



# Nutrition

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RESEARCH AND EDUCATION FOR TOMORROW'S PRACTITIONER

I-Mag

MARCH/APRIL 2023

## THE LOWDOWN ON SIBO

An expert guide to  
managing this increasingly  
prevalent gut condition

## Act on inflammation

Protocols to control  
inflammation and the  
associated health risks

## Pollen protection

Nutritional  
interventions to  
ease hay fever

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# Welcome



There are multiple reasons why we are seeing an increase in gut-related conditions but one of the commonly accepted factors is around our modern day living and all the associated issues this brings, including poor quality, overly processed diets, and an increasingly stressful way of living.

This appears to be the case for SIBO, a condition that appears to be rising in terms of numbers but also awareness as to what it is. Now a common gut-related issue, and with links to IBS, it is an area that Nutritional

Therapists need to be ready to advise on, given its prevalence.

And so, we have gathered an expert panel of natural health experts, who discuss the issues around diagnosis, risk factors and the correct protocols to follow. **Click here** for all the advice.

On another note, we know how important it is for practitioners to be

able to recommend quality brands, that can be trusted in their expertise, in their formulations, and their manufacture and we believe it is important to celebrate this. Which is why each year, we run the *Nutrition I-Mag* Product Awards, designed to heap praise on the brands demonstrating excellence.

And in this issue of *Nutrition I-Mag*, we are delighted to be able to reveal all the winners in our annual awards. **Click here** to find out who your winners are, and we thank all our retailers for voting.

And on a final note, don't forget that education is at the heart of this magazine, and as well as offering CPD points for reading each issue, we also remind you not to miss out on the forthcoming educational events through the IHCAN Conference series. Whether our virtual events or in-person, these conferences offer high quality education and valuable CPD points, with discounts offered for students. **Click here** to find out about our next event and visit [www.ihcanconferences.co.uk](http://www.ihcanconferences.co.uk) to book your place.

RACHEL SYMONDS, EDITOR

*Rachel*

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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:



**Lucy Parry**

Lucy Parry MChem (Hons) joined the team at Lamberts Healthcare as Senior Brand Specialist in 2020, having completed her Chemistry Integrated Master's at the University of York. Whilst her studies were primarily focused on medicinal chemistry, Lucy's interest in health and natural products led her into the exciting field of nutrition.



**Lucy Sparkes**

Lucy Sparkes BA (Hons), DipCNM, mBANT is a BANT-registered Nutritional Therapy Practitioner with more than a decade of clinical and professional experience within the nutrition and health industry. She runs her own practice specialising in IBS, IBD and digestive complaints and has a particular interest in family health and supporting families and individuals with SEN. She is a Nutrition Advisor at Nutri Advanced.



**Helen Drake**

Helen Drake Bsc (Hons), Dip Nutritional Therapy, mBANT, rCNHC, AFMCP joined Cytoplan in 2016 as Nutritional Therapist, offering tailored advice to all Cytoplan customers and support to practitioners and students. As a BANT and CNHC Registered Nutritional Therapist, Helen worked in private practice and has worked with clients suffering from a wide range of conditions, including fertility and hormonal imbalances, digestive issues, skin conditions, arthritis and weight management. In September 2012, Helen also began as a lecturer at the College of Naturopathic Medicine in London and Brighton.



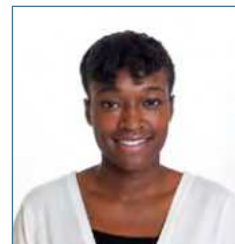
**Rose Holmes**

Rose Holmes, BSc (Hons), Dip.ION, PGCE, mBANT, CNHC is a Registered Nutritional Therapist with a special interest in chronic illness, circadian rhythm disruption and healthy ageing. She is the Education and Training Manager at Rio Health and provides training to other practitioners and health professionals on natural therapies. Rose is the author of the book, *Oral Health and Systemic Disease: A Clinical Guide for Nutritional Therapists and Functional Medicine Practitioners*.



**Rosie Rayner**

Rosie Rayner ND, DipCNM, mANP has been a clinical Nutritional Therapist, Naturopath and Iridologist since 2015. As well as practising in her own women's health clinic, she works as part of the technical team at Bionutri, where she now can bring her expert knowledge together and help other practitioners too.



**Sarah Oboh**

Sarah Oboh is registered with the Association for Nutrition and has a BSc (Hons) degree in Human Nutrition. Driven by her passion for developing tailored, personalised dietary and lifestyle interventions to target ill health, she began her career as a Nutritionist in private and public health. With a keen interest in complementary and alternative medicine, she pursued a role at OptiBac Probiotics, where she educates practitioners on the significance of the microbiome in health and disease.

# News Bites

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

## Government called out for failing to act on health risks from junk food

The UK Government has been accused of failing to act on life-threatening health risks posed by ultra-processed foods.

An investigation by the Soil Association has revealed that the NHS Food Scanner App recommends biscuits, cakes, crisps, chocolate puddings and fizzy pop as “good” options for a healthy diet. Energy drinks and instant noodles are also endorsed by the app.

The app – which has been downloaded at least half a million times – was launched as part of the UK Government’s Better Health campaign. It aims to help families “take control” of snacking and awards a Good Choice thumbs up if products fall below its threshold of salt, sugar, or saturated fat.

But the Soil Association investigation tested the app on popular snack products and found that 80 per cent of a sample of products with the Good Choice badge or similar endorsements were ultra-processed. These products are linked to heart, kidney and liver disease, cancer, depression and premature death.

With the help of parents and carers who trialled the NHS Food Scanner app in their local supermarket or on a home delivery, Soil Association food experts analysed around 100 products with the Good Choice badge and other endorsements such as High-Five, go go green! and Healthier Choice. These products fell into categories of food or drink often given to children, including savoury snacks, sweet snacks, and drinks such as squash or fizzy drinks.

From these products, Soil Association experts identified 10 popular ultra-processed food and drink products as key examples of what is being recommended by the app.

In light of the investigation, the Soil Association has launched a petition urging the Government to stop promoting them.

Soil Association Campaign Coordinator, Cathy Cliff, commented: “We are shocked to see the Government not only ignoring the health risks around



ultra-processed foods but actively encouraging families to consume them. It seems like the Government is more concerned about corporate profits than children’s health.

“When every penny counts, it is near criminal that families are being misled to waste money on junk food that doesn’t fill you up with anything other than health risks. The Government’s dietary advice is severely out of date and its failure to provide good advice is putting us all at risk. It is wrong that fizzy drinks and crisps are being promoted to children.

“The Government is taking the biscuit. We are calling for them to cut the crap – stop telling families that ultra-processed is a good choice and show true leadership by helping us all to eat better. Other countries like France, Chile, and Brazil are taking action to make it easier for people to eat less of these unhealthy foods – why is the UK dragging its feet?”

The app investigation followed a Soil Association review of more than 100 recent scientific research papers. They revealed the damaging effect that the industrial additives and processing techniques typical of ultra-processed foods have on the gut microbiome and our overall health. This means these foods carry health risks, even when relatively low in salt, sugar, and fat – something the Government’s dietary advice fails to take account of.

## Vitamin K2 advisory committee expands

A scientific advisory committee to advance the potential of vitamin K2 has been expanded.

Gnosis by Lesaffre, a leading K2 supplier with the most and best clinically validated vitamin K2 as MK-7, MenaQ7, has announced it is enhancing its Vitamin K2 Scientific Advisory Committee to highlight its commitment to exploring new indications while also identifying an expanding global presence of top thought leaders in biomedical research focused on vitamin K2.

The Committee is chaired by the undisputed expert in vitamin K2 research, Dr Leon Schurgers, a Full Professor of Biochemistry of Vascular Calcification, Vice-Chair of Biochemistry at the Cardiovascular Research Institute Maastricht (CARIM), and Chair of the Stem Cell Research University Maastricht (SCRUM), Maastricht University (the Netherlands).

The committee also now includes Dr Hogne Vik, MD, PhD, MBA, a physician by education and previous CEO and Chief Medical

Officer with NattoPharma ASA, and Katarzyna Maresz, PhD, vitamin K2 scientific expert and former President of the International Science and Health Foundation.

Dr Vik commented: “I am honoured to be invited into the Gnosis by Lesaffre Vitamin K2 Scientific Committee and look very much forward to continuing the scientific collaboration with Leon Schurgers and Katarzyna Maresz. An assessment of available new biological data and documented clinical health benefits for vitamin K2 are, in my opinion, the best way to collect and communicate trustful information that will help people to understand why a regular intake of this vitamin is beneficial for health and quality of life.”

Gnosis by Lesaffre will announce additional members in the immediate future. The group will be enlarged by those who have been collaborating with Gnosis for many years, as well as new research partners.

## HFMA announces leadership change

It has been announced that Martin Last will succeed Graham Keen as Executive Director at the Health Food Manufacturers' Association (HFMA).

The organisation has announced a change to its leadership as part of a wider succession plan which was announced at its AGM in June 2022.

The current Executive Director, Graham Keen, will stand down at the end of June after serving in the role for the last 15 years. During that time, Graham has served with distinction, representing HFMA members' interests with a renowned passion and determination.

The new Executive Director from July 1 will be Martin Last. Martin will initially join the HFMA as its Executive Director (Designate) on April 3, and there will be a handover period from Graham to Martin for three months.

Martin is well-known to the HFMA's member companies and has been closely associated with the HFMA for over 25 years, as a member



Graham Keen



Martin Last

Committee. Martin also represents HFMA at its European federation, EHPM, and is currently the EHPM Vice President. Martin sits on the board of the EHPM and is the Chair of the Quality, Technical and Regulatory Work Group, and also part of EHPM's Probiotic and Novel Foods Task Forces.

Graham commented: "The time has come for me to take things a little easier, and my primary concern has been to leave the HFMA, and the interests of all its members, in safe hands. Martin brings fantastic experience to the role and like me, completely understands the importance and great value of the work that the HFMA undertakes. After July, I will be on-hand to offer help and advice if needed not just to

company throughout that time and also a long-standing and committed member of the HFMA Council. He has served as HFMA Chair and Vice-Chair, and he is an active member on various HFMA sub-committees, such as the Technical Committee, Political Engagement Committee and PR

Martin, but to the entire HFMA team, who do such a fantastic job for all of our members."

Martin added: "I have always been strongly committed to our industry and I am really looking forward to stepping up to this new role with all the challenges it will bring. Graham has clearly done an excellent job in enhancing the standing and reputation of the HFMA and I intend to carry on this work, in association with the HFMA team, and to best promote the values and initiatives for our members and our industry for the future."

Steve Mann, Chair of the HFMA, also commented: "The success and growth of this association has not happened by accident – it can only be achieved through the hard work and dedication of the individuals who make the HFMA what it is. Throughout our long history, the association has had no greater, nor more dedicated, servant than Graham Keen. I feel privileged to have worked with him for many years, and to be able to say that not only was I fortunate enough to have served the HFMA myself, but that I did so during the 'Graham Keen era'.

"Whilst the association has an illustrious past, it also has as an exciting future. So, I look forward to working closely with Martin, the HFMA team, our advisors and Council as we continue to build a platform for the future success of our industry. With Martin's wealth of experience and commitment to our industry, I have no doubt that our next era will build on the successes from the last."

## Report reveals progress in global nutrition targets



Progress has been made in global nutrition targets but more needs to be done, according to a new report.

The *Global Nutrition Report (GNR)* has launched the latest data on nutrition at the African Union Summit, tracking global, regional, and national progress against global nutrition targets.

Its updated Country Nutrition Profiles (CNPs) contain the latest data on nutrition. Data for countries across Africa shows that while progress has been made in some areas, including stunting, wasting, low birth weight, childhood overweight and breastfeeding, more needs to be done. In Africa and globally, increasing trends in anaemia, overweight and obesity, raised blood pressure and type 2 diabetes highlight the need for continued prioritisation and commitment towards achieving the global nutrition targets.

Across African countries, it was found that the prevalence of raised blood pressure in females aged 18 and over is projected to have increased from 27.4 per cent in 2015 to 27.6 per cent in 2019. The prevalence of

diabetes in adults aged 18 and over is projected to have increased from 8.7 per cent in 2014 to 10 per cent in 2019 in females, and from 8.3 per cent to 9.8 per cent in males.

Despite a strong decline in anaemia in women of reproductive age between 2000 and 2016, rates have since plateaued and the latest data for 2019 shows a slight increase. Between 2016 and 2019, levels of obesity are projected to have increased from 18.5 per cent to 20.8 per cent in females aged 18 and over and 7.9 per cent to 9.2 per cent in males aged 18 and over.

The GNR's Nutrition Accountability Framework (ANF) commitment tracker shows that, despite growing constraints, including the effects of climate change and the Covid-19 pandemic, a high proportion of commitments towards nutrition have been made out of the African continent, with governments stepping up. However, GNR says that by analysing data from the tracker, it can see that more action is needed in Africa and globally in areas including food and nutrition security,



# In Research

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

## Study reveals potential of vitamin D to reduce dementia risk



**V**itamin D supplements could help to prevent dementia, according to the results of a newly published large-scale study.

Researchers at the University of Calgary's Hotchkiss Brain Institute in Canada and the University of Exeter in the UK explored the relationship between vitamin D supplementation and dementia in more than 12,388 participants of the US National Alzheimer's Coordinating Center, who had a mean age of 71 and were dementia-free when they signed up. Of the group, 37 per cent (4,637) took vitamin D supplements.

The study, published in *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, reported the team found that taking vitamin D was associated

with living dementia-free for longer, and they also found 40 per cent fewer dementia diagnoses in the group who took supplements.

Across the entire sample, 2,696 participants progressed to dementia over 10 years; amongst them, 2,017 (75 per cent) had no exposure to vitamin D throughout all visits prior to dementia diagnosis, and 679 (25 per cent) had baseline exposure.

Professor Zahinoor Ismail, of the University of Calgary and University of Exeter, who led the research, commented: "We know that vitamin D has some effects in the brain that could have implications for reducing dementia, however, so far, research has yielded conflicting results. Our findings give key insights into groups who might be specifically targeted for vitamin D supplementation. Overall, we found evidence to suggest that earlier supplementation might be particularly beneficial, before the onset of cognitive decline."

The research revealed that vitamin D was effective in all groups, but that the effects were significantly greater in females, compared to males. Similarly, effects were greater in people with normal cognition, compared to those who reported signs of mild cognitive impairment – changes to cognition which have been linked to a higher risk of dementia.

The effects of vitamin D were also significantly greater in people who did not carry the APOEε4 gene, known to present a higher risk for Alzheimer's dementia, compared to non-carriers. The authors suggest that people who carry the APOEε4 gene absorb vitamin D better from their intestine, which might reduce the vitamin D supplementation effect. However, no blood levels were drawn to test this hypothesis.

Co-author, Dr Byron Creese, at the University of Exeter, advised: "Preventing dementia or even delaying its onset is vitally important given the growing numbers of people affected. The link with vitamin D in this study suggests that taking vitamin D supplements may be beneficial in preventing or delaying dementia, but we now need clinical trials to confirm whether this is really the case. The ongoing VitaMIND study at the University of Exeter is exploring this issue further by randomly assigning participants to either take vitamin D or placebo and examining changes in memory and thinking tests over time."

The VitaMIND study is run via PROTECT, an online study open to people aged 40 and over. In PROTECT, annual questionnaires on detailed lifestyle factors combine with cognitive testing to determine what keeps the brain sharp in later life.

## Major study launched into long Covid and impact on exercise

A new study into physical activity support for long Covid patients has been announced by ukactive, Sport England and Sheffield Hallam University.

The ukactive Research Institute, Sport England, and Sheffield Hallam University's Advanced Wellbeing Research Centre (AWRC) are working together to explore how organisations are delivering physical activity to people with the condition. The researchers hope to gain a better understanding of the support available and provide initial insights into what helps patients to manage or improve their symptoms.

Given the complexity of long Covid and the lack of clarity about how best to treat the condition – including the role of physical activity – it is essential that the physical activity sector is equipped with the skills and knowledge to support people, and to avoid causing harm.

The first phase of the study will involve interviews with clinical, community, and physical activity sector professionals. An online survey will then be used to determine how the sector is currently integrating physical activity safely into rehabilitation pathways. The final phase will seek to understand the relationship between long Covid clinical referrers and the physical activity sector, before the full results of the study are published in the summer.

Tom Burton, National Partnerships Lead for Health and Wellbeing at Sport England, commented: "We know that the complexities of living with long Covid can significantly impact people's ability and motivation to be active, and that wider research continues to explore the most effective treatments. We welcome this study to better understand the ways in which physical activity and sport is being used to support people living with long Covid and manage their symptoms."





## Urban dwellers found to have worse hay fever symptoms

New research has confirmed that people living in urban areas have worse hay fever symptoms.

The University of Manchester-led team studied 36,145 symptom reports submitted over five years, from 2016 to 2020, by over 700 Britons using a citizen science application called Britain Breathing.

The study, published in *Scientific Reports*, compares self-reported allergy symptoms in urban and rural locations and found that those in urban areas report significantly worse hay fever symptoms according to the first study to compare pollution levels with the severity and duration of real-time symptoms. Symptom reports were labelled as urban or rural using land-use data from the UK's Office for National Statistics.

The severity of three symptoms, runny nose, sore eyes and wheezy breathing, were roughly twice as severe in urban areas than in rural ones across all years.

The study combined pollution measurements and pollen and meteorological data taken from the UK Met Office with the real-time, geo-positioned reports to examine the relationship between symptom severity and air quality. The analysis shows that urban areas record

significantly higher symptom severity and longer symptom duration for all years except 2017. Rural areas did not record significantly higher symptom severity in any year.

Symptom severity was significantly correlated with ozone levels. Ozone has previously been linked to respiratory problems. A potential reason for 2017 being an exception could be, argue the team, that the number of days with moderate or higher O<sub>3</sub> levels dropped slightly that year, before rising sharply and staying relatively high in subsequent years.

One of the study's authors, Immunologist, Professor Sheena Cruickshank, commented: "The worldwide prevalence of allergic respiratory disease has risen considerably in recent years. However, hay fever affects people differently and can change over a lifetime and data is lacking on how environmental factors may influence this.

"This study provides evidence that urban surroundings may exacerbate hay fever and asthma symptoms. It also provides a broader picture of chronic health issues experienced by hay fever and asthma sufferers, as opposed to only observing those with more acute and/or problematic reactions. These differences in allergy symptoms may be due to variation in the levels of pollutants, pollen counts and seasonality across land-use types."

## Study links poor blood sugar control with increased heart rate



A new peer-reviewed study has suggested that poorer blood sugar control is associated with higher core body temperature and increased heart rate for physically active men with type 2 diabetes.

The research, published in *Experimental Physiology*, found that while a common marker of long-term blood sugar control, haemoglobin A1c (also called glycated haemoglobin), was not associated with differences in the amount of heat lost from the body, heart rate rose by six beats per minute and core body temperature increased by 0.2°C with each percentage point rise in haemoglobin A1c (from 5.1 per cent to 9.1 per cent) in men with type 2 diabetes during cycling in a heated chamber.

People with type 2 diabetes can have a reduced ability to lose heat, which can heightens their risk of developing a heat-related injury during a heat stress. However, the cause of the reduced capacity to dissipate heat is not well understood. This health issue is becoming more relevant as countries around the globe experience more frequent and enduring temperature extremes as well as hotter average summer temperatures, such as the global heat waves of 2022.

Researchers from University of Ottawa, in Canada, sought to identify whether blood sugar control affects the body's ability to lose heat during exercise in the heat. Although worse blood sugar control did not seem to impair whole-body heat loss, the association between chronically elevated blood sugar (indexed via haemoglobin A1c) with higher body core temperatures and heart rate could implicate its role in thermoregulation. Importantly, this effect did not appear to be related to the physical fitness of the participants. The findings suggest that among people with type 2 diabetes, poor blood sugar control could lead to a greater risk of reaching dangerously high core body temperatures and greater strain on the heart during physical activity in the heat. However, more research is needed to confirm this link and understand why these impairments are observed, even when heat loss is not compromised.

The researchers monitored blood sugar control by measuring the proportion of glycated haemoglobin in the blood. This is haemoglobin (a protein molecule in red blood cells that carry oxygen) with sugar molecules attached to it and reflects the last approximate three months of blood sugar control. A normal healthy glycated haemoglobin level is four-six per cent, while a good level for an individual with diabetes is ≤ seven per cent. A total of 26 physically active men aged 43-73 years, who had been diagnosed with type 2 diabetes for five years or more, performed an exercise heat stress test, which involved cycling in

the calorimeter set to 40°C. After 30 minutes of seated at rest, they completed three 30-minute bouts of cycling, with 15 minutes rest period in between each bout, at light, moderate, and vigorous exercise intensities. Intensities were set based on a fixed rate of metabolic heat production relative to body size, so that each participant was given the same heat load and therefore amount of heat to lose.

Dr Glen Kenny, University of Ottawa, who led the team, commented: "Previous research showed ageing is associated with a decay in the body's ability to dissipate heat, which is more pronounced in individuals with type 2 diabetes. However, it remained unclear to what extent long-term blood sugar control may mediate this response.

"By examining whole-body heat exchange using our one-of-a-kind whole-body air calorimeter (a device that provides a precise measurement of the heat dissipated by the human body), we were able to gain a better understanding of the association between long-term blood sugar control and the body's physiological capacity to dissipate heat in individuals with type 2 diabetes."

The researchers caution that the findings are based on a male-only cohort of physically active individuals (at least 150-minutes of exercise per week), which might not represent the most heat-vulnerable among those living with type 2 diabetes. Further investigations are needed to understand the changes in the body's physiological capacity to dissipate heat when sedentary and more vulnerable individuals exercise in the heat.



# New to market

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



## SUSTAINABLE SWITCH

HayMax has unveiled new sustainable packaging.

The organic allergen barrier balm is sporting new look boxes and pots. The front of the box has an extra white panel, making it clearer to see what the product is and the variety.

The new look comes at the same time as a switch to environmentally-friendly pots, moving to using sugar cane to make its pots, using up CO2 instead of producing it. It has also reduced the material used by just over 54 per cent and switched from plastic labels to paper labels.

The company has also found new pots made from elephant grass, a plastic-free, compostable, and more sustainable material. There are still issues with these pots, but HayMax is hoping they will make a permanent change when the new material gains the certifications required to be composted locally.

## NaturesPlus unveils gummy range



A six-strong range of gummy supplements has been launched by NaturesPlus.

The vegetarian-friendly range is designed to offer a fun and tasty health boost, whether you want to support your immune system, make up for low levels of sunlight during the colder months, strengthen your hair or help with muscle recovery.

The range includes Vitamin C Gummies, Vitamin D3 Gummies in both 1000IU and 5000IU strengths, Biotin Gummies, along with Magnesium Citrate Gummies. Finally, the range includes Turmeric Curcumin Gummies, providing 250mg of turmeric, containing curcumin, turmeric's key component, along with 12mg of ginger extract and 100mcg of black pepper in a peach flavour.

## FIGHT FATIGUE WITH WILD NUTRITION



A new energy support supplement is the latest addition to the range at Wild Nutrition.

The supplement brand has announced the launch

of Energy Support, created to boost energy and fight fatigue and tiredness, and formulated to support those following vegetarian and vegan diets.

Made with Food-Grown vitamins, minerals and herbal extracts, among the nutrients, it contains vitamin B12 and folic acid (in a naturally methylated form) to support normal energy metabolism and with pantothenic acid and vitamin B6 to support reduction of tiredness and

fatigue. In addition, it has zinc and vitamin C for the normal function of the immune system, and iodine for normal energy metabolism and the production of thyroid hormones.

Also new to the Wild Nutrition range is Complete Beauty Support.

Created to help support healthy skin, hair pigmentation, as well as the healthy production of collagen, the supplement has been 10 years in the making and combines naturally antioxidant rich, inflammatory mediating Food-Grown nutrients to stimulate the repair, strength and growth of healthy skin, hair and nails.

Ingredients include vitamin C to contribute to normal collagen formation for the normal function of skin, vitamin E to support the protection of cells from oxidative stress, hyaluronic acid, biotin, and selenium to support your hair, alongside zinc which, along with supporting your hair, also contribute to maintaining nails.

## Skin solutions



Good Health Naturally has put its nutrition expertise to good use with the launch of a new skin product.

The brand is expanding its skin range with the launch of Revitalising Moisturiser, which contains coenzyme Q10, alongside the powerful plant-based retinol alternative, bakuchiol oil, plus natural skin-loving ingredients such as aloe, sweet almond oil, oat oil and avocado oil. It also includes biotin, to support optimum skin health.

CoQ10 is one of the essential building blocks for healthy,

glowing skin. This antioxidant powerhouse uses the same pathway as vitamin C to neutralise free radicals. Derived from the seeds of the *Psoralea corylifolia* plant, bakuchiol is a potent antioxidant yet also has a profoundly soothing effect on the skin. The use of bakuchiol has its origins in Ayurvedic medicine, and this long history of traditional use is a testament to its efficacy in treating conditions, such as eczema and minor skin ailments.

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"FunctionalDX is delighted to be recognised by our practitioners and chosen as the winner of the *Nutrition I-Mag* Best Alternative Product category for a second year in a row. We are committed to revolutionising blood testing and health reporting so our practitioners can continue to transform the health of their clients," commented Jonathan Cohen, Founder and Director.

Highly commended: Feel Supreme Lion's Mane Mushroom

## BEST VMS PRODUCT

### NaturesPlus Source of Life Gold Liquid



Source of Life Gold Liquid is the most comprehensive and advanced whole food multivitamin supplement available: energising, rejuvenating, highly absorbable and bioavailable. It contains over 200 nutrients, 40 antioxidants, a complete vitamin and mineral profile in a wholefood complex from over 110 fruits, vegetables, algae and superfoods.

Source of Life Gold Liquid is ideal for anyone who needs a fast-acting, high strength liquid multi that aids not only energy production and overall wellbeing but has nutrients to support almost every single body system.

Rob Clark, National Sales Manager at NaturesPlus UK and Ireland, commented: "It's great that Source of Life Gold Liquid has been

selected as the winner for *Nutrition I-Mag*'s Best VMS award. It's a high-quality formula that covers all bases, tastes great, and gets fantastic results. It was first launched over 13 years ago and it has been winning awards ever since."

Highly commended: MINAMI

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Cogni Active features Cognizen citicoline with a blend of supportive vitamins B6, B12 and folate, as well as zinc, lutein, and zeaxanthin. Each daily serving of two capsules provides a clinically studied dose of 250mg Cognizen citicoline. Studies in children, middle-aged adults and elderly adults indicate that it supports healthy cognition across a wide age range.

Commenting on the win, Joanna Dziedzic, Nutritional Therapist and Business Development Manager, said: "The team at Pure Encapsulations

are very honoured to be the recipient of the *Nutrition I-Mag* Best New Product award for Pure Encapsulations Cogni Active.

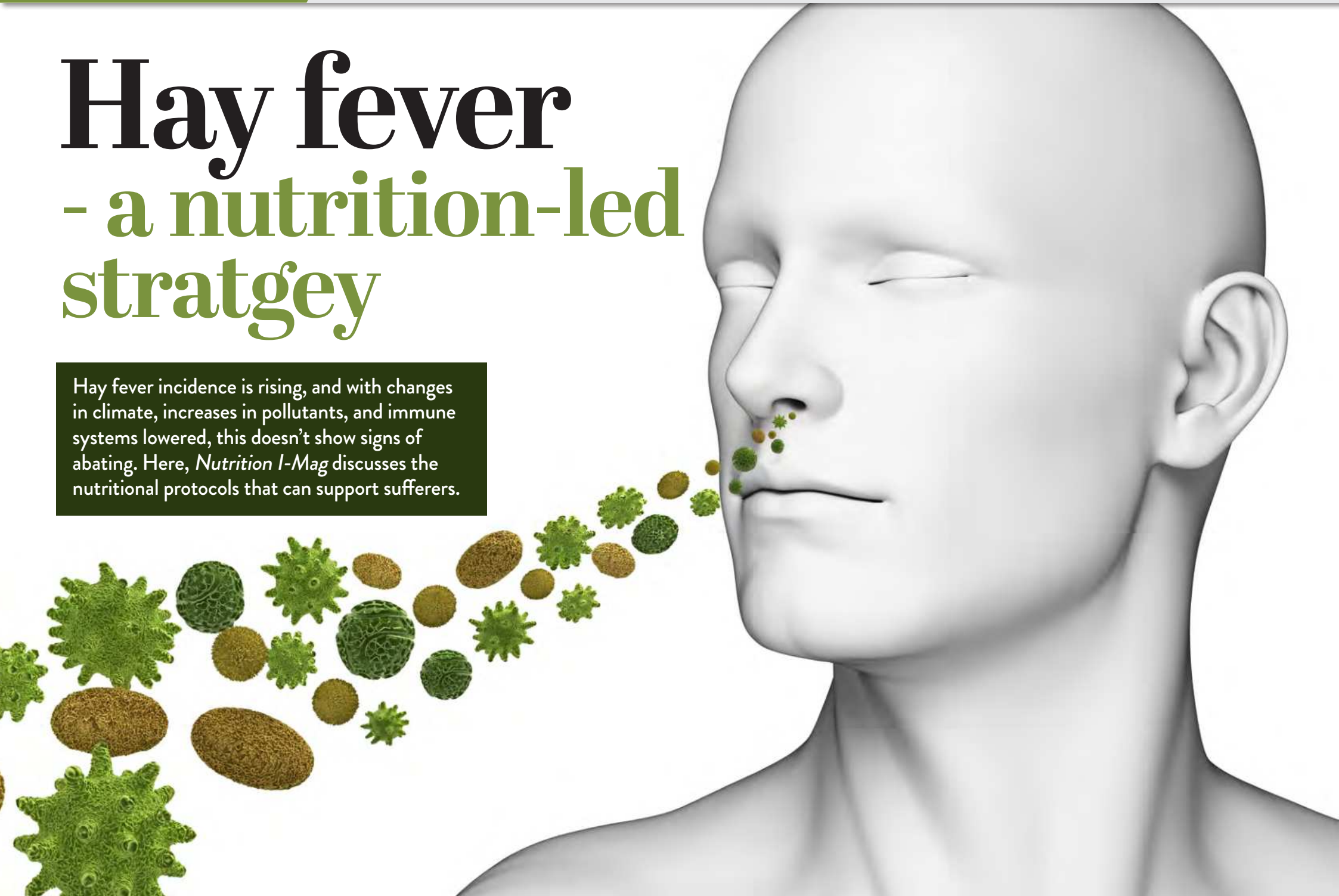
"It's great to see that *Nutrition I-Mag* readers and health care professionals share the passion and trust in our commitment to providing the biggest range of free from, professional food supplements. Cogni Active is a preferred choice by health professionals and this prestigious award reflects that."

Highly commended: Nutri Advanced



# Hay fever - a nutrition-led strategy

Hay fever incidence is rising, and with changes in climate, increases in pollutants, and immune systems lowered, this doesn't show signs of abating. Here, *Nutrition I-Mag* discusses the nutritional protocols that can support sufferers.



There are various factors related to why the incidence of hay fever is increasing, and in fact, many of these are interlinked. For example, immune systems can be lacking, while many people are not achieving a balanced diet, and when we are then exposed to a multitude of pollutants in the air, thus raising our risk of suffering. Furthermore, it appears more people are suffering with eczema and asthma, and with hay fever making the third part of this linked atopic triad, you can see why rates are rising.

Of course, from a practitioner perspective, we know that nutrition plays a key role in not only managing the symptom profile a person experiences, but also in reducing the risk with an effective pre-pollen plan.

Nicola Adams, Senior Brand Manager at Lamberts Healthcare, explained: "Hay fever is caused when our bodies produce allergic antibodies to the proteins in tree and grass pollens. We don't know why some people produce antibodies against pollen and others don't, but it is now more common for people to suffer from hay fever. Individuals are more likely to develop hay fever if there is a family history of allergies, such as asthma or eczema. And there are environmental factors, for example, living near coastlines can reduce hay fever as the prevailing winds tend to carry pollen away.

"The increase in the number of people suffering from hay fever is being attributed to climate change. Led by William Anderegg of the University of Utah School of Biological Sciences, the researchers found that climate change has played a significant role in pollen season lengthening and a partial role in pollen amount increasing."

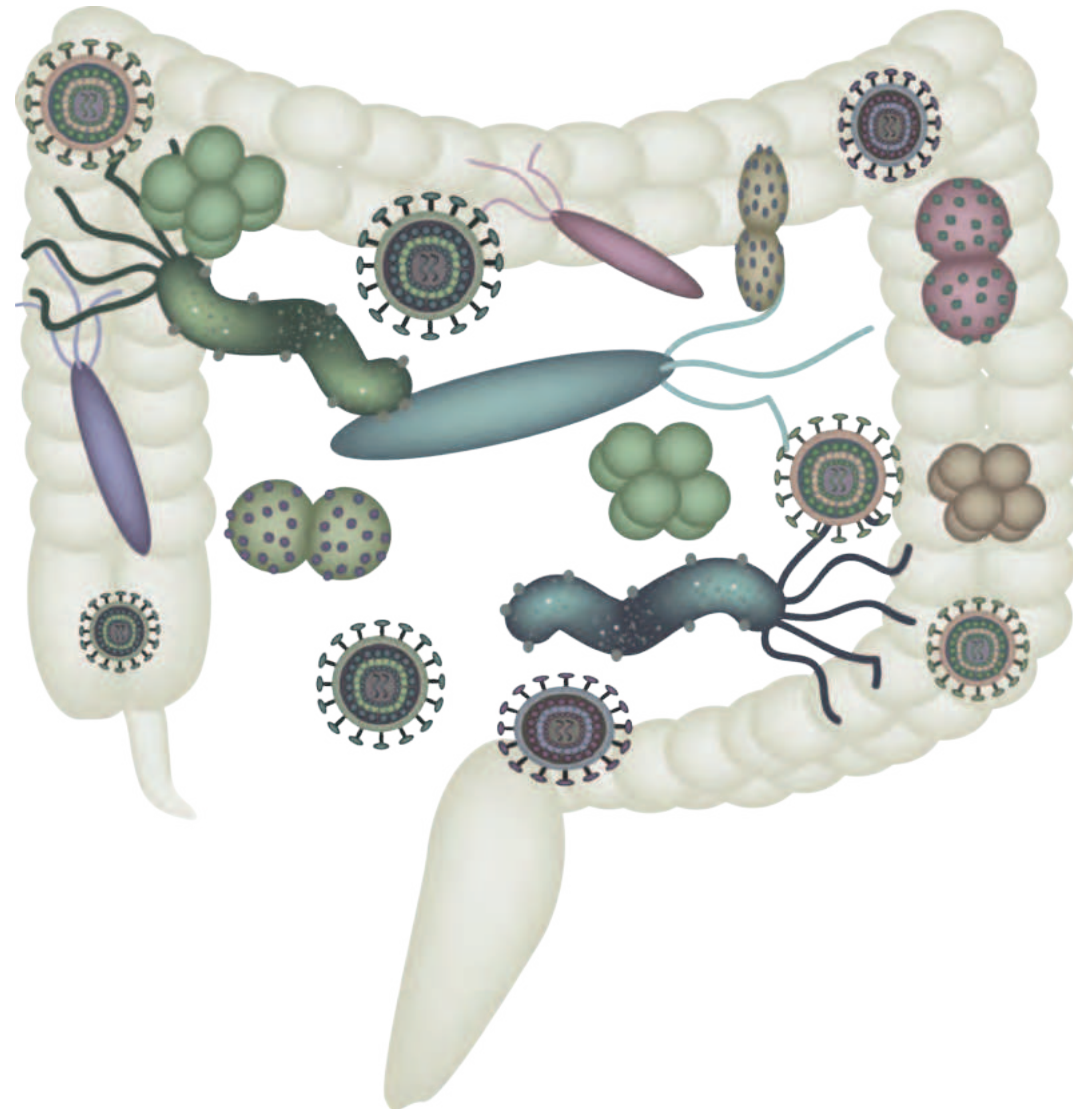
Catherine Gorman, Nutritionist at Good Health Naturally, continued: "Hay fever certainly does seem to be on the rise. It is now estimated up to 30 per cent of adults and 40 per cent of children may suffer from seasonal allergies. A susceptibility

to hay fever can be genetic and people also frequently suffer from asthma and eczema. The three conditions are known collectively as the atopic triad. Each has an underlying genetic root, causing hypersensitivity to certain triggers."

Ella Owen, Nutrition Advisor at Kinetic, which has the Nature's Answer and Garden of Life brands, went on: "Hay fever has been reported to be on the rise in recent years. Air pollution has been linked to this increase. Warmer weather and heatwaves in recent years, perhaps as a result of global warming, has led to higher pollen counts and a worsening of hay fever symptoms. Those with a family history of allergies are more likely to suffer from hay fever. Allergic reactions begin in the immune system. An immune imbalance, resulting in seasonal allergies, can be exacerbated by lifestyle factors such as chronic lack of quality sleep, mental and emotional stress, and nutritional deficiencies.

Alice Bradshaw, Head of Nutrition Education and Information at Terranova, also pointed out: "There are many theories on why allergic conditions (including hay fever) are more prevalent in recent times. Changes in environmental toxic load, including pesticides, xenoestrogens and even excessive exposure to blue light, have been proposed as possible contributory factors. Poor gut health and the stress of today's fast paced, modern life may also be influential.

"Evidence suggests that an imbalance within the gut microbiome may be linked to allergies, including hay fever. Dysbiosis is a key factor that makes a person more susceptible to environmental and food allergies as it is linked to an elevation of histamine, a compound involved in immune and inflammatory responses. Many people with allergic conditions, asthma or poor gut health (inflammation) may also suffer with hay fever. There may also be a genetic determinant to who is likely to suffer with hay fever as this condition tends to run in families."







## SYMPTOM PROFILE

The degree a person suffers with hay fever varies hugely, and at the worst end of the spectrum, quality of life and day-to-day functioning can be hugely affected.

Adams pointed out: "Hay fever, especially to non-sufferers, can sound like a trivial disease. However, on top of the familiar symptoms of itching, sneezing and running nose and sore eyes, it is the fifth most common cause of lack of sleep in the pollen months. There is now evidence to suggest it can also be the cause of examination under-performance by afflicted individuals at school."

Bradshaw also commented: "Hay fever can significantly impact the quality of life for a sufferer. There seems to be a link between hay fever and other conditions such as asthma and atopic skin conditions. Additionally, a hay fever sufferer may be more sensitive to odours and chemicals in general. As hay fever is part of a spectrum of health conditions associated with histamine intolerance, sufferers may also experience other allergic conditions."

In terms of the most common symptoms, and the effect it can have on our health, Owen commented: "Hay fever symptoms include itchy and irritated eyes, coughing, sneezing, blocked nose and loss of smell. Sinus congestion and blocked ears can cause a feeling of light-headedness and dizziness. Pollen allergy can lead to complications such as sinusitis and otitis media.

"Allergic reactions can make one feel fatigued and stressed, negatively affecting one's overall mood and quality of life. Allergy associated inflammation in the body can also lead to headaches and body

pains. Symptoms can have a considerable negative impact on both work and social life. Symptoms can be so problematic they can limit ability to drive safely or concentrate at work. Hay fever symptoms can also be disruptive to children's schooling; unfortunately, pollen counts tend to be especially high in May and June, coinciding with school exams.

"Airborne pollen can exasperate symptoms such as wheeziness, tightness in chest and shortness of breath in individuals who suffer from allergy-induced asthma. Asthma attacks can be very frightening, and a severe attack can be life threatening."

Gorman continued: "There is growing research suggesting poor immune and gut health can contribute to worsening of symptoms. Hay fever is an allergic reaction to pollen. When the tiny particles come into contact with the cells lining the mouth, nose, eyes and throat, it causes an increase in IgE antibodies in hay fever sufferers. This causes the mast cells to secrete histamine and leukotrienes, triggering an inflammatory response, which causes all the unpleasant symptoms, such as itchy, streaming eyes and nose. This can all be exacerbated if there is a disruption in the gut from food sensitivities, a poor diet which is high in inflammatory processed foods, or frequent antibiotic use. All of these can cause alterations to the microbiome, which can change the immune response."

She added: "In a survey, 80 per cent of asthma sufferers say hay fever triggers their asthma symptoms. This is because it causes already inflamed airways to swell up even further, leading to breathlessness. Also, increasingly inflamed and sensitised airways are more likely to react to further triggers."

## DIETARY GUIDANCE

Shifts in diet are important for hay fever sufferers, not only to remove those foods that can be pro-inflammatory, but also to focus on managing potential deficiencies.

Bradshaw recommended: "Those suffering from hay fever might choose to consult a nutrition-oriented practitioner who can work to support overall immune health, optimise digestive health and address issues such as food intolerance, histamine overload and general inflammation.

"Suggestions for dietary changes may include limiting foods and beverages that contain high levels of histamine. These include wine, chocolate, cheese, tomatoes, spinach and aged meat. Tea and coffee can be replaced with herbal teas and ginger and nettle teas may be particularly helpful as they have traditionally been used to manage inflammation and reduce histamine levels. Other helpful foods include onions, garlic, pomegranate and chamomile. Managing stress levels and ensuring good sleep hygiene is also important for reducing histamine."

Owen continued: "Wheat may worsen hay fever symptoms for some individuals. Sensitivities to wheat are common, so it is worth cutting back on wheat-based products or switching to gluten-free for a trial period and observe if it helps to reduce symptoms. Some find that going easy on the mucus forming foods, such as dairy milk, can help reduce symptoms such as excessive catarrh or blocked nose.

"Drinking enough water can help to hydrate the body and lubricate mucus membranes in the respiratory system. Eat a balanced diet that incorporates plenty of antioxidant rich foods, in other words, a variety of brightly coloured fruit and vegetables. Garlic and onions are excellent sources of quercetin, a natural bioflavonoid found to help regulate histamine production."

Adams placed the focus on all-important vitamin C.

"There are certain dietary interventions that one can take to reduce the severity of hay fever symptoms. Vitamin C is a natural antihistamine and whilst we are all aware that fresh oranges are a source of vitamin C, there are loads of other foods that are as good or even better sources, including kiwi, papaya, strawberries, broccoli, kale, peppers and lemon juice to name a few," she advised. "If you struggle to obtain enough through your diet a good quality vitamin C supplement of at least a gram is recommended."

And she added: "Alcohol also contains histamine, which can aggravate your symptoms. It can also be mildly dehydrating, which can stimulate your body into producing even more histamine."

Meanwhile, Gorman recommended: "Hay fever triggers the release of histamine. Avoid food and drinks containing histamine, which are likely to make symptoms worse. These include cheese, red wine, sugar and chocolate. Beer, wine and spirits contain histamine, that very same chemical that sets off allergy symptoms in your body. As well as making you more sensitive to pollen, alcohol also dehydrates you, making your symptoms seem worse.

"Reducing the overall allergic load is also a good idea. Once the allergic load passes a certain threshold, it triggers the inflammatory response. So, if the overall load of allergens like animal dander, dust and pollution is reduced, the body may be able to cope better during the hay fever season. Reducing foods which are mucus-producing, such as dairy products, can also make a huge difference in nasal congestion. Instead, opt for nut milk, coconut or oat yoghurts and non-dairy spreads. Local honey can contain traces of pollen. If eaten regularly, it can help the immune system become more familiar with the pollen and desensitise the body, lessening the reaction.

"Cut back on processed food too. If the diet is full



of sugar and refined carbohydrates, which generally increase inflammation, then allergy symptoms may get worse. Instead, encourage natural whole foods, a rainbow of fruit and vegetables, beans, pulses and good fats like oily fish, nuts and seeds. High-fibre foods such as legumes, vegetables, nuts and seeds are important as they can assist with eliminating toxins, as well as supporting digestion."

And she went on: "Increased fruit and vegetable intake will help provide vitamin C, antioxidants and bioflavonoids. Vitamin C is a natural antihistamine, it can help calm down allergic reactions, plus it is an anti-inflammatory, which can support the immune system too. Good sources include berries, kiwi fruit,

oranges, peppers, and blackcurrants.

"The flavonoid quercetin is also another powerful antihistamine. Rich sources include garlic, onions, apples, blueberries and parsley. Bromelain, a proteolytic enzyme found in pineapples, has anti-inflammatory and immune-supporting properties, helping relieve the pain and congestion of inflamed tissues, especially nasal and respiratory. Omega 3 fatty acids can be helpful too. The increase in allergic conditions in the Western world has been associated with the over-consumption of pro-inflammatory omega 6 fatty acids compared to anti-inflammatory omega 3 fatty acids. Ensure there is plenty of oily fish, nuts and seeds in the diet."



## FOCUS ON IMMUNITY

An effective hay fever management plan should start ahead of the hay fever season, and a key aspect of this is around strengthening immunity.

"Supporting liver health and detoxification pathways prior to the hay fever season may be a useful strategy. Increasing cruciferous vegetables in the diet and adding liver supportive botanicals such as milk thistle and dandelion is a relatively easy addition for people to make," Bradshaw advised.

"Low vitamin D levels have been associated with an increase in allergic reaction due to the role of this nutrient on the immune system, therefore, it may be prudent to ensure that a sufferer has adequate levels and supplements their diet where appropriate. Certain nutritional and botanical supplements can also be taken in preparation for the pollen season and these include quercetin, vitamin C, turmeric, nettle and bromelain."

And Owen went on: "Build resilience of the immune system by managing stress levels and eating a balanced healthy diet. Avoid nutrient deficiencies that contribute to poor immunity, which include vitamin C, vitamin D and zinc."

Gorman went on: "There is so much people can do to support their bodies before the pollen season starts. Optimising gut health is always a good place to start. Seventy per cent of the immune system is based in the digestive tract and so it stands to reason THAT gut health is crucial for immune health."

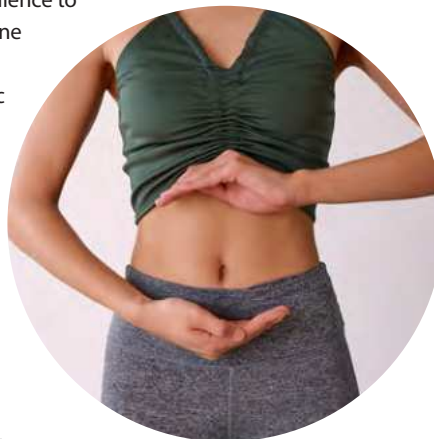
"The health of the gut wall and the microbiome can have a major impact on how people react to environmental allergens. Support gut bacteria by encouraging eating lots of colourful vegetables, plenty of fibre-

rich wholefoods, nourishing bone broth and fermented products like kefir."

There are also supplements that can be recommended in this area too.

"Reishi mushroom is known for its immunomodulating properties. This adaptogen can be in advance of the pollen season in order to build resilience to stress and harmonise immune system responses," Owen suggested. "This therapeutic mushroom is rich in natural compounds, such as triterpenes and beta-glucans. These are thought to help modulate the immune system, potentially reducing the body's heightened immune reactions associated with allergies."

"It has been termed an adaptogen and is thought to help provide balance to the body in times of stress. Stress is a key contributing factor in immune issues such as allergies, to help prevent the onset and symptoms of hay fever, consider taking a Reishi supplement on a daily basis for a few weeks leading up to the season, as well as when experiencing symptoms."



## PRODUCT RECOMMENDATIONS

From a supplementary perspective, there is a wide range of nutrients that can help hay fever sufferers, depending on the scale and severity of the symptoms.

Gorman recommended: "Supplementing with quercetin and vitamin C are both good options as both are natural antihistamines. Quercetin is one of the flavonoids believed to help dampen down the immune response to seasonal allergies. It has a long history of use with no significant side effects and is considered a good candidate for the management of allergic diseases, especially rhinitis. Studies show it can help stabilise mast cells, inhibiting antigen-stimulated histamine release. It also downregulates the production of inflammatory mediators like cytokines, leukotrienes and prostaglandins."

"Supporting the health of the gut is crucial too. Sodium butyrate is a short-chain fatty acid, produced when gut bacteria break down fibre. It has an anti-inflammatory effect, which may help calm any disruption in the gastrointestinal tract and support healing. Probiotics also have an important role in the prevention of allergic rhinitis. The mechanism of action of probiotics is multi-faceted, but studies show they may be able to modulate the production of inflammatory cytokines."

Adams added: "The flavonoid, quercetin, also acts as antihistamine and we use it for anything allergic – hay fever, asthma and eczema. Quercetin can be found in apples, onions, sage and parsley, but isn't found in many foods in high quantities, so supplementation could be advised. Quercetin supplements made with *Sophora japonica* plant extract are more easily absorbed than other quercetin

supplements.

"One surprising nutrient that can aid with hay fever symptoms is garlic. Whilst many of us know that garlic has a lot of health benefits, helping to alleviate your hay fever symptoms is a lesser known one. Not only will increasing your daily intake of garlic help boost your immune system, it also acts as a decongestant and could help to relieve other symptoms like sore throats and headaches, due to its quercetin content."

Meanwhile, Owen recommended: "Nettle contains flavonoids, which can have an inhibitory effect on the release of histamine and inflammatory prostaglandins. Used in western herbalism as a natural spring tonic, nettle leaf is rich in minerals such as silica and iron, which contribute to a balanced immune system. Some drink it as a herbal tea, however, an alcohol-free liquid extract of nettle leaf would provide a more potent delivery of this botanical."

"As the name suggests, eyebright is best known for its use as a natural remedy for conditions of the eye. Eye irritation, itching and weeping are common side effects of allergic rhinitis. Also known as *Euphrasia officinalis*, its anti-catarrhal actions may help to manage excessive mucus and clear the sinuses. Eyebright herb can be taken internally as a food supplement, an alcohol-free liquid extract would allow fast delivery to the body."

"Mullein leaf is a herb that is known for its soothing actions on the mucus membranes of the respiratory tract. Used within traditional healing practices, this botanical may be considered as a supportive, soothing demulcent herb in cases of irritable respiratory conditions, such as hay fever."

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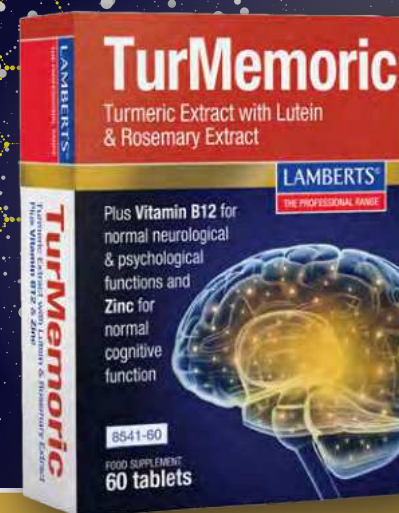


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# Inflammation management plan

**With links to a host of concerning health issues, inflammation has become a by-product of our modern living. But here, nutrition experts explain the effects of prolonged inflammation, and the factors to consider when offering a client protocol.**

Inflammation is an inevitable part of life, whether through sustaining an injury, through the onset of conditions such as arthritis, or through poor lifestyle choices, which can be pro-inflammatory. And while short-term inflammation is not necessarily a bad thing – indeed, the process of inflammation is a natural immune response – it is when it becomes prolonged that we must take action as long-term inflammation is an indicator in a number of health conditions, including cardiovascular disease and cognitive decline, among many more.

Alice Bradshaw, Head of Nutrition Education and Information at Terranova, commented: “Although inflammation is often viewed as a negative process, it is in fact a natural immune response that the body creates when under stress, or when there is tissue damage. It is an extremely complex process involving numerous chemicals and mechanisms. Although inflammation is essentially a protective mechanism, prolonged, chronic inflammation is not a healthy state and is now believed to be a contributory factor for numerous health disorders, including cardiovascular issues, osteoporosis and cognitive decline.

“Many health experts attribute our modern behaviours and environmental factors to an increase in inflammatory-related conditions. A rise in the consumption of processed foods along with reduced physical activity are relatively new trends, along with virtually constant use of electronic gadgets and increasingly stressful lifestyles.”

Catherine Gorman, Nutritionist at Good Health Naturally, went on: “These days, we see more and more people suffering from chronic inflammation. This happens when the inflammatory response lingers, leaving the body in a constant state of alert. It can cause fibrosis or scar tissue. Damage can occur to organs or tissues,

such as joints and blood vessels. Health conditions such as arthritis, heart disease, auto-immune disease, cancer and obesity, are linked to inflammation, both cause and effect.

“All sorts of explanations have been suggested as to why we seem to be seeing more chronic inflammation. It may be due to our environment, with more exposure to toxins, a diet high in refined or ultra-processed foods or prolonged stress. If we look at the Western diet, it is now often full of processed foods, sugar, refined carbohydrates and unhealthy fats. It is a long way from the natural, nourishing foods the body needs.”

Helen Drake, Registered Nutritional Therapist at Cytoplan, continued: “Inflammation is a non-specific response of the body to injury or infection. It is essential for life as it triggers the immune system to stimulate repair processes. It is often a cause of pain, which limits movement of the affected area to prevent further damage. In modern society, many factors can contribute to inflammation and often, people are living with low grade chronic inflammation, which leads to tissue damage and dysfunction and can drive chronic disease processes.

“Chronic inflammatory diseases are very common. Inflammation is indicated in arthritis, cardiovascular disease, dementia, diabetes, fibromyalgia, autoimmune conditions, this list is not exhaustive, these are diseases of modern times. Inflammation can be caused by many factors that are associated with modern life, including western diet (high omega 6, low omega 3, high in processed foods including trans fats, low fibre, high sugar and refined carbohydrates), stress, digestive dysfunction, insulin resistance, hormone imbalances and exposure to environmental pollutants, to name a few.”





## IDENTIFYING INFLAMMATION

In terms of identifying if inflammation is a problem, there are different factors to consider here, and it is also important to understand the effects of this on our health.

Bradshaw explained: "The suffix 'itis' is used to describe inflammatory related conditions, such as arthritis, colitis, and so on. Typically, these conditions produce symptoms such as pain, swelling, redness and/or heat. Chronic inflammation that persists over an extended time period may be linked to conditions such as depression, migraines and heart disease. Blood tests are sometimes used to measure markers of inflammation. The most common ones that a GP may perform are high-sensitivity C-reactive protein (hs-CRP), Erythrocyte sedimentation rate (ESR) and ferritin tests."

Drake went on: "Inflammation is characterised by heat, pain, redness, swelling, and loss of function (Latin calor, dolor, rubor, tumor, and functio laesa). The diagnostic test often carried out is for C reactive protein (CRP), a marker of systemic inflammation. Low grade chronic inflammation is not generally picked up on a standard CRP test, therefore, it is more useful to carry out high sensitivity CRP screening (hs-CRP)."

Gorman continued: "Inflammation is the body's immune response to a perceived injury. It could be caused by a germ, a foreign object, such as a splinter, or even a traumatic injury like a knock or bang. Once the body identifies it has been injured, an inflammatory cascade is triggered. Many different immune cells may be involved, and substances known as inflammatory mediators, including histamine, are released. They cause the small blood vessels in the tissue to become dilated, allowing more

immune system cells to be carried to the injured tissue to help with the healing process. This is why inflamed areas swell up, turn red and feel hot.

"Eating unnatural foods in large amounts can trigger high blood sugar, weight gain and inflammation. For example, processed foods are often high in pro-inflammatory omega 6 fatty acids and low in anti-inflammatory omega 3. A healthy ratio is under 1:3 of omega 3 to omega 6. Yet so many people eating the Western diet have a disproportionately high ratio of omega 6 fats to omega 3s. Some are even as high as 30:1. This imbalance can activate cytokines, which contribute to chronic inflammation."

And when it comes to the effects on our health, as already highlighted, these are many.

"When inflammation becomes chronic, it can cause fibrosis or scar tissue. Damage can occur to organs or tissues, such as joints and blood vessels. Inflammation is linked to the cause and effect of conditions such as arthritis, heart disease, auto-immune disease, lung diseases, IBD, cancer and obesity," Gorman commented.

"Chronic inflammation can result in long-term pain conditions and suffering. According to research by the British Pain Society, chronic pain affects more than two-fifths of the UK population. Around 28 million adults live with pain that has lasted for three months or longer."

And Drake went on: "Prolonged inflammation puts a strain on the body, it increases oxidative stress, as well as stress hormones, and influences a multitude of physiological functions. Oxidative stress causes damage to molecules and hence cells, and, therefore, tissues, organs and organ systems eventually. It is therefore considered to be a major factor in the development of chronic disease."





## INFLAMMATORY PROTOCOLS

The approach to take regarding protocols with excess inflammation depends on the health concerns being reported and the client's diet and lifestyle, but there are some standard recommendations to keep in mind.

Bradshaw turned the focus on diet, reiterating the importance of distinguishing between anti and pro-inflammatory foods.

"Diet can both increase or reduce inflammation. One of the most important factors to managing inflammation is having a diet that supports healthy blood sugar balance. Processed, refined carbohydrates (including sugar, grain-based products, etc) are rapidly broken down in the body into sugars, which disrupt blood sugar levels and promote excessive insulin production. Over time, this results in the release of inflammatory cytokines which contribute to the chronic inflammation seen in numerous severe health disorders," she explained.

"Poor quality foods also disrupt the gut microbiome, which also ultimately promotes a pro-inflammatory state within the body. Although sugars and refined carbohydrates are most implicated as pro-inflammatory, other foods to avoid include overcooked foods, hydrogenated fats and excessive omega 6 fats in relation to omega 3 fatty acids. Individual food intolerances and allergies may also exacerbate inflammation within the body; the most common food allergens include dairy, grains, gluten and soy."

When it comes to the anti-inflammatory foods to suggest, Bradshaw went on: "Specific foods have been shown in research to exert strong effects on inflammatory pathways within the body. An effective anti-inflammatory diet plan will prioritise foods that are anti-inflammatory in nature (while simultaneously limiting pro-inflammatory foods).

"The key focus is to include whole foods that are good sources of phytonutrients and healthy fats. Omega 3 fatty acids have been shown to exert a strong anti-inflammatory response and these are predominantly found in oily

fish, flaxseeds, chia seeds and walnuts. Avoiding refined carbohydrates and high glycaemic index foods will support healthy blood sugar levels, which in turn modulates inflammation."

And Gorman also suggested: "The Mediterranean diet is generally recognised as one of the healthiest diets in the world. It is packed full of some of the best anti-inflammatory foods like vegetables, fruits, whole grains, lean protein sources, herbs and spices and healthy fats like walnuts, avocado and olive oil. These foods are full of vitamins, minerals and antioxidants that help strengthen the immune system and ward off inflammation.

"Olive oil is the ultimate pillar of the Mediterranean diet. It contains potent antioxidants like oleocanthal and oleic acid which has been shown to reduce levels of important inflammatory markers like C-reactive protein. A review looking at the Mediterranean diet as a tool to combat inflammation was published in the Journal of Biomedicine in 2020. It found evidence it could reduce disease activity, pain, and stiffness in patients with inflammatory arthritis."

Drake went on: "Reduce inflammation by reducing foods high in omega 6 – for example, farmed meats, dairy products and vegetable oils (such as sunflower and corn oils). These are high in the omega 6 fat arachidonic acid or linoleic acid (precursor to arachidonic acid). Arachidonic acid can be converted to the pro-inflammatory prostaglandin, PGE. Increasing sources of omega 3 from, for example, oily fish and flax, chia seeds and/or a supplement containing EPA. EPA is found in oily fish or can be supplemented, alpha linolenic acid is found in flax and chia seeds and dark leafy green vegetables and can be converted to EPA by the body. EPA is converted into anti-inflammatory prostaglandins.

"Obtaining good levels of vegetables (six to eight per day), including dark leafy greens high in anti-inflammatory phytonutrients and antioxidants. Vitamin E has been shown to suppress inflammatory markers (IL-6, TNFα and NO) and down regulate the transcription factor NF-κB. Sources of vitamin E are avocados, almonds, green vegetables and olives."



## NUTRIENT FOCUS

As already highlighted, getting the right balance of nutrients, especially in respect of essential fats, is key in mediating the inflammatory response. In this regard, there are certain nutritional supplements that could be recommended.

"Nutritional and botanical supplements can play a significant role in the management of inflammatory conditions," Bradshaw confirmed. "Many of the available formulas are a combination of the numerous ingredients that individually modulate inflammation. In many cases, combining botanicals and nutrients act synergistically and may even enhance the anti-inflammatory effect. Some of the well-researched anti-inflammatory ingredients include:

- Turmeric and the curcuminoids found within this spice have been heavily researched for their potential role in helping maintain proper inflammatory response. Turmeric also possesses potent antioxidant properties.
- Ginger contains active constituents, including gingerol, shogaol and paradol, which have been shown to inhibit and reduce inflammation in the body.
- Vitamin D deficiency is associated with higher rates of inflammatory health conditions and studies show that having sufficient levels of vitamin D is associated with a reduction in inflammatory markers.

"Other supplements that support a healthy inflammatory response include medicinal mushrooms, omega 3 fatty acids, resveratrol and antioxidant-rich nutrients and phytonutrients. A class of supplements known as proteolytic enzymes have been shown to be helpful to manage inflammation when taken away from food (they digest proteins, so will act upon protein in food if taken at mealtimes). Papain and bromelain are well known proteolytic enzymes. A lesser known, but well-researched proteolytic enzyme from fermented soya beans, known as nattokinase, has been shown to possess anti-inflammatory properties with actions particularly supportive to cardiovascular health. This helpful ingredient is also now available in supplemental form but free from soya."

Gorman also highlighted the power of curcumin.

"Curcumin has many studies supporting its use for arthritis and other pain conditions due to its potential as COX-2 inhibitor, helping reduce inflammation and pain. Curcumin may also help reduce inflammation through its antioxidant activity," she explained.

"Oxidative stress is closely related to inflammatory processes. The accumulation of reactive oxygen species leads to oxidative stress, which activates transcription factors associated with inflammation. Curcumin can help by reducing the production of reactive oxygen species and increasing the activity of antioxidant enzymes.

"The proteolytic enzyme, serrapeptase, has a long history of use in Japan for reducing inflammation and pain due to trauma, or other inflammatory conditions. It has powerful anti-inflammatory, anti-oedemic and fibrinolytic activity. It breaks down dead protein and scar tissue at affected sites, decreasing inflammation and pain. Studies show it can help with a variety of inflammatory conditions, including arthritic pain and chronic sinusitis."

Drake also suggested: "Support the microbiome with pre and probiotics as this supports the integrity of the digestive lining. When the gut is under stress, the gut lining can become inflamed, damaged and leaky, which means that larger molecules can pass across the digestive lining into the blood stream, which triggers systemic inflammation."

A range of lifestyle choices can be pro-inflammatory and these should form a part of a recommended plan to help a client ease the issue.

Bradshaw went on: "General healthy lifestyle habits, such as being active and getting adequate sleep will be helpful in managing inflammation, but managing stress is perhaps the most powerful intervention for dealing with inflammatory health conditions. Incorporating helpful tools such as breathwork, or meditation as well as maintaining positive work and personal relationships are all important stress-management strategies."



# SIBO solutions

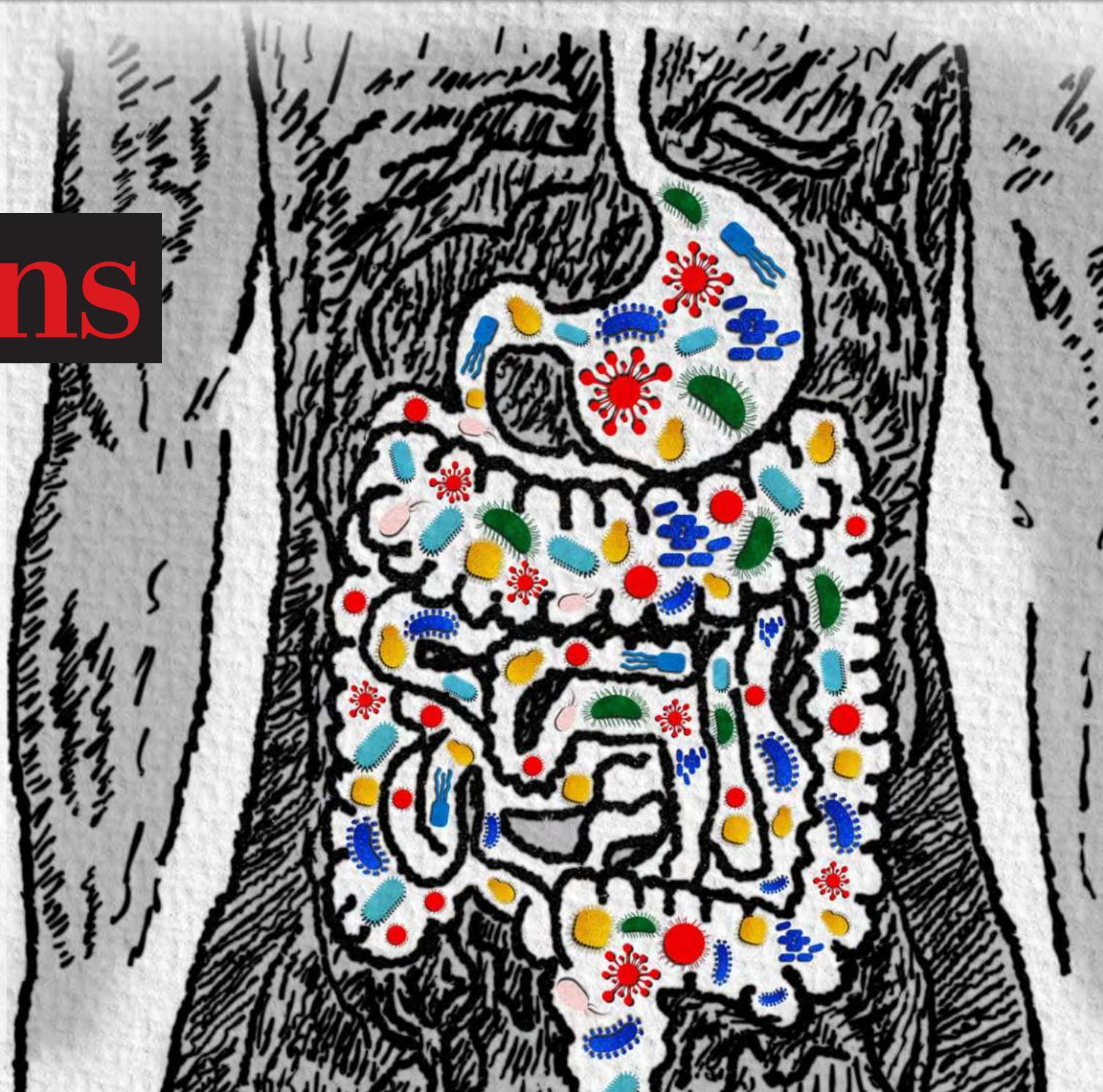
Cases of SIBO appear to be on the rise, but why? And what is the best nutritional protocol to recommend to clients? Our experts discuss the options.

SIBO is a term that has become commonplace, not just within the nutritional therapy community but among the wider population, given the apparent rise in the number of sufferers.

But what does the condition involve, and what role can Nutritional Therapists play in terms of supporting clients in managing symptoms, as well as in repairing and restoring their gut health?

Alice Bradshaw, Head of Nutrition Education and Information at Terranova, commented: "It does appear that an increasing number of people are now diagnosed with SIBO. There may be several plausible reasons for this. Firstly, an increasing number of practitioners, both mainstream and complementary, are becoming familiar with this relatively new diagnosis. Secondly, many individuals who would previously have been diagnosed with a functional gut disorder, such as irritable bowel syndrome, are now being tested for SIBO, as an overgrowth of bacteria may well be the reason for their symptoms."

Elizabeth Cooper, Technical Advisor at ADM Protexin, which has the Bio-Kult and Lepicol brands, went on: "There is no reliable data on the number of people with SIBO, mainly due to diagnostic limitations, a fact highlighted by a 2020 meta-analysis, which found that diagnosis of SIBO in IBS cases was anywhere between 4.3 per cent and 83.7 per cent."<sup>10</sup>





"With an estimated one in 20 people in the UK affected by IBS,<sup>11</sup> and one in 10 globally,<sup>12</sup> this could equate to a high number of people with SIBO, and this only takes into account those who also have IBS. The belief is that as Western diets and lifestyles increase across the globe, we may expect to see a rise in the prevalence of IBS,<sup>12</sup> which may also show a corresponding increase in SIBO."

Meanwhile, Lucy Sparkes, Registered Nutritional Therapy Practitioner at Nutri Advanced, added: "As a Nutritional Therapy Practitioner, I am seeing more and more cases of SIBO, however, whether that is because awareness is higher or there is more prevalence in the population, it is difficult to say. We

know that IBS is on the rise and prevalent in Westernised societies, and I have seen reports indicating that up to 80 per cent of IBS symptoms may be due to SIBO."

Sophie Barrett, Mycotherapy Advisor at Hifas da Terra UK, continued: "SIBO stands for small intestinal bacterial overgrowth, and is the leading cause of IBS. A quarter of the population suffers from IBS, and it is estimated 70 per cent is caused by SIBO. Often, SIBO goes undiagnosed."

The question as to why cases appear to be on the rise is a common one, with Rachel Bell, Nutritional Therapist and Territory Manager for Lamberts Healthcare, commenting: "Fifteen years ago, SIBO was not commonly

heard about, especially here in the UK, and was rarely medically diagnosed. However, today, testing is available through some NHS gastroenterology clinics, recommendations are being discussed and there is certainly growing awareness."

"In the natural medicine and naturopathic communities, we have known about SIBO for years and there are some great resources, laboratory testing and nutraceuticals at our disposal. When we consider the known causes of SIBO and associated risk factors, such as stress, excessive snacking, over-eating, insomnia, and a sedentary lifestyle, it seems reasonable to suspect that increasing numbers of the population may be affected post-pandemic."

## THE SCIENCE OF SIBO

As with many gut-related conditions, there is a very wide set of symptoms known to point towards it, so understanding these is important.

Bradshaw advised: "The chief role of the small intestine is the digestion and absorption of nutrients, but when bacteria builds up in this area, it causes fermentation of foods and hinders nutrient absorption. The research on small intestinal bacterial overgrowth (SIBO) is a rapidly evolving area and the definition has recently been updated. SIBO is now defined as 'A clinical syndrome with excessive normal bacteria that are colonising the small intestine and causing GI symptoms'."

"Until recently, SIBO was the umbrella term used to describe all microbial overgrowth in the small intestine. What was once known as SIBO with methane overgrowth (as diagnosed on a methane positive breath test) is now referred to as intestinal methanogen overgrowth (IMO). It's recognised that *Methanobrevibacter smithii*, (the organism found in a positive methane breath test), is an archaeon (not a bacteria) and can overgrow in areas outside of the small intestine."

"SIBO is normally suspected in a person that experiences gastrointestinal symptoms such as excess gas, bloating, gastrointestinal reflux and altered bowel movements. These are also the typical symptoms seen when a person is diagnosed with IBS, and research suggests that a high percentage (possibly over 80 per cent) of IBS sufferers have SIBO as an underlying cause of their symptoms."

"SIBO can masquerade behind a variety of seemingly unrelated (non-gut specific) symptoms and conditions, including restless leg syndrome, rosacea, anxiety, fatigue and iron deficiency anaemia. Researchers have also found that SIBO can coexist or be an underlying contributing factor in many systemic illnesses, including Parkinson's disease, inflammatory joint diseases, poor cognitive function, skin conditions and many more."

Bell added: "In recent years, SIBO has become a topic generating interest and debate that bridges mainstream and naturopathic medicine. SIBO stands for small intestinal bacterial overgrowth, and simply put, it describes the overgrowth of bacteria in the small intestine. When we eat, the food is broken down in the stomach and then moves into the small intestine, from where we absorb most nutrients. A combination of stomach acid, enzyme activity, hormones, and gastric motility or peristalsis should facilitate the breakdown and movement of partially digested food (chyme) into the large intestine."

"In cases of SIBO, this journey is delayed or impaired and instead carbohydrates start to ferment in the small intestine, causing uncomfortable and often painful symptoms. When this becomes chronic, the bacteria produced colonise the area and overgrowth can impair the absorption of nutrients, as well as cause damage to the microvilli, and the mucosal membrane. We are familiar with intestinal permeability and malabsorption, and these issues can become a challenge for people with SIBO. It is also important to consider that a certain degree of immune signalling occurs at the mucosal barrier, and this too can be affected."

Sarah Oboh, Nutritionist at Optibac, also advised: "SIBO is characterised by excessive amounts of often pathogenic bacteria in the small intestine, although overgrowth of *Lactobacillus* strains can also be implicated in those with short-bowel syndrome where there is a risk of D-lactate acidosis. Generally, it is caused by disruption in the antibacterial systems that usually maintain microbial equilibrium such as hypo/achlorhydria, pancreatic insufficiency, immunodeficiency, slow/impaired intestinal motility, structural abnormalities (e.g. diverticula or fistula) or disruption of the normal commensal bacteria populations with the use of antibiotics, stress and poor diet."

"These result in a lack of muscular activity in and around the small

intestine, meaning that bacteria is not swept away into the colon as it should be, but there are many other factors which may contribute significantly to its development, including antibiotic use, low stomach acid, stress, bowel resection/short bowel syndrome and dietary factors. SIBO is also associated with various digestive or even muscular conditions, including diverticulosis and intestinal permeability."

Sparkes went on: "Symptoms normally include but not exclusive to this list; severe bloating and pain, fullness after eating, constipation and difficulty passing a bowel movement, 'healthy foods' make symptoms worse, lots of flatulence (often distinctively odorous), nausea, diarrhoea, weight loss and loss of or low appetite."

Cooper continued: "SIBO is defined as the presence of excessive numbers of bacteria in the small bowel, causing gastrointestinal symptoms.<sup>1</sup> It is characterised by an increased number of either gram positive small-intestinal flora, and/or coliform bacteria (i.e. gram negative rod-shaped bacteria such as *E. coli*).<sup>2</sup> The most recent consensus is that anything over or equal to 103 colony-forming units per millilitre (CFU/mL) of microorganisms in the small intestine is diagnostic of SIBO.<sup>3</sup>

"This overgrowth can occur due to disturbances in the anatomy and motility of the small intestine,<sup>4</sup> which can impair mechanisms for preventing bacterial overgrowth. These include:

- Gastric acid and bile secretion, which have antimicrobial effects.
- Intestinal motility, in the form of peristalsis and the migrating motor complex (MMC).
- Normal gut humoral and cellular defence mechanisms, for example, IgA.
- Functional ileocaecal valve, preventing retrograde translocation of bacteria from the large to the small intestine.
- Mucin production by intestinal mucosal epithelial cells.



#### ■ Gut antibacterial peptides, such as defensins.<sup>5,6</sup>

"A key mechanism for motility within the small intestine, and stomach, is the Migrating Motor Complex (MMC), and disturbance or absence of the MMC is associated with SIBO. Termed the 'housekeeper of the gastrointestinal system', the MMC is a series of cyclical electrical waves, lasting approximately 130 minutes, that occur in the stomach and the small intestine. The MMC's job is to clean the intestines, propelling contents, including food residue, sloughed enterocytes and bacteria from the stomach through to the colon.<sup>7</sup> It is switched on when fasting and suspended by feeding, and is split into four phases.<sup>7</sup>

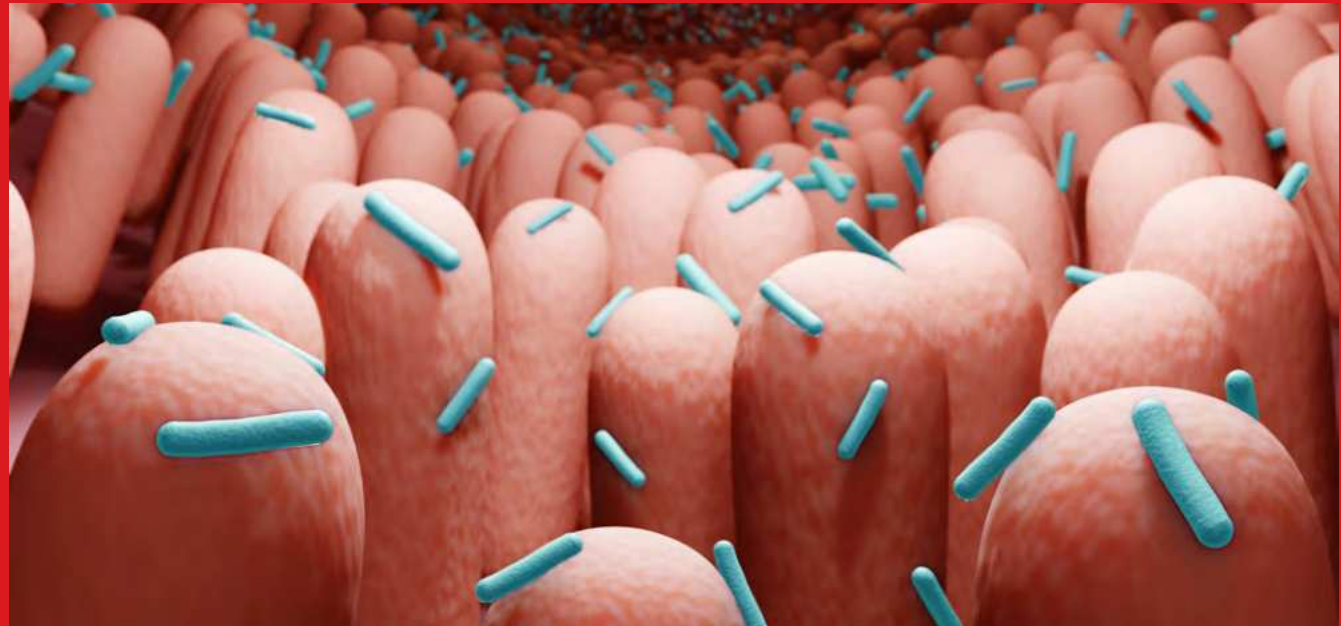
"Most of the activity takes place in phase III, which is accompanied by an increase in acid and pepsin secretion, in addition to bicarbonate and water, resulting in an alteration in the gastric pH.<sup>7</sup> There are a complexity of factors that can influence the activity of the MMC, including the presence of hormones such as motilin, ghrelin, insulin and CCK, and the enteric nervous system. Although vagal nerve activity does have an impact on the MMC, it is limited to the stomach, and appears to have no effect on the MMC in the small intestine.<sup>7</sup>

"The MMC can also be impacted as a result of food poisoning or gastroenteritis. Research has shown that in episodes of acute gastroenteritis, antibodies against cytolethal distending toxin B (CdtB), a toxin produced by certain gram-negative bacteria, such as *Campylobacter* and *Salmonella*, can bind to a similar looking protein called vinculin, thereby causing an autoimmune reaction against vinculin.<sup>8</sup> Vinculin has a role to play in the functionality of the MMC, via the interstitial cells of Cajal (ICC).<sup>9</sup> Given the association between ICC and the MMC, this can result in impaired gastrointestinal motility.<sup>8</sup>

She went on: "Fermentation of dietary fibre by the abnormally high levels of bacteria in the small intestine produces hydrogen, methane and carbon dioxide gases, which may contribute to digestive symptoms such as flatulence, abdominal pain, bloating, diarrhoea or constipation and food intolerances, however, symptoms may not be restricted to the gut, and can include brain fog, fatigue, weight loss (due to malabsorption), rosacea, anaemia and muscle aches and pains. In some people, there may be no symptoms at all."

And what is the best approach to take in terms of diagnostics if you suspect SIBO could be the issue?

Bradshaw commented: "Currently, the most reliable, non-invasive test for diagnosing SIBO is breath testing, which measures levels of hydrogen and methane gas that bacteria in the small intestine produce and subsequently diffuse into the blood and lungs. Some labs test for a third gas, hydrogen sulphide. These tests results can help the practitioner to



tailor the treatment for the client. Interestingly, symptoms may correlate with which gases are more abundant on the test results. Hydrogen excess is associated with diarrhoea, whereas methane slows motility and is associated with constipation. Hydrogen sulphide excesses may present as sulphur-like foul gas, or belching, diarrhoea and nausea."

And Sparkes also advised: "Breath testing is the predominant method to test patients for potential overgrowth because it is non-invasive and relatively cost effective. It relies on the modification of a substrate by bacteria. The substrate most commonly used is a readily metabolised carbohydrate, such as lactulose or glucose and the chosen substrate will depend on whether the physician considers the proximal (glucose) or distal (lactulose) small intestinal overgrowth."

Addressing this in greater detail, Bell commented: "Bacterial overgrowth in the small intestine will ferment carbohydrates and produce gas as a by-product. The two main gases released are hydrogen (H<sub>2</sub>) and methane (CH<sub>4</sub>) and these can be measured using a breath test. Lactulose, a non-digestible disaccharide solution, is the most commonly used substrate, but glucose is also used. The test requires preparation, including a restricted diet the day before the test and an overnight fast. The samples are then collected at specific time intervals over the next three hours.

"The results of the test can indicate whether the SIBO is hydrogen-

dominant, methane-dominant (intestinal methanogen overgrowth, IMO), or both. There are drawbacks to both substrates, as lactulose can produce false positives, but as glucose is quickly absorbed, it may not reach the length of the small intestine. Another, more recent complication is the discovery of the implications of a third gas, hydrogen sulfide (HS<sub>2</sub>). Methane and hydrogen compete for the hydrogen sulfide, so if symptoms recur after eliminating IMO, and all recommendations are being followed, this may be because the intestinal methanogen overgrowth has been eliminated, leaving the way clear for hydrogen-dominant SIBO to thrive.

"This is a very good example of why a careful and personalised approach is necessary when supporting clients with a SIBO protocol. A strong protocol will consider approaches for IMO and hydrogen-SIBO and monitor for changes and relapses post-treatment. It is important to manage clients' expectations, as relapse rate can be high, and more than one round of treatment may be necessary.

"A breath test including all three gases has been developed in the US, but it is not yet available in the UK. If both methane and hydrogen come out really low or delayed in a test, known as flat lining, hydrogen sulfide is a strong possibility. Stool testing can be used to test for likelihood of hydrogen sulfide, measuring levels of sulfate-reducing bacteria, such as *Bilophila wadsworthii* and *Desulfovibrio Spp.*"

## WHO'S AT RISK?

The key question is are certain people more susceptible to SIBO, and is there anything that can be done to mitigate the risk?

"There are multiple factors that predispose a person to SIBO. These include complications relating to abdominal surgery or structural problems relating to the small intestine. Any condition that reduces motility in the intestinal tract can predispose a person to SIBO and these include coeliac disease, diabetes, food poisoning and even chronic constipation," Bradshaw explained.

"Low thyroid function, chronic stress and infections (which damages vagal tone), hormonal imbalances, depressed immunity, overeating, obesity and eating disorders have also been suggested as some of the many factors that may contribute to SIBO. As we age, there is an increased risk of having low stomach acid, which not only hinders proper digestion, but also increases the likelihood of having bacterial infections and overgrowth in the gut. The use of PPI medication over the long-term is subsequently another significant contributory factor to the development of SIBO."

Sparkes went on: "There is a link between IBS and SIBO, and this is not surprising considering that the term irritable bowel syndrome is a non-specific collection of symptoms which cause gastrointestinal distress. The NHS describe it as a 'common condition that affects the digestive system'. We know as Nutritional Therapists that these symptoms can be driven by a number of factors that lead to IBS, SIBO being one of these. Other people at risk include those who have had bowel or intestinal surgery. Conditions that are associated with a higher risk of SIBO are coeliac disease, IBD such as Crohn's disease, GERD, diabetes and anyone with motility or structural disorders such as hypermobility."

Rosie Rayner, Nutritional Therapist and Technical Support at Bionutri, also advised: "Causes include poor eating habits, lack of diversity of plant foods, fibre and antioxidants in the diet, medications such as PPIs and antibiotics and prolonged stress and its effects on the gut – especially by reducing stomach acid levels (hypochlorhydria). There also can be mechanical underlying issues which allow someone to be more susceptible to SIBO, such as a low functioning migrating motor complex (MMC) or ileocaecal valve dysfunction. In fact, people with SIBO have significantly lower ileocaecal junction pressure (the valve is not opening and closing when it should), prolonged small bowel transit time, and a higher gastrointestinal pH as compared to those without SIBO."

"The most at risk are people who already have gut-related diseases, such as IBD, IBS and gastroparesis, heavy drinkers, those who take certain



medications (PPIs, antacids, long-term steroid and antibiotic use) and the elderly. Given the right environment and poor habits, anyone can be at risk though. Reducing stress, eating bitter foods and good fats and avoiding processed foods, alcohol or any unnecessary medications can help to reduce the risk of SIBO."

Barrett added: "There is growing evidence that acid-suppressing drugs used for reflux disease are associated with SIBO dysbiosis. Proton-pump inhibitors (PPIs), the mainstay of acid reflux treatment, may promote SIBO, as well as exacerbate nonsteroidal anti-inflammatory drug-induced small intestine injury. Gastroparesis and hypothyroidism also predispose to SIBO due to impaired GI motility."

And Cooper also advised: "There are many conditions that can lead to changes in gastrointestinal anatomy and motility and thereby increase the risk of SIBO. These include:<sup>5</sup>

- Abdominal surgery, such as gastrectomy<sup>13</sup>, or trauma.

- Sepsis.
- Metabolic or endocrine problems, e.g. hypokalaemia, hypothyroidism.
- Inflammatory bowel disease.
- Undernutrition.
- Muscular diseases e.g. muscular dystrophy.
- Connective tissue disorders, e.g. SLE, scleroderma.
- Chronic irradiation damage.
- Neuropathy, e.g. genetic, autoimmune, neurological disorders, such as Parkinson's and MS.
- Diabetes.
- Coeliac disease (damage to lining of small intestine).

"In contrast to earlier belief, SIBO is also now known to occur in the absence of anatomical factors predisposing to it.<sup>14</sup> Risk factors for the condition include female gender, older age, diarrhoea-predominant IBS, gastric acid suppressants, narcotic intake and stress<sup>15-19</sup>"



## NUTRITIONAL DEFICIENCIES

It is important to note that SIBO sufferers can be at risk of nutrient deficiency.

"With cases of SIBO, we often see a very low digestive function and low pancreatic enzymes and/or stomach acid, which may be part of the reason for the development of SIBO in the first place. When someone has low digestive function, they are at risk of malnutrition of many vitamins and minerals, as well as not being able to break down and absorb the macronutrients as efficiently, which leads to exacerbation of symptoms further along the digestive tract," Sparkes commented.

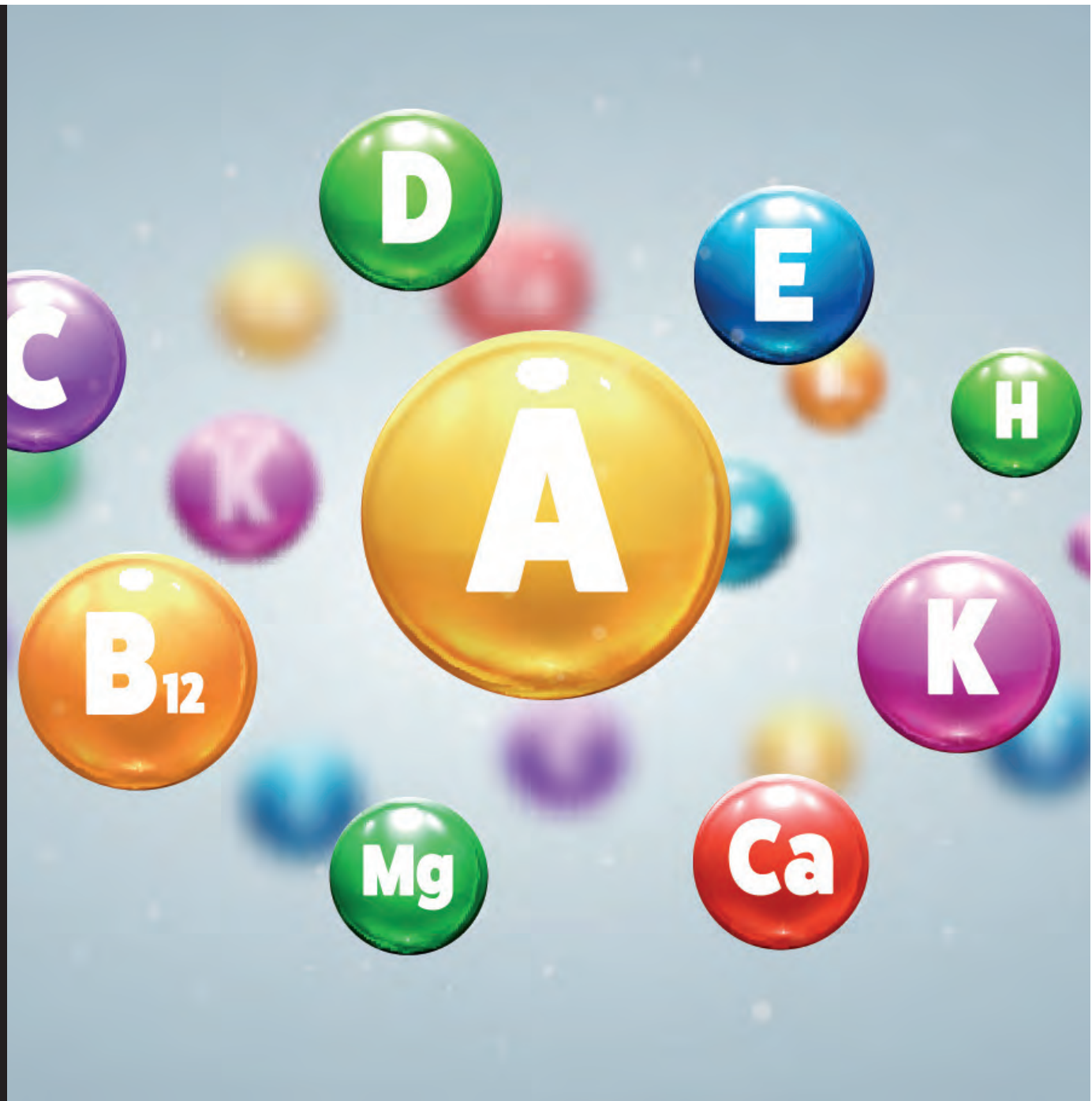
And Rayner added: "SIBO sufferers can and do suffer with nutritional deficiencies because the higher levels of bacteria damage the epithelial tissue in the small intestine (SI), which diminishes absorption rates. This damage or 'leaky gut' scenario makes it harder from the SI to absorb nutrients from food, which can lead to iron or B12 deficiency anaemia. Also, with low levels of stomach acid being common in SIBO, mineral absorption is compromised, which can, over many years, lead to osteoporosis."

Bradshaw continued: "Nutrient deficiencies are a real issue for those with SIBO. Digestive symptoms can make it difficult to eat a broad range of foods, which may lead to a restricted diet. Additionally, the excess bacterial populations have the ability to 'consume' nutrients, particularly the B vitamins, as well as damage the intestinal cells and impede nutrient absorption. Nutritional supplements can be used to address deficiencies alongside the chosen SIBO protocol."

And Cooper continued: "A number of factors can predispose a person with SIBO to nutrient deficiencies. These include competition with bacteria for host food, damage to the mucosa in the small intestine, thereby reducing nutrient absorption, and altered food intake due to gastrointestinal symptoms.<sup>30</sup> Common deficiencies include vitamin B12 as a result of reduced absorption and competition with bacteria for uptake, and fat-soluble vitamins A, D, E and K resulting from fat malabsorption, primarily due to the deconjugation of bile acids by bacteria and their subsequent deficiency.<sup>31</sup>

"The deconjugated bile acids can also be toxic to enterocytes, and impact the absorption of carbohydrates, proteins and fats.<sup>31</sup> Iron levels and those of vitamins B1 and B3 may also be reduced.<sup>32</sup> Conversely, as folate is a by-product of bacterial metabolism, levels can often be increased in SIBO.<sup>4</sup>

"For the reasons above, until small intestinal dysbiosis is normalised, managing nutrient deficiencies may be difficult. However, increasing macro and micronutrients in the diet, within the parameters of a dietary protocol to support SIBO eradication, in addition to recommending a bioavailable multi-nutrient supplement may help to reduce malnutrition and weight loss."



## PERSONALISED NUTRITION

The general consensus is there is no one size fits all when it comes to SIBO solutions.

Sparkes advised: "The important thing to note here is there is not one protocol to fit all cases of SIBO. It is really important to evaluate why this patient has developed SIBO in the first instance and address this. We know that with antibiotics or antimicrobials alone then the SIBO will re-manifest. For immediate relief of symptoms then the most common diet protocols which are followed are either SCD, low FODMAP or elemental diets."

Looking in greater detail at this, Bradshaw recommended: "The general approach to manage the symptoms of SIBO is a low fermentable diet (such as the low FODMAPs, Fast Tract Diet, Specific Carbohydrate, SIBO Biphasic Diet). These are the mainstay of SIBO diets, and these certainly will be helpful for reducing symptoms for virtually all clients as the bacteria/archaea do feed on certain carbohydrates and fibre and subsequently produce gases. Diet can help to reduce gas production and therefore lessen symptoms, but to eradicate SIBO, practitioners have many options to work with. Second to diet, natural supplements will be needed for optimal results. Digestive enzymes, betaine HCL and sometimes probiotics have been shown to help with bloating, bowel irregularities and food reactions.

"The next step in a SIBO protocol is to consider natural antimicrobial botanicals, which can be combined and rotated to remove or reduce unwanted gut bacteria. Garlic, oregano, thyme, cinnamon and berberine containing botanicals are typically used to reduce the bacterial overgrowth. While there are a multitude of supplements that may be utilised to support a client with SIBO, it's important to retain a semblance of organisation, in order not to overwhelm them with too much information.

"Eventually prebiotics, fibre and other supplements can be increased as the client's health improves and natural prokinetic agents (which aid motility) might be suggested. Ginger and artichoke have been studied for their prokinetic effects and these may help to prevent a relapse while supporting proper intestinal motility."

Bell went on: "There are several dietary protocols recommended for eliminating SIBO, including low FODMAP Diet, Specific Carbohydrate Diet, the Gut and Psychology Syndrome Diet (GAPS Diet), the Biphasic Diet, Paleo and Autoimmune Paleo (AIP). When choosing a protocol, it is really important to personalise this for the client, considering food sensitivities and allergies. The aim is to restrict or eliminate the fermentable saccharides that would feed the bacteria, whilst the overgrowth is being targeted (for example, starch such as beans, legumes, grains, starchy vegetables, prebiotic foods, fruit and sugars). Some diets will also restrict dairy, nuts, seeds and

sulphur foods such as alliums.

"These are strict and challenging protocols for people to manage and they do really need practitioner support. Maintenance diets can follow a phase of dietary reintroductions. Perhaps the most essential element to the diet plan is to space out meals to allow postprandial fasting, in order for the MMC to be stimulated; leaving four to five hours between meals without snacking is a good model. Intermittent fasting is also sometimes recommended. Mindful eating is a great way to encourage clients to tune in to their body's digestive process, from seeing, smelling and preparing the food, to chewing, swallowing, and allowing time to digest.

"Some clients may be extremely sensitive to fermented foods and drinks, so repopulating the microbiome will need to be done gradually, beginning with a teaspoon added to a meal, or a tablespoon in a drink. It may be necessary to begin with feeding the microbiome with dietary polyphenols and gentle prebiotic foods. FOS (fructooligosaccharides) may be appropriate for some clients post-treatment, starting with very low amounts."

Barrett added: "Some clients may be offered probiotic supplements or prebiotics known to support colonic flora, however, often, clients might not react favourably because the colonic flora are overgrown in the small intestine and therefore increasing or nourishing such bacterial overgrowth can worsen symptoms. Many authorities recommend a restrictive diet eliminating most carbohydrates, sugars etc. and because the diet is so restrictive most clinicians will recommend the FODMAP diet for several months, while taking herbs and possibly antibiotics."

Cooper also recommended: "Dietary guidelines for the eradication of SIBO are commonly based on reducing fermentable products, such as fibre, sugar alcohols and fermentable sweeteners such as sucralose.<sup>25</sup> Such diets include the SIBO Biphasic diet, the Specific Carbohydrate Diet, the low FODMAP diet and the Elemental Diet, which can be considered the most restrictive of all. However, there is a lack of research supporting any dietary protocol in SIBO. A recent meta-analysis measured the effectiveness of the low FODMAP diet and gluten-free diets in IBS and found that there was no evidence for gluten-free diets and very low quality evidence for low FODMAP diets.

"Although dietary protocols may not necessarily eradicate the bacterial overgrowth, some may help reduce or alleviate some of the symptoms



experienced in SIBO. Nevertheless, it is important to note that many of these diets, if implemented long-term, may restrict important substrates for colonic bacteria, which could potentially impact the overall health of the gastrointestinal tract.<sup>28</sup>

"Furthermore, it is also essential to assess any further issues that may be complicating SIBO eradication, such as histamine intolerance or Mast Cell Activation Syndrome (MCAS). MCAS is a disorder that causes inflammation and allergy symptoms as a result of inappropriate mast cell activation. Research has found that SIBO is common in people with MCAS, and MCAS could be a trigger for SIBO due to changes in gut motility and immunity, caused by the release of mast cell mediators.<sup>29</sup>

"Therefore, following a low histamine or MCAS diet, and avoiding MCAS triggers may be helpful, whilst also working on the underlying causes of MCAS. As with dietary protocols for SIBO, following a low histamine or MCAS diet for a prolonged period could potentially exacerbate symptoms due to its impact on beneficial bacteria and gut immunity."





## SUPPLEMENT ADVICE

And when it comes to protocols related to supplementation, what is considered important and why?

Sparkes advised: "It is my opinion that a personalised nutrition plan food and supplements should be developed for each specific case of SIBO. Purely using antibiotics or antimicrobials will provide short-term relief but we know that the symptoms will return. Areas that may need supporting are digestive capacity from enzymes and/or betaine hydrochloride, nervous system support to assist the individual to rest and digest and improve digestion and vagal tone, antimicrobials that we know are well-tolerated in clients presenting with SIBO and nutrient and herbs to support the MMC, which we know to be 'faulty' in clients with SIBO.

"It is the flushing through of the bacteria and debris through the digestive tract between meals. The faulty mechanism of the MMC can lead to SIBO in the first place as the bacteria can lie stagnant if not swept through. It

requires diligently fasting between meals and we can use certain prokinetic supplements effectively to support this mechanism. Let's always remind ourselves that it is the person we are 'treating', not the condition – that is when the most effective treatment plans are devised."

Cooper added: "Understanding SIBO, its diagnosis, causes and effective eradication is still in its early stages, as, although there is now a significant amount of research on the gut microbiome, much of it is focused on the colon.<sup>4</sup> Therefore, it is a largely untapped area and as such, poorly understood. Being able to accurately diagnose and take steps to eradicate SIBO is particularly problematic, with very limited data available on the durability of therapeutic interventions to rebalance the ecology of the small intestine.<sup>34</sup> Furthermore, whilst it's important to use what we know about SIBO to guide our recommendations, there's a huge variability in how people respond to different diet and supplement protocols. Like any condition, an individual approach should always be taken, and consideration given to

both the short-term and long-term effects of recommendations."

Barrett continued: "As an herbalist, therapies may include peppermint and oregano essential oils (encapsulated) and berberine, as well as an antimicrobial herbal tea containing at least six different herbs for a broader protocol. An herbal tincture for SIBO would include gentle antimicrobial agents, as well as motility-enhancing herbs. Hifas da Terra have a clinical trial with lion's mane concentrated extract with results due later this year, which will be interesting to see as lion's mane is a medicinal mushroom that is very useful for digestive issues."

And Cooper commented: "Whilst the evidence is low, below are a number of supplements that may help support these areas:

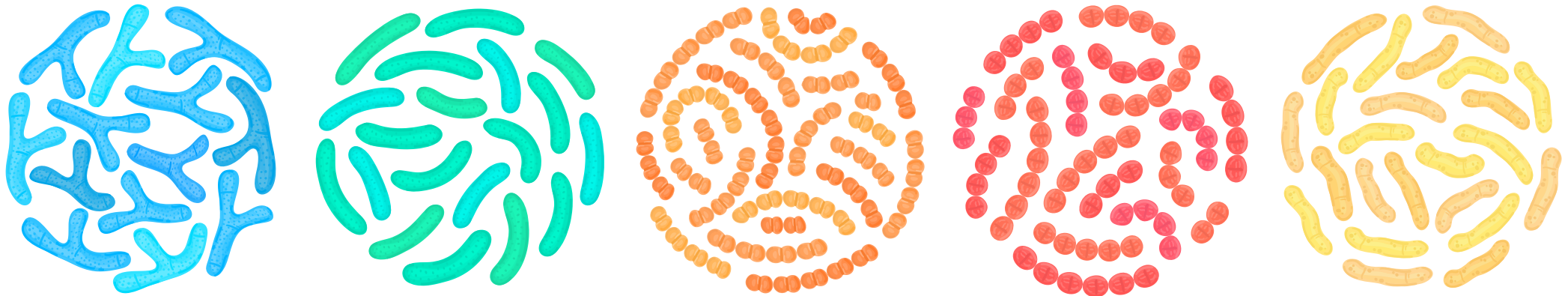
- **Natural antimicrobials** – antibiotics are often prescribed in SIBO, but some people may prefer a more natural approach. A 2014 study compared rifaximin, the commonly prescribed antibiotic for positive SIBO diagnoses, with a combination of various herbs, including oregano, thyme, berberine, sage, Pau D'Arco, Indian barberry root and ginger rhizome.<sup>33</sup> The outcome was that the herbal combinations were at least as effective as rifaximin for SIBO resolution and as effective as triple antibiotics for rifaximin non-responders. This is only one study, but anecdotally, a significant number of people have found resolution of SIBO after using natural antimicrobials. However, like antibiotics, natural antimicrobials can eradicate beneficial bacteria as well as pathogens, so should only be taken for limited periods. It may also be wise to try gentler antimicrobials initially, and also research which ones are most appropriate for the type of SIBO being targeted.

- **Prebiotics** – generally, the overall consensus on the use of prebiotics in SIBO has been that they may feed the bacteria in the small intestine and create more of an overgrowth. However, there is no robust evidence to support this view, in fact, there has been a small amount of evidence, albeit mostly in animal models, to support the use of prebiotics, specifically GOS (galactooligosaccharides)<sup>37</sup> and PHGG<sup>38</sup>, in reducing methane levels in the gut. GOS has also been shown to be effective in reducing hydrogen sulphide in healthy elderly volunteers.<sup>39</sup>

- **Digestive enzymes** – a characteristic of SIBO is maldigestion and malabsorption of nutrients, which can exacerbate the overgrowth of bacteria due to the increased availability of substrate to ferment. Including a good quality digestive enzyme may help to improve the digestive process, and thereby contribute to reducing the risk of further bacterial overgrowth.

- **Natural anti-inflammatories** – inflammation often accompanies motility disorders<sup>40</sup> such as SIBO. Research has shown curcumin to be effective in lowering inflammation in the gastrointestinal tract, and consequently having a positive impact on motility.<sup>40</sup> Boswellia has been

# PROBIOTICS



shown to reduce inflammatory damage in the gut and protect the intestinal epithelial barrier.<sup>41</sup>

■ **Live bacteria supplements** – the rationale behind their use as a therapeutic strategy in SIBO is that orally administered live bacteria may replace overgrown pathogenic or colonic-type bacteria in the small intestine. In addition, where used alongside conventional antibiotic treatment, live bacteria have been shown to help prevent antibiotic associated diarrhoea and other negative effects on the digestive system caused by broad-spectrum antibiotics. A meta-analysis published in 2017 showed a significantly better SIBO decontamination rate using live bacteria (53 per cent), compared to placebo.<sup>42</sup> Significant improvements were seen in hydrogen breath tests and abdominal pain scores, although not in daily stool frequency. The efficacy of live bacteria does appear to be strain specific, with a number of strains showing better outcomes than others in research so far. Of note, is *S.bouardii*, which, on its own and alongside metranidazole, improved gastrointestinal outcomes in patients with sclerosis associated SIBO.<sup>43</sup> A further study showed decreased breath hydrogen concentrations, a significant reduction in the frequency and intensity of gastrointestinal symptoms, and eradication of *Klebsiella pneumoniae* and *Serratia marcescens* in paediatric SIBO patients supplemented with *S.bouardii*.<sup>44</sup> A study using a combination of strains including *B.bifidum*, *B.lactis*, *B.longum*, *L.acidophilus*, *L.rhamnosus* and *S.thermophilus* carried out over four weeks, resulted in 24 per cent of the live bacteria-treated patients showing SIBO eradication compared to zero per cent in the placebo group.<sup>45</sup> Despite the positive outcomes noted above, some SIBO sufferers do report an

exacerbation of symptoms when taking live bacteria supplements, therefore it's important to adopt an individual approach. Introducing live bacteria gradually, monitoring symptoms and testing tolerance to different products, strains and dosages is advisable."

Bell added: "The most important supplements for SIBO are prokinetics to support gastric and colonic motility. These can be used between pulsing with antimicrobials, to stimulate the MMC. In severe cases of IMO, gentle prokinetic herbs between meals may help stool transit. Turmeric, artichoke, peppermint, ginger and some probiotics may be used, and continued post-treatment to lower the risk of a relapse. Whilst probiotics may not be well-tolerated before dealing with the SIBO, they can be extremely beneficial during a treatment protocol to reduce symptoms and to enhance efficacy of the herbs. It is advisable to begin very gently, with low doses.

"The following probiotics have been shown to be beneficial for removing bacterial debris and to support gastrointestinal mucosal health: *Lactobacillus rhamnosus* can increase the expression of tight junctions in the gut wall, improve immune signalling, reduce gastrointestinal inflammation and inhibit bacterial overgrowth. *Lactobacillus plantarum* may also be beneficial for the health of the gastrointestinal mucosal barrier and to enhance gastrointestinal integrity. *Saccharomyces bouardii* is a 'yeast-eating yeast' and can help reduce symptoms of gastrointestinal discomfort, reducing diarrhoea and bloating, and increasing secretory IgA. Some clients can be extremely sensitive to probiotics when they have or have had SIBO, so for these people, probiotics may have to wait until gut health has improved. Use of probiotics should continue as part of a maintenance protocol following treatment.

"There are a number of very effective herbal antimicrobials that are used for SIBO, including allicin in garlic, cinnamon, olive leaf, oregano, peppermint oil and turmeric. Many of these double-up to support reducing inflammation, stimulating motility and helping to repair the gastrointestinal membrane. Research has found quercetin to have potent antioxidant activity, capable of reducing oxidative damage, protecting endothelial tissues and modulating intestinal immunity. Its effect on reducing histamine and lowering inflammation may be helpful for alleviating symptoms of SIBO.

"Depending on the client, it may be necessary to mitigate Herxheimer reaction, otherwise known as 'die-off'. This is caused by the endotoxins released as the bacteria responsible for the overgrowth is dying. Prokinetics and probiotics are helpful, as well as Epsom salt baths, milk thistle, magnesium, herbal teas, and slippery elm powder. A gentle binder or insoluble fibre can be used to reduce constipation, support motility and assist in removing bacterial debris."

Obloh also suggested: "Prokinetics to promote improved intestinal motility, gut-healing programmes to improve gut integrity, antibacterial agents to reduce populations of bacteria and remove biofilms, low-carb diets, digestive aids and lifestyle improvements to address stress, form an important part of any protocol to address SIBO. *Saccharomyces bouardii*, a transient probiotic, can often form the first part of a SIBO protocol as it has undergone extensive clinical research demonstrating its ability to flush out any pathogenic bacteria such as *E. coli* and also heal the gut wall, which is an important factor because intestinal permeability ('leaky gut') can often occur as a side effect of SIBO."



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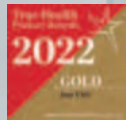
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# EXPERT ADVICE

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



Why is methylation important, and what is the benefit of methylated vitamins?



**LUCY PARRY EXPLAINED:** Methylation is a simple yet vitally important biochemical process that occurs when a methyl group ( $-CH_3$ ) is transferred to a molecule. Although seemingly simple, methylation is fundamental to the body and plays a crucial role both metabolically and epigenetically. Some of the key functions of methylation include its role in hormone regulation, immune system function, and the detoxification of heavy metals.

Given the diverse role of this simple biochemical process, it is no surprise that its optimisation can confer positive impacts on many reactions within the body. Unfortunately, this means that the impairment of methylation has been linked with shortcomings in the body's ability to perform key functions, resulting in a wide range of related health conditions.

There are many factors that can reduce our ability to methylate effectively, including stress, age, poor digestion, and genetic mutations in the MTHFR (methylenetetrahydrofolate reductase) gene. Nutrition is also one of the strongest modifiable factors to play a direct role in the methylation pathway, and hence the process is heavily dependent on the availability of several key dietary nutrients, including folate, vitamin B6 and vitamin B12. A deficiency in any of these key nutrients can reduce our ability to methylate effectively, and in these cases, an increased intake of the mentioned nutrients may be advantageous.

However, for some, the body may have difficulties converting these nutrients to their active, methylated forms. For example, inherited mutations in the MTHFR gene (which oversees the production of the MTHFR enzyme) are relatively common, making it difficult for the body to activate folate to methylfolate. A mutation in the MTHFR gene is associated with elevated levels of homocysteine in the blood, and genetic testing for two common

polymorphisms in the gene is available.

Whilst it may be useful to obtain this genetic information, there are limited clinical indications for testing for these polymorphisms, as genes do not necessarily give a full depiction of functional methylation capacity. Other markers of impaired methylation include low serum folate, low serum B12, and high serum methylmalonic acid (MMA).

Dietary supplements that present the active, methylated forms of certain nutrients are available. Interestingly, methylated forms of some B vitamins have been shown to be better absorbed and utilised by the body. For example, where a supplement would typically present folate as folic acid, it may be worth taking a supplement that instead includes methylfolate, the primary biologically active form. It can be said that methylfolate is more readily absorbed and utilised by the body, bypassing the conversion step mediated by the MTHFR enzyme. Similarly, a supplement that presents vitamin B6 as pyridoxal 5'-phosphate and vitamin B12 as methylcobalamin may be beneficial.



## ABOUT THE EXPERT

**Lucy Parry** MChem (Hons) joined the team at Lamberts Healthcare as Senior Brand Specialist in 2020, having completed her Chemistry Integrated Master's at the University of York. Whilst her studies were primarily focused on medicinal chemistry, Lucy's interest in health and natural products led her into the exciting field of nutrition.





Can you explain why blood chemistry tests can provide the insights you cannot work without?

**JONATHAN COHEN ADVISED:** All healthcare practitioners are familiar with the conventional blood chemistry tests carried out to assess a patient's overall health status, but how many are familiar with the more comprehensive functional blood chemistry analysis?

A blood chemistry report can provide invaluable information. However, most traditional blood tests identify a few markers, often overlooking other important and relevant ones necessary to provide a more detailed, comprehensive, and in-depth analysis of a patient's overall health status. In addition, traditional blood tests are looking to identify disease, using standard reference ranges (RRs). Once outside these standard RRs, a patient will most likely be diagnosed. The benefit of functional ranges is that they give insight into the body, helping to identify dysfunction and changes in physiology so that diet, lifestyle, and supplements can be recommended to restore function before disease sets in.

In addition to using tighter RRs, functional blood chemistry includes a much wider ambit of markers associated with the dysfunction of each body system. For example, we have created a test identifying 110

important markers to assess a patient's risk of heart disease more accurately, with about 50 per cent of heart attack patients displaying traditional early warning markers for cardiovascular disease (CD). Few, if any, conventional blood tests assessing risk for CD include markers such as Apolipoprotein (Apo) A1, Apo B and Apo B/Apo A1 ratio, yet:

- Apo A1 is a stronger prognostic marker than HDL and LDL cholesterol for CD and mortality in elderly men.

- The trapping of Apo B particles within the arterial wall is now widely accepted as fundamental to the initiation and maturation of atherosclerotic lesions within the arterial wall and studies suggest Apo B should replace LDL-C/non-HDL C in routine clinical care.

- Apo B/Apo A1 is a useful tool for acute risk assessment in cardiac ischemic patients.

How many standard blood tests often overlook the missing piece of the puzzle (copper deficiency) when it comes to iron deficient anaemia? How many standard thyroid blood tests fail to include additional biomarkers to identify autoimmune responses, or to assess mineral status, all relevant to overall thyroid health?



## ABOUT THE EXPERT

With over 30 years of clinical experience, **Jonathan Cohen**, the founder of FunctionalDX, brings his expertise and vision to revolutionise the blood testing, reporting, and chemistry analysis arena in the UK. Through introducing FunctionalDX health reporting, the previously hidden health trends lost in conventional parameters of clinical healthy ranges are now visible. Identifying these health trends gave Jonathan and other professionals the opportunity to stop patients from sliding into the abyss of the conventional pharmacological-based treatment approach and presented opportunities to turn patients around back towards a state of optimal health.

# A close-up on cat's claw

Rose Holmes, Nutritionist, BSc, Dip.ION, PGCE, MBANT, turns the spotlight on cat's claw and its application in nutritional therapy.

With a history (and name) that recognises it as a powerful plant, cat's claw (*Uncaria tomentosa*) – from the Amazon – is a useful botanical therapeutic tool in protocols to address a wide variety of health challenges, including joint pain, flus/colds, various infections, including Lyme disease, and numerous issues that affect health/life in ageing.

These beneficial effects associate with the various properties and actions of *Uncaria tomentosa*: anti-inflammatory, antioxidant, antimicrobial, antimetastatic, antineoplastic, neuroprotective, and supporting various body systems (cardiovascular, gastrointestinal, respiratory, and immune function).

## UNDERSTANDING UNCARIA

Most botanicals contain more than 100 chemical constituents, with amounts of each constituent potentially affected by growing conditions, and with each species within a genus having a different combination/proportion of constituent chemicals. These naturally-occurring plant chemical constituents confer therapeutic properties, and, whilst specific constituent chemicals may associate with specific health benefit, it is often the combination of therapeutic actions that provide benefit since the constituents work synergistically.

Like other botanicals, *Uncaria tomentosa* has a diverse range (and specific combination of) constituents that work synergistically to confer its wide range of benefits. And *Uncaria tomentosa* must be grown in

particular areas of South America to ensure content of active substances which are dependent on season and geographical location.

There are approximately 40 species of *Uncaria*; the genus name is derived from the Latin word 'uncus', meaning 'hook', referring to the barbs on the plant. *Uncaria* are lianas (long-stem woody vines) native to tropical Asia, parts of Africa, South America and elsewhere. *Uncaria guianensis* is endemic in Amazonian regions – like *Uncaria tomentosa* (the primary species discussed in this article) – but found mainly in Guyana. *Uncaria guianensis* is less studied than *Uncaria tomentosa*.<sup>1</sup> And *Uncaria rhynchophylla* (native to China/Japan), aka Gouteng,<sup>2</sup> is used in Chinese herbal medicine for convulsions, hypertension, epilepsy, eclampsia and other cerebral diseases.<sup>3</sup>

Cat's claw is *Uncaria's* common name, but common names can be used for more than one species within a genus, and even, sometimes, for plants in a completely different plant family. For example, *Acacia greggi* (tree native to Southwestern USA) is also called cat's claw but is unrelated and without the properties and actions of *Uncaria* cat's claw. Both *Uncaria guianensis* and *Uncaria rhynchophylla* – with their different constituent profiles to *Uncaria tomentosa* – are also commonly called cat's claw. Indeed, some species of *Uncaria* look similar and require species identification for quality control.<sup>4</sup> Except where specifically indicated otherwise, in the text of this article, cat's claw refers to *Uncaria tomentosa*.





## BENEFICIAL PROPERTIES

Cat's claw (*Uncaria tomentosa*), or Uña de Gato, is a climbing vine from the Peruvian Amazon. It gains its common name from the barbed 'claws' with which it climbs the rainforest canopy. Cat's claw bark and root have been used by the Asháninka people of the Peruvian Rainforest for at least 2,000 years for a variety of health conditions.

Samento is the Asháninka name for cat's claw. In Asháninka religion, *Uncaria tomentosa* is Savéntaro (powerful plant) used to restore health.<sup>5</sup> In parts of South/Central America, *Uncaria tomentosa* is called Vilcacora.

Cat's claw first came to the attention of Western researchers and scientists in the early 1970s, when Klaus Keplinger, an ethnobotanist who spent a great deal of time in the Peruvian Chanchamayo region of the Amazon, began research into its active constituents.

Primarily known for its anti-inflammatory and immune-modulating effects, cat's claw acts as a potent inhibitor of TNF- $\alpha$  through NF- $\kappa$ B.<sup>6</sup> A 2005 study found cat's claw can protect mice against lung inflammation,<sup>7</sup> and a 2017 study found cat's claw constituents showed antimicrobial activity against potential respiratory pathogens.<sup>8</sup> A 2018 study (murine model, in vitro) found anti-inflammatory activity of *Uncaria tomentosa* re asthma-inhibition of TNF- $\alpha$  and IL-6 was demonstrated,<sup>9</sup> supporting traditional use of this plant. *Uncaria tomentosa* has also shown immunomodulating and antiviral activities, for example, in cases of Dengue Virus-2.<sup>10</sup> Considered a broad-spectrum antimicrobial, cat's claw has also shown effect against oral bacterial pathogens<sup>11</sup> and fungal infections.<sup>12</sup>

It is believed that the strong anti-inflammatory activity of *Uncaria tomentosa* is likely due to synergistic action from the combination of compounds.<sup>13</sup> Plant chemicals present in *Uncaria tomentosa* include oxindole alkaloids, indole alkaloids, quinovic acid glycosides, carboxy alkyl esters, quinic acid, plant sterols, polyphenols, triterpenes, tannins, catechins and procyanidins. Each chemical constituent associates with properties and actions that may provide beneficial effect when *Uncaria tomentosa* is used therapeutically.

Amongst its most discussed chemical constituents are the oxindole alkaloids of cat's claw. These have immune stimulant effects. Oxindole alkaloids are divided into subgroups according to structure: pentacyclic oxindole alkaloids and tetracyclic oxindole alkaloids.

Pentacyclic oxindole alkaloids (POAs) in cat's claw include pteropodine, isopteropodine, speciophylline, uncarine F, mitraphylline and isomitraphylline. POAs act on the cellular immune system with immune stimulatory properties.<sup>14</sup> Mitraphylline, for example, has potential

anticancer effects, causing cell death in sarcoma and breast cancer cells.<sup>15</sup> Isopteropodine, another POA, has antimicrobial properties against gram-positive bacteria<sup>16</sup> and strongly enhances phagocytosis.<sup>17</sup> Pteropodine has strong apoptotic effect on acute leukaemic lymphoblasts.<sup>18</sup> And uncarine F, another POA, has strong apoptotic effect on acute leukaemic lymphoblasts.<sup>19</sup>

The tetracyclic oxindole alkaloids (TOAs), which include rhynchophylline, isorhynchophylline, corynoxine, and isocorynoxine, act on the central nervous system. Rhynchophylline may help with convulsions, light-headedness, numbness and hypertension.<sup>20</sup> And isorhynchophylline is potentially neuroprotective, with antidepressant-like effects.<sup>21</sup> Levels of corynoxine and isocorynoxine are higher in *Uncaria rhynchophylla* than in *Uncaria tomentosa*,<sup>22</sup> whilst *Uncaria rhynchophylla* is used in TCM for epilepsy and other cerebral diseases,<sup>23</sup> and been suggested for treatment of drug addiction (withdrawal and relapse)<sup>24</sup>, both species show promise for anti-Alzheimer disease effect.<sup>25</sup>

TOAs have been much maligned in the past (and 'TOA-free' is claimed

on some products). However, it is clear that the TOAs are neuroprotective and contribute health benefit, and whole herb products containing these naturally-occurring constituents have both a long history of use and recent studies showing therapeutic benefit. In fact, literature suggesting any negative impact of TOAs on POA activity were in test tubes only; such literature does not indicate TOAs inhibit the action of POAs in the human body. A wealth of, and the majority of, studies on *Uncaria tomentosa* used the whole herb or proprietary formulations that contain both TOAs and POAs; whole herb *Uncaria tomentosa* has historically proven benefit.

In addition to oxindole alkaloids, *Uncaria tomentosa* contains indole alkaloids. Indole alkaloids also can be pentacyclic (for example, akuammigine, tetrahydroalstonine, isoajmalicine) or tetracyclic (for example, hirsutine, dihydrocorynantheine, hirsuteine, corynantheine).<sup>26</sup> Indole alkaloids in *Uncaria* species show antinematode (roundworm) activity.<sup>27</sup> Hirsutine protects GIT mucosa, has hypotensive, anti-arrhythmic, spasmolytic, analgesic and potent antiviral effect.<sup>28</sup>





## A RICH ANTI-INFLAMMATORY

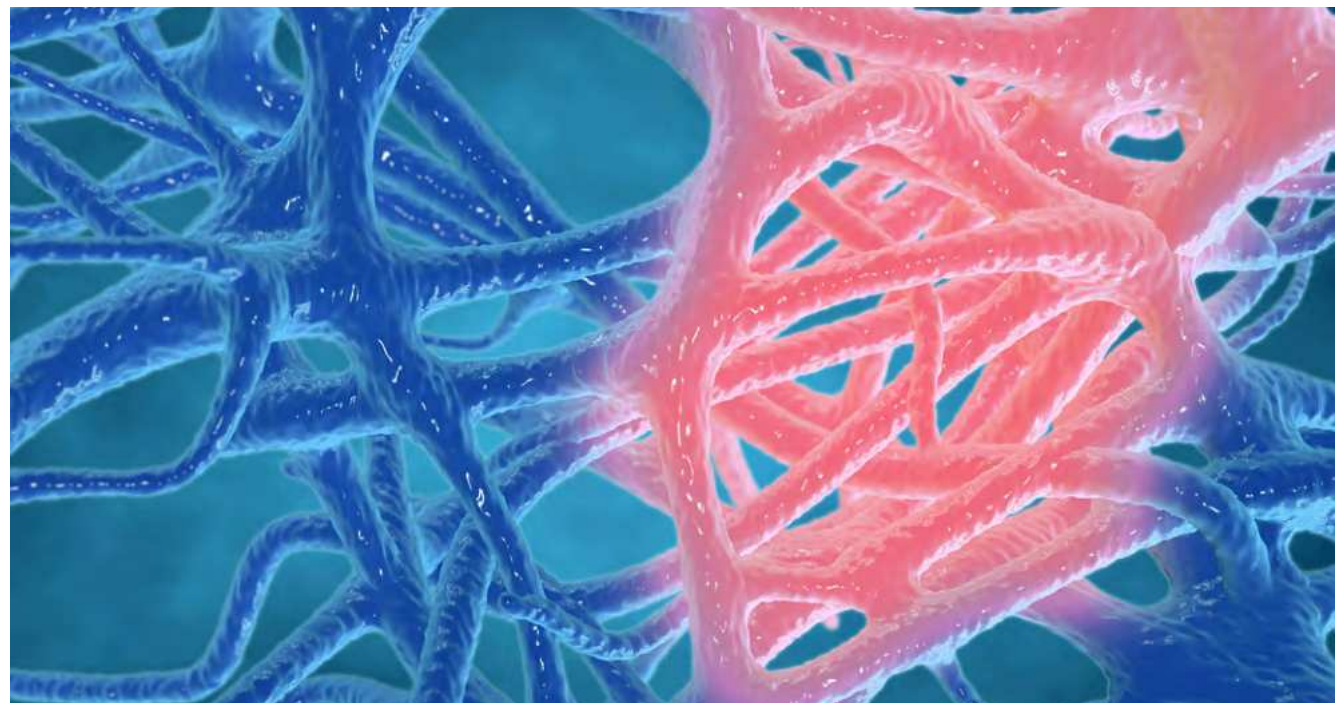
Considered the most potent anti-inflammatory constituent of *Uncaria tomentosa*,<sup>29</sup> quinic acid glycosides confer anti-inflammatory and antiviral action. Quinic acid glycosides in *Uncaria tomentosa* have demonstrated potent inhibitory effect on the growth of human bladder cancer cell lines by inducing apoptosis through modulation of NF- $\kappa$ B.<sup>30</sup>

Carboxy alkyl esters in *Uncaria tomentosa* confer multifunctional cytoprotective properties that include enhanced cellular DNA repair, antioxidation and anti-inflammation. A carboxy alkyl ester extract (almost free of oxindole alkaloids) was found to inhibit NF- $\kappa$ B activity, which may account for its reported anti-inflammatory effects.<sup>31</sup> Enhanced DNA repair and immune-enhancing properties were also seen in this carboxy alkyl ester extract.<sup>32-33</sup> In comparison with Neupogen (drug for neutropoenia), this carboxy alkyl ester extract provided a more natural recovery process (from chemotherapy drug doxorubicin-induced neutropoenia) because all fractions of white blood cells were proportionally increased.<sup>34</sup> A 2011 study found otoprotection (protection from ear damage) from acoustic over-exposure.<sup>35</sup>

Quinic acid in *Uncaria tomentosa* provides antioxidant properties, with activity in enhancing DNA repair and immunity, and the ability to generate neuroprotective effects in neurons.<sup>36</sup> Quinic acid also has rejuvenating potential.<sup>37</sup>

Both carboxy alkyl esters and quinic acid contribute useful properties and actions in protocols to counter diseases that associate with ageing. Anti-inflammatory, immune support, neuroprotective and antioxidant properties also provide healthy ageing benefit. Cat's claw (*Uncaria tomentosa*) is cytoprotective against potent oxidants, such as peroxynitrite, and appears effective in preventing side-effects of NSAIDs,<sup>38</sup> effectively inhibiting inducible nitric oxide synthase (iNOS) gene expression through suppression of NF- $\kappa$ B activation.<sup>39</sup> Cat's claw is also a remarkable inhibitor of TNF- $\alpha$ ; primary mechanism for its anti-inflammatory actions appears to be immunomodulation via suppression of TNF- $\alpha$  synthesis<sup>40</sup>; cat's claw is thought to support in TH1 excessive disorders especially re aberrant TNF- $\alpha$  production.<sup>41</sup> Additionally, cat's claw is reported as a strong medicinal extract eliminator of A $\beta$  protein plaques.<sup>42</sup> A number of plant sterols, including beta-sitosterol (60 per cent), stigmasterol and campesterol give anti-inflammatory<sup>43</sup> and antiatherosclerotic<sup>44</sup> activity to *Uncaria tomentosa*.

In addition to all the above constituents, *Uncaria tomentosa* contains naturally-occurring polyphenols, triterpenes, tannins, catechins and procyanidins (subgroup of proanthocyanidins) – all of which have antioxidant actions. Polyphenols in *Uncaria tomentosa* showed significant



antifungal activity.<sup>45</sup> Proanthocyanidins in *Uncaria tomentosa* have been shown to exhibit reasonable antioxidant capacity and antimicrobial activity against potential respiratory pathogens,<sup>46</sup> and inhibitory activity against Alzheimer A $\beta$  plaques and tangles.<sup>47</sup> Evidence indicates the antioxidant and radical scavenging activities due to proanthocyanidin content underlies anti-inflammatory activity of cat's claw.<sup>48</sup> Ursolic acid (triterpene) has antiproliferative, antihistaminic, immunomodulating/immunostimulating and hepatoprotective activity, and induces apoptosis; oleanolic acid (triterpenoid) content has anti-viral/antiretroviral, antiatherosclerotic, antimicrobial, and immunomodulating/immunostimulating activity.<sup>49</sup>

As an example of the synergistic action of cat's claw constituents, quinic acid glycosides, procyanidin and epicatechin content may be responsible for both anti-inflammatory and antiviral activity, for example, re rhinovirus type 1B.<sup>50</sup>

During the recent SARS-CoV-2 outbreak, research found potential effectiveness of cat's claw in treatment of Covid-19 relating to ACE-2 binding sites; the study concluded 'all components found in *Uncaria tomentosa* could work in synergism by different mechanisms to combat the spread of SARS-CoV-2'.<sup>51</sup>

Whole-herb cat's claw (*Uncaria tomentosa*) has proven beneficial effects over centuries. Traditionally used by indigenous people of South and Central America to ward off disease, today, cat's claw is used for a variety of health challenges, including viral infections, Alzheimer's disease, parasites, arthritis, cancer, leaky bowel, colitis and more.<sup>52</sup> It is most commonly used by herbalists and health practitioners to support individuals with inflammatory disorders, infections (including Lyme disease), and digestive problems. Various studies have indicated that whole oxindole alkaloid fraction helps to support the immune system, while the quinic acid glycosides have been shown to maintain healthy joints, and carboxy alkyl esters and quinic acid support healthy ageing. Evidence indicates all constituents work synergistically.

When choosing a cat's claw product, ensure the species is *Uncaria tomentosa*, grown in its natural habitat in the Amazon. Capsules, tinctures and teas provide the purest products (free from excipients). Cat's claw is traditionally consumed as a tea (which is naturally very bitter, so other botanicals may be added for the Western palate). Specialist South American supplement companies can supply *Uncaria tomentosa* in these various forms.





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# Excellence in homeopathy

One of the most well-respected homeopathic brands in the market, for almost four decades, Helios Homeopathy has been run by qualified practitioners, with quality at the heart. Here, Trade Operations Director, Roz Crompton, discusses its future direction.

**H**omeopathy is an ancient therapy that has been around for centuries. But with our modern lifestyles, and the associated health issues that brings, there are many health concerns that clients are seeking support for.

That is where Helios comes in. A dedicated homeopathic supplier, the company has a large range of remedies in its portfolio that have been in existence for many years, along with some specific remedies that target some of the most common modern health issues we face these days.

And the expertise and experience speaks for itself; Helios is not

only a brand selling remedies, but is also a registered pharmacy and manufacturer of licensed medicines, meaning the company boasts a huge amount of expertise

Trade Operations Director, Roz Crompton, commented: "We have a fantastic team of highly skilled and qualified practitioners, who can give advice over the phone or by email. We also hold regular CPD sessions covering homeopathy, supplements and flower essences. In addition to our own retail range, we manufacture for several other companies, homeopathic remedies, veterinary remedies, flower essences and

bespoke creams, all of which are an increasing area of the business.

"We support students and qualified practitioners of homeopathy from an accredited college or university by offering expert advice and discounts off some products."

## THE HELIOS HISTORY

Helios started life almost 40 years ago, having been founded by John Morgan (pictured right).







Roz explained: "It was during his time as a locum pharmacist for a UK-based homeopathic pharmacy and subsequent studying to become a homeopath that the idea of creating a new source of homeopathic remedies from scratch came to John.

"His knowledge and passion for pharmacognosy (plant-based medicine) led fellow homeopathic students to ask him to start making remedies for their own use. After great success selling remedies at homeopathic conferences and at college, in 1986, Helios was formed by John and his wife, Maya, with the help of four homeopathic students."

Back in those early days, Helios only had 30 remedies and in a small range of potencies, and just four staff members, some part time.

Roz added: "They sent out approximately 20 orders a day to UK customers. Today, the company has a remedy bank of 3,800 remedies in a wide range of potencies, a large retail range and now employs 80 people, the majority of whom are qualified homeopaths, between the two locations of Tunbridge Wells and London. We send out between 500 to 800 orders a day to both UK customers and customer in over 140 countries around the globe.

"Our retail range comprises 30 individual remedies, five award-winning combination remedies, eight natural plant-based creams and a compact kit, all covering a variety of common ailments and first aid situations for over-the-counter sale. Our remedies are made to traditional methods by hand and by homeopaths who all share a passion for healing, so the intent is there and is why we have such a loyal following."

And from those early days, right through to today, quality has been at the forefront of the business.

"Our range of retail products are all made to GMP standards in our manufacturing department, under strict quality control procedures and we are inspected by the Medicines and Healthcare products Regulatory Agency on an annual basis," Roz advised. "The pharmacy is regulated by the General Pharmacy Council. We all take great pride in what we do and go that extra mile for our customers, whether it be through making remedies or the expert advice that we give."

## EVOLVING THE OFFERING

Homeopathy is becoming increasingly understood among the general public, and, as the pandemic saw many people take greater interest in their health, for Helios, demand has been high.

Roz advised: "As a registered pharmacy and manufacturer of medicines, we were open throughout the pandemic and very busy as people looked to boost their health and immunity through homeopathy and other natural products and supplements. This last year has seen a board of directors established with experienced and long-standing members of staff to support John and Maya in the running of Helios."

In terms of the trends being seen with practitioners around the products in demand, there is a mixture.

"Remedies are prescribed based on a person's individual symptoms and whilst there are definitely seasonal trends, the past couple of months we have been dealing with coughs, colds and flu, and now entering the start of the hay fever season, it is more individualistic," Roz advised. "Practitioners recommend our homeopathic kits to their patients, so they have a selection of remedies to hand when they need them and sales have gone through the roof over the last 18 months.

"During the pandemic, there were many common symptoms especially for hard, dry painful coughs and breathlessness and people were incredibly fearful and anxious. This led to a huge increase in sales of eight very specific remedies."

As we look ahead, Helios is ever evolving, with plenty of exciting plans ahead.

"We have incredibly loyal, knowledgeable staff, some of whom have been working with us for over 32 years. We are united in the passion we feel about homeopathy and the great healing benefits that it brings and pleased to be part of the growing global homeopathic community," Roz added.

And in the immediate future, there will be some NPd.

Roz revealed: "We are very excited to be launching our own range of the 12 tissue salts made to the traditional Dr Schuessler formula in April at the Natural & Organics Product Show. These have been in development for a year now and came about due to retail customers saying they were difficult to obtain from other manufacturers. We know they are a fantastic support to health that anyone can use."



# WORK SMARTER, NOT HARDER



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# Creating vegetarian flavours

Cooking meat-free has never been easier, so why not take inspiration from our friends at the Vegetarian Society with these healthy recipe ideas? For more ideas, visit [www.vegsoc.org](http://www.vegsoc.org)



Brazilian black beans with winter greens and farofa



Quick and easy spaghetti Bolognese



Stuffed marrow with red wine and lentil gravy



Quorn and sunflower seeds burger quarter pounder



## Brazilian black beans with winter greens and farofa

Serves 6

This is a veggie take on the Brazilian favourite and gives you a chance to combine lots of healthy, low-carbon ingredients. Beans are full of fibre and a source of protein. This is our adaptation of the traditional dish using kale and cashew nuts. The kale provides added vitamins A, K, and C, as well as calcium. The cashews nuts give an added boost of iron, zinc, and magnesium.

### Ingredients:

#### For the black beans:

- 1 tsp rapeseed oil
- 2 leeks, thinly chopped
- 2 carrots, thinly chopped
- 100g vegan chorizo, sliced (we used Wheaty vegan chorizo)
- 1 clove garlic, minced
- 1 tbsp tomato purée
- 2 bay leaves, dry or fresh
- 1 tbsp smoked paprika
- 1 tbsp dried oregano
- 2 x 400g cans black beans, including the liquid
- 150ml low-sodium vegetable stock
- 1 tbsp tamari
- 1 tsp pepper

#### For the rice:

- 200g brown rice
- 400ml water

#### For the farofa

- 120g cashew nuts, finely chopped
- 40g raisins
- 1 medium onion, finely chopped
- 15g flat-leaf parsley, chopped

#### To serve:

- 1 orange, peeled and sliced

#### Method:

■ To make the beans, add the rapeseed oil to a large saucepan and fry the leek, carrots and chorizo on a medium heat for five minutes, stirring continuously. Add the garlic, tomato purée, bay leaves, smoked paprika, oregano and cook for five minutes.

■ Add the beans with the liquid from the can, vegetable stock and tamari. Cook for 15 minutes on medium heat until thick and creamy. Add the pepper.

■ To make the rice, in a saucepan, add the rice and water then bring to the boil. Reduce to a simmer and cook for 30 minutes or until the rice is tender. Drain and set aside.

■ To make the winter greens, boil a kettle. Place the shredded kale in a sieve and pour over the hot water to quickly blanch the kale, enough to make it wilt slightly.

■ In a frying pan, add the rapeseed oil, then fry the minced garlic and blanched kale on a low-medium heat for five to eight minutes. Make sure not to burn the garlic or it will be bitter. Season with the salt and white pepper.

■ To make the farofa, preheat the oven to 160°C/fan 140°C/gas mark 3. Place the cashew nuts on a baking tray and roast in the oven for five to 10 minutes, checking carefully that they do not burn.

■ In a medium frying pan, add all the ingredients, except the parsley, and cook on a low heat, until the onion is translucent. This will take around eight to 10 minutes.

■ Remove the farofa from the heat and stir in the parsley.

■ To serve, plate the beans together with the brown rice, winter greens and farofa. Serve with sliced orange on the side.



QUICK AND EASY  
SPAGHETTI BOLOGNESE



QUORN AND SUNFLOWER  
SEEDS BURGER QUARTER  
POUNDER







## Quick and easy spaghetti Bolognese

### Serves 4

This is a quick and easy, no-fuss spaghetti bolognese recipe that's ready in no time at all.

### Ingredients:

- 1 medium onion, finely diced
- 1 medium carrot, finely diced
- 1 stick celery, finely diced
- 2 cloves garlic, crushed
- 150g mushrooms, sliced
- 1tbsp olive oil
- 1 x 400g can chopped tomatoes
- 300ml low-sodium vegetable stock
- 30g sundried tomato puree
- 1tbsp dried mixed herbs
- 300g Quorn mince
- 300g dried spaghetti
- Salt and pepper, to taste

### Method:

- Heat the oil in a frying pan, add the onion, carrot, celery and garlic, and cook over a moderate heat for about five minutes until the vegetables have softened. Add the mushrooms and continue to fry for two to three minutes.
- Pour the chopped tomatoes into the pan along with the vegetable stock, tomato puree and mixed herbs. Stir well, cover the pan with a lid, then simmer gently for about 10 minutes until the vegetables are cooked and the sauce has thickened. Stir the Quorn mince into the sauce and continue to cook for about 15 minutes. Season to taste.
- Meanwhile cook the spaghetti in a large pan of boiling water as per the pack instructions, drain, then stir through the sauce. Serve the spaghetti bolognese in warm bowls.



STUFFED MARROW WITH  
RED WINE AND LENTIL  
GRAVY



QUORN AND SUNFLOWER  
SEEDS BURGER QUARTER  
POUNDER





## Stuffed marrow with red wine and lentil gravy

Serves 4

Marrow is a vegetable that people often want a really impressive recipe for. A well-cooked marrow can make a perfect centrepiece for a roast dinner when stuffed with your favourite filling as it slices up into generous portions. It also gives you a third of your protein requirements and is low in saturated fat. This recipe is easy to make and is roasted in the oven along with a good selection of low-carbon, seasonal autumn vegetable, like butternut squash, Romanesco cauliflower and carrots. A delicious red wine and lentil gravy finishes this meal off perfectly!

### Ingredients:

#### For the stuffed marrow:

- 1 long marrow, about 30cm in length
- 150g Quorn mince
- 170g cooked Puy lentils
- 50g walnuts, chopped
- 1tsp garlic granules
- 1tsp dried thyme
- 1tsp dried sage
- 1tbsp rapeseed oil
- Salt and pepper, to taste

#### For the vegetables:

- 1 small butternut squash
- 1 small Romanesco cauliflower
- 3 rainbow carrots
- 3tbsp rapeseed oil
- 1tbsp salt
- 1tbsp pepper

#### For the gravy:

- 1tbsp rapeseed oil
- 250g banana shallot, finely chopped
- 1 clove garlic, lightly crushed
- 1 sprig rosemary
- 1 bay leaf
- 5tbsp aged balsamic vinegar
- 400ml vegan red wine
- 400ml vegetable stock
- 100ml beetroot juice
- 50g margarine
- 70 cooked Puy lentils

### Method:

- To make the stuffed marrow, preheat the oven to 180°C/fan 160°C/gas mark 4.
- Peel the marrow and cut off the two ends. Using a spoon, remove the centre of the marrow leaving 1.5cm thickness all around. Set the pulp to one side in a small bowl. Place the pulp into a food processor together with the cooked beetroot. Process until roughly chopped and well combined. Mix in the Quorn mince, lentils, chopped walnuts, garlic granules and herbs. Put the filling in the fridge.
- Brush the peeled marrow with the rapeseed oil and sprinkle it with salt and pepper. In a large frying pan over a high heat, sear the marrow on all sides. This will take about 10 minutes. Once evenly charred and golden all around, remove it from the pan onto a chopping board.
- Remove the filling from the fridge and use a spoon to stuff the marrow, pressing it in gently to make sure not to leave any air pockets.
- Put the marrow in a 40cm x 30cm casserole dish, then place in the fridge to firm up.
- To prepare the side vegetables, peel the butternut squash and remove and discard the stringy centre. Chop the flesh into large chunks. Remove and discard the toughest leaves around the Romanesco cauliflower and break off the florets. Chop the stem into large chunks. Peel and chop the carrots into large, rustic chunks.
- In a large bowl, toss the vegetables with the rapeseed oil, salt and pepper.

■ Remove the marrow from the fridge and place the seasoned vegetables all around it. Put the casserole dish in the oven for 60 minutes, shaking it halfway through to prevent anything from sticking.

■ To make the gravy, in a large saucepan, add the rapeseed oil and fry the shallots over a medium heat for 10 minutes, until golden. Add the garlic, rosemary and bay. Cook for a further five minutes, stirring occasionally.

■ Add the balsamic vinegar and wine, then bring it to the boil. Turn it down to a simmer and leave it to reduce in volume by two-thirds.

■ Pour the vegetable stock and beetroot juice into the saucepan, then bring it to the boil. Turn it down to a simmer and leave it to reduce in volume by two-thirds again.

■ Remove the garlic, rosemary and bay from the saucepan. Whisk in the butter and once it has become thick and creamy, add the cooked lentils. Remove from the hob when the gravy is ready.

■ To serve, remove the roast from the oven and place it on a chopping board. Cut it into 2cm thick slices, then serve with a side of the roasted vegetables and a drizzle of gravy. The roast can also be served straight from the tin.



BRAZILIAN BLACK BEANS  
WITH WINTER GREENS  
AND FAROFA



QUICK AND EASY  
SPAGHETTI BOLOGNESE







## Quorn and sunflower seeds burger quarter pounder

Serves 4

Our new sunflower seed quarter pounder makes a mighty meal that has all the low-carbon credentials. It's made with super low-carbon Quorn and is served with a crunchy seasonal veg slaw that saves on food miles. We've made this burger protein-packed, high in fibre and low in saturated fat too so it's good for you and good for the planet.

### Ingredients:

#### For the burger:

- 50g chard, roughly chopped
- 470g Quorn mince
- 1 medium free-range egg
- 80g toasted sunflower seeds, chopped
- 1tbsp tomato purée
- 1tbsp Engevit with B12
- 1tbsp Engevit with iron and vitamin D
- 1 red onion, finely chopped
- 20g palm oil-free hard margarine, grated
- ½ tsp salt
- 1 tsp pepper
- 1tbsp rapeseed oil, to brush and fry

#### For the green slaw:

- 30g kale, stems removed and finely chopped
- ¼ white cabbage, shredded
- 30g celeriac, peeled and shredded
- 1tsp yogurt
- 1tsp mayonnaise
- ½ tsp mustard

#### To assemble the burger:

- 4 brioche buns
- 6 slices pickled cucumber, chopped
- 4tsp tomato relish or salsa
- ½ red onion, sliced

### Method:

- To make the burger, half-fill a small saucepan with water and bring it to a boil. Blanch the chard in the water for one minute to wilt, drain well and pat dry with kitchen roll.
- In a food processor, add the chard, Quorn mince, egg, half the sunflower seeds, tomato purée, Engevit yeast flakes and half the red onion. Process quickly. Transfer the mixture to a bowl and add the grated margarine, with the other half of the sunflower seeds and onion. Season it to taste. Cover with cling film and place in the fridge for 20 minutes.
- Remove the bowl from the fridge. Divide the mixture into four and shape it into burgers.
- In a large frying pan, toast the inside of your buns until golden. Set aside. Add 1tsp of rapeseed oil to the same pan and fry the sliced onion for five minutes, until golden. Place the burgers on a baking tray and brush with the remaining rapeseed oil. Grill them for five minutes on each side.
- To make the slaw, in a colander, add the shredded kale, pour over boiling water and drain well.
- In a mixing bowl, add the drained kale and all the remaining ingredients. Toss them together well.
- To build the burgers, start by placing the slaw on the bottom bun, top it with the burger, then the pickled cucumber, onions, tomato relish or salsa and finish with the top bun.



QUICK AND EASY  
SPAGHETTI BOLOGNESE



STUFFED MARROW WITH  
RED WINE AND LENTIL  
GRAVY

# I-Mag giveaways



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

## Pure Encapsulations Poly-ProFlora Powder



with hypoallergenic, vegan ingredients.

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

## Nutri Advanced Candex SIBO



Candex SIBO is a powerful blend of herbal extracts, ideal for anyone wanting to help rebalance the microflora in their small intestine. Contains garlic and grapefruit seed extract, which help to support microbial balance, whilst garlic may also support the immune system and defend against harmful bacteria and fungi. Also contains berberine, oregano and caprylic acid, all of which have broad-ranging antimicrobial properties and a long history of use with purging unwanted compounds from the gut.

**I:Win: We have 25 pots to give away.**

## Lamberts Essentials Bundle

Established in 1982, Lamberts is one of the UK's leading suppliers of specialist dietary supplements to practitioners and pharmacists using nutrition and herbs in healthcare. Lamberts offers an extensive range of over 200 products, enabling you to create a supplement regime that is perfectly tailored to you and your requirements. The Lamberts Essentials Bundles, worth over £100, includes Vitamin D3 1000iu, Super Strength Antioxidant Complex, Biome Balance 25, Glucosamine Complete and Multi-Guard Methyl, voted *Health Food Business* magazine's Best VMS 2022.

**I:Win: We have three bundles to give away.**



## BetterYou Sleep Range bundle

It is well known that poor sleep can have an adverse effect on our health and wellbeing, with magnesium deficiency being one of the main factors affecting the quality of sleep we can achieve. Magnesium is required for over 300 chemical reactions in the body, and low levels can cause restless muscles that keep us awake at night. BetterYou's pill-free magnesium sleep range helps put an end to restless nights, including the award-winning Magnesium Sleep Lotion, relaxing Magnesium Sleep Flakes and Lights-Out Nightly Oral Spray.

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





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