



Nutrition I-Mag

WWW.NUTRITIONIMAG.COM RESEARCH AND EDUCATION FOR TOMORROW'S PRACTITIONER

MARCH/APRIL 2022

DIABETES MANAGEMENT

Nutritional advice to support diabetic clients

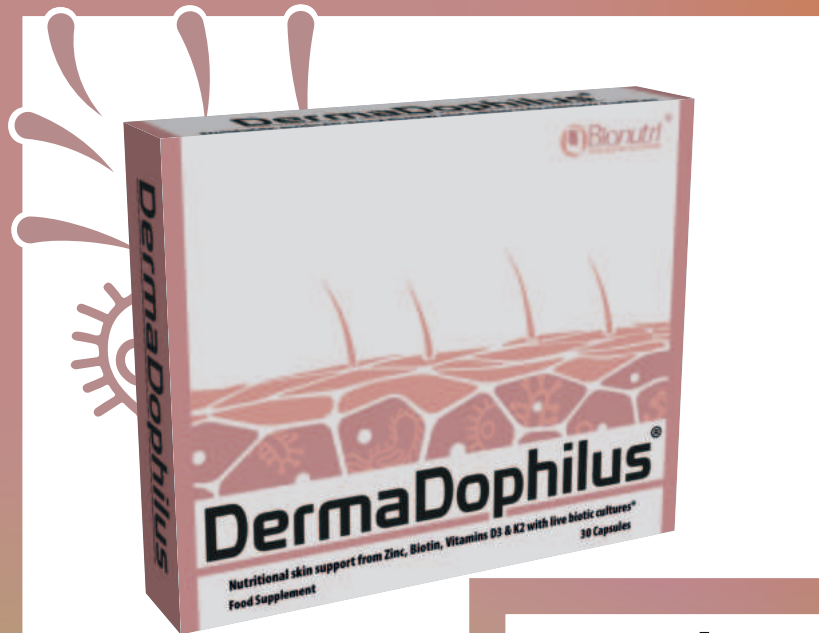
Act on allergies

The advice to offer when pollen attacks



The leaky gut nutrition plan

Protocols to recommend for this increasingly prevalent condition



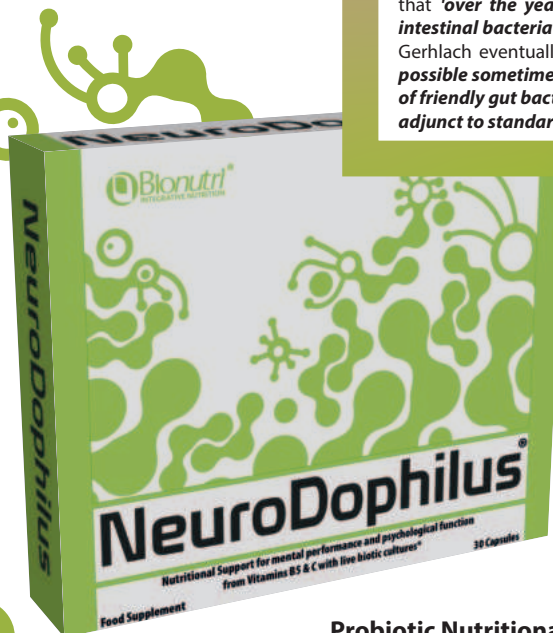
**Probiotic Nutritional
Skin support**



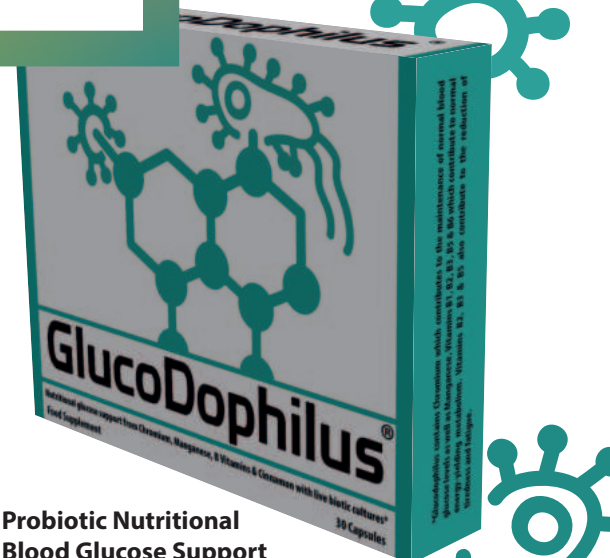
**Probiotic Nutritional
Liver support**

Functional Probiotics

It was in the 1970's when **Professor Franz Gerlach**, the then head of Vaccine Research in the Department of Microbiology at the Isfels Hospital in West Germany, used the opportunity to explore his passion in trying to identify the role that the intestinal bacteria played in health and disease. He went on to state that *'over the years I have yet to see a normal or healthy composition of intestinal bacteria in any one suffering with a chronic illness'*. When Professor Gerlach eventually retired he went on to state that *'I believe that it will be possible sometime in the future to identify and develop specific combinations of friendly gut bacteria that have a supportive role in human health and be an adjunct to standard medical treatments'*



**Probiotic Nutritional
Support for the Nervous system**



**Probiotic Nutritional
Blood Glucose Support**

In partnership with:



Welcome



It seems that each issue of this magazine, we bring the discussion back to the Covid-19 pandemic, whether it's talking about the heightened focus we have seen around health and wellbeing, the rising demand for certain supplements, and, more recently, the resumption of all-important education events. Another area that has been affected by the pandemic has been product availability, with some of the most popular supplements ending

up running low (thought to have been exacerbated by the Covid-19 pandemic, as well as Brexit).

But as lockdowns have eased and supply chains have strengthened again, we have seen continued demand for nutritional supplements, across the spectrum of categories, but certainly with more of a lean

towards immune health, sleep issues and anxiety. And it is these products that we at *Nutrition I-Mag* want to celebrate as we know how crucial reputable brands and efficacious products are to you as a recommending Nutritional Therapist. Which is why we are delighted to bring you the results of our annual Product Awards, revealing the brands which won an accolade, or who were highly commended – a true celebration of product innovation, the lifeblood of our industry. **Click here** to find out who won.

And that brings us onto education, and the resumption of our popular IHCAN Conferences. Last year, changing restrictions made it difficult to run our usual programme of events, moving to a virtual offering. This year, with more confidence in hosting in-person events, we are delighted to be running a hybrid model of virtual and physical conferences, which taps perfectly into the new way of working that has emerged since the pandemic. You can find out all the dates for 2022 at www.ihcanconferences.co.uk, and if you are a brand interested in exhibiting, contact Abigail Morris or Natalie Clark on 01279 816300.

RACHEL SYMONDS, EDITOR

Rachel

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NUTRITION I-MAG GIVEAWAYS

OUR CONTRIBUTORS

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



Sophie Barrett

Sophie Barrett is a Medical Herbalist and Mycotherapy Adviser. Sophie studied Herbal Medicine and Naturopathy at The College of Naturopathic Medicine, gaining over five years of clinical training and research. Having learned healing traditions from around the world and realising the importance of living in harmony with nature, she went on to set up her own practice to educate and serve patients seeking optimum health. She is a Mycotherapy Advisor for Hifas da Terra in the UK.



Sue McGarrigle

Sue McGarrigle is a Clinical Nutritional Therapist and Naturopath and has practiced since 2001. Sue works for Bionutri, advising and helping practitioners in their various practice matters. As a lecturer to college and university students to Masters level, Sue has trained hundreds of healthcare and medical practitioners in many aspects of nutritional therapy. She writes as a regular contributor of specialist nutrition articles for magazines and newspapers and has been a guest speaker at various national conferences.



Emilia Papadopollous

Emilia Papadopollous is a Clinical Nutrition Advisor at BioCare. After years in the make-up industry, Emilia retrained in nutrition to get a better understanding of why we can struggle with our health and how our diet and lifestyle may affect us. As a qualified Nutritional Therapist, Emilia's passion is to help others feel their best, regain their confidence and have some control over their health. As well as working at BioCare, she also has her own nutrition clinic, with a special interest in skin conditions and female health.



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*.



Rachel Bartholomew

Rachel Bartholomew BA(Hons), Dip ION, MBANT, CNHC, GHW is a Nutritionist and Health Writer at Nutri Advanced with a special interest in functional and lifestyle medicine. She graduated from the Institute of Optimum Nutrition (ION) in 2004, has completed NLP practitioner training, and is a member of BANT, CNHC and the Guild of Health Writers.



Alice Bradshaw

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

News Bites

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

Researchers claim heart disease and diabetes risk could be cut through fibre fortification

A research project by scientists at Tate & Lyle has concluded that boosting fibre content of everyday UK foods could lead to 50 per cent more adults getting adequate fibre in their diets and lower the risk of heart disease and diabetes.

The research suggested that including baked goods, dairy products, soups, smoothies and dressings will enable 50 per cent more adults to get the recommended daily amount of fibre in their diets and lower the risk of heart disease and diabetes for the majority of UK adults.

In the peer reviewed health and nutrition data modelling study published in the *British Journal of Nutrition*, scientists, working with specialist data analytics company, Crème Global, found that reformulating everyday foods with added fibre could reduce cardiovascular and type 2 diabetes risk for 72 per cent of the adult population and more than double the number of children in the UK meeting their fibre intake recommendation. It also suggested six per cent of Brits could lose weight through higher fibre consumption.

Dr Kavita Karnik, Global Head, Nutrition & Regulatory Affairs at Tate & Lyle and a co-author of the health and nutrition data modelling study, explained: "Most people understand that eating fibre helps keep bowel function regular, but fewer understand that getting the right amount of fibre in your diet is highly beneficial for wider health and wellbeing, including cardiovascular, immunity, skin, brain and gut health.

"However, for most people, it is difficult to get enough fibre into their diet without exceeding their recommended calorie intake. This is where fibre fortification could play a highly beneficial role to public health – it would allow consumers to continue eating the products they prefer while potentially lowering rates of cardiovascular disease, type 2 diabetes and help maintain a healthy weight across the population."

Sara Stanner, Science Director at the British Nutrition Foundation, added: "We know that we need diets to change to support better health but encouraging people to make sustained changes to their behaviour is notoriously difficult. This is where reformulation of the everyday products that people eat and drink can be really effective in improving nutritional intakes. We have seen how reformulation has helped to reduce salt consumption and it's important that the food industry continues to innovate to produce healthier products, in some cases, reducing nutrients such as salt or sugar or by adding beneficial components, such as fibre."

Tate & Lyle recently signed up to the UK's Food and Drink Federation's Action on Fibre initiative. Amy Glass, UK Diet and Health Policy Manager at the Food and Drink Federation, went on: "FDF's Action on Fibre campaign aims to highlight the vital role reformulation and new product development plays for food and beverage companies, giving consumers a wider range of products to assist them in hitting the target more easily.

We welcome this research in demonstrating the power these initiatives can have on improving the national diet and raising awareness on the benefits of fibre as part of everyday, healthy lifestyles."



Online guide to encourage Scots to make healthy changes

Food Standards Scotland (FSS) has announced the launch of a new online guide to encourage people to follow a healthy diet.

Making small changes to our diet is the key to a healthier lifestyle, according to FSS as it launches the new healthy eating campaign.

With research showing the average daily intake of fruit and veg in Scotland is only 2.9 portions, compared to the recommended five a day, making bigger changes or setting difficult food goals could be unachievable for some Scottish households.

According to Dr Gillian Purdon, Head of Nutrition at FSS, trying to make too many changes at once to our diets and eating habits can be overwhelming. And so, to help tackle Scotland's poor diet and support them on this journey, FSS, along with partner organisations, has developed a new online guide at EatWellYourWay.scot

With the aim of encouraging people to make simple changes to help improve their diet, Eat Well, Your Way offers a variety of straightforward steps and useful advice. The guide also caters for those shopping on a tight budget and consumers who are more sustainability conscious.

"Eat Well, Your Way encourages people to make small, manageable changes to their diet, in ways that suit them," explained Dr Purdon. "This is a new resource which focuses on practical advice on how to adopt healthier options. It is designed so that people can find inspiration and make changes that suit their circumstances, as we know that making lots of changes at once isn't always sustainable. This guide offers a realistic way to help people work towards new healthier food goals."

While a new FSS report, due to be published in the coming weeks, will shed light on the impact lockdown and the wider pandemic has had on Scotland's diet, research has found that 'discretionary' foods, such as sweets, chocolate, cakes, crisps and sugary drinks made

up a quarter of all food and drink brought into homes in 2020.

Dr Purdon continued: "We have known for a long time that improving dietary health in Scotland represents a huge challenge and the pandemic brought into focus how this can make us susceptible to serious disease. Discretionary foods continue to represent far too high a proportion of our shopping baskets, and purchases on promotion continue to be skewed towards these products. It's important to highlight, however, that this campaign is not a move away from the Eatwell Guide but a realistic way to help people make healthier food and drink choices."



Over 65s in Switzerland advised to supplement with vitamin D

New guidance from the Swiss Government to encourage older adults to take a vitamin D supplement every day has been welcomed by a leading nutrition group.

The recommendation was issued in an information leaflet and published by the Swiss Federal Food Safety & Veterinary Office (FSVO). It explains that vitamin D delivers benefits for bone and muscle health and can reduce the risk of falls and hip fractures by 30 per cent. It also states that vitamin D can have beneficial effects for dental health, the immune system, the brain, and the heart.

It goes on to explain that it's difficult to obtain vitamin D in sufficient quantities through the diet, and that it is synthesised by the skin when exposed to sunlight. However, it goes on to say that about half the population lacks adequate levels of vitamin D, and warns that as we age, our

ability to form vitamin D through the skin is reduced by 25 per cent. As a result, the leaflet says, the Swiss government now recommends that, from the age of 65, people take a daily dose of 800 IU vitamin D.

The new guidance from the Swiss Government is aligned with resources focusing on vitamin D created through the organisation, IADSA, and its Mind the Gap initiative.

Cynthia Rousselot, IADSA's Director of Technical & Regulatory Affairs, explained: "We are pleased to see that Swiss government recognises the importance of vitamin D and the role supplementation can play in ensuring that people consume enough of this essential nutrient. IADSA will continue to engage with policy makers and other stakeholders worldwide to raise awareness of the role of supplementation in increasing levels of health and wellbeing."



Consumers call for greater sustainability claims on food

A new study has suggested that more than half of global consumers say they're more likely to purchase products with a sustainability claim.

Sustainability considerations now influence the majority of the world's grocery shoppers when buying packaged foods, according to Cargill's most recent global FATitudes survey. The proprietary research found that 55 per cent of consumers indicate they're more likely to purchase a packaged food item if it includes a sustainability claim, a four-point jump since the company last fielded this research in 2019.

The latest global survey, conducted in summer 2021, included approximately 6,000 primary grocery shoppers in 11 countries. In this most recent round of research, an increased interest in sustainability was the most notable change from the previous survey's results.

More than half of the countries surveyed showed an increase in the influence of sustainability claims, with the change most evident in Brazil and Mexico, which both saw 13 point increases in the purchase impact of sustainability claims between 2019 and 2021. Sustainability claims now drive purchase decisions for 74 per cent of consumers in Brazil and 66 per cent in Mexico. India posted double-digit increases, too, with 67 per cent of consumers indicating they were more likely to purchase packaged food with sustainability claims, up 11 points from 2019. In the UK, Cargill found 51 per cent of consumers now say they place a greater emphasis on sustainability, an eight point jump in just two years.

For the first time, the survey also asked consumers what type of sustainability claim they were looking for. 'Sustainably sourced' and 'conservation of natural resources' topped the list, ranking well ahead of more specific claims such as fair trade, reduced packaging and fair/living wages in almost every country included in the survey.

"Our latest findings clearly demonstrate that messages surrounding sustainability are having an impact on consumers," commented Nese Tagma, Managing Director of Strategy and Innovation for Cargill's global edible oils business.



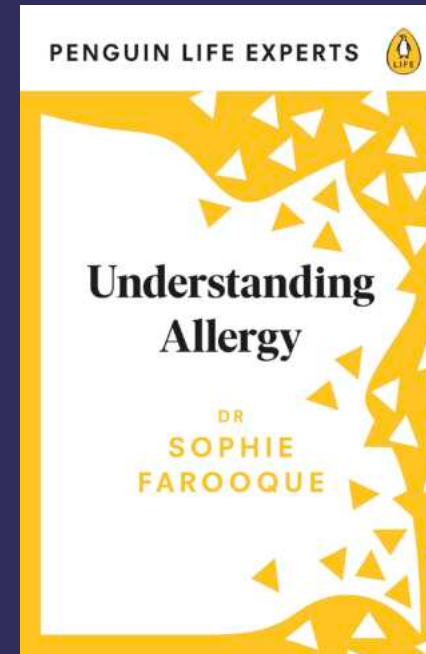
How to understand allergies

The latest in a series of books is aiming to help people better understand allergies.

Penguin Life is presenting the fourth title in the Penguin Life Expert Series, *Understanding Allergy*, by Dr Sophie Farooque.

Dr Farooque is one of the UK's leading allergy experts. She is a Fellow of the Royal College of Physicians and was elected to the council of the British Society of Allergy and Clinical Immunology in 2018. She is a practising NHS consultant at St Mary's Hospital in Paddington and has been involved extensively in the UK's response following reports of Covid-19 vaccine allergy.

In *Understanding Allergy*, Dr Farooque provides allergy sufferers and their families with



the knowledge they need to help them navigate this minefield. The book offers practical advice to reduce unnecessary suffering, debunk common allergy myths and address key topics including the allergy epidemic, understanding and treating hay fever and rhinitis, living with food allergies, delayed food allergies and anaphylaxis, drug allergies, what to do if you think you have an allergy and eczema and allergy prevention.

Professor Adam Fox commented: "Sophie has achieved something really special here – a fascinating, insightful guide that is extremely clear and highly engaging, yet maintains the highest standards of scientific accuracy. I would highly recommend for anybody with an interest in the area."

Poll finds more than half of Brits open to trying CBD

New research has revealed that 64 per cent of Brits would be willing to try CBD products to help with any issues they may be suffering from.

In the poll of British adults commissioned by UK CBD retailer, The Good Level, the majority of those who took part (64 per cent) said they would be willing to try CBD products to help with any issues they may be suffering from. The figure compares with seven per cent of respondents who said they already use CBD and 29 per cent who were not planning to try the widely available items.

The survey, of 1,000 people and carried out in mid-February by digital PR firm, Reachology, using a national

polling service, also found that most people (52 per cent) now have some knowledge of CBD products since they became available. A total of 52 per cent knew something about the CBD products, but almost a quarter of respondents (24 per cent) didn't understand what CBD items are and almost the same amount (23 per cent) fully understood the products and what they are used for.

The average age of survey participants was 49, with the highest group in the 25-39 Millennials bracket (26 per cent) followed by 50-64 (24 per cent), 65 and over (23 per cent), 40-49 (17 per cent) and those aged between 18-24 (10 per cent).

In Research

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

Peer-reviewed study finds obesity linked to kidney disease

Researchers have concluded that kidney disease is likely to be caused by obesity.

The study, led by University of Manchester and Manchester University NHS Foundation Trust (MFT), has found that obesity is likely to cause an increased risk of kidney disease.

Published in the journal, *Cardiovascular Research*, the findings – based on data and a unique kidney tissue resource funded by Kidney Research UK – suggest that tackling obesity could have a powerful impact on kidney health.

Using data from around 300,000 participants in the UK Biobank, one of the world's largest biomedical databases and previous genome-wide association studies, the scientific team extracted information on the two most common measures of obesity, body mass index (BMI) and waist circumference (WC), and different measures of kidney function.

Most of the previous studies have been unable to explain if the relationship between obesity and renal disease was little more than an association. However, through a technique called Mendelian Randomisation – which groups people according to a genetic code randomly assigned at birth and removes any bias – they found that increasing values of genetically predicted BMI and WC were causally associated with the measures of kidney function. The team was able to show that the causal effect of obesity on the kidney is only partly mediated by high blood pressure and type 2 diabetes.

Through analysis of 467 kidney tissue samples, the study also uncovered the signatures of obesity on the human kidney – groups of genes and pathways that may potentially explain the effects of

obesity on the kidney.

First author, Dr Xiaoguang Xu from The University of Manchester, commented: "Obesity and kidney disease are common complex disorders with an increasing clinical and economic impact on healthcare around the globe. Our evidence substantiates the value of weight loss as a strategy of

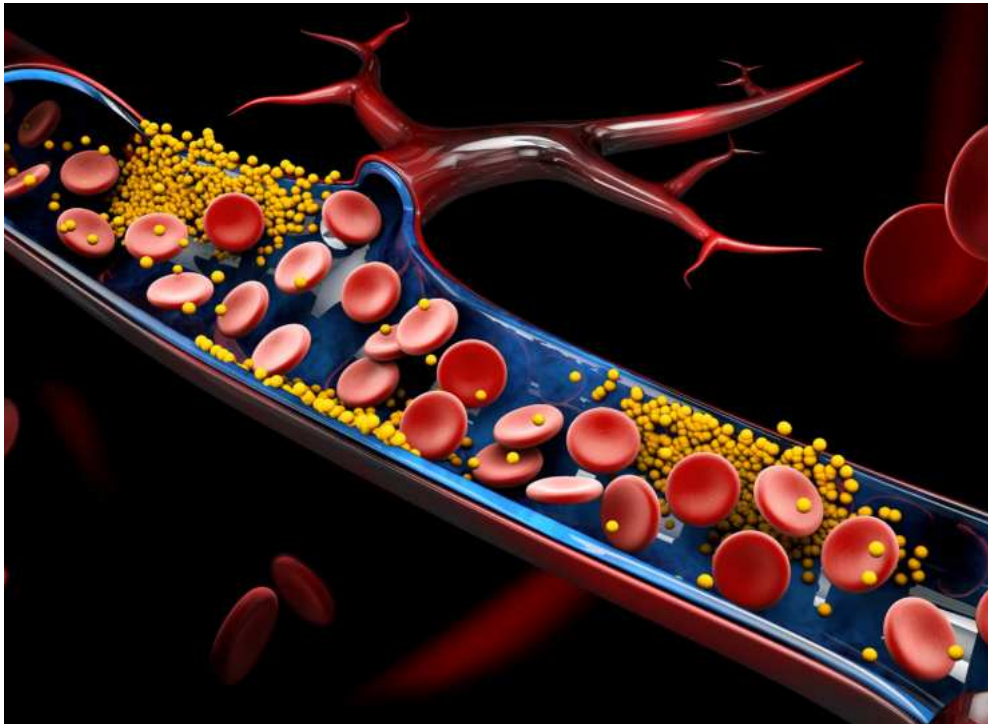
preventing or reversing a decline in kidney health, as well as decreasing the risk of renal disease.

"So, we hope our findings will help to stimulate further research and drive the development of public health policies to improve kidney health and prevent kidney disease through encouraging weight loss."

Principal Investigator, Professor Maciej Tomaszewski, from The University of Manchester, is also a Consultant Physician based at Manchester Royal Infirmary, part of MFT. He added: "Chronic kidney disease affects more than 10 per cent of adults worldwide and is predicted to become a global threat to public health. With the use of Mendelian Randomisation, we were able to demonstrate a potentially causal effect excessive weight has on kidney health and the risk of chronic kidney disease and several other kidney disorders."

And Dr Aisling McMahon, Executive Director: Research, Innovation and Policy at Kidney Research UK, went on: "Studies like this from the University of Manchester are adding to a growing body of evidence suggesting that obesity is a direct cause of kidney disease. Three million people in the UK are already living with kidney disease. With levels of obesity on the increase, this figure could be set to rise rapidly. The Manchester team's findings demonstrate the need to promote healthy lifestyles in order to improve kidney health. Once someone becomes a kidney patient, they are a kidney patient for life because there is no cure. As the UK's largest kidney disease research charity, finding new and transformative treatments and ways to prevent kidney disease are our core priorities. This means that our endeavours to help prevent people developing kidney disease are just as critical as finding new ways to treat it."





Bacteria study focuses on cholesterol reduction

The results of a new study have suggested that a probiotic can significantly reduce cardiovascular risk factors.

The new scientific evidence has revealed that the patented probiotic strain, *Lactobacillus plantarum* LPLDL, can help to significantly reduce total cholesterol levels by 34.6 per cent in adults with hypercholesterolemia.

The placebo-controlled study, which was conducted by the University of Roehampton, was a six-week human intervention, aimed at investigating the effect of LPLDL intake in male and female adults with high cholesterol, aged between 30-65.

Leading the study, Dr Sofia Kolida, Research & Development Director at OptiBiotix Health, commented: "High LDL cholesterol is associated with one in four heart and circulatory disease deaths in the UK, according to the latest research from the British Heart Foundation. Unlike many other probiotics that do not have the scientific evidence to support their heart health capabilities, this study demonstrates that LPLDL can be an effective means to support cardiovascular health, while reducing coronary heart disease (CHD) risk factors like cholesterol.

"After taking LPLDL daily, results demonstrated that the probiotic also reduced 'bad' low-density lipoprotein (LDL) by 28.4 per cent, non-HDL cholesterol by 17.6 per cent and apolipoprotein B by 28.6 per cent, all key CHD risk biomarkers that are associated with conditions such as atherosclerosis. The findings reinforce that LPLDL, unlike other probiotics, has a proven mechanism of action to decrease 'bad' cholesterol in the blood, making it an excellent candidate to support heart health."

Cherry juice linked to improving sleep in athletes

Researchers have ruled that tart cherry juice is among the nutrition interventions to support athletes to better sleep.

The study, published in the journal, *Nutrients*, explained that athletes often experience sleep disturbances and poor sleep as a consequence of extended travel, the timing of training and competition (i.e., early morning or evening), and muscle soreness. Nutrition plays a vital role in sports performance and recovery, and a variety of foods, beverages, and supplements purportedly have the capacity to improve sleep quality and quantity.

And so, they reviewed and discussed relevant studies regarding nutrition, foods, supplements, and

beverages that may help improve sleep quality and quantity.

They found carbohydrate ingestion to improve sleep parameters is inconclusive, although high glycaemic index foods appear to have small benefits. Tart cherry juice can promote sleep quantity, herbal supplements can enhance sleep quality, while kiwifruit and protein interventions have been shown to improve both sleep quality and quantity.

"Nutritional interventions are an effective way to improve sleep quality and quantity, although further research is needed to determine the appropriate dose, source, and timing in relation to training, travel, and competition requirements," the study concluded.



Vitamin K and D status studied in relation to inflammation in Covid patients

New research from The Netherlands has investigated the associations between both vitamin D and K status with inflammation in hospitalised patients with Covid-19.

The research group from the Canisius-Wilhelmina Hospital, which has a scientific collaboration with Norwegian vitamin K2 manufacturer, Kappa Bioscience, published an article in the medical journal, *Frontiers in Nutrition*, describing how pathology during Covid-19 infection arises partly from an excessive inflammatory response with a key role for interleukin (IL-6). Both vitamin D and K have been proposed as potential modulators of this process.

The research group, led by pulmonologist and translational researcher, Rob Janssen, M.D., Ph.D., who was the first to discover vitamin K deficiency in Covid-19 assessed vitamin D and K status by measuring circulating 25-hydroxyvitamin D (25(OH)D) and desphospho-uncarboxylated Matrix Gla-Protein (dp-ucMGP), respectively in 135 hospitalised Covid-19 patients in relation to inflammatory response, elastic fibre degradation and clinical outcomes.

Comparing good and poor disease outcomes of Covid-19 patients, vitamin 25(OH)D levels were not significantly different. IL-6 levels, however, were significantly higher in patients with poor outcome, compared to patients with good outcome. Levels of extrahepatic

vitamin K status was associated with IL-6 levels. In contrast, vitamin D levels were only borderline statistically significant correlated with IL-6. A significant association was also found between IL-6 and elastic fibre degradation. Contrary to vitamin K status, vitamin D did not correlate with elastic fibre degradation.

This publication is part of the Ph.D.-trajectory – sponsored by Kappa Bioscience – of first author Margot Visser, M.D. to unravel the role of vitamin K in Covid-19.

“IL-6 is a pro-inflammatory cytokine that plays a key role in the development of severe Covid-19 and is regarded as an important therapeutic target,” commented senior author, Jona Walk, M.D., Ph.D. “We demonstrated a highly significant correlation between elevated IL-6 levels and poor vitamin K status, whereas the association with vitamin D was only borderline significant.”

However, Janssen cautioned: “Administration of vitamin D without K may not be without risk, as vitamin D increases the demand for K. This may cause further vitamin K depletion, which could be harmful in patients with moderate or severe Covid-19, who are without exception already vitamin K deficient. Based on our current data and previous work, I strongly suggest that vitamin K2 should be added to D supplementation, particularly against the background of the ongoing pandemic.”

Changing perceptions key to maintaining healthy lifestyle

Researchers at the University of Lincoln have examined the effects of establishing a goal setting strategy on health goals.

The new study has outlined how varied methods of goal setting can maximise the benefits of exercise and increase the likelihood of participants repeating a session.

One widely implemented goal setting strategy is the ‘SMART’ acronym, which involves setting goals that are specific, measurable, achievable, realistic, and timed. Although many initiatives adopt this method, research suggests setting a goal that is SMART may in fact be detrimental in certain circumstances.

Experimental research from sports scientists at the University of Lincoln suggests that SMART goals may help some people to achieve better performance, but this type of goal setting could result in more negative performance and psychological outcomes for others. They suggest alternative methods of goal setting should be considered.

The study of 36 people in walking tests with a floor marked route in a sport science laboratory found that the psychological response differed between active and insufficiently active individuals depending on the goal type. Open goals elicited significantly higher performance, pleasure, and enjoyment in the less active adults. Conversely, SMART goals produced significantly higher levels of performance, pleasure, and enjoyment in participants with active lifestyles.

Overall, the research suggests a need to adopt more varied approaches to goal setting.



New to market

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

ANDROGRAPHIS LATEST FOCUS FROM VIRIDIAN

The latest product innovation from Viridian Nutrition has been launched to offer natural relief from coughs and sore throats.

Andrographis Complex has been developed by expert nutritionists at the ethical vitamin company, containing scientifically studied andrographis leaf extract, combined with vitamin C and zinc to provide therapeutic support for the immune system.

The natural extract is grown in India, in its native environment, where the ideal climate helps to produce a high potency extract. Viridian's *Andrographis paniculata* extract is standardised to 10 per cent andrographolides, which is the key active compound.

Like all other supplements in the Viridian range, Andrographis Complex contains 100 per cent active ingredients and no artificial fillers or nasties. It is also vegan, with no GMO, palm oil free, against animal testing, and ethically made.



HEALTHY HANDS

Calendula and chamomile are the key ingredients in a new hand sanitiser from Weleda.

Hand sanitiser has become an essential part of our daily hygiene routine, but many hand sanitisers contain harsh ingredients, leaving skin dry and sensitive. In fact, it is now estimated that over 50 per cent of the population suffers from dry and sensitive skin. The new Calendula & Chamomile Hand Sanitiser is made with all-natural ingredients, including organic grain alcohol, that provide effective antibacterial and anti-viral properties, with tests showing that it kills 99.9 per cent of bacteria and viruses found on hands. The addition of glycerol keeps skin supple, along with pure essential oil of grapefruit to provide a delicate fresh natural fragrance.

The key ingredients are home grown organically in Weleda's biodynamic herb gardens in Derbyshire, for the ultimate in sustainable ingredient sourcing. The vegan formulation is made with 100 per cent organic plant ingredients and comes in recyclable amber glass packaging.



Cytoplan develops vegan range

Vegan Biotic is the latest launch from the team at Cytoplan.

The vegan probiotic powder contains eight strains of live native bacteria (probiotics) in powder form to allow flexible dosing. Each teaspoon provides three billion live bacteria.

Vegan Biotic is stable at room temperature so does not require refrigeration and is suitable for adults and children from one year of age.

As leaders in food-based supplementation for over 30 years, Cytoplan has pioneered wholefood and food state supplements to create a market-leading supplement range with products that are grounded in science. All of Cytoplan products are free from dairy, gluten, GMOs, added sugar, flavourings and colourings.



Gut-loving tonic

A trio of apple cider vinegars has launched to support the gut.

The Bath Alchemist has released the Triple Tonic set, bringing together its full range of gut-loving apple cider vinegars. Created to be used as a wellness tonic, a non-alcoholic alternative to wine or to add flavour and nutrients when cooking, these live vinegars can help promote gut health long-term.

Developed by Nutritional Therapist and gut health specialist, Dani Clarke, this collection of fermented tonics uses organic apple cider vinegar with 'The Mother' as its base, alongside a combination of other health-giving ingredients. Commonly thought to contain most of the beneficial enzymes and proteins in apple cider vinegar, 'The Mother' is made through a slow fermentation process and can bring a host of gut-friendly properties to a balanced diet.

These warming wellness tonics are infused with raw natural ingredients, rather than blended with juices, to preserve the all-important health benefits of 'The Mother'. Featuring turmeric, ginger and horseradish, N°1 is unsweetened and vegan, while N°2 includes raw honey to add sweetness and further nutritional benefits. Turmeric, black peppercorns and raw honey bring earthiness, heat and sweetness together in N°3, balanced with the gentle kick of vinegar.



THE IH CAN CONFERENCES ARE BACK FOR 2022

We are delighted to see the start of a new series of IH CAN Conferences for 2022, virtually and in-person.



The IH CAN Conferences for 2022 kicked off with a virtual event in February.

The event was headlined by the inspirational, Dr Robert Lustig, MD, author of *Fat Chance* and his new, hard-hitting, evidence-based attack on orthodox medicine and the food industry – *Metabolical*.

Professor of Paediatric Endocrinology at the University of California, Dr Lustig delved into the eight cellular pathologies that underlie modern

chronic disease – and explained why energy metabolism underpins all of them. He cooked down his approach into a simple mantra: protect the liver, and feed the gut.

Dr Lustig is relentless in his criticism of big pharma, the food industry and dietitians, who, he says, in the US at least have lost their way. But this is not just an opinionated rant; *Metabolical* has more than 1,000 references. The big news these days is still Covid, and for us in particular,

long Covid. So, for the first event of 2022, Dr Lustig was joined virtually by *IH CAN* magazine favourite, Anne Pemberton, who discussed – drawing not just on an extensive evidence base, but also personal experience – how Covid-19 manifests in the body and what we can do about it.

Anne is an expert on nutrigenomics (a book is due out later this year), so, of course, also explored single nucleotide polymorphisms (SNPs) associated with – or affected by – Covid-19 and long Covid.

BACK LIVE AND IN-PERSON THIS YEAR

After 20 months supporting practitioners with virtual education, IH CAN events are soon going to be back live.

With the return of in-person conferences, a new, larger venue – 155 Bishopsgate in London – will become the regular location for the IH CAN Conferences and the June 25 IH CAN Summit.

THE ENDURING MYSTERY OF HEART DISEASE – THE CLOT THICKENS

Another favourite returns to the IH CAN Conferences, on Saturday, March 26, Dr Malcolm Kendrick celebrates the publication of his new book, *The Clot Thickens*.

We could be seeing history in the making that Saturday, as this could well be the final nail in the coffin of the cholesterol hypothesis of heart disease. Malcolm has dedicated 30 years to busting

this wide open, and eventually realised that what was missing was a really viable, evidence-backed alternative hypothesis. He's got one.

Cardiovascular disease represents blood clotting gone wrong. The thickenings/plaques that we see narrowing arteries and leading to heart attacks and strokes represent remnants of previous blood clots. Often growing one on top of another, until they are big enough to cause real harm, Malcolm will explain this thrombogenic process and what to do about it.



SIMPLY THE BEST: DR CATE SHANAHAN

A family physician with more than 20 years of clinical experience, Dr Cate Shanahan, MD, is the author of probably the best book ever written on 'natural' nutrition.

Drawing on the pioneering efforts of the greats, such as Dr Weston Price and Dr Francis Pottenger, she's brought real nutrition bang up to date in *Deep Nutrition: Why your Genes need Traditional Food*.

Cate joins virtually in a first-time IH CAN Conference appearance on Saturday, April 30.

EATING THE RAINBOW: THE SCIENCE AND CLINICAL APPLICATION OF PHYTONUTRIENTS

A fan-favourite at previous in-person IH CAN Conferences, Dr Deanna Minich, PhD, returns, this time virtually on November 19.

Deanna will discuss the importance of colourful, plant-based foods to physical and mental health and review published research studies supporting the idea. She'll explore the connection of healthy eating, reducing risk for chronic disease, and the food/mood relationship, according to a 'colour code' (Minich, *Journal of Nutrition and Metabolism*, 2019). She'll provide practical strategies for personalising protocols to peoples' needs.



AND THERE'S MORE...

The final speakers for September's IH CAN Conference and the IH CAN Summit were being confirmed as this magazine was published, so keep checking ihcanconferences.co.uk or their social channels for the most up-to-date speakers and schedules.

BOOK NOW

To secure your place while tickets are still available, head to ihcanconferences.co.uk or telephone 01279 810080 or visit ihcanconferences.co.uk



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Discover how the gut health range from leading supplement brand, NaturesPlus, can support your clients.

A diverse microbiome is the key to good health. We are seeing numerous, recent studies supporting this knowledge, and new and exciting research is readily available on just how important gut microbiota is for a long and healthy life. Consumers are now switched on to the importance of gut health and the demand for healthier lifestyle choices and nutritional supplements to support this has never been higher.

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NaturesPlus knows all bodies are not the same and every person has different needs. The company created a line of specially targeted products designed to provide the additional support you need.

Each GI Nutra Pro-Bio formula contains unique strains of bacteria to support issues that concern women, men, children, and those needing mega benefits. GI Nutra Pro-Bio are enhanced with powerful prebiotics, to maximise bacterial performance in the body. Acid and bile resistant, and shelf stable, so no need to refrigerate, as well as being non-GMO, yeast and gluten free.



GI NUTRA PROBIO MEGA

This supplement is unparalleled in its strength and diversity. Much higher than the average formula with many more strains, GI Nutra ProBio Mega has been modelled on those living in rural, natural areas without stress, environmental toxins, or processed food, to help rebalance the microbiome in a targeted and specific way. This unique formula contains 120bn live bacteria in 35 unique strains and includes six clinically backed strains tailored for specific functions. These are the only strains to have demonstrated an improvement in visceral hypersensitivity, using a validated scale (VSI) in a randomised clinical trial. The magnitude of the

improvement in 'IBS Quality of Life' is comparable to standard prescriptions.

GI NUTRA PRO-BIO WOMEN

Each vegetarian capsule contains a highly effective dose of 18 clinically backed strains, tailored for women of all ages. With 60bn live bacteria, including clinically backed *Lactobacillus plantarum* KABPTM-061, *Lactobacillus reuteri* (LR08) and *Lactobacillus rhamnosus* (LRa05), all specially selected for their role in women's health. Including whole cranberry, which has been used for women's health for centuries in traditional herbal medicine.



GI NUTRA PRO-BIO MEN

Specifically formulated to address men's health, this unique formula contains 60bn live bacteria in 21 unique strains, including four clinically backed strains, *Streptococcus thermophilus* (ST1447), *L. acidophilus* DDS-1, *L. reuteri* (BM36301TM) and *Bifidobacterium bifidum* (ST1778). Also includes saw palmetto, which is the most prescribed herb by men's health specialists.



GI NUTRA PRO-BIO KIDS

Delicious, sugar-free, mixed-berry chewable supports kid's health. This unique formula contains seven billion live bacteria in 16 unique strains, including *P. pentosauces* KABP-041 and *B. longum* KABP-042, scientifically proven to promote good flora and overall health in infants.



With a powerful, concentrated prebiotic fibre complex from green banana, acacia, and chicory, to boost the viability of beneficial strains, while diminishing that of harmful bacteria. This prebiotic blend is an incredible

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Honouring nutritional excellence

After we launched our search for the best products of 2021, you voted in your many, and we can now reveal the winners of the *Nutrition I-Mag* Product Awards.

BEST ALTERNATIVE PRODUCT

Practitioner Supplies Co-ton

Co-ton is a natural herbal remedy for improving and maintaining bowel regularity.

In many cases, improper diet or medication has caused the peristaltic muscles of most people to stop working effectively. Co-ton can help the average individual to clean out the faecal matter from the colon and to rebuild the bowel structure

sufficiently to have the peristaltic muscles working entirely on their own.

This product is recommended extensively by colon hydrotherapists, naturopaths and herbalists to aid better bowel movements.

Highly commended: Kalms Rhodiola



BEST VMS

Bio-Kult Advanced Multi-strain formulation

The bacteria found naturally within our bodies play an important role as our first line of defence. Bio-Kult is a scientifically developed, advanced multi-strain live bacteria supplement containing 14 live bacterial cultures proven to survive the high acidity of the stomach, and to complement the existing gut flora naturally present in a healthy person's digestive system.

Bio-Kult does not need to be refrigerated and can be taken alongside antibiotics, when pregnant, by vegetarians and as part of a healthy diet.

Hayley Milne, Marketing Manager at ADM Protexin, which manufactures the Bio-Kult range, commented: "We're really honoured to hear that Bio-Kult is such a valued product to the readers of True Health, that they voted it Best VMS! You can't get a better badge of honour than one from our valued customers!"



Highly commended: Minami MorEPA Platinum Elite

BEST NEW PRODUCT

Pure Encapsulations PureDefense

PureDefense with vitamins C, D and zinc for normal function of the immune system.

Product features include:

- N-acetylcysteine (NAC), EpiCor dried yeast fermentate complex, elderberry fruit extract and quercetin.
- With 450mg of NAC in each serving of two capsules.
- EpiCor is a dried yeast fermentate complex that has undergone published clinical research.
- Provides 1000IU (25ug) vitamin D3 in each serving of two capsules.
- Now available in two convenient sizes, 120 and 30 capsules.

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 PureDefense. It's great to see that *Nutrition I-Mag* readers share the passion and trust in our commitment to providing the biggest range of free-from, professional food supplements.

"PureDefense is a preferred choice by health professionals and our loyal customers, and this prestigious award reflects that. Thank you everyone for your vote."

Highly commended: Bionutri Functional Probiotics range



On allergy alert

As the pollen starts to emerge for another year, effective planning with a nutritional strategy is key to avoid the worst of the symptoms.

The frequency of hay fever is known to have increased in recent years, for a variety of reasons, with both climate change and our overly hygienic environments being two of the key factors at play.

For many, suffering the effects of seasonal rhinitis can be debilitating, blighting their lives in a variety of ways, causing poor quality sleep, fatigue, lack of concentration, as well as increased risk of other allergic conditions, such as asthma and eczema. But this is truly an area where nutritional therapy can offer excellent solutions, with both some planning in advance of the season and understanding the elements to help reduce the risk of severe symptoms during pollen season.

Elena Lena, founder of Lemon Well Med, which specialises in

diagnostic devices, as well as liposomal supplements, advised: "Over the last few decades, allergic reactions to pollen have increased in frequency and severity, particularly in children. Climate change is certainly one of the causes that leads to allergies, as higher temperatures are extending the pollen season and the quantity of pollens in the air. Other causes are the increased levels of air pollution, in particular, in cities, hyper-hygiene, which creates a much too sterilised environment, and the presence of preservatives and other harmful substances in food. Also, nutrient deficiencies and disrupted intestinal microbiome contribute to the development of allergies. These issues affect our immune system and set people up for allergies and immune



system conditions.

And Catherine Gorman, Nutritional Therapist and Health Coach at Good Health Naturally, pointed out: "Statistics certainly show more and more people are suffering with hay fever than ever before. A UK study found the number of adults claiming to have experienced symptoms jumped from 26 per cent to 31 per cent between 2016 and 2017. Also worth noting is there has been a significant rise in the number of people developing the condition in later life. If this trend continues, it is predicted by 2030, more than 30m Brits will have hay fever – almost half the entire population.

"Nobody knows for sure why it's on the increase, but interesting theories include the hygiene hypothesis, climate change and pollution. Changing weather patterns, higher temperatures and rising atmospheric carbon dioxide levels seems to have made allergenic pollens more abundant and widespread. This means a longer and more intense allergy season. Some years are worse for hay fever sufferers than others. This could be because weather can affect the pollen count, for example, wet summers keep the pollen down, whereas long, dry summers prolong its mobility and abundance.

"Increased traffic pollution and poor air quality may also play a part, causing pollen to become trapped at ground level, keeping it within easy breathing distance of potential hay fever sufferers."

THE POLLEN REACTION

Hay fever has some tell-tale signs and can strike any time from the onset of spring, right through to September, depending on the type of pollen a person reacts to. But what causes it?

Gorman explained: "Hay fever is an allergy to the proteins in airborne pollen, which comes from trees, grasses and other plants. In sensitive people, the immune system 'attacks' these proteins, triggering the release of histamine, which is responsible for the miserable symptoms of itching, sneezing, runny noses and sore eyes. In the early spring, tree pollens are usually the biggest culprits, with grass pollens causing symptoms between May and August. A susceptibility to hay fever is often inherited. Research shows poor

immune and gut health can contribute to a worsening of symptoms.

"People with hay fever often suffer from asthma and eczema. The three conditions are known collectively as the atopic triad. Each has an underlying genetic root, which causes hypersensitivity to certain triggers. Unfortunately, if you have one of these conditions, you are more likely to suffer symptoms of the others. In a UK survey, 80 per cent of asthma sufferers said hay fever triggers their asthma symptoms. This is because inflamed and sensitive airways are more likely to react to further triggers, swell up even further, leading to breathlessness."

Serena Chisty, ANutr, Nutritionist at Pharma Nord, added: "Hay fever is an allergic reaction to plant pollen.

When this occurs, mast cells (a type of white blood cell) release a tissue called histamine that triggers an inflammatory response, resulting in the symptoms. Therefore, taking anti-inflammatory compounds such as pycnogenol and/or curcumin may be helpful in relieving these symptoms.

And symptom wise, Lena commented: "Runny and itchy nose, watery eyes, sneezing, tiredness, and sleeplessness are the most common symptoms. In the long-term, allergies could lead to sinus and ear infections, severe asthma, and orthodontic problems. It can also have a social and emotional impact, causing impairment in performance at work or at school and the consequent reduction of self-esteem."



AVOIDABLE TRIGGERS

Many people have a predisposition to suffering with hay fever, perhaps through a genetic link or because they are sufferers of the atopic triad (hay fever, asthma and eczema). But what elements can be modified to reduce risk?

“Certainly, diet and lifestyle play an important role and adopting certain strategies can lead to a reduction of symptoms,” Lena commented. “Probiotic bacteria alleviate many types of allergies, so regular consumption of yogurt and kefir can be included in the diet. Adopting the Mediterranean diet is another good option, as the clean, fresh foods included in this diet, like fruit, vegetables, whole grains, seeds, fatty fish, and olive oil, support the immune system and a healthy weight.

“As alcohol worsens hay fever, it is also recommended to cut out alcoholic beverages. Regular exercise and a good sleep, and avoiding late nights can massively improve hay fever. There are other simple things that we can do, for example, taking a shower after outdoor activities to wash pollens out of the hair and skin, wearing sunglasses when you are outdoors to reduce the amount of pollen that gets into the eyes, avoiding mowing the grass, drying bed sheets and clothes inside to keep them pollen-free.

“Certainly, as many allergens that trigger hay fever are airborne, you can’t always avoid them. The place where you live can have a disrupting effect on the course of the allergy, but obviously it may be difficult to relocate to a healthier area. There is also clear evidence that susceptibility to developing hay fever is attributable to genetic influences, which, of course, are unavoidable.”

And is there anything people should be recommended to do to prepare their body for

the onset of the pollen season?

“There is so much people can do to support the body during the pollen season,” Gorman suggested. “Optimising immune and gut health is a good place to start, as more than 70 per cent of the immune system lies in the digestive tract. The microbes in the gut work with the body’s defence system. The health of the gut wall and the microbiome can have a major impact on how we react to environmental allergens. Eat a nutritious diet packed full of colourful fruit and vegetables, legumes, oily fish, nuts and seeds. Reduce your intake of inflammatory processed foods and sugary snacks.

“Avoid food and drinks containing histamine, which are likely to make symptoms worse. These include cheese, red wine, sugar and chocolate. Reducing foods which are mucus producing, such as dairy products, can also make a huge difference to nasal congestion. Instead opt for nut milks, coconut or oat yoghurts and non-dairy spreads. Local honey can contain traces of pollen; if eaten regularly, it can help your immune system become more familiar with the pollen entering your system.”

Lena added: “You can prepare yourself for allergy season by keeping a healthy lifestyle and by adopting a diet packed with anti-inflammatory foods through the year, not just a month before the season starts. Keeping good bacteria in your gut is also necessary. Drink a lot of fresh, clean water to keep the system flushed. Detoxification to cut down body toxic burdens is paramount, as toxins overload can trigger the onset of various types of allergies. If the liver can better filter the blood and handle allergens, then the load on the immune system is reduced.”





ANTI-ALLERGY DIET

We know that certain foods can be pro-inflammatory, which causes problems for people who suffer with hay fever. So, what should you as practitioners be aware of when building any potential recommendations?

Lena suggested: "You must cut out on alcohol, coffee, sugary snacks, and some dairy products like aged cheese. In practice, you should cut out on all foods and beverages that cause inflammation and oxidative stress. You can increase the consumption of all sorts of fruit and vegetables, as they have anti-inflammatory properties. In particular, onions are great, as they contain natural antihistamines. Garlic is a powerful antioxidant and anti-inflammatory. Pineapple can help relieve hay fever symptoms, as it contains enzymes that soothe irritation. Kale, which is rich in carotenoids, inhibits the release of histamines. It's also recommended to consume fresh fish high in omega 3 fatty acids, as it can help reduce inflammation."

Looking specifically at key nutrients, Gorman recommended: "Ensuring there is plenty of omega 3 fatty acids in the diet can really help. Good sources include oily fish, nuts and seeds. The increase in allergic conditions in the Western world has been associated with the over-consumption of pro-inflammatory omega 6 fatty acids, which are found in processed foods made from grains and seed oils.

"Vitamin C is a natural anti-histamine, it helps 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 another powerful antihistamine.

Rich sources include garlic, onions, apples, blueberries and parsley. Eat plenty of magnesium rich foods like green leafy veg, nuts, seeds, legumes and whole grains. Optimal levels of this important mineral are associated with lower rates of asthma and allergies."

Supplements can offer some respite too, and certainly help to address excess inflammation.

"Natural antihistamines like vitamin C and quercetin can help lessen symptoms and calm down allergic reactions especially in the airways. It is important to take vitamin C at least once a day, as it is in and out of the body quickly," Gorman advised.

"Magnesium is a natural relaxant that can help relieve constricted airways in the lungs, and optimal levels are associated with lower rates of asthma and allergies. Omega 3 fatty acids, creating a balance of omega 3 and omega 6 fatty acids in the body, may have a powerful, positive effect in reducing allergies and inflammation.

"Serrapeptase is a powerful proteolytic enzyme that can help clear inflammation and reduce excess mucus. And a study found that 68 per cent of people experienced an improvement in their symptoms after taking a probiotic containing *Lactobacillus* and *Bifidobacteria*."

Lena continued: "I think that preventing the onset of severe allergy symptoms is better than relieving them after they appear. I would recommend liposomal omega 3 fatty acids if you do not eat enough fresh fish. Omega 3 fatty acids improve anti-inflammatory responses. As hay

fever can be better controlled by maintaining a strong immune system, it's important to ensure a regular intake of highly absorbable vitamin C, and better if in powder liposomal form.

"Alteration in gut microbiota has health consequences and it facilitates the onset of allergies. Therefore, it's advisable to strengthen the microbiome with multi strain probiotics containing several types of bacteria. My favourite supplement is, however, liposomal glutathione, although less popular.

"Glutathione is naturally present in almost all cells of our body and it's a key antioxidant, involved in a variety of metabolic processes. It neutralises free radicals reducing the oxidative stress, supports the immune system, and helps eliminate toxins and heavy metals from the cells. A detoxified and stronger body is less likely to develop allergies."

And Chisty added: "It is not necessarily a food, but research has shown that pine bark extract (found in Pycnogenol) can help support hay fever sufferers. It has been shown to lessen nasal congestion, soreness, and inflammation around the eyes, as well as reduce bronchial swelling, improving your breathing ability.

"Pycnogenol is a great supplement due to its anti-inflammatory effects. This works by helping to block the release of histamine, decreasing inflammatory triggers, and therefore, may lessen the severity of the symptoms. Vitamin D may also be helpful due to its ability to support the functions of the immune cells."

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Diabetes risk reduction

Cases of type 2 diabetes are rising rapidly, which looks set to continue on an upward curve without dramatic change, as the experts advise in this essential practitioner guide.

Diabetes – more specifically, type 2 diabetes – has become one of the most concerning conditions we see in the Western world today. Concerning for two reasons: one, it raises our risk of so many other health issues in the long-term, placing increased strain on our body systems, not to mention on health services; and secondly, concerning because it is such a modifiable condition, in that so much can be done, particularly from a dietary and lifestyle viewpoint, to not only reduce our risk of developing it in to start with but also to reverse it if someone does develop it.

But first, we must look closely at the data, and the theories behind why we are seeing

such a hike in cases.

Catherine Gorman, Nutritional Therapist and Health Coach at Good Health Naturally, commented: “The number of people diagnosed with diabetes in the UK has more than doubled during the last 25 years from 1.4m to 3.5m. And, according to Diabetes UK, this figure is likely to rise to 5.5m by 2030. Around 90 per cent have type 2 diabetes, eight per cent type 1 diabetes, and two per cent rarer types.

“Obesity and a sedentary lifestyle are common risk factors for type 2 diabetes. The typical Western diet has now evolved to be high in carbohydrates and processed foods, which can lead to weight gain, inflammation



and nutrient deficiencies, which can all contribute to type 2 diabetes.”

Dr Marilyn Glenville PhD is one of the UK’s leading nutritionists and author of a number of internationally bestselling books, including her new book, *Natural Solutions to Diabetes*. She went on: “According to the World Health Organization (WHO), the number of people with diabetes increased fourfold from 108m in 1980 to 422m in 2014. It is now the seventh leading cause of death worldwide and a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation.

“But it’s the UK that currently has the fastest growing rate of diabetes in the developing world – with nearly five million people suffering from it, a colossal rise of 450 per cent since 1960. Nine out of 10 of these UK cases are type 2 diabetes. As things stand, every two minutes someone will learn that they have the condition – yet it’s thought that nearly another million more people already have type 2 diabetes but are not being diagnosed.

“These worrying statistics are only going to get much worse: on top of the millions who have full blown type 2 diabetes in the UK, we have one in three adults with prediabetes– 35.3 per cent – compared to 11.6 per cent in 2003,¹ meaning that they are on their way to developing the disease.

“Sadly, our grim statistics also include 7,000 young adults and children – some as young as nine and 10, but this is a condition that used to be known as late onset or middle-aged diabetes. This is a health crisis of enormous impact, not only for those who are suffering, and their nearest and dearest, but also for our healthcare systems. The NHS spends £10bn a year on type 2 diabetes, and the condition shockingly results in 7,000 lower leg amputations a year.”

CAN IT BE REVERSED?

The question is, can type 2 diabetes actually be reversed, or is it more about focusing on reducing risk?

Dr Glenville added her perspective, commenting: “This has been looked at in the research as to whether type 2 diabetes can be reversed, can there be remission and is someone then ‘cured’ of the disease. Medically, a ‘cure’ is defined as restoration to good health, while ‘remission’ is defined as the abatement or disappearance of the signs and symptoms of a disease. With remission, in theory, the symptoms could return.

“In 2009, an international body of diabetes experts published a consensus paper to try and formalise what diabetes remission means. But those definitions were never formally accepted.³ The paper stated that the mission of the American Diabetes Association is ‘to prevent and cure diabetes and to improve the lives of all people affected by diabetes’. The authors agreed on the consensus outlined below:

- Partial remission – to have a level of HbA1c of less than 6.5, and a fasting glucose of 100-125mg/dl (5.6-6.9 mmol/l), for at least one year with no medication.
- Complete remission – to have a level of HbA1c within the normal range, and a fasting glucose level of less than 100mg/dl (5.6mmol/l), for at least one year with no medication.”

She went on: “In effect, there are two aspects to remission: the person will require no diabetes medication and have normal blood glucose levels (normoglycaemia) for a year or more. Most of the information about type 2 diabetes says that it can’t be cured. But with the word ‘cure’ being defined as returning to good health, I would say that it is possible to achieve remission and the person to get their health back at the same time.

“The suggestion is that type 2 diabetes can’t be cured because even if the person is not taking any medication and blood glucose levels are healthy, it is still possible for the symptoms to return. But knowing what we know about nutrition and lifestyle interventions, a person could go for the rest of your life without the symptoms returning. Isn’t that what we would call a cure?”

Gorman went on: “Research has

consistently shown diet, weight loss and lifestyle interventions can be effective in reducing the risk of type 2 diabetes, and in some cases, even reverse the condition. The Diabetes Remission Clinical Trial (DiRECT), led by Professor Roy Taylor, from Newcastle University, has shown intensive weight loss programs can help people with type 2 diabetes achieve remission without taking any medication. He suggests people with type 2 diabetes have become too heavy for their own body. So, if they accumulate more fat than they can cope with which can’t be stored under the skin, it will go elsewhere, including the liver and pancreas. This can induce insulin resistance and increases blood sugar production.

“Long-term exposure to saturated fatty acids is harmful to the beta-cells, which create insulin. The amount which can be stored under the skin varies from person to person, indicating a ‘personal fat threshold’. He has found weight loss of around 15kg is necessary for most people. Maintaining the benefits after weight loss is possible if liver triglycerides and fat in the pancreas remains low.”



ADDRESSING RISK

We know that there are many modifiable elements to the accepted risk factors for type 2 diabetes and there is clearly an educational role for Nutritional Therapists in terms of encouraging behaviour change among clients. So, what are the most widely accepted risk factors to developing diabetes?

“Research has shown that this is a lifestyle disease, with the WHO making it clear that a healthy diet, regular physical activity, and maintaining a normal bodyweight can all make the difference to delaying or even preventing it. Indeed, we have seen how an adverse lifestyle has driven the rise in type 2 diabetes in other cultures,” Dr Glenville pointed out.

“For example, China’s type 2 diabetes crisis (the country now has over 100m people affected by the disease and around half of all Chinese adults are estimated to have pre-diabetes) is thought to have been driven by the introduction of a more Westernised diet (together with a reduction in physical activity and a rise in psychosocial stress), resulting in an increase in rates of obesity?”

Gorman went on: “Obesity is considered one of the main contributing factors to type 2 diabetes. Almost two thirds of the UK adult population is now considered overweight, so it is inevitable cases of type 2 diabetes will also be on the increase. In particular central obesity, excess fat around the middle and upper parts of the body is of particular concern. Studies have found an increased waist circumference is linked to a higher risk of type 2 diabetes.

“Research suggests people with a BMI of more than 30 are up to 80 times more likely to develop type 2 diabetes compared to those with BMI of less than 22. This is because in obese individuals, the amount of non-esterified fatty acids, glycerol, hormones, cytokines, proinflammatory markers, and other substances involved in the development of insulin resistance, is increased.

“Lack of exercise can be another factor. It is an effective way to lower insulin resistance. Building muscle increases glycogen storage, so more glucose can be taken out of the bloodstream rapidly, avoiding fluctuations in blood sugar and spikes in insulin. When exercising, the body uses stored glycogen, and the metabolic rate is increased by up to 10 times and can remain raised for 15 hours afterwards.”

She went on: “Ageing is a significant risk factor for type 2 diabetes. The risk begins to rise significantly around 45-years-old and rises considerably after age 65. There is also a strong genetic link. People are two to six times more likely to get type 2 diabetes if they have a family member with the condition. Several genes have been identified as contributing to type 2 diabetes, but diet and lifestyle will play a huge role in whether or not these genes will be expressed or activated.”

NUTRITIONAL STATUS

What we consume and how much plays a huge role in our risk of type 2 diabetes and it’s critical that change is made with clients presenting with the condition, and pre-diabetes.

“Dietary choices can have a massive impact,” Gorman confirmed. “The macronutrient composition of a meal will determine the amount of insulin released. Carbohydrates stimulate insulin release, while fat has a minimal effect, and protein stimulates some insulin, but also stimulates glucagon, an antagonist to insulin.

“For the last few decades, the standard food pyramid has listed starchy carbohydrates as the biggest food group – this includes breads, cereals and potatoes, with fats and proteins making up a much smaller percentage of the daily intake. The Western diet now often consists of sugary foods, pastas, cereals, and potatoes, and unhealthy fats, it lacks fibre, antioxidants and phytochemicals. Alongside this model, we have seen a steady rise in chronic diseases, including diabetes and heart disease, as well as obesity. It appears the higher the diet is in refined or processed carbohydrates, the worse the level of insulin resistance. Simply lowering the glycaemic load will reduce the insulin response required.

“Intermittent fasting or time-restricted feeding can be great way to reduce insulin levels and help undo the effects of chronically high levels. It takes around eight-10 hours to use up the glycogen stores, then the body will start to burn fat and insulin levels will start to fall. So, even a 12 hour overnight fast can be beneficial.”

And Dr Glenville pointed out: “Research from Stanford University ‘provides the first large-scale, population-based evidence for the idea that not all calories are equal from a diabetes risk standpoint’ and that sugar has ‘a direct, independent link to diabetes.’⁴ It has been shown that sugar intake is a predictor of type 2 diabetes – irrespective of whether someone is overweight. Even when the researchers controlled for all other food types – fibre, meat, fruits, oils, and cereals – only sugar (in its many forms) was associated with a risk of type 2 diabetes. And this association was so strong that it was independent of how physically active someone was or their alcohol intake or their weight.

“The protocol should focus on eliminating hidden sugar from the diet and recommending a low GI/GL diet with vegetables and fruit, low unrefined carbohydrates, increased intake of fibre and including foods such as good omega 3 sources, pulses, nuts and seeds.”



DIABETES MANAGEMENT

Let's look in closer detail at the role of nutrition and specifically, the nutrients that need to be considered when assessing clients for an effective protocol.

Gorman pointed out: "Deficiencies in vitamin D, chromium, biotin, thiamine and vitamin C have all been noted in people with diabetes. There are vitamin D receptors present in pancreatic beta-cells, low levels of the sunshine vitamin are associated with increased insulin resistance. It is actually hypothesised that seasonal fluctuations in glycaemic control in type 2 diabetics may actually be due to fluctuations in vitamin D levels.

"Chromium has long been recognised as an essential trace mineral required in the insulin signal cascade. Studies have demonstrated it increases sensitivity to insulin by activating insulin receptor enzymes and increasing the amount of insulin binding to cells. A deficiency has been identified in people with severe insulin resistance, hyperglycaemia, hypertriglyceridemia, and painful neuropathy. It may also help reduce food cravings by keeping blood sugar stable throughout the day.

"People with type 2 diabetes demonstrate lower circulating levels of biotin and there appears to be an inverse relationship between biotin levels and fasting plasma glucose. In one longitudinal study,

diabetic patients treated for 28 days with biotin supplements had improvements in fasting glucose and insulin levels. Thiamine acts as a cofactor for several key enzymes in glucose and amino acid metabolism including transketolase, pyruvate dehydrogenase, alpha-ketoglutarate dehydrogenase, and alpha-keto acid decarboxylase. A deficiency can lead to increased glycation and all its associated complications like retinopathy and neuropathy."

She also pointed out: "Diabetics seem to have lower plasma levels of vitamin C. In a population study of 232,007 older adults, vitamin C supplementation was associated with mildly lower rates of type 2 diabetes. People who took 500mg daily had a nine per cent reduction in prevalence of diabetes. Magnesium is the fourth most abundant mineral in the body, but 80 per cent of the population suffer some level of deficiency. It is needed for insulin to act effectively. To enter the cells, magnesium requires insulin, so a vicious cycle can occur with low magnesium levels causing insulin resistance, and thus leading to lower magnesium uptake."

Dr Glenville also advised: "An analysis of 108 clinical trials using supplements on over 4,000 patients with diabetes or poor glucose control

showed an improvement in the control of blood glucose in more than 75 per cent of cases⁵ – so supplements definitely have a role to play. Nutrients that are important to support normal blood glucose levels include chromium, carnitine, cinnamon, n-acetyl cysteine, inositol, coenzyme Q10, alpha lipoic acid, zinc, vitamin D3, magnesium, manganese, biotin, and the B vitamins including folic acid in the active folate form.

"N-acetyl cysteine is helpful for improving insulin sensitivity, carnitine is an amino acid involved in energy production and may improve insulin sensitivity and cinnamon is shown to improve insulin sensitivity in research and has a fat burning effect. Important that it is Ceylon cinnamon and not Chinese cinnamon (Cassia cinnamon), which contains coumarin, which can be toxic

"Coenzyme Q10 is important for energy production, normal carbohydrate metabolism and improving insulin sensitivity, alpha lipoic acid releases energy by burning glucose, helps to make cells more sensitive to insulin, and vitamin B6 – as the active pyridoxal-5-phosphate – contributes to the regulation of hormonal activity. Folic acid – in the active folate form of methylfolate – for the reduction of tiredness and fatigue, zinc, an important mineral for appetite control and insulin sensitivity, and



manganese, helpful for maintaining a healthy blood glucose balance and plays a role in metabolism.”

Lindsey Clark, ANutr, Nutritionist at Pharma Nord, continued: “Diet and nutritional status play a central role in diabetes. Maintaining a healthy, balanced diet with an emphasis on reducing amounts of high GI foods and incorporating good amounts of dietary fibre is crucial. Chromium (especially chromium-enriched yeast) works by interacting with insulin receptors to stimulate cellular glucose uptake, which helps to balance blood sugar levels. Inorganic chromium forms may not be absorbed as well by the body compared to organic forms such as chromium-yeast, which the body absorbs much more efficiently, allowing it to be more effective as a means of blood sugar control.”

Let’s also not forget lifestyle choices a person makes – that being, how sedentary they are – can make a huge difference.

Gorman advised: “Daily exercise is an effective way to lower insulin resistance. In particular, strength training and building muscle will help the body become more efficient at transporting glucose from the bloodstream into the muscles. Also, after exercising, the muscles continue to use glucose, lowering blood sugar for several hours. This is also beneficial for weight loss.

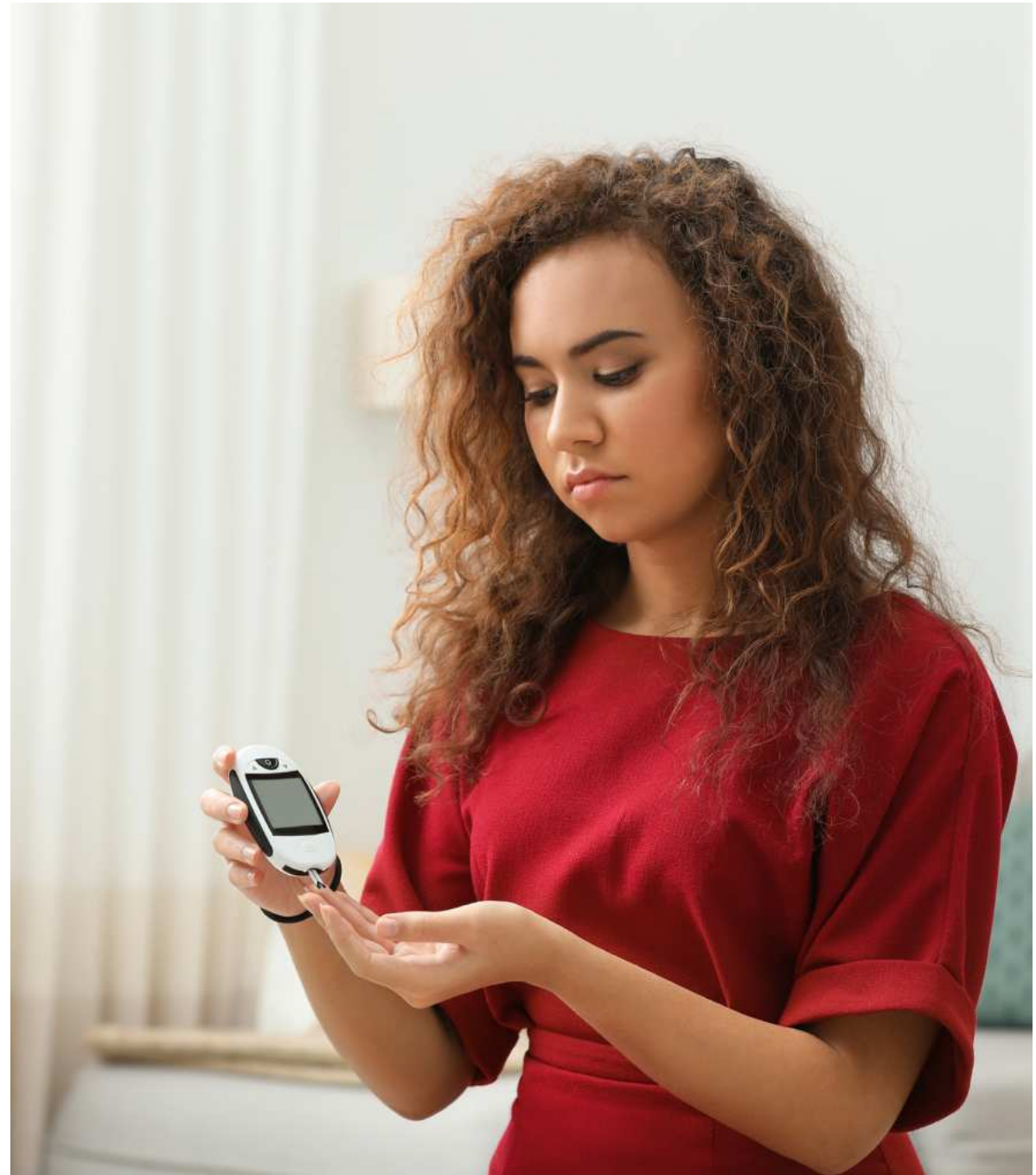
“Take steps to manage stress. Cortisol, the hormone we produce when stressed, directly opposes the action of insulin, leading to raised blood glucose levels. Introducing calming activities like deep breathing, can help reverse this and improve insulin sensitivity. Get a good night’s sleep; it is now recognised sleeping less than seven hours a night is a major contributor to type 2 diabetes. Not only can it cause insulin resistance, it also increases the hunger

hormone, ghrelin, leading to poor diet choices, which contributes to high blood sugar and obesity.”

Dr Glenville added: “Everybody talks about exercise and how important it is for general health and that is definitely true. But it really comes into its own for pre-diabetes, type 2 diabetes and their prevention.⁶ It lowers blood glucose levels and HbA1c, and it improves insulin sensitivity and has been shown to lower type 2 diabetes risk by up to 58 per cent in high-risk people.

“Long term research over 13 years from the Diabetes Prevention Programme has shown that diabetes incidence was significantly lower in those who exercised compared to a placebo group, and the difference could not be explained changes in weight alone.⁷ It is well known that stress can make it difficult for a person with type 2 diabetes to control their blood glucose levels – and severe stress can cause insulin resistance even in people without diabetes, and also change how their pancreas functions.⁸

“Also, with regards to sleep, we now know that not getting enough sleep increases the risk of both being overweight and developing type 2 diabetes. But disrupted sleep also affects a person’s metabolism and reduces its ability to convert glucose into energy – and this heightens their risk of diabetes. In fact, just three nights of poor sleep can have the same effect on the body’s ability to control blood glucose levels as putting on more than two stone in weight.⁹ Sleeping for less than five hours a night greatly increases the risk of type 2 diabetes.¹⁰ But by changing the sleep pattern, it is possible to improve your blood glucose control and reduce the negative effects of type 2 diabetes¹¹.”



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Lessons in

LEAKY GUT

Nutrition experts offer an essential guide to addressing symptoms of leaky gut in clinic and the nutritional interventions required.

Leaky gut is a condition that brings with it a lot of complexity, and very little understanding from the mainstream medical community as to what it is and how it can be managed.

This leaves many sufferers often going for some time without a diagnosis and often without a huge amount of support and adequate protocol to address it. This is why Nutritional Therapists can play such a key role when it comes to this debilitating condition.

Leyla El Moudden, Naturopath and Director of Education for Enzymedica UK, commented: "Leaky gut is usually a cluster of non-specific symptoms that can appear with no corresponding signs of pathology. Your client's GP may have already conducted blood tests, scans or other investigations and found nothing amiss. They may have fatigue, malaise, skin troubles such as eczema, acne or rashes, body aches and pains, headaches, migraines, or food intolerances. Trouble with sleep, concentration, brain fog, eating, or digesting are also indicators. Long-term leaky gut can lead to more

serious systemic problems, such as autoimmunity, arthritis or attention and hyperactivity syndromes."

Helen Drake, Nutritional Therapist at Cytoplan, went on: "All people will experience leaky gut at certain times, the integrity of the gut is constantly changing and altering, for example, after intensive exercise, it is known that gut permeability increases in healthy individuals. There are many factors that exacerbate leaky gut, such as use of antibiotics, medications (including non-steroidal anti-inflammatories such as ibuprofen), alcohol, stress, food intolerances, coeliac disease, pregnancy and menopause, reduced stomach acid, dysbiosis (imbalance of gut bacteria), intensive exercise, infection and genetics, the list is not exhaustive. The important thing is resilience, how efficiently the gut can repair after these insults, at the same time, reducing exposure to these factors. Some people can be genetically more susceptible, although there is no one specific gene, but it is mainly due to dietary and lifestyle factors, which are able to be modified."

WHAT IS LEAKY GUT

There is a lot of discussion around the condition, but what is the actual science behind it?

Dr Peter Koepfel, from Nucleotide Nutrition, explained: "Leaky gut syndrome describes a damaged (leaky) intestinal mucosa and is considered a serious contributory cause of numerous chronic diseases. Our intestine is a highly complex system that interacts with our organism in many ways. The intestine is lined with millions of small villi, which in their entirety, cover a surface area of about 400 square metres. This makes the intestine the largest organ in the human body.

"The intestine not only has the task of digesting food and passing it on to the organism as nutrients, minerals and trace elements via the intestinal mucosa. It recognises toxic substances, eliminates them and protects us from pathogens. The closely spaced cells of the intestinal mucosa form a mechanical barrier in healthy people. It is permeable to nutrients and fluids, but impenetrable to harmful substances. However, the intestinal mucosa can only fulfil its task with an intact intestinal flora.

"Leaky gut syndrome mainly affects the small intestine, not the large intestine. But what does it mean when the small intestine is 'leaky'? The lining of the intestine is a barrier between the contents of the intestine and the bloodstream. When the barrier is intact, the intestinal mucosa only allows water and needed nutrients to pass into the bloodstream. In leaky gut syndrome, however, the intestinal mucosa suddenly shows gaps, so that substances can now enter the bloodstream that do not belong there under any circumstances and should normally be excreted with the stool. These are toxins, bacteria, fungi, fungal toxins, and incompletely digested particles. When such substances enter the blood, the immune system is activated. In order to destroy the invaders, immune reactions occur. Inflammatory substances are released and at the same time, the organism forms antibodies against the foreign substances."

He went on: "In leaky gut syndrome, all these protective systems are damaged, which means:

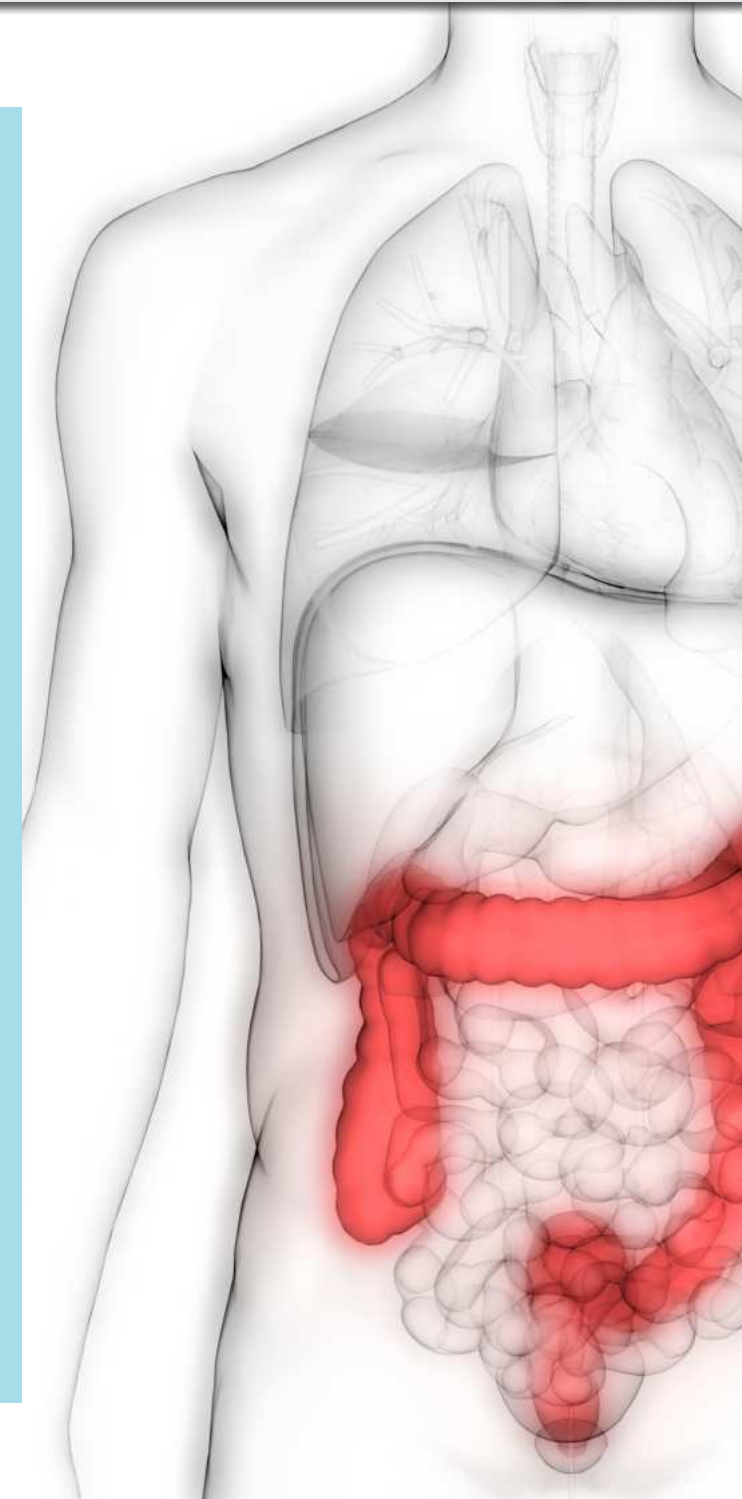
- The mucus layer becomes thinner and thinner.
- The amount of sIgA is reduced (the thinner the mucus layer, the less sIgA can be stored).
- The intestinal flora is disturbed.
- The tight junctions of the mucosa no longer function, so that gaps develop between the intestinal mucosa cells. The intestine becomes leaky and inflammation occurs, which often increases the permeability of the intestinal mucosa even more. This allows even more pollutants, toxins and particles to pass through the intestinal mucosa and inflammation grows."

Sue McGarrigle ND DiplON mBANT is a Clinical Nutritional Therapist and Naturopath at BioNutri and went on: "Maintaining the integrity and healthy function of epithelial cells is a primary factor in staying healthy. Epithelial tissue primarily appears as large sheets of cells covering all surfaces of the body and protects the body from the external environment, as well as lining internal body cavities. Epithelial tissues provide the body's first line of protection from physical, chemical, and biological damage and fulfil many specific roles in the body, such as acting as a barrier or to facilitate absorption, as well as secretion. The cells of an epithelium act as gatekeepers of the body, controlling permeability by allowing selective transfer of materials across its surface. All substances that enter the body must cross an epithelium.

"Many epithelial cells are capable of secreting mucous and other specific chemical compounds onto their apical surfaces. Cells are bound together by tight junctions that form an impermeable barrier. Epithelial tissue is capable of rapidly replacing damaged and dead cells, necessary with respect to the harsh environment it encounters.

"The intestinal epithelium forms a dynamic and semipermeable single layer barrier that controls what gets absorbed into the bloodstream, allowing the absorption of nutrients, electrolytes, and water, as well as antigens that play a role in immune regulation-core to our wellbeing. The intestine is a unique organ inhabited by a vast number of microorganisms and microbiota in our gut, which has evolved to generate beneficial microbial metabolites in the proximity of the gut barrier. Maintaining homeostasis with microorganisms at the body's natural barriers is critical for health. Disturbance of either the host immunity or the microbial ecosystem can result in disease/dysbiosis.

"Mucosal barriers, including physical barriers and chemical barriers, spatially segregate gut microbiota and the host immune system to avoid unnecessary immune responses to gut microbes, leading to intestinal inflammation. This contributes to the maintenance of gut homeostasis. Dysfunction of the intestinal mucosal barrier system can cause molecules to leak into our inner system. Leaky gut syndrome is a condition that affects the lining of the intestines and altered permeability. This allows toxins, bacteria, inflammatory agents, and foreign substances like undigested food particles to enter the blood stream. This may trigger inflammation, which can degrade tissue and cause changes in the gut flora that could lead to problems within the digestive tract and beyond, including certain gastrointestinal conditions, autoimmune conditions, allergies, and mental issues."



WHO IS AT RISK?

When it comes to risk factors and who is more susceptible to it, Sophie Barrett, Mycotherapy Adviser at Hifas da Terra, explained: "Many things can cause a leaky gut, such as an altered gut microbiome, which can come about because of steroid use, nonsteroidal anti-inflammatory drugs, and other drugs, it can also be the result of alcohol consumption and poor nutrition. Other contributing factors can be immune and inflammatory reactions due to stress, particularly emotional stress, as well as strenuous exercise or viral and bacterial infections, which can also trigger these inflammatory processes.

"If candidates have a low fibre diet, and lack of prebiotics and soluble fibre, this could lead to leaky gut as well, as we all need a good amount of soluble fibre and prebiotics for optimal microbiota balance which helps to maintain the gut lining and prevent damage to it.

"The signs to look out for in potential candidates are skin issues that don't resolve, such as recurrent rashes or eczema, rosacea, psoriasis, and acne. A person might also be suffering from digestive upset, whether that is chronic diarrhoea, constipation and bloating, having an irritable bowel is a very common sign of gut dysbiosis. Other indicators might be nutritional deficiencies, fatigue, headaches, difficulty concentrating and joint pain, conditions, such as rheumatoid arthritis and fibromyalgia, may be present. We often see patients with sinus issues, frequent colds, food sensitivities and auto-immune conditions."

Emilia Papadopoulou, Clinical Nutrition Advisor at BioCare, went on: "Any damage, or imbalances that occur within the epithelial layer, mucus layer or our gut microbiome can influence overall gut health, which may increase the risk of leaky gut. The epithelial layer requires certain nutrients such as vitamin A, vitamin D and zinc. Both vitamin A and D have been found to regulate immune function, and both are required for normal development of cells in the gastrointestinal tract.²

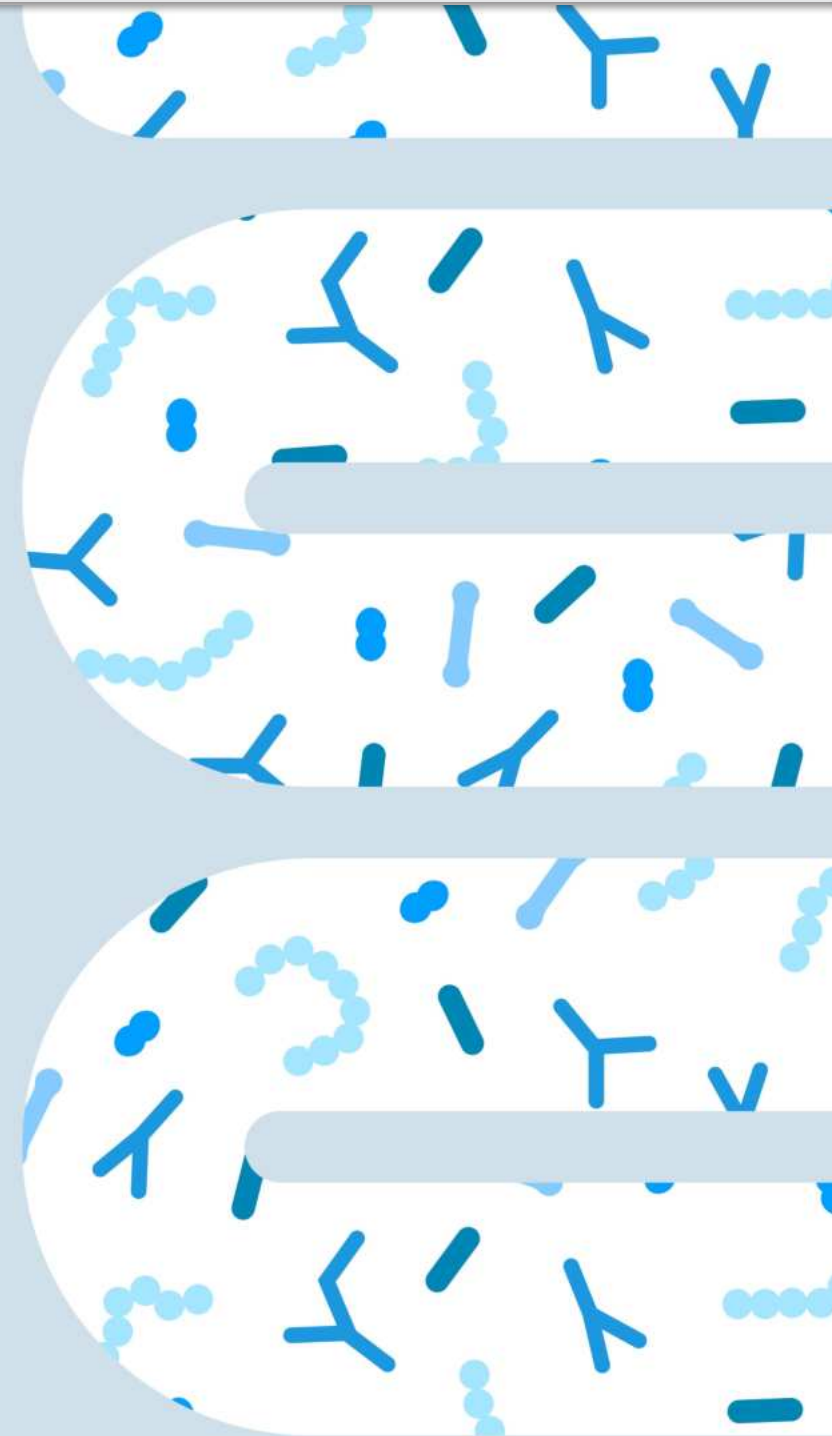
"Vitamin D deficiency has been found to result in dysfunction

of the epithelial barrier³ and supplementation helps to regulate tight junctions⁴, reduce intestinal inflammation and influences the gut microbiome.⁵ People with a diagnosis of IBD or coeliac disease are more likely to have nutrient deficiencies that impact barrier function, such as zinc and vitamin D, as well as B12, folate, iron, and selenium due to issues with absorption.⁶ The mucus layer is needed at an optimal thickness to offer protection to the intestinal cells.

"Increased amounts of mucus-degrading bacteria can contribute to the thinning of this protective layer of mucus. In addition to this, particular strains of bacteria can inhibit the production of mucus, which also contributes to a breakdown in this layer. However, there are certain strains of bacteria that stimulate mucus production and secretion, which helps to increase the thickness.⁷ This indicates the importance of focusing on a healthy gut microbiome. *Lactobacillus* and *Bifidobacterium* species, as well as *Akkermansia muciniphila* have been shown to restore and maintain the mucus layer, having a positive effect on gut integrity⁸."

Justine Stenger, certified functional medicine health coach and In-house Nutritionist at BodyBio, continued: "The causes of intestinal permeability are multifactorial. Dietary factors such as poor nutrient density, low protein intake, low fatty acid intake, low fibre intake, as well as chemical exposures, immune dysregulation, inflammation, poor sleep quality, alcohol, nonsteroidal anti-inflammatories, alcohol, glyphosate, and high levels of stress are some of the reasons why individuals end up with intestinal permeability.

"Intestinal permeability has been associated with several chronic conditions ranging from GI symptoms like bloating, indigestion, abdominal pain, diarrhoea, constipation, food intolerances, chemical sensitivities to diseases originating in the gastrointestinal tract such as ulcerative colitis and Crohn's disease. Also increased rates of autoimmune disease."



ADDRESSING DIETARY IMBALANCE

The correct dietary assessment is required for those clients suspected of suffering with leaky gut.

“The myriad of gut symptoms that our clients present can be due to a number of conditions, including leaky gut. Short of having a crystal ball, we cannot know what that might be, so we need to use a broad naturopathic approach, regardless of what label we are dealing with, as there is much commonality, particularly in regard to barrier function and the microbiome. This is crucial rather than a singular approach to ensure the health of intestinal tissue, healthy levels of beneficial bacteria particularly after antibiotics and addressing any inflammatory changes,” McGarrigle explained.

“One of our basic functions which is very much compromised is a lack of fermentable foods and poor microbial health. Couple this with poor barrier function and the ripple effects can be substantial. Ingesting high animal fat, alcohol and sugar inhibits friendly bacteria. Immune cells and inflammatory mediators, together with epithelial cells, undoubtedly are at centre stage controlling molecular physiology in common human diseases. It goes without saying about recommending a nourishing, unprocessed diet to include anti-inflammatory foods and foods which help to balance our flora.”

Papadopolous went on: “Our diet can influence intestinal function too. Specifically, gluten has research to suggest its direct effects on intestinal permeability. Gliadin, one of the main proteins within gluten, triggers zonulin release, which causes tight junctions to open, increasing gut permeability.⁹ The Western diet has been shown to contribute to gut dysbiosis, which in turn can promote an inflammatory response within the gut, leading to increased intestinal permeability.¹⁰ Whereas focusing on a diverse diet of colourful fruits and vegetables can promote the growth of beneficial bacteria that produce substances such as SCFAs, like butyrate, which help to regulate tight junctions and strengthen the intestinal barrier¹¹.”

Drake also pointed out: “You don’t necessarily see specific nutrient deficiencies as absorption is effectively increased. However, when leaky gut is present, the digestive system is under stress and often this has a knock-on impact on the rest of digestion and vice-versa. Particularly affecting the

balance of gut bacteria, which are very important for producing certain nutrients such as B12 and vitamin K. Additionally, you can often see pancreatic insufficiency (reduced production of digestive enzymes), which can affect the absorption of many nutrients, particularly you can see issues absorbing fats so can have a problem with fat soluble vitamins such as vitamins A, D, E and K.”

So, when it comes to a dietary protocol, what are the specifics that need to be recommended?

Papadopolous explained: “The basics for overall gut health would include increasing diversity of fruits, vegetables, herbs, and spices, as well as adding in probiotic foods. For certain people, it may be a good idea to try an elimination diet for four to six weeks, removing some of the common allergens that may be causing issues with digestion and barrier function.”

Stenger went on: “For individuals suffering with intestinal permeability, I recommend following a low histamine, paleo, autoimmune dietary protocol. High quality animal protein (grass-fed, grass finished where possible) is recommended to eat every meal with two to three cups of phytonutrient-rich foods, liberal usage of essential fatty acids, oleic acid (olive oil) and phosphatidylcholine.”

And Barrett also advised: “An eating plan that avoids bread, gluten, pasta and all flour products is essential, as well as staying off alcohol, omitting sugar and sugary snacks (these include fruit juices, jams and dried fruit). It is also recommended to try and avoid carbohydrate-rich fruits such as apples, pears, cherries and watermelon; this is the same for carbohydrate-rich vegetables, such as potatoes.”

“Instead, focus on enjoying fermented foods such as sauerkraut, kimchi, miso and apple cider vinegar. Load up on seaweeds and mushrooms in broths and meals and stick to low FODMAP foods, including cabbage, green beans, spinach, squash, alongside berries, melon, pineapples, and citrus fruits. Incorporate good sources of protein such as lentils, quinoa, nuts, cheese, and wild grass fed and organic meat. It is important to have a good amount of soluble fibre and short-chain fatty acids for gut lining protection and healing, culinary and supplemental mushroom powders are functional foods that should be incorporated weekly, if not daily, into the diet.”

SUPPLEMENT ADVICE

A supplement programme is likely to be required for those with leaky gut, but there are a lot of specifics within that, depending on your client.

Papadopoulos commented: "If the lining of the digestive tract is damaged, the body will require an increased supply of nutrients that aid repair, as well as the building blocks for connective tissue. There are many that we could include, but the following are our favourites:

- **Glutamine** – the most abundant non-essential amino acid in human muscle. Glutamine supplementation can protect against inflammation, improve intestinal barrier function, and help to reduce intestinal permeability.^{15,16}

- **Collagen** – the gut wall contains collagen fibres that strengthen its structure. Currently, there appears to be a research gap in relation to collagen supplementation and leaky gut, but some preliminary studies are beginning to highlight the use of type 1 collagen for intestinal cell maintenance.¹⁷

- **Zinc** – encourages healing,¹⁹ and reduces gut inflammation.^{20,21} Zinc has also been shown to reduce gut permeability via actively having a positive effect on tight junctions.^{22,23}

- **N-acetyl glucosamine (N.A.G)** – an essential component of all body tissues, including the digestive tract lining. N.A.G promotes growth and intestinal repair,²⁴ as well as binding to lectins, rendering them inactive, and unable to bind to cell surface membranes.²⁵

- **Antioxidants** – such as vitamin C, can increase collagen synthesis.²⁶ Antioxidant therapy has also been proposed as beneficial for digestive conditions, such as IBD, via mopping up free radicals, which can be produced by gut bacteria, as well as reducing inflammation.²⁷

- **Probiotics** – our gut bacteria attach to the mucus layer, and work to support gut integrity.^{28,29} In fact, alterations to our gut microflora can actually cause leaky gut.²⁸ Therefore, probiotic supplementation or increasing the intake of probiotic foods can be beneficial and has been linked to a reduction in intestinal inflammation and permeability risk, especially during endurance training.³⁰ In terms of specific live bacteria blends, supplementation of the LAB4 probiotics has shown to reduce intestinal permeability and endotoxin levels.³¹

- **Prebiotics** – prebiotics such as FOS, acacia gum, arabinogalactans and resistance starch increase intestinal bacterial production of SCFAs, including butyrate to help support gut integrity.³² Inulin helps to promote intestinal epithelial integrity – for example, through modulation of zonulin levels³³ and promotion of butyric acid production.^{34,35} These physiological benefits highlight the role of inulin in the support and prevention of intestinal hyperpermeability, autoimmune diseases,³⁶ and

ulcerative colitis³⁴."

Looking in greater detail at probiotics, McGarrigle recommended: "*Lactobacillus plantarum* helps to maintain the epithelial barrier, which provides protection for tight junctions and supports normal inflammatory responses. The presence of lactic bacteria such as *L. plantarum* supports the bioavailability and biological activity of plants, including chamomile, dandelion and milk thistle and nutritional compounds found in these plants are natural dietary sources of luteolin and apigenin, which recent studies have shown help with maintaining normal epithelial cell function. Using *Lactobacillus kefir* and *bulgaricus* can in addition help to create an environment that enables our own flora to flourish.

"*L. plantarum* is able to reduce IL-1 β , resolving inflammation, reduces gut permeability, has a protective effect on tight junction (TJ) associated proteins and TJ ultra-structure. *L. plantarum* also has a mannose-specific adhesion, which allows it to adhere to the epithelial lining in the human intestine and compete with both gram-positive and gram-negative pathogenic bacteria for nutrients."

And she added: "Marine-derived ω -3 PUFAs, eicosapentaenoic acid and docosahexaenoic acid, as well as plant-derived alpha-linolenic acid, are incorporated into intestinal epithelial cell membranes, prevent changes to epithelial permeability, inhibit the production of pro-inflammatory cytokines and eicosanoids and induce the production of anti-inflammatory eicosanoids and docosanoids. Vitamin C supports epithelial barrier function against pathogens and promotes oxidant scavenging activity, thereby potentially protecting against environmental oxidative stress. Infections significantly impact on vitamin C levels due to enhanced inflammation and metabolic requirements.

"Green tea and D-Limonene, an essential oil in lemon and orange peel, along with nicotinamide (vitamin B3), also provide nutritional support in helping maintain epithelial cell integrity."

And Drake recommended: "I would aim to support the balance of gut bacteria. When healthy gut bacteria ferment fibre, they produce short-chain fatty acids, which provide fuel for the repair of the digestive lining. Therefore, I would use a live bacteria supplement along with a prebiotic product. Nutrients which are important for the repair of the digestive lining are vitamins A and D, zinc and omega 3 fatty acids. Other products which can be useful for gut repair, as well as supporting mucous membranes to help soothe and protect gut lining, are lactoferrin, marshmallow root, slippery elm and aloe vera. It can also be important to support anti-inflammatory pathways with omega 3s, and curcumin."

Meanwhile, Barrett

suggested:

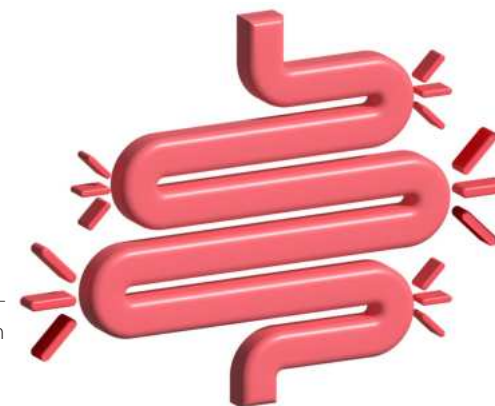
"Focus on supplements that create the optimum conditions for the gut lining to repair itself – prebiotics such as medicinal mushrooms,

alongside probiotics, liver supportive herbs, digestive enzymes, glutamine powder, whey powder, hyaluronic acid, guar gum, apple pectin, berberine, bromelain and turmeric could all prove useful. Incorporating mushrooms in the diet as much as possible as mentioned would prove very beneficial for their high polysaccharide content and supplementing with specific mushroom extracts is also recommended.

"Lion's mane (*Hericium erinaceus*) helps regenerate the intestinal epithelium protective mechanisms, including increased mucus production and increased antioxidant activity (Hai-Yan Z et al, 2013), leading to tissue healing. Lion's mane has a positive effect on gut flora, regulating the composition and metabolism of gut microbiota, through regulating the gut microbiota. (Diling C et al, 2017) Lion's mane is also a great source of prebiotic fibre and as well as regenerating gastrointestinal mucosa and improving digestive disorders, *Hericenones* increase nerve growth factor production and regenerate myelin and nervous tissue, helping with some of the symptoms of a leaky gut by improving cognitive function.

"Lion's mane, shiitake (*Lentinula edodes*) and oyster (*Pleurotus ostreatus*) for their prebiotic and gut healing effects, also helping to regulate gut dysbiosis. If the individual is suffering from a great deal of stress, reishi (*Ganoderma lucidum*) would be useful for its anti-inflammatory, antioxidant and neuroprotective qualities."

Stenger also suggested: "Butyrate is the number one fuel for the colonocytes, and levels are often low, which lead you down the road of intestinal permeability. Butyrate also helps improve tight junction integrity, lowers inflammation in the gut as well as also systemically."



DEALING WITH DIAGNOSTICS

In terms of how you as a practitioner can best reach a diagnosis, there are a range of considerations.

“Currently, there is no gold standard test for achieving a diagnosis of intestinal permeability. However, practitioners can use comprehensive stool tests which look at markers such as zonulin, calprotectin and sIgA, as well as overall bacterial diversity to get an idea of an individual’s current gut health,” explained Papadopoulou. “A practitioner may also go off symptoms, or current diagnosis, as these can be associated with leaky gut.

The functioning of the gut barrier is vast, and involves regulating our metabolism, immunity, digestion, absorption, nervous and endocrine function,¹² disturbance to this barrier has been linked to many health conditions, such as allergies¹³, autism and autoimmunity¹⁴ (e.g. coeliac disease), to name a few. A person may also suffer with diarrhoea or constipation, frequent headaches, food intolerances, skin rashes or other skin-related problems, recurrent infections or problems with memory and concentration.”

Drake added: “There is no one specific symptom of leaky gut, however, any inflammatory condition such as rheumatoid arthritis, fibromyalgia, autoimmune conditions etc., you would suspect leaky gut, especially if you are also seeing digestive dysfunction including IBS (irritable bowel syndrome), constipation, diarrhoea, bloating etc. Atopic conditions such as eczema, asthma, hay fever and food intolerances are strongly associated with leaky gut as well. This is because the immune system is already at a heightened

state and then over-reacts when it comes into contact with other allergens.

“Often, if you are seeing any of the above symptoms then you can assume there is some degree of leaky gut, and interventions are safe and often easier and cheaper than diagnostic testing. The most common test used are zonulin or lactulose tests. Zonulin is an enzyme which controls the size of the tight junctions, abnormally high levels of zonulin can cause them to become too large. Gluten has been shown to increase zonulin levels, and therefore, it is often recommended to avoid if experiencing leaky gut.

“Lactulose is a sugar which should be excreted via the urine, therefore, tests can measure the levels of mannitol and lactulose in the urine after ingestion. If lactulose is not present, this suggests it has been absorbed across the gut lining and therefore leaky gut is present. The mannitol is another sugar which is there as a control and will generally always be excreted in the urine.”

And El Moudden continued: “Food intolerances, combined with difficulty concentrating, or anxiety, are usually enough to begin a gut restoration programme. If unsure, a practitioner may choose to test and select metabolised sugar urine tests (mannitol and lactulose); IgG and IgA antibody food intolerance tests; or Zonulin blood tests. Although testing isn’t always necessary, some clients are comforted by the results’ conclusions. A preferable and more cost-effective option than testing is to put your client on a gut restoration program and observe if symptoms improve after 30 days.”

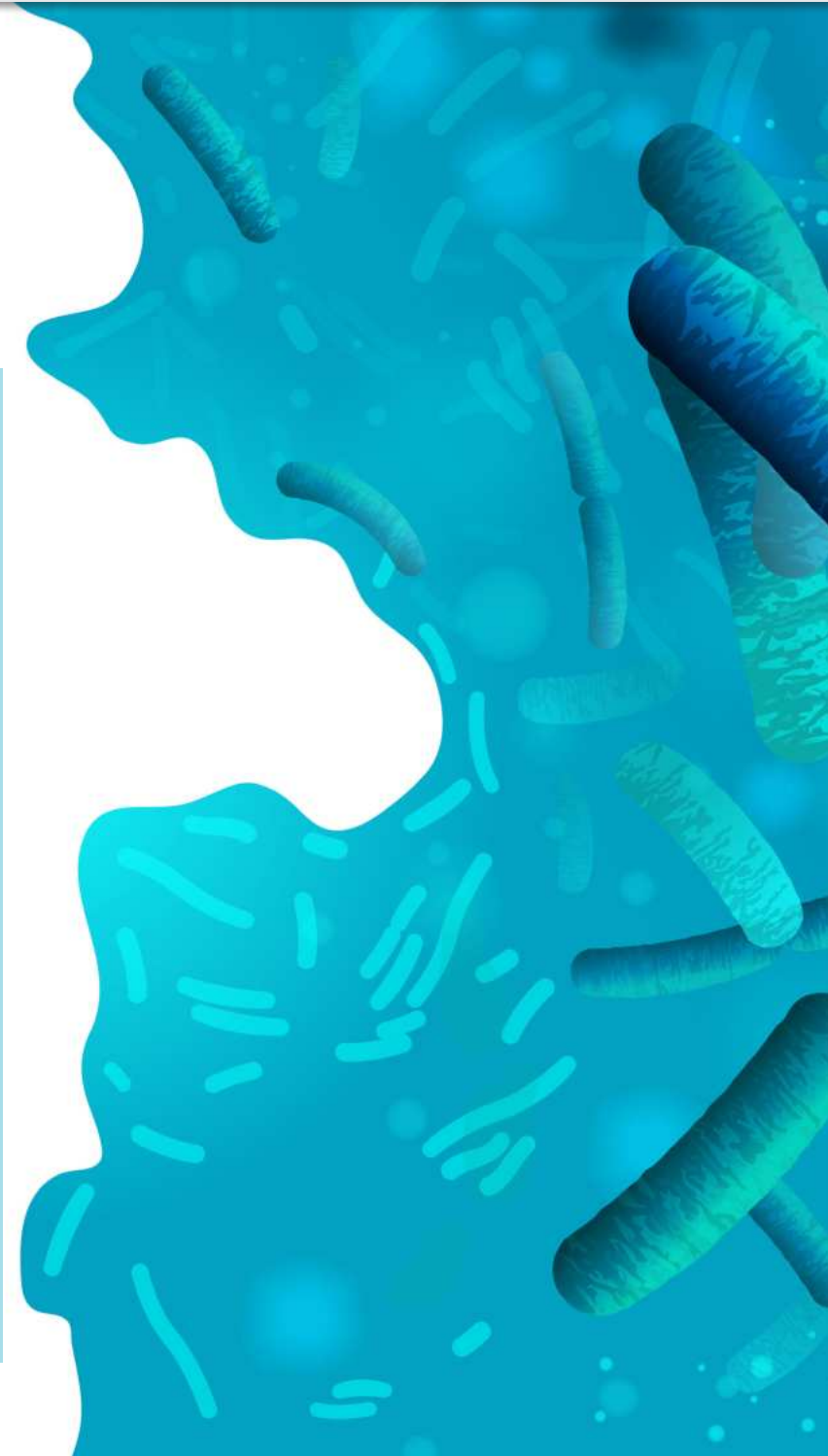
STRESS WATCH

One of the most important shifts needed to ease the condition is addressing stress.

“Stress is a substantial contributing factor to a leaky gut. Many people find it challenging to fully understand stress because we have become so acclimatised to the pressurised environment we live in. Stress is any stimulus that induces excitement to the body,” El Moudden explained.

“When we are stressed, our digestive systems weaken. Digestive secretions reduce, bowels slow down, and this allows molecules to pass through the stomach into the intestines, where they can begin to generate inflammation. Modern manufacturing methods deplete food of nutrients, minerals, healthy bacteria and naturally occurring enzymes, the very things we need to stay healthy.”

And Stenger also pointed out: “Being exposed to toxic chemicals through high yield, low nutrient density, chemical laden food, consuming food proteins like this are linked to intestinal permeability such as gluten, and molecularly similar proteins, toxic body care products, household products, tap water, mold exposure, poor air quality, lack of quality sleep, sedentary lifestyle, and many more. Following a healing diet and lifestyle program is essential to keep your gut healthy.”





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EXPERT ADVICE

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



Do menopausal women have a higher demand for certain nutrients, and what is the best protocol to ensure they have the correct balance?

EMILIA PAPADOPOLLOUS ADVISED: Menopause for a woman is a time she is transitioning into a new phase of her life. This is a time for liberation, change and celebration. However, for many, it can be a difficult transition that can be painfully drawn out due to a number of lifestyle, and emotional factors. This change can increase the demand for certain nutrients, due to both mental and physical factors, which can increase the risk of health concerns such as heart disease and osteoporosis.

Biologically, a woman's ovaries are retiring from a relentless task of producing the main female hormone, oestrogen. This baton is passed to the adrenal glands and fat tissue, which take over the role of hormone production. If these adrenals have had a lifetime of stress, the body can struggle with the extra burden. This can lead to fatigue and exhaustion, as well as nutrient depletion. In this situation, focusing on nutrients such as vitamin C¹, magnesium² and B vitamins³ may help to nourish the adrenal glands, reducing the feelings of tiredness and fatigue and helping the body adapt. These nutrients, with the addition of zinc⁴, are also very important for methylation and cardiovascular health. This can help to keep markers such as homocysteine⁵ in check and reduce the risk of heart disease⁶. Another thing to consider would be omega 3, which is an anti-inflammatory⁷, can reduce the risk of cardiovascular disease^{7,8}.

Oestrogen plays a huge role in bone remodelling⁹, hence there is an increased risk of bone conditions such as osteoporosis post-menopause. A sedentary lifestyle can worsen the incidence of bone fractures and further increase the risk of osteoporosis. Therefore, the need to support bone density increases post menopause. Nutritionally, we can support a woman here by increasing certain nutrients such as vitamin D¹⁰, K¹¹,



calcium¹² and boron¹³, as well as incorporating daily physical activity, more specifically weight resistance exercises, can help to maintain bone strength.

If a woman is suffering with vaginal dryness, dry skin, or wrinkles, then supplementing with collagen and essential fatty acids could be a great option. Collagen is a key component for our connective tissue, including skin, blood vessels, joints, and bones. Oestrogen plays a big role in collagen production, so when it's low, it can be one of the reasons for the loss in skin elasticity. Therefore, supplementing with collagen¹⁴, vitamin C¹⁵ (which can further promote collagen production), essential fatty acids^{16,17} and antioxidants such as vitamin E can improve overall skin appearance.¹⁸



ABOUT THE EXPERT

Emilia Papadopoulous is a Clinical Nutrition Advisor at BioCare. After years in the make-up industry, Emilia retrained in nutrition to get a better understanding of why we can struggle with our health and how our diet and lifestyle may affect us. As a qualified Nutritional Therapist, Emilia's passion is to help others feel their best, regain their confidence and have some control over their health. As well as working at BioCare, she also has her own nutrition clinic, with a special interest in skin conditions and female health.



I have heard of sulfite toxicity/sensitivity – can you explain what it is?

ROSE HOLMES EXPLAINED: Sulfite is a powerful neurotoxin; its only known function in the body is as toxic metabolite. Easily confused with the words sulfate and sulfur, sulfites can, for some people, cause a variety of symptoms that range in severity from mild discomfort to life-threatening episodes and death: asthma, hypotension, fatigue, nausea, itching, hives, flushing, headaches, nasal congestion, and anaphylactic shock.

Sulfites associate with sulfur-containing amino acids. Sulfur is an important mineral needed by the body, including for human structure; sulfur is found in skin, bones, muscles, nails, hair, cartilage, connective tissues and immune cells. Methionine, cysteine, taurine and homocysteine are sulfur-containing amino acids.

Sulfur is important for overall health and detoxification, with roles in regulation of important detoxification enzymes, and importance for the CYP450 detoxification pathways in the liver, as well as for forming the important antioxidant enzyme, glutathione.

Whereas sulfite is a neurotoxin, sulfate is essential for many biological processes. Considerable quantities of sulfite are generated by normal catabolic processing of sulfur-containing amino acids. Because of its potential damaging effect to cells, sulfite must be converted into a safer compound (e.g., sulfate). This conversion takes place via the mitochondrial enzyme, sulfite oxidase, which is found in high concentrations in

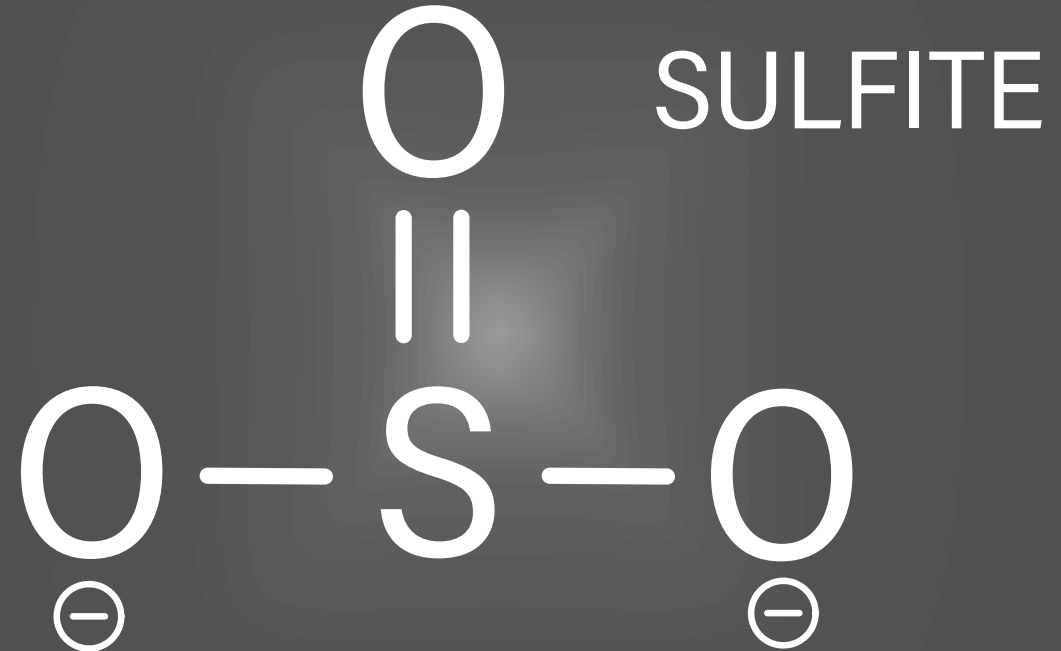
the liver and lungs and requires cofactors including molybdenum and vitamin B2.

There are a number of theories as to why sulfite oxidase functions at sub-optimal level for some people, including that it shares molybdenum (as cofactor) with xanthine oxidase/dehydrogenase (phase I detoxification enzyme with caffeine and purines as substrates), and aldehyde oxidase (another phase 1 detoxification enzyme with alcohol as substrate); if the diet is high in substrates for these other enzymes, this can lead to molybdenum depletion. Other theories relate to DNA mutations (rare), vitamin B12 deficiency, and heavy metals (which can interfere with molybdenum).

Individuals with deficiency of (or poorly functioning) sulfite oxidase will have a build-up of sulfite in their body. This is referred to as sulfite toxicity. Those with such a build-up are usually sensitive to sulfites and are referred to as having sulfite sensitivities. Sulfites can react with a variety of cellular components (proteins, lipids, DNA), with neuronal cells being highly susceptible.

Sulfites are ubiquitous in the environment. Avoiding exogenous sources is challenging. For those who have sulfite sensitivity, it is imperative to lower sulfite load on the body by avoiding excessive exposure to such compounds. The primary route of exogenous sulfites is via the digestive system.

Sparga (*Asparagus officinalis*) can assist the body with detoxification from sulfites, for example, found in/added to grapes, onions, beer, wine, and many other foods/drinks.



ABOUT THE EXPERT

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*.



Can you highlight natural ways to support post-viral recovery?

ALICE BRADSHAW SUGGESTED: It has long been recognised that recovery after a viral infection can be a long and complicated process for some individuals. While most of us bounce back to normal, a fair proportion of the population are plagued with ongoing symptoms and the inability to fully recover a sense of vitality. Health experts have termed this phenomenon post-viral fatigue, as a feeling of tiredness or exhaustion is the most prevalent symptom. However other symptoms such as brain fog, headache, swollen lymph nodes and muscle or joint ache, lingering poor respiratory health and nerve damage may also be features of this condition.

Although there is still no clear understanding as to the underlying

cause of post-viral fatigue, it is thought that factors such as inflammation of nerve tissue, increased levels of pro-inflammatory cytokines or an unusual response to viruses may be contributing factors.

Sleep and rest are crucial to post-viral recovery in that they help to reduce stress and are important factors in enhancing immunity. The process of recovery and tissue repair are most active during sleep cycles and inadequate sleep is known to compromise immune health and recovery from illness. While energy is lacking, it's important to listen to the body and not push through the tiredness.

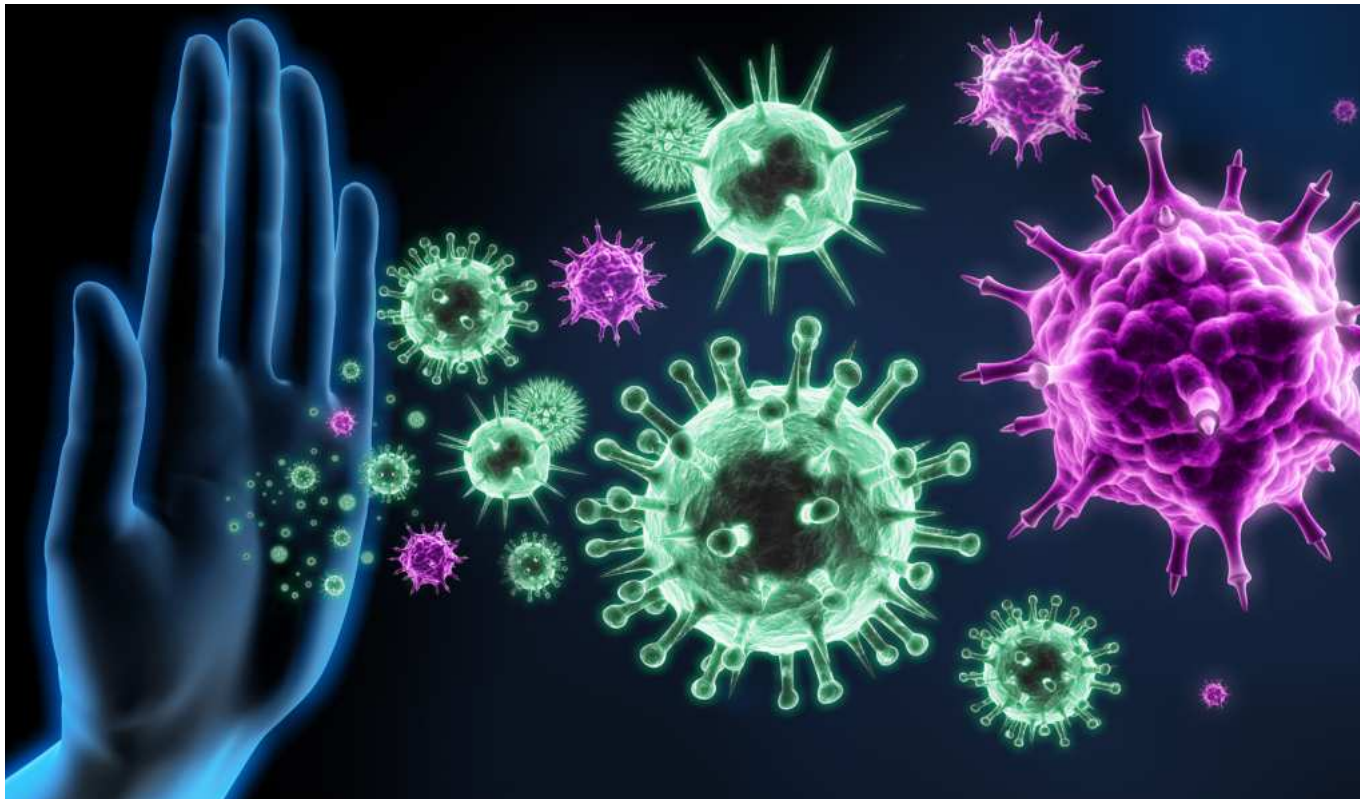
The next vital step to easing inflammation, reduce oxidative stress and support mitochondrial function (and therefore energy) is to consume a

diet to support a healthy gut microbiome. Diet is a powerful influencer of inflammation; it can both aggravate or modulate it. Reducing refined carbohydrates and alcohol, while increasing protein, healthy fats and micronutrients (from diet and supplement sources) are the best ways to support immunity and recovery.

Addressing common nutrient deficiencies is key to recovery. Zinc (found in hempseeds, pumpkin seeds, nuts, beans and animal protein) along with selenium (abundant in Brazil nuts, mushrooms and seafood) are two minerals that are central to recovery from viral infections. Plant foods, herbs, spices and green tea are great sources of phytonutrients, which are known to modulate inflammation and regulate immunity.

Nutritional practitioners may suggest numerous supplements of micronutrients and botanical formulas which are research-proven to support immune health, including vitamin C, vitamin D, resveratrol and omega 3 fatty acids. N-Acetyl-L-Cysteine (NAC) and quercetin are also of particular interest to those looking to encourage post-viral recovery. NAC is used by the body to create glutathione (which is often referred to as the master antioxidant or detoxifier). Glutathione plays a crucial role in maintaining the health of the immune system. A diet rich in cruciferous vegetables and vitamin C will also encourage glutathione production.

Quercetin a bioflavonoid found in many plant foods (apples and onions are especially rich sources), and has been shown to possess natural inflammatory and immune regulating properties, as well as being an anti-viral. Additionally, zinc has been shown to enter the cells of the body more efficiently when coupled with quercetin.



ABOUT THE EXPERT

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

Guide to

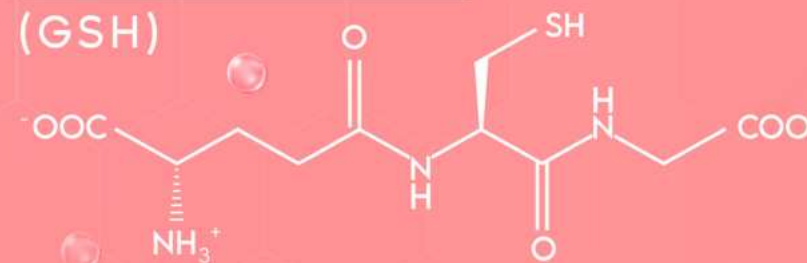
glutathione

Think you know glutathione? Think again, advises Nutritionist, Rachel Bartholomew, who offers the lowdown on its functions.

Most people have heard of glutathione and know it to be the 'master antioxidant'. As impressive as this sounds, however, the full force of glutathione's superpowers aren't as widely appreciated as they perhaps ought to be.

As renowned naturopathic doctor, Dr Joseph Pizzorno, has said, "it is hard to overstate the importance of glutathione". In this article, we take a closer look at glutathione, the many ways its role as a master antioxidant play out to actually impact health and highlight some of its other physiological functions, beyond antioxidant, that are less well known.

GLUTATHIONE
(GSH)



GLUTATHIONE – A BRIEF INTRODUCTION

Glutathione is made from the amino acids, cysteine, glycine and glutamic acid. It is found in high levels in most cells in the body and exists in cells in two states; reduced glutathione (GSH) and oxidised glutathione (GSSG).

Reduced glutathione is considered to be one of the most important scavengers of reactive oxygen species (ROS). In fact, it is a vital intracellular and extracellular protective antioxidant. Under conditions of oxidative stress, GSH is oxidised to GSSG, thus, the ratio of GSH: GSSG is altered. The ratio between GSH: GSSG determines cell redox and is considered a valid marker of cellular toxicity.

The accumulation of GSSG due to oxidative stress is considered to be directly toxic to cells. In a resting cell, the GSH: GSSG ratio typically exceeds 100:1, while in various models of oxidative stress, this ratio has been found to be as low as 10:1 and in some cases, even 1:1. Even marginal reductions in GSH may increase susceptibility to a wide range of toxins and oxidative damage and low levels of GSH are associated with a wide range of chronic diseases.

So, how does glutathione actually influence health? Here's some of the many ways.

IMMUNE HEALTH

Glutathione supports the immune system's ability to fight infections effectively. Reduced glutathione (GSH) supports the body's front-line infection-fighting cells, such as natural killer cells and T cells. Glutathione is also crucial for immune balance, and when levels are low, autoimmune disease risk may be increased.



INFLAMMATION

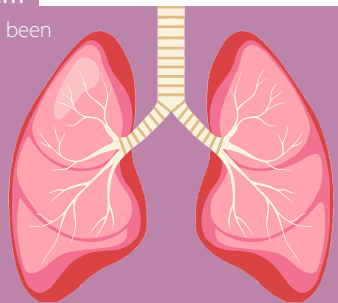
Glutathione has a crucial role to play in keeping inflammation in balance. Chronic inflammation is a hallmark of many common chronic diseases. Supporting optimal glutathione may help to bring chronic inflammation back under control.

METHYLATION

- A crucial process affecting many aspects of health and intimately connected to glutathione. Low methylation leads to low glutathione and low glutathione slows methylation. In contrast, robust glutathione levels support well-oiled methylation processes and vice versa.

RESPIRATORY HEALTH

Low glutathione has been linked to alterations in the lining of the lungs. Optimal glutathione may help to protect lung tissue from inflammation and free radical damage.



VITAMIN D

Low vitamin D levels have been linked with low glutathione, and when glutathione is low, vitamin D may not work as well. When low vitamin D has been identified, it is therefore crucial to consider supporting glutathione status too.



SPORTS PERFORMANCE

It seems glutathione can have a beneficial impact on sports performance too. In one study, eight men were given glutathione before exercise. Compared to the placebo group, they had lower blood lactic acid levels, performed better and felt less fatigued.



CARDIOVASCULAR HEALTH

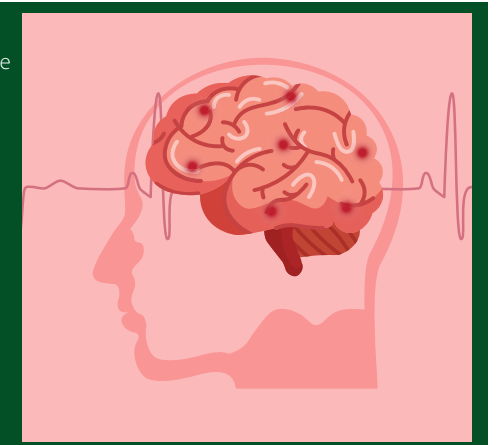
Glutathione's vital antioxidant functions may help to prevent cardiovascular damage and lower heart attack risk by reducing harmful lipid oxidation.



BRAIN HEALTH

The brain is an incredibly energy-hungry organ. Such high levels of energy production generate high levels of reactive oxygen species, which are toxic to cells in high amounts. Glutathione is thus a vital compound for protecting the brain.

High levels of oxidative stress and low reduced glutathione levels are typically seen in neurodegenerative diseases such as Alzheimer's and Parkinson's. It is also notable that major depressive disorder is usually accompanied by a decrease in antioxidant enzyme activities (such as glutathione peroxidase) and total antioxidant capacity. In one study, researchers found adolescents with depression had lower glutathione levels.





CHRONIC DISEASE RISK

Low glutathione can increase risks of oxidative stress damage and chronic inflammation, both of which are hallmarks of chronic disease. In contrast, when glutathione levels are optimal, this may help to reduce chronic disease risk.

ENERGY

Mitochondria are the energy-producing powerhouses of the cell. They are crucial for health, yet highly susceptible to harm from environmental toxins and oxidative damage. Glutathione has a key role to play in protecting mitochondria and thus is an important part of supporting energy levels right at their very foundation.

DETOXIFICATION

In addition to its antioxidant roles, glutathione is a major compound needed for phase II detoxification processes. Phase II involves conjugation of the toxins which have been partly processed by phase I detoxification. Glutathione-S-Transferase (GST) enzymes attach glutathione to the partly processed toxins, making them less toxic, water soluble and ready for elimination. Without glutathione, our critical detoxification processes simply cannot work effectively.

OESTROGEN BALANCE

Glutathione has a vital role to play in the safe metabolism, detoxification and elimination of oestrogens. Some oestrogen metabolites may be readily metabolised to harmful 3, 4 semi-quinones, which may be associated with increased cancer risk. Fortunately, the GST enzymes are able to neutralise the 3, 4 semi-quinones before they cause damage.

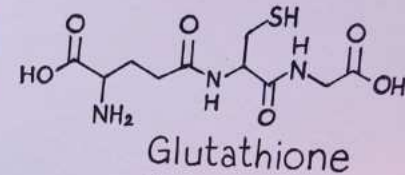
Glutathione is, therefore, vital for protection against the potentially harmful effects of excess oestrogen or altered oestrogen metabolism.

HEALTHY AGEING AND LONGEVITY

And finally, it will come as no surprise that glutathione is associated with healthy ageing and longevity. Or, as Dr Kara Fitzgerald puts it, "glutathione is, quite possibly, the secret to lasting health and longevity. Take care to maintain and even boost your levels every day".

GLUTATHIONE – QUITE SIMPLY, REMARKABLE

And we could go on and on. Hopefully by now though, the message is loud and clear. Glutathione, the 'master antioxidant', is quite simply a remarkable compound that is essential for most aspects of your health. In fact, looking after your glutathione levels could, very possibly, be the most important step you take to protect your health.



Rachel Bartholomew BA(Hons), Dip ION, MBANT, CNHC, GHW is a Nutritionist and Health Writer at Nutri Advanced with a special interest in functional and lifestyle medicine. She graduated from the Institute of Optimum Nutrition (ION) in 2004, has completed NLP practitioner training, is a member of the BANT, CNHC and the Guild of Health Writers.

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A practitioner partnership



Having been founded during the Covid-19 pandemic, Lemon Well Med was set up to offer diagnostic and later liposomal supplements specifically to the practitioner market. Founder, Elena Lena, explains what the ethos is all about.



The start of a global pandemic in which the world was effectively shut down for a period of time isn't the most obvious time to start a business. But for Elena Lena, she knew there was a gap in the market for what she wanted to offer, and so 2020 saw the launch of Lemon Well Med.

What she felt was missing was a company dedicated to the needs of practitioners, and so she came to market with devices she felt were of need. This has later been supported by a range of quality liposomal supplements.

But where did her idea come from and why was she so convinced at her offering?

"When I was considering setting up a health and wellbeing business, I was aware of how vague, yet overly commercial the approach to health often is. At Lemon Well Med, we started with devices that I consider special and a must-

have for every practitioner," Elena explained. "We have now extended the business to liposomal and highly bio-available supplements. So, the quality and the efficacy of products are very important for us."



DESIGNED WITH DEVICES

The company was set up initially with devices for practitioners in mind; the devices that the company distributes in the UK are made in Germany by a company called Wegamed.

Elena advised: "When I first met this company years ago, I immediately realised that they had developed fantastic, unique technology and that there was a gap in the UK market. The most difficult part was and still is to enable practitioners to understand how this technology can enhance their services and how much it can improve patients' lives.

"I'm passionate about technology and firmly believe it should be introduced in healthcare. But often practitioners reject technology or think it's expensive. Our devices do not replace manual therapies, rather they help enhance the skills of every professional. Many practitioners and therapists rely only on their hands or knowledge for treating patients and are unhappy to spend money to add technology into their practice. This is a missed opportunity, as they could massively improve their services and patients' outcomes. We would like to change this mindset."

Elena herself comes from a technical and scientific background, as well as having a degree in humanistic studies.

"I have been supported by a functional nutritionist, who has been using the Wegamed devices for years, and by the Wegamed CEO, an experienced medical doctor with an invaluable knowledge of the human body as a system and of different branches of complementary and alternative medicine," she went on.

"We want to bring our combined experiences to the market to show how technology is important and can be used. We want to demonstrate how to have an integrative approach to health and how to improve the quality of life by reducing the use of drugs and naturally enabling the body and its systems to do their job. Our bodies are

capable of fantastic things and give us many alerts when something is going wrong. "People are not used to listening to their body and healthcare professionals are not used to educating patients and guiding them in the right direction.

"These days, medicine seems to be about the suppression of symptoms, disregarding the underlying causes. Chronic disorders are increasing now and in the future. Inflammation and consequent degeneration of health issues can be prevented if they are detected before the problem happens. There isn't enough attention on prevention."

The point being, Elena says, is that we should encourage a holistic and integrative approach to health, patient-centred, which entails the use of different methods, be they conventional or alternative.

She explained: "Early and accurate diagnosis of what happens in the body is paramount for preventing the onset of illness and worsening of health issues. Many diseases present with the same symptoms or symptoms are vague, so differential diagnosis is very difficult. Also, diagnostic errors are common. The inability to correctly identify the causes of symptoms and diagnostic mistakes lead to wrong treatments.

"There are also health issues for which the cause is unknown or issues that reoccur over the time. For these ones, the diagnosis seems to be challenging. We offer the opportunity to broaden horizons and gain knowledge about new diagnostic tools that consider the body as a system, not as a set of single parts. This enables the practitioner to build an in-depth picture of what happens inside the body and identify dysfunctions in a holistic and detailed way. All of this is non-invasive, painless, free of side-effects, and cost-effective. It allows patients to save on expensive laboratory costs. Most importantly, diagnosis can be extremely accurate."



PRODUCT FOCUS

In terms of the devices available, Elena explained that the **Test Expert Plus** is the most popular product.

She commented: "It's an electro-acupuncture device that goes deep into the body issues and stressed organs using impedance measurements, giving immediate and reliable results. It's particularly suitable for identifying the underlying cause of long-lasting and troublesome conditions, such as allergies and for detecting inflammatory foci. It is likewise indicated in health problems where the cause is unknown or where there are multiple chronic health problems.

"**Test Expert Plus** can be used to monitor the progress that a patient is making, without having to re-run expensive laboratory tests. It can also conduct energy screening and provide the patient's biological index, and much more."

Then there is **Check Medical Sport**, a Bio-Impedance Analysis device that builds a map of what happens inside the body.

"It considers the connection between muscles and organs. A report with graphic representations provides clear information to practitioner and patient, giving suggestions on treatments, diet regimen and on how to achieve health. It also shows the energy status, the psychological stress levels, and the acid-base balance," Elena went on.

The fitness version is called **Prefit Bodyscan**, which provides a constitutional muscle analysis, helps optimise training times, gives recommendations for optimal fitness, and adjusts the diet regimen to improve performance.

Other options includes:

- **Med Matrix** – unique in its combination of three different therapy methods, bio-resonance, electro-stimulation, and vacuum suction. It detoxifies the soft connective tissue, repairs, and rejuvenates the organ cells. It supports the immune system reactivation and helps to increase metabolism, restoring energy.
- **Med Select** – a bio-resonance therapy device that activates the body's self-healing power through the transmission of biological frequencies. This tried-and-tested technology is suitable for allergies, chronic pain, toxicity, skin issues, circulation problems, rheumatism, to mention a few.
- **Med Audiocolour** – this is a neurofeedback device that activates both sides of the brain. It increases imagination, promotes relaxation, improves concentration, and enhances sleep. It offers several programmes that support mental health and overall performance.

Following the launch of the devices, Lemon Well Med then found a synergy with launching a range of supplements focused on liposomal formulas.

"Once again, technology and innovation have played an important role in the choice of the products. We are focusing on a liposomal powder form that is the purest on the market, absolutely free of chemicals, fillers, and preservatives," Elena explained.

"The LipoCellTech technology doesn't use heat or pressure, is biocompatible and biodegradable, non-toxic, and extremely efficient. It is absorbed 20 times better by the body and it has a high bioavailability. Thanks to their purity and to the use of natural





PRACTITIONER SUPPORT

As a business set up with the practitioner sector at the heart, Lemon Well Med is committed to supporting the industry.

“Technology is innovation, it improves health outcomes and efficiency. It enhances the quality of life. As our business is based on practitioners, we feel it’s very important to support them with the best tools available on the market. Practitioners mean a lot to us, and we are always happy to speak with them about the business and health potential of the devices. We would like to encourage them to contact us and let us know about what they do, their expertise, and their business targets for the future,” she explained.

“We want them to be part of the Lemon Well Med community, share their ideas with us, understand our technology. Collaboration is paramount to achieve brilliant results and to have mutual benefits.”

This has only become more important as the pandemic hit.

“The pandemic has hit everybody hard, and it has been difficult to develop a new business. We have missed social connections, meetings in-person and travelling. Practitioners had to close their clinics and were concerned for their future. This has prevented them from investing in new tools. So, the main problems have been a psychological blockage and the lack of resources. Now things are improving, and we hope practitioners are feeling positive and ready to bring new experiences to their practice,” she commented.

“The Lemon Well Med product range is comprehensive and unique. Our devices enable practitioners to give a full service to clients, from diagnosis to therapy, and to improve the excellence of their services. This new concept of providing diagnostic and therapeutic services under one roof can run parallel to any existing business and can deliver an incremental income stream. It’s a modern, holistic and integrated approach that breathes new life into clinics and practices. If patients can be assessed and treated in the same centre, they won’t need to wander from one professional to another in search of a resolution to their health condition. Their experience will be greatly improved, as well as their confidence in the practitioner’s ability to make a real difference to the quality of their life.”

And the business will continue developing, with Elena adding: “Our future plans are to set up Wegamed clinics through the UK and create a franchising network. We hope to find forward-looking healthcare professionals in all sectors who believe in our concept and embrace our holistic vision of health, which is the future of medicine. We are keen to work with young practitioners and invite them to open their horizons and broaden their services. We also want to create our own line of liposomal powder supplements with our own formulations.”

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Creative with the slow cooker

Add a healthy twist to mealtimes with these tasty recipes from the slow cooker.



Chilli cornbread with avocado and black bean salsa



Lemony mung bean hummus



Super pea soup



Beetroot falafel with lemon tahini sauce



Chilli cornbread with avocado and black bean salsa

The cornbread is given a nutrient boost with the addition of ground flaxseeds/linseeds, which are one of the few vegetarian sources of omega 3 fatty acids.

Makes 1 loaf

Ingredients:

- 100g butter, ghee or coconut oil, melted, plus extra for greasing
- 200g coarse polenta
- 100g spelt flour
- 2tsp baking powder
- ½ tsp bicarbonate of soda/baking soda
- ¾ tsp sea salt
- 1tsp English mustard powder
- 2tbsp ground flaxseeds/linseeds
- 1 medium-sized red chilli, deseeded and diced
- 3 eggs, lightly beaten
- 300ml live plain yogurt
- Juice of ½ lemon

Avocado and black bean salsa:

- 1 large avocado, peeled, stoned and diced
- Juice of ½-1 lime
- 100g canned black beans, drained and rinsed

- 3 vine-ripened tomatoes, deseeded and diced
- 1 small red onion, diced
- ½ red pepper, deseeded and diced
- 1 medium-sized red chilli, deseeded and diced
- 1tbsp extra virgin olive oil
- Sea salt and cracked black pepper

Ingredients:

- Line the base of the slow cooker pot with baking parchment. Roll two long pieces of parchment paper into 2.5cm/1in wide strips to form two handles. Place the strips under the base lining and up the sides so they hang over the top of the pot. Liberally grease the sides of the pot.
- Mix together all the dry ingredients and chilli in a mixing bowl, then make a well in the centre.
- Whisk together the melted butter, ghee or coconut oil, eggs, yogurt and lemon juice until smooth. Pour into

the dry ingredients and mix gently and thoroughly to make a thick batter.

- Pour the batter into the slow cooker pot and smooth and level the top. Cover and cook on high for two hours – the cornbread is ready when a skewer inserted into the centre comes out clean and the edge is slightly golden. If it isn't quite ready, cover and cook on low for another 30 minutes-one hour and check again. When ready, leave the cornbread to sit in the slow cooker for five minutes with the lid off, then transfer to a wire rack.
- To make the avocado and black bean salsa, toss the avocado in the juice of half a lime to stop it discolouring. Put all the remaining ingredients in a bowl, add the lime-dressed avocado and season with salt and pepper. Turn gently until combined and taste, adding more lime juice if needed. Cut the cornbread into slices and serve with the avocado and black bean salsa.



LEMONY MUNG BEAN HUMMUS



BEETROOT FALAFEL WITH LEMON TAHINI SAUCE



SUPER PEA SOUP



Lemony mung bean hummus

Don't be put off by the worthy sounding name – mung beans make a surprisingly creamy hummus and without the graininess of those made with chickpeas. Additionally, they are a good source of fibre, protein and minerals. Due to the lower cooking temperature of the slow cooker, I tend to boil the mung beans for 10 minutes beforehand. Crisp baked wholewheat pitta breads, brushed with olive oil and sprinkled with sesame seeds, are perfect for dunking.

Serves 6

Ingredients:

- 100g dried mung beans, rinsed and soaked for a minimum of 4 hours or overnight
- 3tbsp light tahini
- 1 large garlic clove, crushed
- Juice of 1 lemon
- 1tbsp extra virgin olive oil, plus extra for drizzling
- Sea salt and cracked black pepper
- Diced red pepper, chilli flakes and chopped parsley, to serve

Method:

- Drain and rinse the mung beans and tip them into a saucepan. Cover with plenty of cold water and bring to the boil, then boil rapidly for 10 minutes. Let the beans

- boil rapidly for 10 minutes, then drain the beans, discarding the cooking water, and tip them into the slow cooker pot.
- Cover with just-boiled water from a kettle. Cover and cook on low for five to six hours, or high for four to five hours until tender.
- Drain the mung beans thoroughly and tip them into a food processor. Add the tahini, garlic, lemon juice and olive oil and blend until light, smooth and creamy. You may need to add a little extra lemon juice or water and stir the hummus occasionally to help everything on its way.
- Season with salt and pepper and spoon the hummus into a serving bowl. Top with the diced red pepper, chilli flakes and parsley, then drizzle with extra olive oil before serving. The hummus will keep stored in an airtight container in the fridge for up to three days.



CHILLI CORNBREAD WITH AVOCADO AND BLACK BEAN SALSA



SUPER PEA SOUP



BETROOT FALAFEL WITH LEMON TAHINI SAUCE



Super pea soup

Visually, fresh green vegetables do not respond well to slow cooking, losing their colour and turning a bit murky looking. Nutritionally, this is also probably the case. Rather than lose out on the impressive health benefits of green vegetables, the peas, spring onions/scallions and spinach are added at the last minute and are cooked just long enough to soften but still retain their colour and nutritional value. For a lower fat version, leave out the ghee or coconut oil.

Serves 4

Ingredients:

- 150g dried split peas, soaked overnight
- 1tbsp ghee or coconut oil
- 1 large onion, finely chopped
- 1 large carrot, diced
- 1 celery stick, thinly sliced
- 2 bay leaves
- 1 litre hot vegetable stock
- 350g frozen peas, defrosted and drained
- 5 spring onions, thinly sliced
- 2 handfuls chopped mint leaves
- 50g baby spinach leaves, finely chopped
- Sea salt and cracked black pepper
- 55g feta cheese, crumbled, and toasted pumpkin seeds, to serve

Method:

- Drain and rinse the soaked peas and tip them into a large saucepan. Cover with plenty of cold water

- and bring to the boil. Let the beans boil rapidly for 10 minutes, skimming any froth that rises to the surface, then turn the heat down and simmer for another 10 minutes. Drain the peas, discarding the cooking water, and tip them into the slow cooker pot.
- Add the ghee or coconut oil, onion, carrot, celery, bay leaves and vegetable stock to the pot. Stir well until combined, then cover and cook on low for eight to nine hours, or high for seven to eight hours, until the split peas are tender.
- Turn the slow cooker to high, if cooking on low. Add the defrosted peas, spring onions and half the mint. Cover and cook for 20 minutes, then season and stir in the spinach – there’s no need to cook it as the finely chopped leaves will soften in the heat of the soup.
- Using a stick blender or a food processor, blend the soup until smooth and thick. Check the seasoning, adding more salt and pepper, if needed, but taking into account the feta is quite salty. Ladle the soup into serving bowls and top with crumbled feta, pumpkin seeds and the remaining chopped mint.



CHILLI CORNBREAD WITH AVOCADO AND BLACK BEAN SALSA



LEMONY MUNG BEAN HUMMUS



BEETROOT FALAFEL WITH LEMON TAHINI SAUCE

Beetroot falafel with lemon tahini sauce

Low in fat and a good source of fibre, vitamins and minerals, these falafel have a surprisingly good crisp crust, while the centre remains lovely and moist.

Serves 4-6

Ingredients:

- 100g dried chickpeas, soaked overnight
- 175g cooked beetroot, not in vinegar, patted dry, and quartered
- 2 garlic cloves, crushed
- 1 tsp ground cumin
- 1 tsp ground coriander
- ½ tsp dried chilli flakes
- 2tbsp wholegrain spelt flour
- 4tbsp toasted sesame seeds
- Parsley, lemon wedges and wholewheat pitta bread, to serve

Lemon tahini sauce

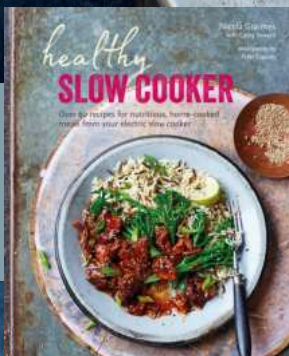
- 150ml live plain yogurt
- 3tbsp light tahini
- 1 garlic clove, crushed
- Juice of ½ lemon
- Sea salt and cracked black pepper

Method:

- Drain and rinse the soaked chickpeas and tip them into a large saucepan. Cover with plenty of cold water and bring to the boil. Let the chickpeas boil rapidly for 10 minutes, then turn the heat down and simmer for another 15 minutes until softened slightly but not cooked through. Drain the chickpeas and leave to cool.
- Put the semi-cooked chickpeas in a food processor and blitz to coarse crumbs. Add the beetroot/beets, garlic and spices and blitz again until the mixture forms a coarse paste. Stir in the flour and seasoning. The mixture should look like a coarse, slightly wet paste and hold together when pressed into a ball.
- Put the sesame seeds in a small bowl. Take a large marble-sized blob of the mixture and

form it into a ball in the palm of your hand, then roll it in the sesame seeds until coated. Place the falafel on a plate and continue until you have about 30 in total. Chill for 30 minutes to firm up slightly.

- Line the slow cooking pot with greaseproof paper and arrange half of the falafel on top, spaced slightly apart. Place a second sheet of paper on top and arrange a second layer of falafel. Rest a paper towel to absorb any steam over the top of the slow cooker, then cover with the lid. Cook on high for 3.5-four hours until the falafel have an outer crust but are still moist inside. The bottom layer of falafel will cook slightly quicker than those on the top. If the second layer is too soft, return them to the slow cooker for another 20-30 minutes or until a crust forms on the outside.



Healthy Slow Cooker by Nicola Graimes, published by Ryland Peters & Small (£16.99). Photography by Peter Cassidy © Ryland Peters & Small.



CHILLI CORNBREAD WITH AVOCADO AND BLACK BEAN SALSA



LEMONY MUNG BEAN HUMMUS



SUPER PEA SOUP

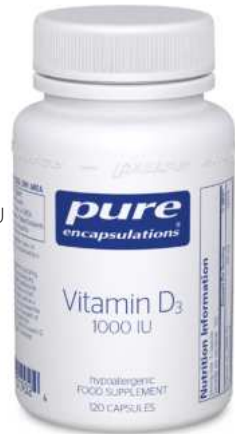
I-Mag giveaways



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

Pure Encapsulations Vitamin D3 1000IU

Vitamin D3 1000IU (25ug) provides pure vitamin D as D3, the preferred form of vitamin D. Vitamin D contributes to the maintenance of normal muscle function and normal bones. Vitamin D also contributes to the normal function of the immune system. The supplement provides 1000IU (25ug) vitamin D3 per capsule. It also contributes to normal absorption/utilisation of calcium and phosphorus.



I:Win: We have eight 120-capsule packs to give away.

BIO-KULT MIND

In the new year, everyone turns to getting physically fit but are you brain fit? Bio-Kult is offering readers the chance of winning one of 10 packs of Bio-Kult Mind and sudoku to help support your cognitive function.

I:Win: We have 10 to give away.



GOOD HEALTH NATURALLY LIPOSOMAL GABA WITH L-THEANINE AND ASHWAGANDHA

Powerful and fast-acting, Liposomal GABA acts as a calming neurotransmitter that supports rest and general relaxation. L-Theanine is an anti-anxiety nutrient to calm and balance mood, while ashwagandha can manage stress and insomnia, helping you to enjoy a good night's sleep. Can be used in the morning, afternoon, evening or the middle of the night and is suitable for vegans.



I:Win: We have three 100ml packs to give away.

Rhythm Nutrition Liposomal Deflame

Liposomal Deflame is a natural way to manage inflammation and oxidative stress in the body. It is a highly specialised, plant-based, liquid food supplement that combines nature's most potent and scientifically proven anti-inflammatory and antioxidant ingredients, including curcumin from turmeric, ginger, vegan omega 3, and Indian frankincense. Developed using liposomal technology, it is able to deliver the nutrients of these ingredients at a cellular level for effective results. Recently awarded a *Gold* Nourish 2021 Award in the supplements category.





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