised Pro-resolving Mediators (SPMs) in the resolution of inflammation. These important substances evoke cellular and tissue responses that help to conclude inflammatory episodes, promote host defences and stimulate tissue regeneration. Each of the omega 3 fatty acids releases its own individual series of these. They have different effects on any inflammation, and obviously, having easy access to the full spectrum of SPMs is more beneficial.

So, to conclude, including DPA in a fish oil supplement ensures a higher absorption of all three omega 3 fatty acids. This then provides the body with a ready reserve, which is easier converted to whichever form the body needs. The research clearly shows that DPA enhances the actions of DHA and EPA, whilst also having its own beneficial effects. Including DPA in a fish oil supplement also ensures that any inflammation will be tackled with the full range of omega 3 fatty acid SPMs.



ABOUT THE EXPERT



Karen Jones BSc, BA, DipCNM, CNHC, mBANT, is a Registered Nutritional Therapist practicing in London and specialising in gut health. After completing her diploma at CNM in 2018, she studied the research on the microbiome in a study group under the guidance of Adam Greer (senior lecturer at CNM) for nine months. Karen also provides practitioner support for Microbiome Labs and Enzyme Science brands in the UK.

The vital role of butyrate in gut health

Dr Thomas Wnorowski, BCIM, CNCC explains how important it is to feed our gut and microbiome with the short chain fatty acid, butyrate.

Our gut is where the immune system gets its oomph, where the final products of digestion sit, and where water is absorbed into the body. About 400 different kinds of bacteria live there, most of them good, some not so much. Maintaining balance of these bacteria is critical to staving off one or another pathology, including IBS/IBD, diverticular issues, and even polypsis.

The bottom line is that no one should suffer colon disease, and fewer have to if healthy and appropriate bacteria levels are maintained.

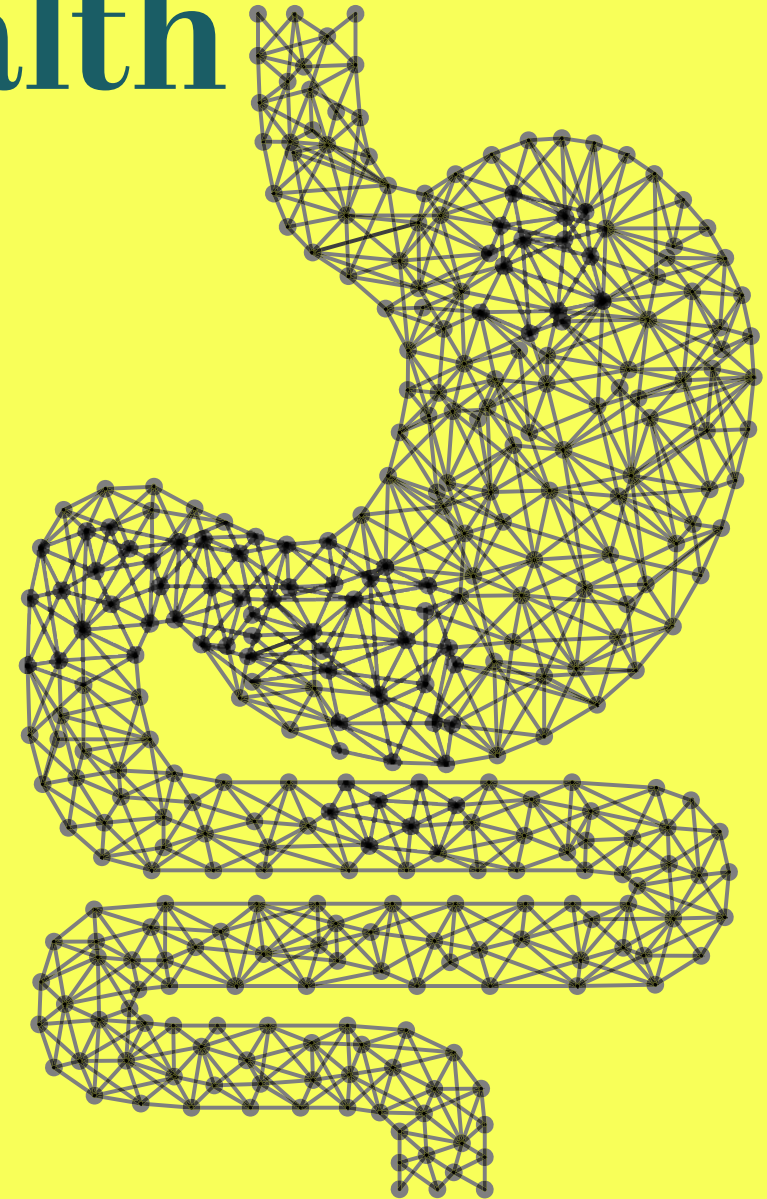
The cells that line the colon walls are called colonocytes. These endothelial beauties are flat and constitute a layer that is only a single cell thick. They live shorter than a week and then are replaced by new ones. Because of this high turnover rate, there's no need to do harsh cleanses – our bodies do the work for us!

All cells need a source of energy to do their work. Evidence is strong that the epithelial lining of the gut relies more on luminal energy supply than on vascular, meaning that energy comes from outside, not from the bloodstream, as most cells require. So, then, what is this energy supply? Short-chain fatty acids (SCFAs), derived from the bacterial fermentation of resistant starch, are the luminal substrates for colonocytes.

Butyrate is a short-chain fatty acid produced by bacteria in the colon that's essential for a healthy microbiome. In fact, appropriate levels of butyrate are key, not only to digestion, but to cellular and DNA health, as well as a reduction in disease. We cannot make enough butyrate because we eat too few resistant starches.

Butyrate is a necessary component to a balanced microbiome, also working as an inflammation guard. One of several short-chain fatty acids created from fermented resistant starches, low butyrate levels have been associated with serious health concerns.

Butyrate not only nourishes the gut but also promotes cell differentiation, helps to regulate blood sugar, and promotes healthy DNA.





Myriad of benefits

■ **Prevention of colonic diseases:** Of the short-chain fatty acids, and those having fewer than six carbon atoms, butyrate is the one that nourishes the gut and promotes cell differentiation, a process that helps to prevent serious colonic diseases. Because of its protective nature, butyrate is a most desirable molecule and is to be cultivated as a friend or, at least, introduced as a partner.

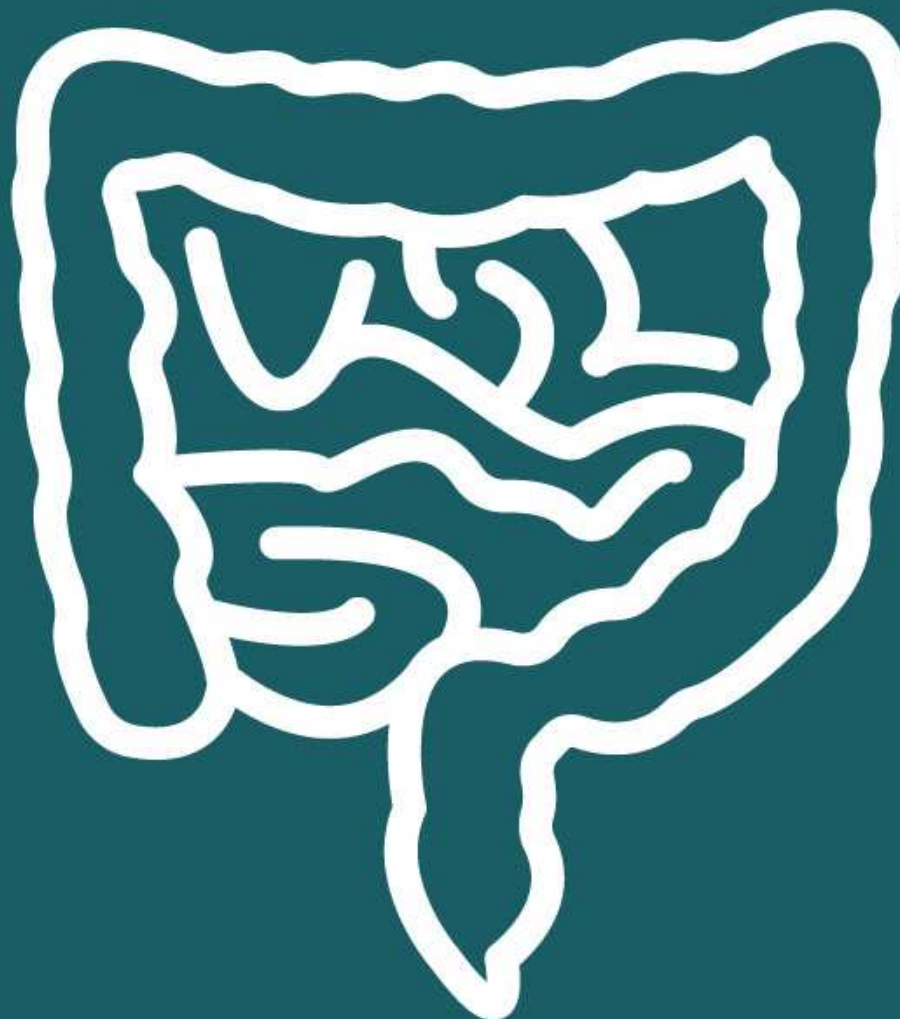
■ **Reduced inflammatory diseases:** The fiery process of inflammation is linked to most chronic disorders, from heart attack to stroke to type 2 diabetes. Inflammation fuels a cytokine known as interleukin-6 (IL-6), which remains elevated in chronic sickness. Butyrate is a rescue molecule in inflammatory diseases, wherein it impairs the oxidative processes that initiate their genesis.

■ **Multi-purpose repair from gut to brain:** Butyrate inhibits enzymes that deleteriously unwind DNA, just like the kinked-up Slinky we ruined as kids. Butyrate sequesters harmful ammonia that forms from faulty protein metabolism and/or from inborn metabolic errors. In clearing mental fog, it increases brain-derived neurotrophic factor. Depending on its concentration, butyrate decreases intestinal permeability, closing tight junctions and preventing leaky gut.

Butyrate side effects

The good news is there appear to be very few side effects associated with supplementing butyrate. All reports in medical papers admit there are no known ill effects from butyrate taken at 'normal' doses, which I have extrapolated to be less than 8g a day for several months. One study does state that more than 20g a day will waken latent herpes simplex (fever blisters), but that high a dose is not recommended.

Colonocytes absorb butyrate supplements immediately and rapidly, with more than 95 per cent precision and completeness. The remaining five per cent goes to the toilet.



What causes low butyrate?

At this point, you may be wondering if you're deficient in butyrate, or how you would know if you may be.

The only way to truly know is by taking a stool test, but, if you're not getting adequate fibre from starchy foods in your diet, chances are good you could use some extra butyrate. Today, typical diets are full of processed foods that are devoid of fibre.

Another way to determine if you may be deficient in butyrate is to consider common symptoms of those who are. These symptoms take time to develop and can include:

- Leaky gut.
- Foggy thinking from faulty protein metabolism and consequent ammonia accumulation.
- Bloat.
- Chronic diarrhoea.
- Eventual IBS/IBD.
- Crohn's disease.
- Behavioral irregularities.
- Aberrant fatty acid metabolism.
- Upset microbiome balance.
- Increases in inflammation markers.
- Reduced insulin sensitivity.
- Missteps in DNA replication.



How to increase butyrate in the colon

It is possible to get butyrate from the foods you consume, but in looking at the average diet, there is generally not enough slowly digesting fibres to produce the necessary levels with food alone. That's because a lot of the foods highest in resistant starch are not particularly appetising, think cold mashed potatoes and white rice.

Foods that do help boost butyrate include:

- Dairy (but the high serving sizes needed may not be recommended for all).
- Cold rolled oats (try soaking notes in non-dairy milk overnight).
- Legumes (when cooled after cooking).
- Cooled potatoes and cooled white rice.
- Under ripe bananas and plantain flour.
- Whole grains.
- Fibrous vegetables like asparagus and broccoli stems, some fruit peels like apples.

While many foods contain small amounts of butyrate producing resistant starch, it's still quite hard to reach an adequate amount. For this reason, ample supplementation with a butyrate supplement is vital to overall wellbeing.

Supplementing butyrate is a great way to keep your gut happy and healthy, but as always, quality matters! Look for a 13-atom complex joined to an alkali. Butyric acid, butyrate, and tributyrin are ingredients you may see in this category of supplements. Yes, they have the same purpose, but very different characteristics.

You should use butyric acid, aka butanoic acid, a short chain fatty acid with four carbon atoms at its heart (found in butter, hence its name). As an acid, it has a low pH so we compound it with an alkali, a combination that forms a salt plus water. At this stage, we no longer have butyric acid, but butyrate, a buffered form of butyric acid.



CPD DIRECTORY

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CPD hours: BANT six hours

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Cost: £129/BANT member price £79

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The Gastrointestinal System: Digestion, Absorption and Mucosal Integrity: Module 2 Functional Medicine University

Online

CPD hours: BANT 35.5 hours

Speakers: Cheryl Burdette, N.D. Court Vreeland D.C., D.A.C.B.N, Jill Carnahan M.D, Ronald Grisanti D.C., D.A.B.C.O., D.A.C.B.N, MS, William Shaw PhD

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The Immune System: Module 3 Functional Medicine University

Online

CPD hours: BANT 27 hours

Speakers: Lise Alschuler N.D., FABNO, Michelle Corey C.N.W.C, Ronald Grisanti D.C., D.A.B.C.O., D.A.C.B.N., MS. Dr. Russell Jaffe M.D.
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Personalised Sports Nutrition CNELM

Online

CPD hours: BANT 54 hours

Speakers: Elizabeth Scott-Moncrieff MSc, BSc, NLP Practitioner, Ian Craig MSc, BSc, INLPTA, SAANT, Alex Manos MSc, BSc, NASM, AFMCP, NLP Practitioner, Tom Fox MSc, Akademiek PNI, Dr Joanne Larkin, Consultant in Sport & Exercise Medicine

Cost: £500 (full module access with assessment £800/without assessment £500, access to one of nine Activity Content Blocks £90, 10 per cent student discount, 10 per cent discount for full module access with/without assessment for BANT professional members.

Website: <http://cnelm.co.uk/courses/cpd/>

Female Ecology Mastercourse Invivo

Online

CPD hours: BANT nine hours

Speakers: Moira Bradfield, ND

Cost: £249

Website: <https://invivohealthcare.com/products/education/female-ecology-mastercourse/>

Nutrigenomics and Hormones Masterclass Lifecode GX

Online

CPD hours: BANT six hours

Speakers: Emma Beswick CEO, LifecodeGx, Dr Leah Austin

Cost: Full price £129/BANT member price £79

Website: <https://www.crowdcast.io/e/hormone-balance-2>

Autism and Nutrigenomics CytoPlan

Online

CPD hours: BANT one hour

Speakers: Anne Pemberton, MSc, PGCE (Autism), RGN, DipION, FdSc, mBANT, rCNHC, IFM, BPS, NMC

Website: <https://blog.cytoPlan.co.uk/autism-and-nutrigenomics/>

Sugar and Spice and All Things 'Nice' (Diabetes and Insulin Resistance) CytoPlan

Online

CPD hours: BANT one hour

Speakers: Dr David Morris

Website: <https://blog.cytoPlan.co.uk/sugar-spice-things-nice-diabetes-insulin-resistance-2-part-series/>

Module 4 – Natural Sports Cookery The Centre for Integrative Sports Nutrition

November 3 – online

CPD hours: BANT 34 hours

Speakers: Rachel Jesson

Cost: £750

Website: www.intsportsnutrition.com/cisn-course

FORTHCOMING WEBINARS

Target Publishing, which publishes *Nutrition I-Mag*, is hosting a series of webinars for practitioners. Register at www.ihcanferences.co.uk/webinar

Gastro-oesophageal reflux disease (GORD) – a practitioner's guide to addressing GORD in clinical practice

OptiBac

**OptiBac Probiotics
Presented by Sarah Oboh BSc (Hons)
Nutrition, ANutr
Tuesday, November 10, 6.30pm-
7.30pm**

Gastro-oesophageal reflux disease (GORD) is a common and often chronic digestive disorder associated with a poor quality of life and significant complications. It is known that the interplay of lifestyle factors and the condition of the gastrointestinal tract may contribute to the development of this condition but less seems to be known about the possible causes.

As practitioners, it's important to be aware of these possible causes and learn how to address them effectively in clinical practice. Join Sarah as she explores some of these underlying causes, including the microbiome, while providing a holistic and practical approach to targeting this condition.

CPD DIRECTORY

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

Methylation Masterclass Lifecode GX

Online

CPD hours: BANT six hours

Speakers: Emma Beswick MBA, Dip CNM, mBANT, rCNHC, Karen Harrison MSc (Genetics) BSc (Hons, Nut Science) Dip CNM mBANT rCNHC.

Cost: £129/BANT member price £79

Website: <https://www.crowdcast.io/e/methylation>

The Gastrointestinal System: Digestion, Absorption and Mucosal Integrity: Module 2 Functional Medicine University

Online

CPD hours: BANT 35.5 hours

Speakers: Cheryl Burdette, N.D. Court Vreeland D.C., D.A.C.B.N, Jill Carnahan M.D, Ronald Grisanti D.C., D.A.B.C.O., D.A.C.B.N, MS, William Shaw PhD

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As practitioners, it's important to be aware of these possible causes and learn how to address them effectively in clinical practice. Join Sarah as she explores some of these underlying causes, including the microbiome, while providing a holistic and practical approach to targeting this condition.

In good health, naturally

More than 30 years of developing innovative nutritional supplements and Good Health Naturally is a leading brand in practitioner circles. With a focus on quality products backed by science, we find out what the company is planning for the future.

Having been specialising in innovative and high quality nutritional supplements for more than three decades, Good Health Naturally brings with it impressive expertise, a rich heritage of excellence, and a wide product range targeted at practitioners.

But it is also a company that moves with the times, always looking at the science as it develops to form the basis of the brand's NPD programme. It is this mixture of experience and heritage, along with its modern approach, that makes Good Health Naturally a well-respected brand within the nutritional therapy community.

Lindsay Powers, the company's Practitioner Manager, commented: "The practitioner market is an ever expanding one as we have seen more people turn towards natural health professions in more recent years. Nutrition especially is gaining more and more popularity. However, the natural products market is also continuing to expand and become very competitive, so it is important to stay ahead of the game by offering high quality products that stand out.

"Practitioners are keen to source products for their clients that really work and with a proven track record. This is where our 35 years of expertise can really make a huge difference, and as we are constantly keeping up to date with new ingredients and technologies, our products can continue to remain current and highly effective."


Good Health Naturally
Because it Works!


GOOD HEALTH
NATURALLY
Because it works!




Good Health Naturally
Because it Works!



A NUTRITIONAL DISCOVERY

Robert Redfern founded Good Health Naturally after having an insight into nutritional therapy; he took his first steps into the world of natural health back in 1985 following the premature death of his parents from lung disease, which inspired him to search for natural solutions to major health problems. To this day, it remains his strong belief that we need to focus on nutrition to reduce our risk of disease.

Lindsay commented: "Robert's research into nutrition made him realise that specific nutrient deficiencies (such as enzymes, selenium, iodine, D3, vitamin C and magnesium) and poor diet choices are the prime cause of disease. His full lifestyle plan covers these critical areas in great detail and has had thousands of people worldwide report a complete recovery. Over the past three decades, he has dedicated his life to educating others on this message, and now at the age of 74, he still finds it impossible to contemplate retirement."

Robert's work led to the creation of Good Health Naturally, a brand which now boasts a range of more than 140 health solutions, all containing the highest quality ingredients backed by science, using innovative delivery methods for maximum absorption and benefit within the body.

And among its successes, the brand has often been first to market with innovative supplements.

"Robert brought serrapeptase to market in 1990 as a new and innovative product. He went on to then develop Maxifocus, a liposomal eye nutrient product, which hadn't been seen before and today remains one of our most popular products," Lindsay explained. "We also hadn't seen solutions in the way that Robert delivered them at the time, as he developed unique and powerful formulations using key ingredients, such as serrapeptase."

Because of the roots of the business in terms of nutritional expertise, not to mention the focus the company places on education, working closely with practitioners offers a natural synergy.

"The market is getting increasingly more competitive, but we like to stay one step ahead by offering our practitioners full supplement and lifestyle plans and protocols, which they can use to work with their clients. They also have access to our range of free eBooks, which include full protocols for many major health issues, which they can pass on to clients or use themselves for guidance," Lindsay pointed out.

As Practitioner Manager, Lindsay, who is also a qualified Nutritional Therapist, and the rest of the team of Nutritional Therapists, are also on hand to answer any product or health enquiries. They are also available to guide practitioners through any difficult cases they may have to ensure they get the most appropriate advice. They can email in or call the dedicated practitioner support line during office hours for professional guidance.

BRAND ETHOS

The nutritional supplements market is a busy one these days, filled with both long-established brands and new entrants. But what is the ethos at Good Health Naturally that sets it apart?

Lindsay advised: "The ethos in the beginning, which remains to this day, is to offer customer solutions to their most pressing health concerns, as well as offering critical nutrients, such as magnesium and iodine, to support optimal health and wellbeing. All nutrients and products formulations are backed by science, whilst sourcing the most bioavailable ingredients, to give customers products that really work."

To deliver this in practical terms, Good Health Naturally has an impressive team that bring a wide variety of expertise to the business. For example, there is a dedicated in-house team of highly qualified Nutritional Therapists, who are on hand to give appropriate supplements advice to our customers.

Lindsay added: "We also go further than just supplement recommendations as customers have access to our online Good Health Coaching Centres, which take the customer through an in-depth health coaching programme. The health coaching includes appropriate supplement advice, alongside diet and lifestyle recommendations, to provide a holistic approach to their wellness."

And what of the products in terms of how they are made, and how the quality we talk about can be guaranteed? For Good Health Naturally, there are a number of facets to this.

"All our products are manufactured to the highest standard, following GMP guidelines. We also like to source the best quality and most bioavailable ingredients on the market," Lindsay explained. "Over the last few years, we have focused hugely on ensuring the most effective delivery methods available, and more recently, have been expanding our liposomal range, which now includes liposomal vitamin C and liposomal curcumin/resveratrol."

And so to the future, and the plans for Good Health Naturally. One focus for certain will be on its commitment to reducing the company's environmental impact.

"Over the course of 2020 and 2021, we are taking major steps toward conscious product production -- making an environmental pledge to only use glass and bio-based recyclable plastic packaging across most product lines that include the top-selling serrapeptase enzyme," Lindsay advised.

"Order packing is also improving: we will only use biodegradable bubble wrap and Ecoflo compostable loose filling and shavings. Integrating Ecoflo, known as the original compostable loose fill, helps better protect products during shipment, keeps costs low so supplements remain affordable, and substantially reduces environmental impact. The new Ecoflo product filling is 100 per cent biodegradable, odourless, and dust-free. To wrap around glass items, GHN has introduced die-cut brown

paper and white tissue interleaf paper, which create a 3D-honeycomb structure. This provides a unique packing solution that is fully recyclable, biodegradable, compostable and eco-friendly."





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Bringing nutrition to life

Nutritional Therapist, Kirsten Chick, offers a practical guide to nourishing from the inside with her new book, *Nutrition Brought to Life*.



Energy balls



Spiced fig and
apple flapjacks



Gluten free pancakes

Energy balls

These are a perfect alternative to the sugar dense snack bars and energy balls you buy in the shops, they refrigerate and freeze well, and you can get creative with different flavour combinations. Here are a few I love that focus on energy.

Decadent delights (rolled in carob or cocoa powder)

Ingredients:

- Boiled chestnuts
- Prunes
- Coconut oil
- A little coconut cream or milk
- Carob or cocoa powder
- Supergreen powder

Tropical truffles (rolled in desiccated coconut, or carob or cocoa powder)

Ingredients:

- Brazil nuts
- Dates
- Coconut oil
- Carob or cocoa powder
- Lime zest
- Supergreen powder (for example, spirulina, wheatgrass powder – add a pinch at a time)

Winter warmers (rolled in carob or cocoa powder)

Ingredients:

- Walnuts and pumpkin seeds
- Cranberries (avoid the sugar sweetened ones)
- Coconut oil
- Supergreen powder
- Ginger

Method:

- For each recipe, use approximately 100g nuts/seeds/ chestnuts – preferably soaked overnight in water – with about 50g dried fruit and 2-3tbsp coconut oil.
- Add other spices and flavourings half a teaspoon at a time, until it tastes just right. Note that I suggest a lot less of the sweet stuff that you get in shop bought versions, but they are still definitely sweet enough! Then you blend it all together, as smooth or as rough as you like, shape into truffle sized balls and roll in something like sesame seeds, desiccated coconut or cocoa powder to make them prettier.
- If the mixture is too dry to hold together, add a little more coconut oil. If the mixture is too wet, add more nuts/seeds – remember, the coconut oil will also harden a little when you put them in the fridge.
- In winter, melt the coconut oil first by gently heating in a pan until liquid.



SPICED FIG AND APPLE
FLAPJACKS



GLUTEN FREE PANCAKES



Spiced fig and apple flapjacks

I designed this recipe when trying to make a healthier flapjack option, and it evolved into something really quite special. The flavours in this are amazing, and not a tub of golden syrup or margarine in sight!

Ingredients:

- 200g oats
- 100g ground pumpkin seeds
- 2 cooking apples – grated (regular apples also work if that's all you have)
- 3 figs – preferably fresh, but if not available, then buy dried and soak them first
- 100g butter (or about 70g coconut oil)
- 2tbsp blackstrap molasses
- 2-4 cardamom pods (split and crushed)
- 1-2tsp cinnamon

Method:

- Halve figs and cut into slices, then pan fry in a little of the butter until soft.
- Add molasses, butter/coconut oil, spices and grated apples.
- Stir in oats and pumpkin seeds.
- Bake in a small greased square Pyrex dish or baking tray for 30 minutes at 180°C.
- Leave to cool and slice into squares.

Note: Like most of my recipes, this one is incredibly versatile, and I'd encourage you to experiment with different flavour combinations. To get your creative juices flowing, here are a few more flapjack ideas:

- Plum and ginger
- Pear and dark chocolate
- Hazelnut, orange zest and rosemary
- Pineapple and desiccated coconut
- Mango and chilli
- Lemon and rhubarb
- Banana and pecan
- Carrot, walnut and raisin

ENERGY BALLS



GLUTEN FREE PANCAKES



Gluten free pancakes

Have I told you yet how much I adore pancakes? Classic Shrove Tuesday pancakes, paper thin crepes, fluffy scotch pancakes, I love them all. Sadly, gluten often doesn't love me. It's difficult to replicate the pancakes of my childhood with gluten free flour options as part of their appeal was the gooeyness that only gluten can truly provide. However, buckwheat crepes are pretty much standard in France, and naturally gluten free. What I end up making most, however, are fluffy scotch pancakes, or drop scones as they are sometimes known. They work really well with buckwheat flour, brown rice flour and various gluten free flour mixes. They need a thicker batter, and a pinch of bicarb to make them fluffy. I use them instead of bread and crackers for houmous and other dips and spreads with poached eggs, mushrooms and watercress for a mouth-watering breakfast with berries and yoghurt or coconut cream as a breakfast or dessert with lemon juice, raw local honey and a few sultanas stirred into the batter for a sweet treat.

Ingredients:

- 100-200g brown rice flour, buckwheat flour or a gluten free flour mix
- 1-2 eggs
- Water, coconut milk or other plant-based milk, enough to make a thick batter
- Splash of lemon juice (if soaking overnight)
- Pinch of bicarbonate of soda

Method:

- Stir the egg(s) into the flour, and then gradually whisk in the liquid until you have a thick batter.
- Just before cooking, stir in a pinch of bicarbonate of soda.
- Melt a little butter, ghee or coconut oil in a frying pan over a moderate heat. Add 1tbsp batter to the pan, and watch it spread to about the size of your palm or a little smaller. You can probably fit two more into the pan if required.
- When bubbles start to appear on the pancake(s), give the pan a little shake, and the pancake(s) should be able to move around the pan. They are now ready to flip over – you can use a fish slice to do this. Cook for another couple of minutes, then serve.
- To make them super digestible, make the batter the night before, cover with a cloth or paper towel and leave at room temperature overnight, and add the bicarbonate of soda and any extra ingredients just before cooking. This gives the flour a chance to ferment a little and reduce levels of phytates – adding a splash of lemon juice will help with this.
- Then you can cook it all up in the morning or keep the batter in an airtight container in the fridge for up to three to four days. If you batch cook them all at once, they usually freeze well – just pop them in the toaster or under the grill when you want to eat them. Or you could just mix up a small amount of batter and cook and eat them there and then.



Nutrition Brought to Life is published by Alchimia Publishing. Images courtesy of Lesley Burdett and Kirsten Chick.

ENERGY BALLS



SPICED FIG AND APPLE FLAPJACKS



I-Mag giveaways



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

Nutri Advanced CurcuDyn Forte



CurcuDyn Forte is a high potency formula with curcumin, boswellia and ginger, together with vitamins D and C.

This herbal trio may support a healthy inflammatory response within

the body, as well as healthy joints. The curcumin and boswellia are embedded in fenugreek galactomannans (from fenugreek dietary fibre). This innovative technology delivers highly bioavailable curcuminoids and boswellic acid.

I:Win: We have 10 CurcuDyn Forte 30 Capsules to give away, RRP £24.70 each.



BIOCARE IMMUNE INTENSIVE

BioCare's Immune Intensive is a high potency combination of elderberry, sage and beta glucans with vitamin C, vitamin D and zinc, which support a healthy immune system, in a convenient and pleasant tasting powder that can be mixed with liquids for flexibility.

I:Win: We have five to give away, RRP £16.97 each.



Rio Amazon Powder Collection

Certified Organic Maqui Berry freeze-dried powder is from the nutrient-dense berry, *Aristotelia chilensis*. Maqui berry is considered a superfruit due to its high content of powerful antioxidants and it will be the favourite colour of your smoothies, porridges and juices. The Rio Amazon Powder Collection brings you a selection of unique, high quality botanical extracts and superfoods, free from unnecessary additives and fillers.

I:Win: We have five to give away.



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The events of this unusual year have made vitamin C one of the most talked about supplements.

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I:Win: We have three to give away.

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