



Nutriti^on I-Mag

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MAY/JUNE 2020

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Welcome



Well, what a difference a couple of months makes; since the last issue of *Nutrition I-Mag*, who would have thought the nation would be where it is, in the depths of the Coronavirus outbreak, the UK remaining on lockdown, and the biggest health crisis to face us since the NHS was formed in the 1940s.

For many of our readers, it will have proved to be a pretty challenging time, whether that is adapting to a new 'normal' and studying in a different way, or for those taking their first steps into practice, moving to a situation where you are unable to see clients face-to-

face and for some, instead having to settle for virtual consultations.

What we know is this is a huge period of challenge and change for the whole world, and each person is affected in a different way. Here at *Nutrition I-Mag*, we are keen to support all of you, our readers, through this period and in helping you to stay engaged, educated, up-to-date and motivated. And so, we have put in place a number of measures that we hope will help you.

Nutrition I-Mag remains a free resource for you and has the added benefit of being CPD accredited. But we have taken it one step further and lifted the subscription charge for its sister title, *IHCAN magazine*, until June 1, 2020. This means that content for this hugely sought-after title is free for all to read – simply visit www.ihcan-mag.co.uk and follow the instructions.

Another important element for practitioners – both students and qualified – is in attending events, both for the educational and networking opportunities they offer. Target Publishing leads the way in providing practitioner targeted events with the IHCAN Conference series, and while some events were postponed in light of the current lockdown, and others will be taking place later this summer, we also have our ever-popular series of webinars. These are free to attend, are hosted by leading experts in the field, and can earn you valuable CPD points. Keep an eye out at www.ihcanconferences.co.uk for the latest details of our webinar schedule and the other events taking place later this year.

Rachel

RACHEL SYMONDS, EDITOR

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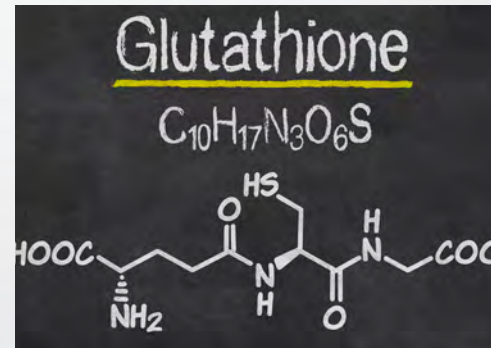
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OUR CONTRIBUTORS

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



Lissa Leader

Lissa Leader is a Registered Nutritional Therapist and gained her diploma at CNM London. She is a registrant of the Complementary and Natural Healthcare Council (CNHC) and a Registered Nutritionist with BANT. Lissa works on the practitioner support team at OptiBac Probiotics, providing training and assistance to complementary and alternative medicine practitioners. She also runs her own practice, Nutrileader, offering both private consultations and corporate nutrition services.



Rose Holmes

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



Dr Carsten Nicolaus

Dr Carsten Nicolaus is Medical Director and Founder of BCA-clinic/BCA-lab. Dr Nicolaus has dedicated his career to the research, diagnosis and treatment of Lyme and other tick-borne diseases. In 2006, he founded the BCA-clinic, lab and research facility, gaining worldwide recognition for successful treatment protocols for chronic Lyme. In 2016, he founded Infectolab in the USA. Dr Nicolaus has been an active member of ILADS since 2007, where he has held the role of European Chairman and Treasurer. He was also board director of the educational foundation of ILADS, and is a certified ILADS training physician.



Gilian Crowther

Gilian Crowther MA (Oxon), FBANT, mNNA, CHNC reg. is a Naturopath and Registered Nutritional Therapist with a clinic in London. She studied and gained qualifications in complementary therapy in Germany for many years, before taking up further training in the UK. As Director of Research for the Academy of Nutritional Medicine (AONM), Gilian is responsible for clinical training on the range of tests they offer, including the full range of Arminlabs tests. Gilian regularly holds talks both for practitioners and the public on nutritional medicine, mitochondrial therapy and testing, as well as writing and reviewing articles for journals.



Katherine Pardo

After beginning her career as a writer and editor for various healthcare publications, Katherine Pardo BSc (Hons), Dip ION trained as a Nutritional Therapist, graduating from London's Institute for Optimum Nutrition in 2001. She went on to practice as a Nutritional Therapist before becoming Nutrition Team Manager at Nutri Advanced, where she heads the team of nutritionists, writers and researchers who together develop Nutri Advanced's range of innovative products, programmes and educational resources.



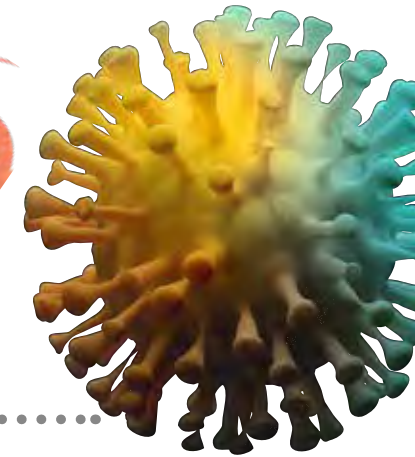
Hannah Braye

Hannah Braye NT, DipCNM mBANT, CNHC is a Nutritional Therapist, having studied at the College of Naturopathic Medicine (CNM), where she graduated with an award for outstanding performance. She is a member of BANT and listed on the Complementary and Natural Health Care Council (CNHC)'s approved accredited register. She is a Technical Advisor at ADM Protexin, manufacturers of the Bio-Kult and Lepicol ranges.



News bites

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



Government advice to supplement with vitamin D amid Coronavirus lockdown welcomed

Nutrition experts have welcomed the news that Public Health England (PHE) has reissued its recommendations for vitamin D supplementation during the Covid-19 lockdown.

The guidance has been updated to recommend people consider taking 10mcg of vitamin D a day to keep bones and muscles healthy and states that this is because you may not be getting enough vitamin D from sunlight if you're indoors most of the day.

The guidance went on to say that there have been some news reports about vitamin D reducing the risk of Coronavirus. However, there is no evidence that this is the case.

Graham Keen, Executive Director of the Health Food Manufacturers' Association (HFMA), commented: "Whilst vitamin D supplementation has long been recommended for key population groups, this broadened advice is welcome to

help everyone maintain healthy joints and muscles. What's more, this nutrient is backed by four key elements for success; the science is proven, the strategy is Government-led, a simplicity of message and a ready supply. We believe that, together, these factors will result in good uptake by the population and will demonstrate, yet again, the pivotal role that supplements can play in safeguarding the health of our nation.

Keen highlighted the HFMA's recent Health of the Nation survey, which revealed that under a third (31 per cent) of Brits were aware of PHE recommendations that all adults and children over the age of five years should consider taking a vitamin D supplement throughout the winter months to help protect their bones, teeth and muscles. This lack of awareness causes concern that some people may be low in vitamin D and will particularly need to top up their levels over the coming months.

Nutritionist, Dr Michele Sadler, Scientific Advisor to the HFMA, added: "An adequate supply of vitamin D, also known as the 'sunshine vitamin', is essential all year round to keep your body healthy. Not only is it good for bones and teeth, but research has shown that it also plays a role in the immune system. The

three main ways to get adequate vitamin D are from exposure of the skin to sunlight, by eating foods that are naturally rich in vitamin D or fortified with the vitamin, and from a dietary supplement.

"Your body naturally produces vitamin D when it is directly exposed to sunlight containing ultraviolet B radiation and daily sunlight exposure is how most people get sufficient vitamin D. It's important that everyone has daily exposure to sunlight outdoors, particularly during the spring and summer months, as ultraviolet B does not penetrate through glass."

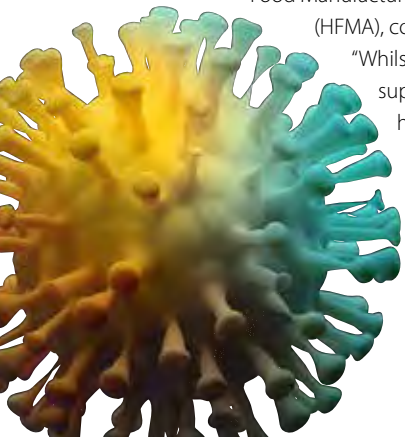
She continued: "Vitamin D is also present in a limited range of foods, which contributes to supplies of vitamin D, but it is difficult to get enough from your diet alone. Including the following foods in your diet will help to top up your vitamin D intake: Oily fish, such as salmon, sardines and mackerel, red meat and liver, eggs, fortified fat spreads, fortified breakfast cereals and full fat milk. Vulnerable population groups like the housebound and children one to four years are advised by PHE to take a daily 10mcg supplement, and all adults and children over five years to consider this, particularly during the winter months."

Also commenting on the news, the British Nutrition Foundation (BNF) says it supports the Government

advice to supplement throughout spring and summer while the lockdown continues, because we may not be getting enough vitamin D from sun exposure.

Sara Stanner, Science Director at BNF explains: "In normal circumstances, at this time of year, the warmer weather means we may get outdoors more often for walks, picnics in the park or trips to the beach. Unfortunately, as the effects of Coronavirus continue, many of us are limited in the time we can spend outdoors. Correctly abiding by Government rules and staying at home is immensely important and, while many of us have limited access to sunlight, this means we need to take a little extra care to keep our vitamin D levels healthy. If you're purchasing supplements, it's important not to buy more than you need to help keep supplies of supplements available for everyone.

"While it is difficult to get the recommended amount of vitamin D through diet alone, dietary supply remains important. Vitamin D is found naturally in oily fish, including salmon, mackerel and sardines, as well as eggs, some mushrooms, and in foods fortified with vitamin D, such as breakfast cereals, fat spreads and yogurts. Red meat can also contribute to vitamin D intakes."



Government launches mental health campaign during Covid-19 pandemic

With data showing that more than four in five adults are worried about the effect that Coronavirus is having on their life, a new Public Health England mental health campaign has been announced.

Public Health England's Every Mind Matters website includes new NHS expert tips and advice on looking after mental wellbeing and supporting family and loved ones during this time, while the Duke and Duchess of Cambridge have narrated a powerful new film in support of the campaign and to encourage people to look after their mental and physical wellbeing.

It has been launched after more than four in five people revealed they were worried about the effect the disease was having on their life, with over half (53.1 per cent) saying it was affecting their wellbeing and nearly half (46.9 per cent) reporting high levels of anxiety.

The range of new resources, designed specifically to help manage mental wellbeing during Coronavirus, include a tailored Covid-19 Mind Plan, Covid-19 specific content for individuals and their loved ones, and support for specific mental wellbeing issues, such as anxiety, stress, low mood and trouble sleeping. The website signposts people to activities such as mindful breathing exercises, help reframing unhelpful thoughts and muscle relaxation.

The NHS-endorsed content has been developed in partnership with clinicians, academics and leading mental health charities and social enterprises including Mind, Mental Health Foundation, Samaritans, Rethink, Mental Health First Aid England, the Royal Foundation, the Centre for Mental Health, Time to Change, NSUN and What Works Wellbeing. The campaign

will be supported through social media, digital, national TV and partner support activity, helping to reach the audiences most at-risk of poor mental health.

Matt Hancock, Health and Social Care Secretary, commented: "We have asked people to make unprecedented changes to their day-to-day lives as part of our national effort to respond to this global pandemic. Staying at home and not seeing friends and loved ones can take its toll and it is completely understandable to feel overwhelmed or anxious.

"It's vital that we all look after our mental health in these challenging times, so today we are launching new guidance on the NHS Every Mind Matters website, which is tailored to help people deal with this outbreak through practical tips and advice.

"Whether it's through exercise, keeping to a routine or trying something new – there is so much we can do to keep our minds healthy and prevent issues becoming more serious – and I'd encourage everyone to take advantage of this brilliant resource."

Claire Murdoch, National Director for Mental Health at NHS England and Improvement, added: "While we stay indoors to protect our loved ones and save lives, we must also think about ourselves and how we can protect our mental wellbeing, which is why I am pleased Every Mind Matters reflects current pressures and am encouraging everyone who needs it to visit the website, which includes advice on dealing with stress and anxiety."



Role of naturopathic practitioners monitored during pandemic

A naturopathic organisation has asked members to track treatments during the Coronavirus pandemic through an international register.

The General Council and Register of Naturopaths (GCRN) is urging its members to sign up to an international registry that has been set up to track the role of practitioners during the Coronavirus outbreak.

The Naturopathy and Complementary Medicine COVID-19 Support Registry will collect data on patients who are benefiting from preventative and supportive naturopathic care during the outbreak and was set up by naturopathic researcher, Dr Ryan Bradley, from the National University of Natural Medicine (NUNM), in the United States.

President of the GCRN, Aliyyaa Spring-Charles, explained: "It is important that naturopaths do not make any claims that they can cure or provide any specific treatment for COVID-19 but there is a supportive role they can play. The COVID-19 support registry will enable us to capture and acknowledge the role naturopathic practitioners around the world are playing in supporting patients through the global pandemic. I would urge BNA members to sign up so they can record where they are providing supportive care for patients concerned with the COVID-19 crisis."

She added that the data produced from the research could be very beneficial when the crisis is over.

Business support tool launched by Government during Coronavirus pandemic

A new business support finder tool has been launched in a bid to help businesses and self-employed people determine what financial support is available to them during the Covid-19 pandemic.

The new online platform launched by the Government is designed to help businesses easily access the financial support they are eligible for during the ongoing lockdown.

The finder tool on GOV.UK will ask business owners to fill out a simple online questionnaire, which can take minutes to complete, and they will then be directed to a list of all the financial support they may be eligible for.

Business Secretary, Alok Sharma, explained: "Businesses of all shapes and sizes play a vital role in our economy, which is why we want to make it as easy as possible for all of them to access our wide-ranging package of financial support during this challenging time. This online questionnaire takes just minutes to complete and will quickly signpost a business to the loans, grants or other schemes they could be eligible for."

Chancellor of the Exchequer, Rishi Sunak, added:

"We've launched an unprecedented package of support to protect jobs, businesses and incomes during these challenging times. Millions are already benefitting and this new online tool will allow firms and individuals to identify what help they are entitled to in a matter of minutes. We are doing everything we can to make our support as accessible and as easy to navigate as possible."

In terms of potential support available, the Government says it has:

- Made available up to £330bn of loans and guarantees for businesses.
- Offered to pay 80 per cent of the wages of furloughed workers, up to £2,500.
- Deferred the next quarter of VAT payments for firms, until the end of June.
- Introduced £20bn in tax relief and cash grants to help businesses with cash flow.
- Introduced the Coronavirus Business Interruption Loan Schemes for both SMEs and larger businesses to make it easier to access vital financial support offered to cover the cost of statutory sick pay.

HFMA survey reveals Brits spend just over £8 a week on their health



The average Brit is spending just £8.82 a week on staying healthy, with men spending more than women.

That is according to the results of the Health of the Nation survey, conducted by the Health Food Manufacturers' Association (HFMA), which surveyed 10,000 adults from across the UK in October 2019 about their health habits.

It revealed that the average Brit spends just £8.82 on keeping healthy each week and that men are spending more than women, with a weekly average of £9.18 over £8.46. Nationally, health spend is highest in England (£8.96), followed by Northern Ireland (£8.71), Scotland (£8.34) and lowest in Wales (£7.37).

With the Office for National Statistics showing that the average weekly household expenditure in the UK has risen to £572.60, the highest weekly spend since 2005, these new figures reveal that health only makes up 1.5 per cent of Brits' average weekly outgoings. In further data, a worrying 45 per cent of over 65s admit to spending no money on their health on a weekly basis. Furthermore, more than half of parents are now giving supplements to their children.

While the relative spend on 'keeping healthy' is still fairly low, this has gone up by £1.20 since the last time the Health of the Nation survey was carried out in 2016, when it was just £7.62. The HFMA said this rise can perhaps be attributed to the increasing role supplements are playing in Brits' everyday lives, with 69 per cent of the adult population now including food supplements in their diets (up 8.9 per cent from 2016), with 41 per cent of these – equating to 16.5m people – now taking food supplements on a daily basis.

The HFMA's Executive Director, Graham Keen, commented: "The findings from this latest survey confirm what we have always known – that it is a fallacy to believe that people consider they are fundamentally healthy, or that they can maintain good health simply through their diet alone. This survey tells us that the number of people who think they are 'very' or 'quite' healthy has reduced by a third in the last two to three years. This is borne out by the fact that, for every £10 of weekly household expenditure, only around 15p of this is spent on maintaining good health.

"It also reaffirms that the UK natural products industry, which the HFMA is proud to represent, remains a national success story, helping millions of people to lead healthier lives. And this looks set to continue as we see that record numbers are now taking food supplements, food supplement consumption is increasing, two in three adults expect to increase their consumption of food supplements as they get older, and more than half of parents now give food supplements to their children.

"The Government has rightly put prevention at the heart of its public health strategy as evidenced by the recent *Green Paper, Advancing our health: prevention in the 2020s*. However, this paper has critically underplayed the vital role of supplementation in this regard."

Consumer poll reveals two key supplement groups

A new poll has revealed that there are two key groups of supplement consumers.

BodyBio has highlighted a New Hope study of 500 supplement users, which indicates that supplement purchases are made for two predominate reasons: to mitigate symptoms for ongoing ailments (treaters) or prevent future health problems (preventers). BodyBio anticipates these findings will guide supplement purchasing patterns in 2020 and beyond.

According to the study, treaters take control of their health, are primarily concerned with digestion and immune issues, and are driving supplement purchasing patterns. These consumers tend to be younger and make supplement purchases to heal existing ailments. Conversely, preventers are concerned with improving general health and wellness, such as ensuring the body has enough nutrients.

Approximately 58 per cent of supplement users align with the treater group, with more consumers continuing to join the treater category.

Nearly 52 per cent of Baby Boomers consider themselves treaters, while 66 per cent of Generation X and 70 per cent of Millennials align with this group.

Dr Thomas Wnorowski, PhD, CNCC, from BodyBio, commented: "Autoimmune and inflammatory conditions are on the rise and lack a clear diagnosis. Consumers are not just supplementing their diets, they are supplementing for a lack of options in traditional western medicine protocols."



Educational guides launched by supplement company

A series of guides have been developed for Nutritional Therapy students.

The technical team at Abundance & Health, distributors of the cutting-edge liposomal Altrient supplements, have created the guides for students, Nutritional Therapists and healthcare practitioners. The comprehensive and referenced e-books highlight the health benefits and applications of the liposomal supplements.

Authors include Jackie Newson and Susie DeBice, who together have over three decades of experience in the natural health industry, and Dr Levy, a world-renowned Cardiologist, with clinical insights into liposomal vitamin C and glutathione.

The collection includes:

- *Ultimate Guide to Vitamin C.*
- *Ultimate Guide to L-Carnitine.*
- *Ultimate Guide to Glutathione.*
- *Ultimate Guide to B Vitamins.*
- *Ultimate Guide to Alpha Lipoic Acid.*

Free copies can be download from www.abundanceandhealth.co.uk.

CBD brand submits Novel Food application



Mile High Labs has confirmed it has applied for Novel Food status for both its bulk CBD isolate and finished products.

Following the announcement from the Food Standards Agency (FSA) earlier this year that CBD products must have Novel Food approval to remain

The application is the culmination of 10 months of work to generate the required data and compile adequate information to support the product's quality, consistency and safety and Mile High Labs says it is one of the first companies to have filed such an application.

"This application was more complicated than usual because of the complexities associated with hemp-based products," commented Wendi Young, VP of Regulatory and Compliance at Mile High Labs.

"It was necessary for us to address all of the concerns expressed by various regulatory agencies. We collaborated with experienced consultants from the UK to guarantee that our application met the expectations of both the EFSA, as well as the FSA."

The application includes information on the quality of the product, hemp biomass intake controls, stability data, manufacturing controls, labelling commitments, as well as testing requirements and specifications for both CBD isolate and finished products. Additionally, Mile High Labs is providing an assessment of the target population, a combined intake evaluation and toxicological data that supports the safe consumption of CBD."

Christian Hendriksen, VP of International Expansion, added: "This is a monumental day for Mile High Labs and the CBD industry as a whole. Our Novel Food application is a key step in ensuring continued compliance for our customers, as well as our products, in the European market."

on the market after March 31, 2021, the company has announced its submission to the European Food Safety Authority (EFSA) and the UK's FSA for its CBD isolate ingredient and CBD isolate-based finished products. Under the requirements, any CBD food products failing to gain regulatory approval before the deadline will be taken off the shelves.

Patrick Holford pens new immune-focused book



The co-founder of the Institute of Optimum Nutrition has announced publication of a new book focusing on boosting natural immunity.

Flu Fighters was published on April 16 and has been penned by Patrick Holford,

who has researched trials and studies in China, Italy and in the US for the content amid the Coronavirus pandemic, explaining that he is a firm believer in the power of vitamin C for a healthy immune system.

Holford adds that while the conventional view has been that vitamin C won't stop a cold, it does make symptoms less severe and shorter with doses above 6g (most pills are 1g/1,000mg). He continues that in a trial on 252 university students' 85 per cent experienced much less severe symptoms. In two placebo studiesⁱ giving 6g-8g in the first day, colds were 20 per cent shorter. In those taking 8g in the first day, 46 per cent had symptoms that only lasted for one day.

He also added that another potential immune booster is vitamin D. A hospital study in Georgia, in the US, gave ICU patients on ventilators high dose vitamin D for five days. The length of hospital stay was halvedⁱⁱⁱ

"The key is to make sure your blood level of vitamin D is above 75nmol/l. Two in five adults have a level below 25nmol/l.^{iv} Vitamin D is only made in the skin in significant amounts from April onwards. It's vital to get outdoors and expose your skin to the sun," he explained.

Viridian announces partnership to promote benefits of organic growing

A new collaboration has been announced to help raise awareness of the benefits of organic growing to human health.

Viridian Nutrition has teamed up with Garden Organic, a national charity, which will see the ethical supplement brand sponsor the redevelopment of the charity's garden at its headquarters in Ryton, Warwickshire. As part of the project,



an area will be transformed into an inspiration organic demonstration garden and outdoor classroom. The garden will feature more than a dozen of the organic

botanicals similar to those used in Viridian's organic food supplements.

James Campbell, Garden Organic's Chief Executive, commented: "As a charity, we are committed to educating people about organic growing and encourage people of all ages and from all walks of life to get outside and grow organically. Likewise, at the heart of Viridian Nutrition is a philosophy that cares for the natural products movement supporting organic growing.

Tom Welch, Viridian's Marketing Manager, added: "As an ethical supplement company, we believe in sourcing natural ingredients and using sustainable farming methods to guarantee purity and traceability of our nutritional supplements. Viridian Nutrition and Garden Organic share many of the same values, organic growing, education of children and adults to help care for this world, and an ethical approach – making this initiative a natural fit. I'm also pleased to announce that Garden Organic will be a recipient of Viridian's Charity Donation Programme."

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In Research

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

Vitamin D may help build resistance to respiratory infections, research finds

Researchers at Trinity College Dublin have highlighted the importance of vitamin D in building resistance to respiratory infections.

Researchers from Trinity, along with the Technological University Dublin, have found that taking vitamin D supplements may enhance resistance to respiratory infections, such as Covid-19, or limit the severity of respiratory illness for those who do become infected.

The study, from Dr Declan Byrne (St James's Hospital and School of Medicine, Trinity) and Dr Daniel McCartney (TU Dublin), has been published in the *Irish Medical Journal* and recommends that adults living in Ireland take 20-50mcg of vitamin D per day.

The researchers explained that historically, humans received most of their vitamin D from sunshine during the summer, with diet contributing only very modest amounts in relation to overall needs. In recent decades, sun exposure has decreased, and many people in Ireland may consequently have low blood levels of vitamin D, with older adults especially likely to be vitamin D deficient.

They explained in the paper that epidemiological studies, including several meta-analyses, have shown that people with low vitamin D levels have a higher risk of acute respiratory tract infection and community-acquired pneumonia. While these data do not necessarily infer causality, multiple molecular mechanisms have been identified by which vitamin D deficiency impairs resistance to viral respiratory tract infection. There are also a significant number of studies, including several meta-analyses, which have indicated that vitamin D supplementation may reduce the likelihood of acute respiratory tract infection, and decrease its severity and duration where such infection does occur. These respiratory tract infections may include Covid-19.

Commenting on the findings, Dr Byrne said these recommendations

are important while we await development of a vaccine and trial evidence of effective drug treatment for Covid-19.

“Our findings call for the immediate supplementation of all hospital inpatients, nursing home residents and older Irish adults with vitamin D. Our findings also suggest that vitamin D supplementation in the broader adult population, and particularly in frontline healthcare workers, may further help to limit infection and flatten the Covid-19 curve,” he commented.

Dr McCartney added: “Vitamin D deficiency is prevalent in Ireland, especially in older people, nursing home residents and hospital inpatients, and may significantly increase the risk and severity of viral respiratory infections, including Covid-19. Supplementing a healthy diet with 20-50mcg per day of vitamin D represents a cheap, safe and potentially very effective protection for Irish adults against Covid-19.

“Supplementation at the recommended 20-50mcg of vitamin D per day is a short-term measure to specifically address the risk of Covid-19 infection over the coming three to six months. It is advised that those who intend to supplement at

doses above 20mcg per day after this period should do so only under the supervision of their doctor.”

Commenting on the study, Andrew Thomas, founder and Managing Director at BetterYou, said: “Recommendations are to urgently supplement 20-50µg per day of vitamin D initially in the vulnerable population, to enhance their resistance to COVID-19, with advice extending quickly to the general adult population. It is hoped that the information published in this report can aid in the mitigation of the negative health consequences of the Coronavirus.”



Researchers seek volunteers for study into mental health impact of Covid-19

A team of psychologists from The University of Manchester and Greater Manchester Mental Health NHS Foundation Trust have launched a new study investigating how the Covid-19 crisis affects our mental health.

With help from the public, the researchers say they want to cast a light on the psychological effect of pandemics, an area which is little understood.

Professor Adrian Wells, Dr Lora Capobianco, and Dr Karin Carter are leading the study, with Dr Capobianco commenting: "The current Coronavirus pandemic presents a threat and challenge to everyday life for everyone. Little is known about the psychological effects of pandemics but with your help, we can discover more."

"We want to understand the nature and prevalence of emotional and stress symptoms and how they change with time in the general public. This information will help us to understand the psychological needs of people in circumstances like the present pandemic. And that will help us identify risk factors, so we are better able to develop an effective psychological response and enhance people's ability to cope."

Those taking part must be over 18 and will be asked to complete a questionnaire three times over a 12-week period.



Research adds weight to importance of vitamin K2 for cardiovascular support

A new research paper has highlighted vitamin K2 as an important nutrient for cardiovascular support.

Published in *The European Journal of Preventive Cardiology*, the new review paper examines the link between micro-calcification and atherosclerosis, focusing on cardiovascular imaging techniques and evaluating the concept of vitamin K supplementation to preserve cardiovascular health.

The review, the result of the INTRICARE grant awarded to NattoPharma's International Research Network by the European Union within the Horizon 2020 Marie Skłodowska-Curie research and innovation program, concluded that vitamin K supplementation should be considered as a possible safe and cost-effective option to inhibit vascular (micro)-calcification.

The paper, titled 'Locking and loading the bullet against micro-calcification', identified the most suitable technique for detecting micro-calcification and assessed state-of-the-art meta-analysis and clinical studies to identify possible treatment options and evaluate the concept of vitamin K supplementation to preserve vascular health.

Professor Schurgers, Professor of Biochemistry of Vascular Calcification and Vice Chair of Biochemistry at the Cardiovascular Research Institute Maastricht (CARIM), Maastricht University, commented: "Despite recent medical advances, cardiovascular disease remains the leading cause of death worldwide. Our exhaustive, structured PubMed search showed that 18F-sodium fluoride (18F-NaF) PET is the most suitable technique for detecting active micro-calcification, a hallmark of atherosclerosis."

"The work conducted in collaboration with

NattoPharma under the INTRICARE grant has not only helped us shine a light on the most reliable technique for detecting active micro-calcification, providing some hope in getting ahead of compromised cardiovascular health, but also the science supporting various therapy options, including supplementation. Essentially, this work will help drive awareness how we can 'lock in' on the effects of vascular calcification (18F-NaF PET) and 'load' a suitable, cost-effective bullet (vitamin K)."

NattoPharma Chief Medical Officer, Dr Hogne Vik, added: "There are some who view atherosclerosis as an age-related condition – that calcification simply builds up over time. NattoPharma contends that this condition is not simply age-related; rather, that atherosclerosis is the product of a vitamin deficiency: vitamin K2."

"This study has served as a platform for other clinical trials investigating K2 in patient populations with existing coronary artery calcification, aortic valve calcification, and peripheral artery calcification, and these studies are being driven by the medical community."



Concerns around mood regulation during lockdown highlighted in new study

The period of lockdown during the Covid-19 pandemic is likely to exacerbate problems with mood regulation, experts at the University of Oxford have concluded.

In new research from the Department of Psychiatry, University of Oxford, and published in the journal, *JAMA Psychiatry*, the team explained that mood varies from hour-to-hour, day-to-day and healthy mood regulation involves choosing activities that help settle one's mood. However, in situations where personal choices of activities are constrained, such as during periods of social isolation and lockdown, this natural mood regulation is impaired, which might result in depression.

The new study looked at 58,328 participants from low, middle and high income countries, comparing people with low mood or a history of depression with those of high mood. In a series of analyses, the study investigated how people regulate their mood through their choice of everyday activities. In the general population, there is a strong link between how people currently feel and what activities they choose to engage in next. This mechanism – mood homeostasis, the ability to stabilise mood via activities – is impaired in people with low mood and may even be absent in people who have ever been diagnosed with depression. Using computer simulations, this study also showed that low mood homeostasis predicts more frequent and longer depressive episodes.

Guy Goodwin, Professor Emeritus of Psychiatry at University of Oxford, explained: "When we are down, we tend to choose to do things that cheer us up and when we are up, we may take on activities that will tend to bring us down. However, in our current situation with Covid-19, lockdowns and social isolation, our choice of activity is very limited. Our research shows this normal mood regulation is impaired in people with depression, providing a new, direct target for further research and development of new treatments to help people with depression."

Maxime Taquet, Academic Foundation Doctor at University of Oxford, added: "Our research findings open the door to new opportunities for developing and optimising treatments for depression and this could potentially be well adapted to treatments in the form of smartphone apps, made available to a large population which sometimes lack access to existing treatments."

Researchers shed light on development of early gut microbiome

A new study from America has examined how the gut microbiome develops in the early years of life, providing a critical insight into how changes in this environment can impact health and disease later in life.

This research, supported by the NIHR Oxford Health Biomedical Research Centre and the Royal College of Psychiatrists, took place at Children's Hospital of Philadelphia (CHOP), and offered a glimpse into bacterial colonization of the infant gut.

The study, published in the journal, *Nature Microbiology*, focused on three species of bacteria – *Escherichia coli*, *Enterococcus faecalis*, and *Bacteroides vulgatus* – because to date those species have been observed in the highest number of babies. They analysed the genomes of these bacteria to determine why they are growing in infants. Additionally, the team characterised the proteins and metabolites, or small molecules, that were present in the microbiome at this stage of development.

One of the challenges for collecting this information is that for the first several hours of life, any DNA collected from a stool sample is not from the bacteria but from the infant itself. The researchers did not see bacteria emerge in detectable concentrations until the infants were about 16-hours-old.

The study team found evidence that the initial environment of the gut microbiome is anaerobic, contrary to the prevailing model which holds that the gut becomes anaerobic only after bacteria grow and consume oxygen. The evidence came from observing the order in which amino acids were consumed by bacteria.

The study team also observed that metabolite levels were generally consistent with the detection of bacteria. Molecules typically produced by gut bacteria, like acetate and succinate, went up in samples where bacteria were detected. Additionally, the levels of select proteins went down in samples containing bacteria, suggesting that bacteria might have been consuming those proteins to promote growth.

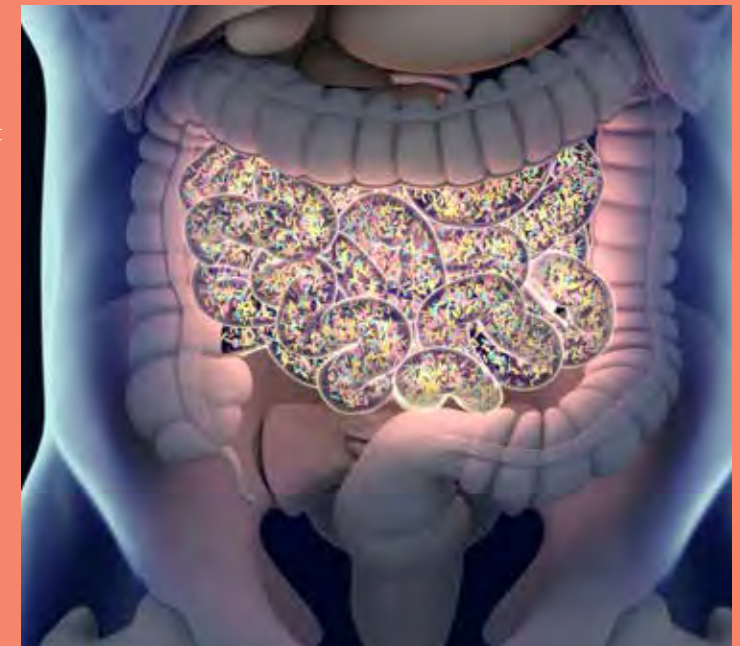
Analysis of the three bacterial species studied in these infants revealed that multiple strains of each bacterium were already emerging.

Kyle Bittingher, PhD, the Analytics Core Director at

the Microbiome Center at CHOP and first author of the study, commented: "Eventually, the gut in children will hold hundreds of different species of bacteria, but at birth, there might only be 10 or fewer species. We wanted to understand why those particular bacteria are the first to emerge and what they are doing in those first hours of life."

"With the information we have, as we continue to follow these infants, we can track them and see how long these early strains of bacteria linger. We can then see the consequences of this initial chemical activity in later samples and hopefully pinpoint early changes that might impact health later in childhood."

The researchers hope to use the study findings to determine how the development of the gut microbiome may influence excess weight gain. The infants involved in this study will be followed through the first two years of life. Additionally, all 88 infants involved in the study are African American, a population for whom childhood obesity is a growing concern.



New to market

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



VEGAN Q10 UNVEILED BY PHARMA NORD

A new vegan version of its coenzyme Q10 supplement has been developed by Pharma Nord.

The supplement brand has announced the launch of Q10 Green, a new vegan version of Bio-Quinone Q10 100mg. It is made using the same ingredients and the same patented process as Bio-Quinone Q10 but uses new technology to create a plant-based

capsule, which has been certified as vegan-approved by the Vegetarian Society.

Most non-animal capsules on the market are made of artificial cellulose (typically hydroxypropylmethylcellulose or HPMC), which is a substance that originates from the timber industry. In Q10 Green, its soft capsule Phytocaps are made of hydroxypropyl starch, a starch product based solely on vegetables, such as potatoes, peas and corn.

The new trademarked soft gel capsule – called a Phytocap – is made of ingredients including agar, pectin and extracts of beetroot and green tea, as well as cocoa powder and vitamin B2.

The product is the result of more than four years' worth of testing and development at Pharma Nord's facilities in Denmark.

TIME FOR TEA

NutraTea is a new herbal remedy tea brand made using a range of unique herbal blends.

The 19 blends have been carefully crafted following three years in development, with each blend being expertly formulated by pharmacists and nutritionists and utilising well-established botanicals designed to provide a scope of health benefits.

The flagship range of herbal teas consist of three blends of just two beneficial herbs and in a 50:50 ratio. These products contain only the stated ingredients to maximise health benefits.

The premium blend range is comprised of 16 comprehensive herbal formulations, which is designed to target specific health issues faced by individuals, and containing only active botanicals. It has the added benefit of being free from any bulking agents, excipients and is also free from any added oils.



B COMPLEX LAUNCH FOR BETTERYOU

New to the BetterYou line-up is a blend of all eight B vitamins to support the body's natural energy metabolism and help with the reduction of tiredness and fatigue.

B-complete Oral Spray delivers nutrients directly to the bloodstream, via the inner cheek, for enhanced absorption, designed to contribute to the normal function of the immune system and normal mental performance.

With 100 per cent vegan-friendly ingredients, the great-tasting, natural spray is housed in packaging made from carbon negative, plant-based plastic, which is also 100 per cent recyclable.



ENERGY SUPPORT AT G&G

A new vitamin B3 product has been added to the range at G&G Vitamins.

Vitamin B3 Nicotinamide 500mg is designed to contribute to normal energy-yielding metabolism, reduction of tiredness and fatigue and the normal functioning of the nervous system.

The supplement is also beneficial for the maintenance of skin health and for mucous membranes.

PLANT-BASED BRAND ADDS NUT MILK

Nutty Bruce is a new activated nut milk range to launch to the UK.

Launched by Soulfresh, the range, from Australia, is said to be the first and only range of activated nut m*ilks in the UK and come in three varieties; Activated Almond M*lk, Activated Almond & Coconut M*lk, and Activated Almond & Oat M*lk.

Each one contains a high content of almonds, and the whole range is made using organic whole activated almonds. It is claimed that activated nuts are closer to being alive, giving them increased nutrient value. To activate its almonds, Nutty Bruce soaks them for 12 hours in fresh filtered water to kick-start the germination process. The activated almonds are then carefully dried and blended with filtered water and simple, organic ingredients.

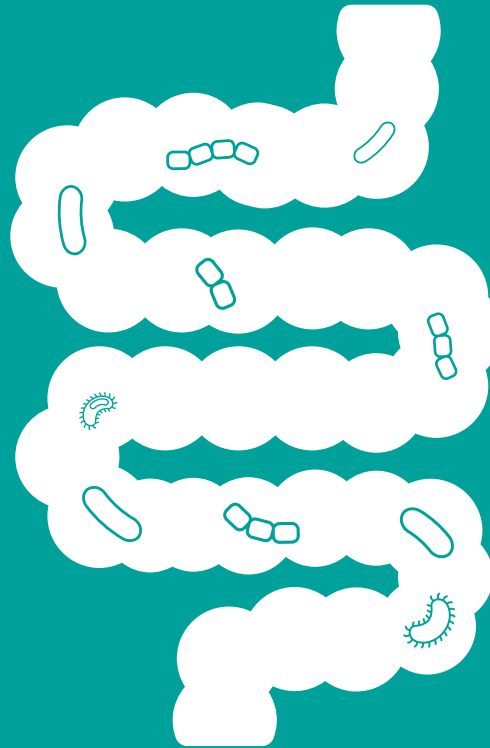
Nutty Bruce is free from thickeners, gums, preservatives, colours, stabilisers, nut pastes and added oils.





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JOIN US AT THE IHCAN SUMMIT

Practitioners to come together for the annual IHCAN Summit.

Now in its sixth year, the IHCAN Summit has established itself as the essential event in the industry's calendar, and will be returning to London on Saturday, June 27.

The one-day event brings the same industry-leading, innovative education found at the IHCAN Conferences but on a bigger scale, in the modern, larger venue of 155 Bishopsgate, London.

As the Coronavirus outbreak continues to unfold, we took the difficult decision to postpone April's IHCAN Conference (scheduled to take place on April 25) and incorporate it into the summit. This means that personalised nutrition expert, Dr Linda Isaacs, MD, and medicinal mushroom researcher, Catalina Fernandez de Ana Portela, will appear in June, along with *Nutrition in Crisis* author, Dr Richard Feinman, PhD, and functional testing expert and educator, Dr Cheryl Burdette, ND.

WHAT TO EXPECT

The IHCAN Summit will present a fantastic day of learning.

Dr Linda Isaacs, MD, is the leading proponent of the highly-individualised nutritional protocol for supporting people with cancer developed by the late Dr Nicholas Gonzalez, MD, and will present on the theme 'Enzymes and cancer: lessons from 30 years of success'. Meanwhile, Catalina Fernandez de Ana Portela, heads up the medicinal mushroom company, Hifas da Terra, and will have news on progress of clinical trials of new mushroom remedies on colorectal cancer in a Barcelona hospital, and of a second trial on breast cancer using mushroom supplements alongside chemotherapy and radiotherapy.

Dr Richard Feinman is Professor of Cell Biology (Biochemistry) at the State University of New York (SUNY) Downstate Medical Centre in New York, and someone Professor Tim Noakes has described as "a scientific treasure". Professor Feinman will present a concise critique of nutrition



science, explaining exactly where it has gone wrong – and how we can best deal with the barrage of conflicting findings appearing in the journals. His book title says it all; *Nutrition in Crisis: Flawed Studies, Misleading Advice and the Real Science of Human Metabolism*.

Finally, Naturopathic Physician, Dr Cheryl Burdette, is one of functional medicine's most sought after educators, with a unique combination of front-line clinical experience and an unrivalled knowledge of functional testing, as the founder and Education Director of Dunwoody Labs. She will combine both areas of expertise in a presentation called 'Redefining Menopause'.

Delegates will be treated to a free goody bag, plenty of time to visit exhibitors, a three-course, healthy, buffet lunch and refreshments

throughout the day, so it really is a day not to be missed.

To secure your place, visit www.ihcansummit.co.uk or call 01279 810080.

LATER IN THE YEAR

Our IHCAN Conference +, which was due to take place on Saturday, March 28, will now take place on Saturday, July 4, with Dr David Unwin, Dr Elisabeth Philipps and Anne Pemberton all presenting at 155, Bishopsgate London, which is sure to be a great day of learning.

Later in the year on September 12, we will be welcoming back 'SIBO Queen' Allison Siebecker and Ben Brown, who will deliver 'SIBO: Getting to the underlying cause and preventing relapse with prokinetics'. This conference is nearly sold out, so make sure you secure your place to hear their latest iterations in this field.

Then, on November 21, we will be joined by Neurology Professor, Dr Dale Bredesen MD, presenting 'Wit's End: personalised nutrition strategies for Alzheimer's, the world's most complex chronic disease' – this conference is now sold out.

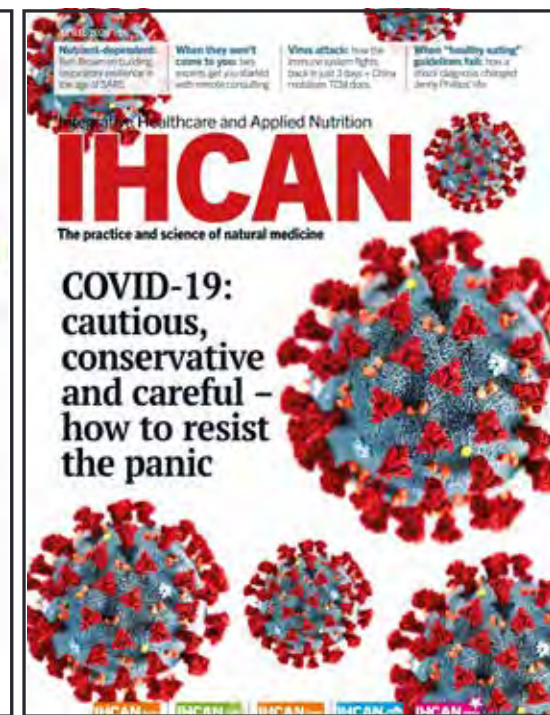
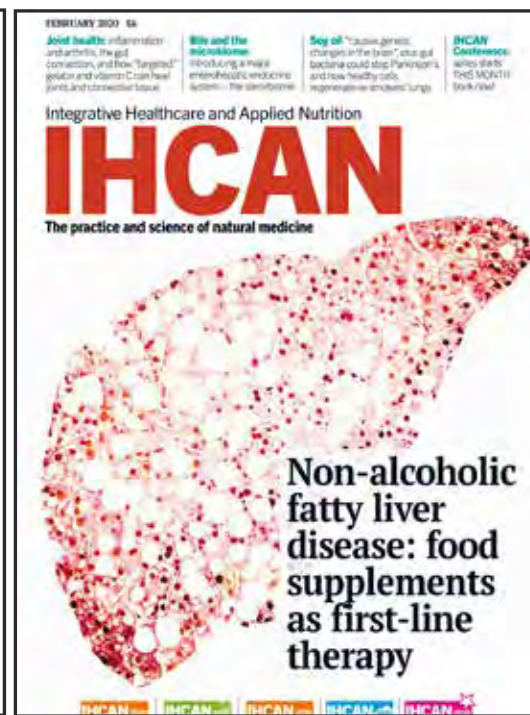
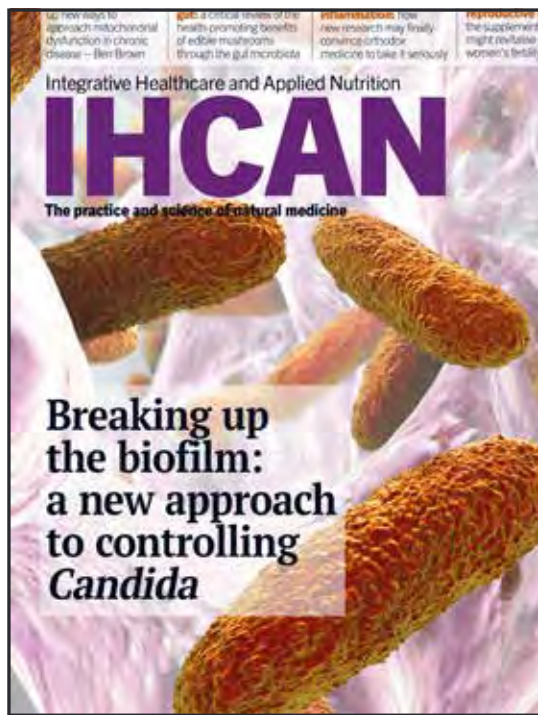


SCHEDULE CHANGE DUE TO CORONAVIRUS

As the Coronavirus outbreak continues to unfold, we have made the following changes to our schedule for the year:

- **June 27: IHCAN Summit** – Dr Richard Feinman, Catalina Fernandez de Ana Portela and Dr Linda Isaacs (merged with original April 25 conference).
- **July 4: New date for IHCAN Conference + (originally March 28)** – Dr David Unwin, Dr Elisabeth Philipps and Anne Pemberton.
- **September 12: Dr Allison Siebecker and Ben Brown** – nearly sold out.
- **November 21: Dr Dale Bredesen** – sold out

If you have any queries, please visit www.ihcanconferences.co.uk or call the team on 01279 810080.



FREE FOR EVERYONE

During these challenging times it's important we all work together.

So, we're offering all professional practitioners and qualifying students a **FREE** three month digital subscription (April - June) to *IHCAN* magazine, so **ALL** everyone can stay in-the-loop during social distancing.

Subscriptions include: access to our searchable archive of back issues stretching back to 2012, all references and 30+ free webinars.

BANT News

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



BANT team is continuing to serve you

The BANT team is continuing in their various roles to support you.

Operationally, it is business as usual, our public and closed social media forums remain open to facilitate the exchange of information between us all, and our PPC advisory team of volunteers are here to support you. We are also busy seeking and producing content to keep you informed on COVID-19 facts as they become apparent.

So far, BANT has sent members three COVID-19 related announcements to help ensure you are familiar with any impacts on your practice, and also how you can keep informed about coronavirus and Self-employment Income Support Scheme (SEISS). On April 1, BANT also released guidance to the public regarding COVID-19. You can find all of these announcements and guidance listed at the following link: <https://bant.org.uk/category/covid-19/>

UPDATED BANT HANDBOOK V3.4* NOW LAUNCHED

Professional Practice Handbook has received a couple of updates.

It is important that all BANT members review *Professional Practice Handbook* regularly, ensuring they are familiar with it, paying particular attention to the updated sections, which may affect the way you practice. Latest updates include:

- 2.3 Practitioner Conduct: a) Consultation and Advice; d) Justify public trust and confidence
- 2.6 c) Working with Eating Disorders and Eating Distress
- Members can access the *Professional Practice Handbook* via the BANT website members pages.

BANT events



Due to the continuing concerns relating to COVID-19, Nutritional Medicine Institute (NMI) and BANT have taken the decision to move the BANT Conference from the May 16 to November 7, 2020.

The BANT AGM will now be recorded and released to all members by May 16, with opportunities to send in questions prior to the recording and also in the live Q&A session that follows the release of the recording.

Those of you who have booked to come to the BANT AGM and Conference in May, both your AGM and Conference attendance tickets will automatically transfer to November 7, when BANT will host a member only update session from 9:30-11:30am before the conference.

If you have not yet booked to join the event, you can do so at www.bit.ly/BANT2020

Similarly, all Regional Branch events will now either be postponed or held online and all Local Network Meetings have moved online.

On a more positive note, online meetings will provide the opportunity for members to join a local meeting which may have previously been too far away. Joining online meetings will also provide valuable support to reduce feelings of isolation

during this challenging time. Current spring events include Local Network Meetings at:

- **BANT Oxfordshire:** Online – Wednesday, May 6, 10am-12pm, on the thyroid. Speaker is Christine Bailey.
- **BANT Sussex:** Online – Thursday, May 21, Wild Nutrition.
- **BANT webinars:** There are plenty of online options available so that members can keep on top of their CPD. The lockdown period is a good time to catch up on some of the BANT webinars that are recorded and remain a permanent resource for BANT members. These go back five years on the education section of the website. For students – or for full members who want some refresher training – there are also a range of excellent student focused webinars available. Did you know that most of the BANT Regional Branch conferences are also recorded and available for members to watch free of charge? Visit <https://bant.org.uk/centre-of-excellence/education/webinars/bant-regional-branch-events-recorded/bant-regional-branch-events-recorded-2019/>

You are what your bacteria eat: Butyrate's many health benefits

Christine Bailey, MSc MBANT MIFM, examines the functions of butyrate.

Perhaps one of the most noticeable changes in the human diet that's had a significant impact not only our microbiome, but our health, is the drop in diversity and quantity of dietary fibre we eat. Looking at the National Diet and Nutrition Survey (NDNS), and despite the widely promoted five a day campaign, intake of fibre, which is on average 19g, is well below recommended levels of 30g/day.

A diet rich in fibre and resistant starch provides fuel for gut bacteria which, in turn, facilitates the production of short-chain fatty acids (SCFA). Acetate, propionate, and butyrate are the most abundant SCFAs in gastrointestinal tract (≥ 95 per cent). Of these, butyrate is the most intensively studied for numerous health benefits.

Gut health

Butyrate is the preferred energy source for the colon epithelial cells. Without adequate butyrate, these cells would not be able to carry out their functions correctly. Butyrate nourishes the colon wall and maintains a healthy gut barrier by stimulation of the formation of mucin, antimicrobial peptides, and tight-junction proteins.

Unlike other SCFAs, butyrate decreases the pH of the colon. A lower pH increases mineral absorption, decreases ammonia absorption, and inhibits growth of pathogens. Several studies have reported the benefits of butyrate supplementation for IBS symptoms and traveller's diarrhoea.

Gut inflammation

Butyrate possesses anti-inflammatory and immune modulating properties. As such, it is commonly used in the treatment of inflammatory bowel disease (IBD) and may reduce the risk of colon cancer.

Both oral supplementation and enemas have been shown to be beneficial in reducing the symptoms of ulcerative colitis. Butyrate has also been shown to prevent the growth of colon cancer cells and promote apoptosis.

Butyrate is equally important when it comes to managing allergies and autoimmune conditions. Butyrate increases the activity of regulatory T cells (Tregs), which aid oral tolerance. Further, as butyrate supports gut barrier health, it helps prevent antigens and toxins from entering the bloodstream which, in turn, could promote an inflammatory reaction.

Brain health

Butyrate inhibits the enzyme histone deacetylase (HDAC), thereby increasing gene expression. Drugs that inhibit HDAC are currently used to manage bipolar disorder, prevent epileptic seizures and may be effective antidepressants.

The relationship between butyrate and HDAC helps explain the link between our gut flora and brain health. Studies have shown that patients with major depressive disorder have fewer butyrate-producing bacteria in their intestines. Similarly, supplementation with sodium butyrate has been shown to improve cognition, mood and lower neuroinflammation.

Butyrate increases neuronal growth in the hippocampus, a part of the brain that usually shrinks in people with depression. In rats, sodium butyrate increased proteins that help regrow the brain (neurogenesis), including brain-derived neurotrophic factor (BDNF), nerve growth factor (NGF) and glial cell-derived neurotrophic factor (GDNF). This may explain butyrate's mood-stabilising effects and benefits on cognitive function.



Weight management and blood sugar balance

Recent studies have highlighted butyrate's potential in obesity and blood sugar balance. This appears to be through several mechanisms, including production of gut hormones involved in insulin production and satiety, increased fat burning and energy expenditure. A review study found that butyrate helped control blood sugar in both animals and humans with type 2 diabetes.

Food sources

As butyrate is a metabolite produced by certain gut bacteria, the best way to enhance levels is through consuming a variety of fibre-rich foods. These include vegetables, fruits, wholegrains and resistance starch, like cooked and cooled rice, potatoes and green bananas.

Studies have shown just four weeks of following a low carbohydrate diet can significantly decrease butyrate levels. This highlights a potential risk of long-term, very low-carbohydrate (VLC) diets. Clients following lower carbohydrate diets may, therefore, benefit from butyrate supplementation and additional fibres, such as inulin, pectin or resistance starch.

At BodyBio we believe in purity and quality – we do not use any additives or fillers to mask the scent of butyrate. We create butyrate exactly as it's formed in the colon – through the bacterial fermentation of resistant starch. Our butyrate's are simply butyrate, a 13-atom complex joined to an alkali. Of the butyrate supplements, we manufacture the three most available without a prescription: Sodium Butyrate, Sodium-Potassium Butyrate, and Calcium-Magnesium Butyrate. The capsules are vegetarian, made from plant cellulose and the butyrate powder within is enterically coated.



LESSONS IN Lyme disease

Described as a dramatic globally emerging disease, cases of Lyme disease are growing and growing fast. Here, *Nutrition I-Mag* has gathered a panel of experts in this field to discuss the role of Nutritional Therapy.



Ten years ago, Lyme disease was not something that was talked about in great detail among the general public. Of course, it has been recognised as a disease for some time since first being reported more than 30 years ago but in terms of its heightened awareness among the public, not to mention the growing understanding around the role of Nutritional Therapy, this is something that has only occurred in more recent years.

But why are we seeing such a vast rise in cases? Is this trend set to continue on an upward curve? And what role can Nutritional Therapists play in terms of client support?

“We are seeing a dramatic global emergence of epidemic vector-borne diseases^[1], with Lyme disease the fastest growing vector-borne disease in the UK, Europe and USA^[2],” commented Gilian Crowther MA (Oxon), FBANT, mNNA, CHNC reg, Naturopath and Registered Nutritional Therapist, who is Director of Research for the Academy of Nutritional Medicine (AONM).

“The Global Lyme Alliance says most recent estimates are of 427,000 new cases of Lyme in the US every year, and that cases of Lyme continue to outpace other infectious diseases in the US by significant margins.^[3] In the UK, Medlock et al., (2018) in a major study published in the *International Journal of Environmental Research and Public Health* stated that “Lyme borreliosis is already a significant and growing public health concern for the UK”, with the records of *Ixodes ricinus* (the key tick vector of *Borrelia burgdorferi*, the pathogen that underlies Lyme disease) having more than doubled between 2010 and 2017.^[4] It is a huge problem, and an ever-growing one unfortunately.”

Dr Carsten Nicolaus is Medical Director and Founder of BCA-clinic/BCA-lab and has dedicated his career to the research, diagnosis and treatment of Lyme and other tick-borne diseases. He added: “This is not just a problem affecting the western world but is, in fact, present on all continents,

REASONS FOR THE RISE

So, when did the obvious rise begin occurring and why?

“We are definitely seeing a greater incidence of Lyme disease. During the early part of the 21st century, an unprecedented change in the status of vector-borne disease in Europe occurred. We are seeing increased movement of people between countries. Intercontinental air travel and global shipping transport created new opportunities for invasive vectors and pathogens,” Crowther commented.

“It has affected the emergence, distribution, and abundance of *Ixodes ricinus* in the UK and throughout the world. And there is more outdoor recreation when it is warmer, which increases the risk of infection. Suburbanisation and reforestation are additional factors. Infected ticks are continuously being introduced by migratory birds to gardens and urban areas and are finding they can survive and thrive far better than in the past. Dogs and cats are also hosts, and rising levels of pet ownership are contributing to the problem. In 2017, it is estimated that 44 per cent of UK households had at least one pet. This is equivalent to 12m households. Approximately 24 per cent of the UK households owned at least one dog, and the UK cat population was around eight million^[9].”

There is also the simple fact that people are now reporting it more, so known cases have risen.

Holmes commented: “A general lack of awareness about early symptoms and other possible means of transmission may have impact on numbers of cases reported. Climate change may, in part, account for the rising occurrence of Lyme disease. The warmer temperatures are more favourable to ticks which can live longer. Ironically, the increasing trend for healthy lifestyle pursuits, such as cycling, walking and trekking, may expose more of us to environments where we may be exposed to ticks.

“Additionally, since a healthy immune system may help keep manifestation of Lyme disease dormant, diet and lifestyle may impact numbers of those infected who manifest symptoms. Recent trends of diets high in processed foods and low in nutrients needed for immune function, for example, may play a role in numbers of reported cases of Lyme

disease. Immunological fitness is essential for the body’s ability to appropriately and adequately provide defence against immune assaults from viruses, bacteria, parasites and fungi. Immunological fitness gives greatest capacity for good health.”

Crowther agreed, adding: “Underreporting has always been a big problem. In the UK, Lyme is not a notifiable disease, so official figures are far too low, but social media has broadened our awareness of Lyme disease incomparably. Both patients and therapists are much more familiar with the symptoms, more likely to think of testing for it, and can exchange on therapeutic options so readily now.

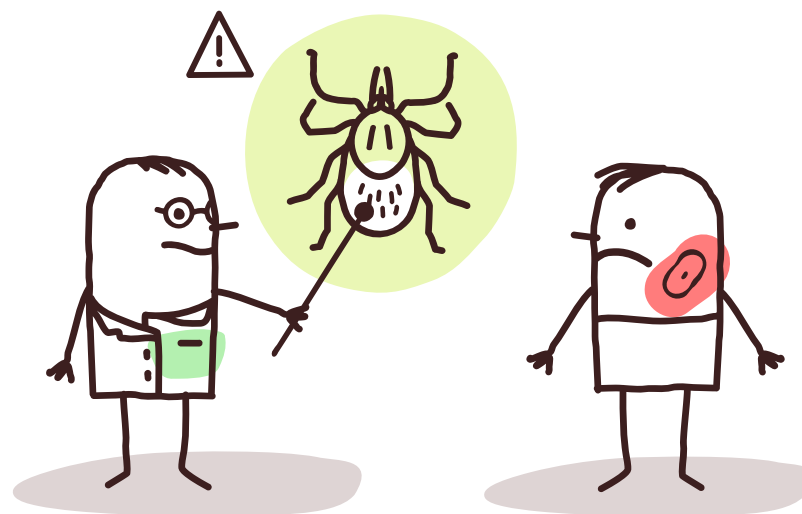
“Testing has also improved. It is well recognised that a bull’s eye rash only occurs in around a third of those infected, and the traditional two-tier antibody testing misses at least 40 per cent of cases. As testing methods improve, the number of cases identified rises^[10]. A last point essential to mention is the link between Lyme disease and the exponential rise in EMFs that we are exposed to. Dr Klinghardt and others have firm evidence of how the growing compromise of our immune systems from EMFs, as well as chemicals and heavy metals in our environment, make us more liable to succumb to Lyme disease, as well as other infections^[11].”

having even been found in animals in the Polar area. An estimation from WHO is that over 40m people worldwide have been affected with this disease. It is still problematic that we do not have sufficient scientific research on new diagnostic and treatment approaches or the disease itself.

“There are many influences that are responsible for this. These would include genetic predispositions resulting from specific genetic variations that are often inherited i.e. methylation problems with the body getting rid of toxic metals. The problem may be getting worse due to epigenetic changes like climate change or global warming, pollution levels, DNA methylation, etc. Antibiotic resistances, genetic mutations and invading tick species from around the world could also be reasons for more cases being seen.”

Rose Holmes, Registered Nutritionist, mBANT, BSc, Dip.ION, PGCE, Education and Training Manager at Rio Health, agreed at the scale of the issue, commenting: “Lyme is not a notifiable disease in the UK, and although there are approximately 1,000 serologically-confirmed cases yearly in the UK, Public Health England estimates the true number to be approximately 3,000ⁱ whilst other estimates indicate figures could be far higher and closer to 45,000 cases per year .

“World Health Organization data indicates, throughout Europe, the annual number of reported Lyme disease cases has increased, on average, by 65 per cent for the last 20 yearsⁱⁱ. And yet, numbers are likely to be underestimated because case reporting is inconsistent, the chance of misdiagnosis (due to non-specific symptoms, which can mimic other health conditions and false negative blood tests) is high, and many infections go undiagnosed.”



SYMPTOM LIST

Testing is required to determine if a client has Lyme disease, but it's important to understand common symptoms as a starting point.

"Lyme disease (not Lymes) is also referred to as Lyme Borreliosis. It is a multi-microbial inflammatory infection with systemic (all-body), multi-symptom and often chronic effect. Symptoms manifest in three stages, affecting skin, organs, joints and neurological health," Holmes advised.

Crowther continued: "Lyme disease tends to be categorised (roughly) into three stages:

■ **Stage one – early-stage disease:** Sometimes an erythema migrans rash, and 'flu-like symptoms, temperature, chills and neck stiffness, joint and muscle pain, swollen lymph glands, fatigue.

■ **Stage two – early disseminated disease:** More serious symptoms may develop if Lyme disease is left untreated or is not treated early on, as the bacteria spread to other parts of the body. These may include inflammation (joint pain and swelling), neurological, for example, tingling, numbness, neuropathy, memory problems, difficulty concentrating. The triad of meningitis, cranial neuritis and polyradiculitis is classic of neurological involvement. Cardiac, for example, myocarditis, pericarditis, bundle branch block, heart rhythm disturbances can occur^[15] either at this stage or later, too.

■ **Stage three – late disseminated disease:** Later disease may be characterised by large-joint oligoarthritis (over 50 per cent of cases), encephalopathy, peripheral polyneuropathy, aphasia/hemiplegia (rarely), and even seizures. Some patients very unfortunately find themselves in wheelchairs, unable to walk. Anxiety attacks, psychosis and hallucinations have all also been recorded^[16].

Dr Thomas Wnorowski, of BodyBio, highlighted the issues around cognition.

"The brain fog that affects practically all persons who acquire Lyme is actually called cognitive dysfunction. It could be something as simple as having to wait a few seconds for information to process, or something as serious as forgetting your children's names or your address. It becomes frightening

when you become incapable of retaining information.

Losing focus and being unable to concentrate on tasks creates fearful moments and considerable frustration," he advised.

Moving onto testing, this has been an area of huge development in recent years.

"There are many different serological tests available, with no gold standard in place yet for everyone to use. It is, however,

recommended that

two tier testing is always done if a positive result is picked up," advised Dr Nicolaus. "The Elisa test tends to be the first test most people have done. If a positive result is received, then the test needs to be done again by a western blot to confirm this again.

"PCR tests and cellular testing is also available, and these involve blood culturing and next generation sequencing. Ticks themselves can also be sent in for laboratory PCR testing to be done. In general, though, tick testing isn't done as the first step if there is no certainty of transmission having occurred. In cases where patients have no access to labs, it is recommended that they send the actual tick in to be tested. If this is positive, then there is definitely a requirement for more testing by the patient."



Crowther added: "It is well recognised that a bull's eye rash only occurs in around a third of those infected, and the traditional two-tier antibody testing misses at least 40 per cent of cases. The EliSpot (enzyme-linked immunosorbent spot) system of testing is now available from Germany, such as from ArminLabs, where they have a long history of taking Lyme disease much more seriously. It uses a different arm of the immune system and can show current cellular activity against the *Borrelia* antigen (and indeed most co-infections). Antibody testing has many shortcomings: the EliSpot technique is better able to detect current infection. There is now even a fully validated and accredited test that can detect the *Borrelia* round body form, which is a clear indicator of chronicity."

UNDERSTANDING LYME DISEASE

Holmes explained: “Lyme disease is caused by *Borrelia* bacteria transmitted by ticks and other biting insects. It is predominantly transmitted via ticks from deer, sheep or dogs, which sometimes (but not always) results in a characteristic ‘bull’s eye’ rash. The tick bites the human and can remain attached for hours or weeks, regurgitating into the bloodstream and passing *Borrelia* bacteria and often other pathogens to the human host. These other microbial infections are referred to as co-infections. These can be viral, parasitic, fungal or other bacterial co-infections.

“*Borrelia burgdorferi* (*Bb*) is the species most discussed with relation to Lyme disease. *Bb* is pleiomorphic, which means it has many shapes or forms. The spirochetal form is the active form. In this corkscrew-shaped form, *Bb* can attack multiple organ systems, a feature it shares with another well-known spirochete, *Treponema pallidum*, which causes syphilis. *Bb* cycles between different forms. In its inactive (non-spirochetal) forms, antibiotics are ineffective. When exposed to antibiotics, *Bb* develops granules and cysts; by morphing into round-body forms, *Bb* can resist antibiotics. *Bb* also form biofilm-like colonies to survive unfavourable conditions.”

Dr Nicolaus also pointed out: “This is caused mainly by transmission via blood suckers, which would include ticks, mosquitoes, horse flies, etc. There is, however, strong evidence to suggest that Lyme and its co-infections can also be accompanied by viral infections via things like food or sexual contact (there are several studies/publications from Russia and Austria confirming that there is a high risk of transmission via raw milk products). There have also been some published case reports in Austria and Switzerland confirming that mountain farmers have developed tick borne diseases, like TBE (Tickborne encephalitis) from raw milk products.”

Crowther also advised: “There are over 800 species throughout the world^[12]. A common tick in Britain is *Ixodes ricinus*, also known as sheep tick/castor bean tick. Hosts are small mammals and birds, sheep, cattle, dogs and humans. Sources exist substantiating other vectors, too, such as horseflies, sand flies, mosquitos and fleas^[13]. Ticks and these

other vectors may also carry many other infections, commonly called coinfections: *Babesia*, *Bartonella*, *Ehrlichia*, *Anaplasma*, to name just a few. Each has specific manifestations, which alter as the bacteria become disseminated over the body.”

Crowther pointed out that understanding of how it is transmitted and by what is hugely important.

“It is important to remember that it is not just *Borrelia* that ticks transmit, but a whole swathe of co-infections too. A recent study found that ticks transmit more pathogens than any other arthropod, and one single species can transmit a large variety of bacteria and parasites – *Bartonella*, *Babesia*, *Ehrlichia*, *Rickettsia*, etc.^[8] Dr Burrascano (‘father’ of the original Lyme disease treatment guidelines) uses the term ‘Lyme disease’ to denote co-infections, too, and Dr Jemsek, an extremely well-known and successful LLMD (lyme-literate MD), calls the condition Lyme Borreliosis Complex (LBC).”

When looking at the risk in the UK, Crowther added: “Recent draft guidelines from the UK’s National Institute for Health and Care Excellence (NICE) state: ‘Infected ticks are found throughout the UK and Ireland... particularly high-risk areas are the south of England and Scottish Highlands, but infection can occur in many areas’^[5]. An official European Economic Union map of the current European distribution of *L. ricinus* ticks reveals them across almost the entire EEU.^[6] A 2017 study by scientists in Edinburgh affirms ‘Lyme borreliosis is... the most common zoonotic infection in Western Europe, approaching endemic proportions in many European countries’^[7].”

So, one of the most important areas to address is can a person who has been infected by a tick carrying the disease rid themselves of it? Or is it a lifelong disease?

“No one can answer this with 100 per cent certainty. As long as there is no testing available that is 100 per cent accurate, this will always be hard to predict. Experience has taught us that even when patients are feeling in good health and have received good test results, there can still be *Borrelia* in the background which isn’t currently active,” Dr Nicolaus commented.

“It is, however, easier to treat in the early stages with excellent results. The longer the disease stays undetected, the higher the likelihood of bacteria invading connective tissues etc., where it can hide while being dormant.

Even after a long-term treatment, in some cases, bacteria or bacterial residues may be persistent and can trigger a relapse of the disease or ongoing symptomatics. Even in very severe cases, however, specialised treatment and a change in lifestyle can lead to a good quality of life being achieved again.”

And Crowther also pointed out it has to do with how soon you can catch it.

“If addressed immediately after being bitten (stage one), generally with antibiotics – hopefully for long enough, and at a high enough dose – there is a good chance of overcoming it right away,” she explained. “If it has moved on to stage two – early disseminated disease – it may be harder to access the bacteria. They may already have burrowed into synovial tissue in the joints and other immune-privileged parts of the body, where they cannot so easily be eradicated, and perhaps have surrounded themselves with biofilm as protection.

“So, you need more sophisticated strategies to attack the bacteria, while also strengthening the patient’s own ability to mount an immune response. These will often be quite complex protocols, but they always need to be tailored to the patient, and to the exact co-infections that have been found via testing. If the patient has harboured the bacteria for a long time, late disseminated disease is harder to resolve. This is often characterised by neurological and/or cardiac symptoms, and much more diverse, systemic complaints: dysautonomia with POTS, a debilitating energy deficit and photophobia, aphasia, anxiety. When patients have suffered for many years, with all the concomitant co-infections and opportunistic infections, a much more intensive team approach is likely to be necessary to address the damage the pathogens have wrought.”



LIVING WITH LYME

In terms of supporting a client living with the disease, there is a lot that can be recommended.

Let's start with the role of diet and lifestyle and the type of regime a sufferer needs to follow.

Lydia Madrigal Calderon, Nutritional and Biomedical Scientist, MSc, is responsible for delivering nutritional consultations and dietary programmes to Lyme disease patients and is part of the MakeWell Nutritional team. She advised: "Affected patients often have a suppression of their immune functions and some inflammation in their body. Diet and lifestyle both play a large and important role in supporting and accompanying the disease/therapy.

"Regarding food, most important is a change of old (bad) habits to a healthy lifestyle and diet. This includes a change of food types, patterns and food related behaviours, as well as supporting the body by losing visceral fat mass, increasing physical activity, increasing consumer awareness and to learn to listen to your body signs. Diet should be generally anti-inflammatory, pure, natural and easily digestible.

"A major focus should be on gut health and microbial support (especially when taking plant-based and conventional antibiotics). Another focus lies in detoxification and the avoidance of additional heavy metal sources of food (for example, superfoods, marine foods, rice etc)."

Crowther added: "Cutting out all sources of sugar is vital as elevated blood sugar hinders phagocytic ability. White blood cells need to ingest pathogenic bacteria and viruses to neutralise them, but this ability goes down dramatically when blood sugar is high. The reason is Glucose-Ascorbate-Antagonism (discovered in the '70s). White blood cells need an intracellular vitamin C concentration 50 times higher than in the blood plasma to handle the oxidative stress from fighting a pathogen. But the cell receptor for glucose and vitamin C is the same, insulin, and glucose is always given preference. So, if you have high blood glucose, your immunity will automatically go down. A diet low in fast-acting carbohydrates therefore really makes sense.

"*Borrelia* induce cytokine release because the resulting tissue breakdown provides them with collagen, their favourite food, so, an anti-inflammatory diet is key. *Borrelia* also feed off



our cholesterol and phospholipids, impairing cell membrane integrity, so high-quality fatty acids are essential, in the right balance: lean meat from grass-fed animals, small non-farmed fish that will not be contaminated with heavy metals, nuts, seeds, avocados, organic butter, organic eggs, etc.^[18]

"Anti-inflammatory foods (and nutraceuticals) should help to counter the joint pain that Lyme disease often causes. Gluten

and dairy are the primary culprits. An elimination diet should show whether using alternatives provides relief. Leaving out the solanacea (nightshade) family can also help, especially with rheumatoid arthritis-type symptoms. A proportion of high-fibre foods are also useful to clear the debris (acting as 'binders') and clear the GI tract for recolonisation with healthy bacteria – ground flaxseeds, slippery elm bark, psyllium seeds, fibrous vegetables, etc."

It's also crucial that you educate your clients around the long-term health issues associated with it.

"Later disease may be characterised by large-joint oligoarthritis (over 50 per cent of cases), encephalopathy, peripheral polyneuropathy, aphasia/hemiplegia (rarely), and even seizures. Some patients very unfortunately find themselves in wheelchairs, unable to walk. Anxiety attacks, psychosis and hallucinations have all also been recorded," Crowther advised.

"If Lyme disease isn't promptly or effectively treated in the first two stages, late disseminated (post-treatment, chronic, or neurological) Lyme occurs weeks, months or even years after the tick bite. The Lyme bacteria have spread throughout the body and many patients develop chronic arthritis, as well as an increase in neurological and cardiac symptoms. Symptoms may include arthritis in joints or near the point of infection, severe headaches or migraines, vertigo, dizziness, migrating pains that come and go in joints/tendons, stiff, aching neck, sleep disturbances, insomnia, disturbances in heart rhythm, mental fogginess, concentration issues, numbness in the arms, legs, hands or feet, problems following conversations and processing information and severe fatigue^[17]."

Holmes continued: "*Bb* actively migrate from the blood into connective tissues and proliferate in skin, heart, joints and central nervous system. *Bb* activate enzymes, trigger dissolving of collagen and colonise in collagen fibres; this may account for numerous symptoms, particularly symptoms relating to skin and/or joints. Leaky gut, severe food allergy reactions, adrenal/thyroid exhaustion and brain fog are common in Lyme disease. Many infected individuals are unable to continue their normal lifestyles. And the disease may have psychological and social triggers and impact."

SPECIFIC SUPPLEMENT ADVICE

As part of any programme to support a client through Lyme disease, there are some key supplements known to be beneficial.

Crowther pointed out: "This will vary depending on how entrenched the bacteria are, what co-infections there are, how the Lyme disease has manifested (whether pain, neurological/neuropsychiatric symptoms, autoimmunity, etc.), and what the perpetuating factors are. The disease may be so progressed that medical supervision is clearly essential, though this doesn't rule out supplements. But in severe cases, the full protocol may need to include pharmaceuticals."

Holmes added: "It is important to realise that killing the invading pathogens is not enough, and can, and often does, make the Lyme patient feel worse. Protocols must include detoxification and immune support, in addition to anti-microbials. It is important to realise that, for many Lyme sufferers, protocols that address Lyme disease must be followed long-term. And for most Lyme sufferers, immune system and detoxification processes need long-term support."

Looking at specifics, Dr Nicolaus made the following recommendations:

- "It is important to target and kill bacteria and anti-microbials and herbal supplements can be very effective in helping with this. The priority should be to enhance the immune system and to downscale inflammation. Heavy metal or mould issues require a different approach, but anti-microbials and herbal supplements can be good for this too.
- Refilling body stores of important and in many cases deficient vitamins or minerals such as vitamin D and B12.
- Other vitamins and minerals which are (suspected) to be deficient/for general immune support are zinc, selenium, vitamin C, B complex etc.
- Anti-inflammatory substances like alpha lipoic acid, omega 3 fatty acids, bromelain, resveratrol, etc.
- Gut health support in the form of heavy metal binders, probiotics and prebiotics, as well as substances important for the gut's mucosa (biotin, glutamine, boswellic acids)."

Holmes recommended: "The human immune system requires nutrients to function optimally and confer protection. Lyme disease disrupts the immune system, depleting zinc, manganese, magnesium and affecting white blood cells.

Immune support protocols should include these nutrients and others, particularly selenium, probiotics and vitamins C and D. Echinacea, astragalus, Japanese knotweed (*Polygonum cuspidatum*) and *Usnea barbata* may also aid immune regulation.

"When anti-microbials are used to address the bacterial, viral, fungal and parasitic infections, toxins are produced as part of the 'die-off' of these microbes. An inevitable part of the healing process, die-off can result in what is referred to as a 'Herxheimer Reaction'. It is very important to realise this before starting any programme; it is essential that a detoxification protocol is initiated right from the start.

"So, our increasing toxic environment encourages conditions whereby microbial infections may thrive, and microbial infections create toxins. And when someone with Lyme uses anti-microbials to address the infections, die-off reactions are inevitable. For all these reasons, detoxification must be incorporated into any protocol to address Lyme disease."

So, what would she recommend from this perspective? "Protocols based on botanicals may help to resolve many of the root causes of most Lyme patient's symptoms. Protocols must include anti-microbials, detoxification support and immune support.

"Research has shown that both TOA-free *Uncaria tomentosa* (cat's claw) and *Otoba parvifolia*, two broad-spectrum anti-microbials from South America, are effective against different forms of *Bb* and many of the co-infections. *Tabebuia impetiginosa* (pau d'arco/lapacho) is also a broad-spectrum anti-microbial, particularly known for its anti-fungal effects. A variety of herbs may benefit in cases of parasitic infection (for example, *Artemisia*, *Inula helenium*, *Ipomoea jalapa*, *Achillea millefolium*, *Juglans nigra* and *Eugenia caryophyllata*."

She continued: "Natural supplements which may aid detox include sources of chlorophyll (for example, chlorella and barley grass). Mobilisation of heavy metals can be aided by red algae (*Gigartina chamissoi*), seaweed (for example, *Chondracanthus chamissoi*), chlorella and cilantro (*Coriandrum sativum*). Particularly useful to minimise Herxheimer or die-off reactions is *Desmodium molliculum*. This is especially effective when used alongside *Pimpinella anisum*, which may assist with detoxification of heavy metals and supports the central

nervous system."

Crowther also suggested: "There is good science backing for remedies such as *Artemisia annua*, resveratrol, stevia, andrographis, astragalus, propolis, calendula, cilantro, cistus incanus, and many others, but the combinations, sequencing and dosage are all so very patient- and case-specific. A binder is also vital to ensure that what the patient needs to eliminate is not recirculated via the enterohepatic system – this is so often forgotten."

Dr Wnorowski turned the focus on cognition in terms of how this can be addressed in those with Lyme disease.

"The toxins that accompany Lyme disease release ammonia, already known to disrupt brain activity in urea cycle disorders. Here, the butyrate molecule has been proven to set things right by sequestering ammonia and preventing destruction of neurons, which may present itself as Alzheimer's disease after a time. The toxins instruct the body to release pro-inflammatory chemicals to deal with them," he explained.

"These are cytokines. They exacerbate a situation already in disarray, and this begins to destroy cell membranes. We long have held the cell nucleus to be the director of all that the cell is and does. In recent years, we have found the cell membrane to be the commander, the nucleus being relegated to identifying the cell's self and handling matters of DNA. The membrane tells the cell what to do and when to do it.

"Cellular repair is mandatory for the restoration of full function and identity. Because the main constituent of the membrane is phosphatidylcholine (PC), it is sound practice to use PC to affect the repair. With Lyme, using butyrate to clear debris and PC to repair the substrate can be an effective modality in approaching disease resolution."



RESEARCH UPDATE

Lyme disease is an area in which a huge amount of research is taking place. So, what do the experts highlight as the most encouraging?

“All the latest research is saying you can’t just look at *Borrelia burgdorferi* in isolation. A recent study found that ticks transmit more pathogens than any other arthropod, and one single species can transmit a large variety of bacteria and parasites^[18],” Crowther advised. “Emerging research also underlines that what are being called bacterial ‘persisters’ can survive antibiotics and is showing how very effective natural remedies can be.

“The neuropsychiatric manifestations of Lyme disease and related infections is another huge evolving area of research. It is now being understood how Lyme and co-infections can create autoantibodies that can penetrate the blood-brain barrier and attack neuronal targets in the brain involved in neuropsychiatric and/or motor functions. A large consortium in the USA – The PANS Research Consortium (PRC) Immunomodulatory Task Force – is involved in research into these conditions. This is so important: how many people are being consigned to a lifetime of psychotropic medications, when perhaps their condition is infection-driven? AONM is working closely with Moleculera Laboratories in the States to bring this knowledge over to the UK^[19].”

She added: “Another extremely important field of research is how the newly emerged virus SARS-CoV-2 (the causative agent of Covid-19) affects patients with Lyme disease: whether they are particularly susceptible, and what medications/remedies can help them if they catch this virus on top of already existing Lyme disease and co-infections. Lyme experts, Dr Richard Horowitz, Dr Robert Bransfield and others are already involved in research into this^[20, 21].”



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- Lyme disease and other tick-borne illnesses, such as: Bartonellosis, Babesiosis, Chlamydia pneumoniae and Mycoplasma pneumoniae.
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- Chronic Fatigue Syndrome and exhaustion.
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EXAMPLE PROTOCOL FOR LYME

Lyme disease and many other chronic conditions are tough to treat and sufferers can be ill for many years. To treat it effectively requires determination and persistence and MakeWell understands that difficult journey that people go through. It is that awareness that is at the heart of the business and the work it does. MakeWell has, therefore, created a three-step protocol, which can be individually adapted to the different health needs of the client.

■ STEP ONE: Core Protocol – basis of treatment:

The LymePlus Core Protocol is the foundation of this three-step protocol. It consists of the products, APP+, TBB+, and DTC+. These products can be used alone or in combination with conventional antibiotics.

■ STEP TWO: Extended Protocol for co-infections:

These products (CPN+, Bart+, MRG+) can be used as needed to increase the effectiveness against the following co-infections: Chlamydia, Bartonella and Babesia. All three herbal formulas can be used simultaneously, in addition to the Core Protocol, without restrictions.

■ **STEP THREE: Support Protocol:** The Support Protocol should always be used in addition to the Core Protocol and/or Extended Protocol. This ensures that inflammatory processes, immunosuppression, as well as the most common symptoms (such as chronic fatigue, mitochondriopathy) are addressed as well.

MakeWell believes profoundly that everyone should have the chance to have a full and happy life. Good health is a key component of that and MakeWell sees itself not just as a company that provides products to support and restore health, but products to enable happiness and wellbeing. MakeWell aims to help people resume active lives with their family and in the community. It is this that drives each and every one of the team working at the company to continue developing high quality, safe and effective products.



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Taking action on allergies

At this uncertain time for the world, Coronavirus is rightly dominating both the news and health agenda. But as we move through the spring months, many people will be suffering the adverse effects of allergy season. Here, experts discuss the most up-to-date nutritional approach in managing hay fever.



When we come to the spring months, allergic rhinitis, better known as hay fever, is often at the forefront of people's minds, given the sheer number who suffer and how debilitating symptoms can be for some. And that's before you factor in the rise in other allergic diseases.

While a lot of attention at the moment is rightly placed around Covid-19, with many focusing on their immune health and general wellness, seasonal allergies have arrived, and that means many people will be seeking support and advice to manage their symptoms. And while practising in person (at the time of writing) isn't possible, we know that many practitioners are offering virtual consultations, and so the need for up to date advice remains.

If we look at the actual issue of seasonal allergies, it is clearly a big problem, not just in the UK but globally.

And, according to expert estimates, cases are on the rise; according to Allergy UK, it affects 10-15 per cent of children and 26 per cent of adults in the UK (GK Scadding et al, 2017). Worryingly, allergic rhinitis has trebled in the last 20 years (Allergy the unmet need, 2003).

Allergy UK also points out that while rhinitis is often regarded as a trivial problem, studies have shown that it affects quality of life. It disturbs sleep, impairs daytime concentration and ability to carry out tasks, causes people to miss work or school and has been shown to affect examination results. People who have allergic rhinitis are at increased risk of developing asthma as the upper airway affects the lower part of the airway leading to the lungs and many asthmatics also have rhinitis.

From the perspective of Nutritional Therapy, Sarah Oboh, Nutritionist at OptiBac Probiotics, commented:

"The prevalence of allergic diseases worldwide is rising dramatically in both developed and developing countries, with the UK having some of the highest rates in the world. Every year in the UK, the number of allergy cases increases, particularly amongst children. Around one in five people in the UK are affected by seasonal allergic rhinitis and every year, we continue to see an increase in the number of diagnosed cases (Allergy UK 2019).

"The exact cause as to why seasonal allergies are on the rise is not known, but many theories exist. As seasonal allergies seem to affect children more than adults, we should consider a potential contributing factor that relates to childhood. Research has shown that breastfed infants, in comparison to formula-fed infants, have less childhood afflictions such as colic, infantile eczema, asthma, infections and seasonal allergies. One cohort study found that infants

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who were exclusively breastfed for four months or more had less suspected allergic rhinitis by two years of age compared to infants on formula milk (Oddy 2017). Breast milk contains many bioactive compounds that help to provide newborns with the best start in life and so the low breastfeeding rates we see in the UK may be a contributing factor to the development of seasonal allergies.”

She continued: “Other scientists believe that seasonal allergies may be caused by a lack of bacterial diversity in our gut due to the over-emphasis on hygiene in western societies. These societies seem to suffer with hay fever in larger numbers than the rest of the world, which has led to the ‘hygiene hypothesis’ theory potentially being one of the main causes. This hypothesis suggests that our increasing need to live in germ-free environments, removed from bacteria we would normally be exposed to in nature, has decreased the diversity of bacteria found in our gut and microbiome. This has implications for our immune system, which can be unnecessarily sent into overdrive by allergens such as pollen. For a child, this could mean that their immune system may not receive sufficient early exposure to the germs needed for it to develop properly. Consequently, the immune system is not able to launch an appropriate defence mechanism to pollen, resulting in seasonal allergy symptoms.”

Cath Gorman, Nutritionist and Health Coach at Good Health Naturally, agreed that the research shows more and more people are suffering with seasonal allergies.

“One UK study found the number of adults claiming to have experienced bouts of hay fever jumped from 26 per cent to 31 per cent between 2016 and 2017. According to Allergy UK, 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 30 million Brits will have hay fever – that is almost half of the entire population,” she pointed out.

“Nobody knows why for sure, but interesting theories include the hygiene hypothesis, climate change and air pollution. Changing weather patterns, higher temperatures and rising atmospheric carbon dioxide levels have caused allergenic pollens to become more abundant and widespread. This means longer and more intense allergy seasons. Increased traffic, pollution and poor air quality may



cause pollen to become trapped at ground level, keeping it within easy breathing distance of potential hay fever sufferers.”

Rose Holmes, Registered Nutritionist and Education and Training Manager at Rio Health, agreed, adding: “General consensus is that rates of hay fever and seasonal allergy are on the rise and numerous reasons are suggested for this, including that less time spent outdoors by children results in immune systems that are less developed as there is less exposure to endotoxins.

“These types of allergic reaction are immune reactions to pollen, dust mites, mould spores, etc that result in production of histamine and leukotrienes, causing inflamed nasal passages, eyelids and sinuses.”

Max Wiseberg, founder of the organic pollen barrier balm,

HayMax, also pointed towards the effect that climate change could be having on incidence of hay fever.

“A gradual rise in temperatures as a result of global warming, urban pollution and increasing urbanisation could be a major cause. We are planting more exotic plant species in Britain, which blows different pollens into the atmosphere that the body won’t have encountered before. The changing global environment also encourages plants that release more pollen into the air to grow in Britain and as trees and plants bloom for longer in the warmer weather we have been experiencing,” he explained.

“There are other new pollens that we haven’t been exposed to before, such as ragweed, which only recently travelled to the UK and originates from the tropical and subtropical regions of the Americas.”

A condition definition

If we focus on hay fever initially, according to Allergy UK, it can be defined as the medical term given for inflammation of the nasal lining caused by an allergic trigger.

Allergic rhinitis is caused when the body makes allergic antibodies (IgE) to harmless airborne allergens, such as pollen, as well as house dust mite or pet dander (hair/skin) that are breathed in. In people sensitised to these allergens, exposure causes the release of chemicals (mediators), from cells in the nasal passages, eyes or airways. Some of these mediators, such as histamine, work quickly, others work more slowly.

Gorman commented: "Symptoms and their severity vary, but usually include a runny or blocked nose, sneezing, and red, itchy, or even watery eyes, along with an itchy throat, coughing and wheezing, especially in people with asthma. Other things to look out for are skin rashes, brain fog, fatigue and weakness.

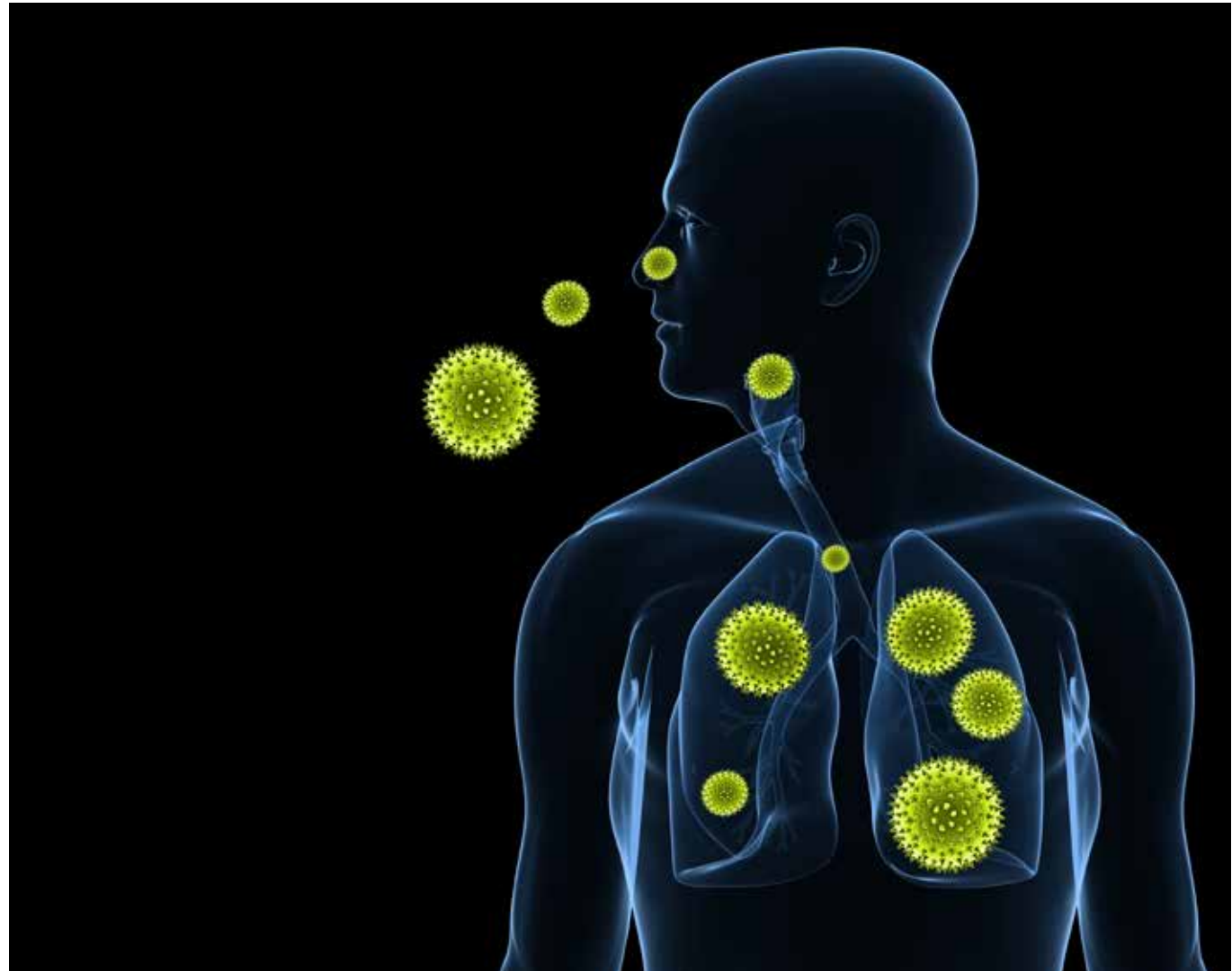
"Generally, hay fever does not pose a serious threat to health. But it can have a negative impact on quality of life, disrupting sleep, and productivity at school or work. Swelling of the nasal passages can prevent mucus from draining out of the sinuses, making them more vulnerable to infection. It can also lead to ear infections if the Eustachian tube, which runs from the middle ear to the back of the nose, becomes blocked up. This is more common in children."

But is it the case that some people can be predisposed to suffer with it?

Isabelle Nunn, Head Nutritionist at Kinetic, which has the Garden of Life and Nature's Answer brands in its portfolio, commented: "Factors that predispose someone to suffer include a congested liver, family history, environment you live in, and sensitivity to one form more than another form of pollen. Some food groups could be irritating your immune system, so it is essential to identify those through an elimination diet or a diagnostic test. Stress and poor sleep can weaken our immune system, and affect the severity of hay fever symptoms, as well as our recovery."

Allergic rhinitis is also a condition that can be interlinked with other conditions, including asthma and eczema.

"The three conditions are known collectively as the 'atopic triad.' Each has an underlying genetic root, causing hypersensitivity to certain triggers. Unfortunately, if you suffer from one of these you are more likely to start displaying symptoms of another," Gorman advised, adding: "Eighty per cent of asthma sufferers say hay fever triggers their asthma



symptoms. This is because it causes already inflamed airways to swell up even further, leading to breathlessness. Plus, increasingly inflamed and sensitised airways are more likely to react to further triggers."

It's important to note that there can be associated effects of hay fever that may not initially seem connected.

"Serious hay fever symptoms do sometimes develop into long-term health conditions, such as sinusitis, asthma, or

chronic ear infections. Depression is sometimes linked to hay fever because of the emotional toll it takes on the sufferer," Wiseberg advised.

"One major study carried out in Taiwan found that hay fever sufferers have a significantly increased risk of psychiatric disorders[1]. Symptoms, especially extreme ones, can trigger stress and great emotional suffering, which then goes on to affect the mood of the sufferer."

Strengthening immunity

Experts tend to agree that a key component of dealing with hay fever centres on the immune system and there is good reason for this.

“Immunological fitness is essential for the body’s ability to appropriately and adequately provide defence against allergens, as well as other immune assaults (viruses, bacteria, parasites and fungi). Immunological fitness gives greatest capacity for good health,” Holmes explained, adding: “The human immune system functions to protect the body from daily assaults, including microorganisms and other foreign invaders. The immune system consists of many special cells (for example, leukocytes and phagocytes) and proteins (for example, antibodies/immunoglobulins), which defend the body. The immune system also involves various body tissues and organs, including lymph nodes, tonsils, thymus, bone marrow and spleen. White blood cells are a very important component of the immune system; these protect the body against infection, attacking and destroying bacteria, viruses and other invading organisms.

“The strength of immune response to invasion by virus, bacteria, parasite or fungi, can be compromised by a number of factors, including chronic conditions of stress, depression, cigarette smoke (including passive smoking), sedentary lifestyle and polluted environmental conditions. The immune

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

“Preventing the release of histamine may halt the reaction. Diet, lifestyle and supplements may all have contributory effect to reduce histamine reaction, thus preventing the cause of the symptoms. Preventive measures are important. A strong immune system gives the best chance to counter effects of allergens. And supplements that may provide prophylactic benefit should be recommended.”

Oboh added: “A further important point to note is that the immune system itself plays a very important role in the pathogenesis of seasonal allergies. In the case of hay fever, pollen triggers the immune system to generate the antibody, IgE. This antibody coats the surface of both basophils and mast cells, triggering the release of inflammatory substances, which cause the symptoms of an allergic reaction. A properly functioning immune system is therefore needed to launch an appropriate response to allergens such as pollen.”

And she also pointed out that the immune system and the gut are hugely interlinked when it comes to seasonal allergies.

“Whilst it may not seem immediately obvious, our immune health is closely connected to the health of our gut due to the fact that around 70 per cent of our immune cells are located in the intestines. At present, the potential for our gut microbiome to affect our immune function is being widely explored. Evidence indicates that our resident bacteria do interact with and influence the activity of our immune cells (Vighi et al 2008) (Galdeano et al 2004). By restoring or increasing the diversity of bacteria in the gut, we can thus have a beneficial effect on our immune system, helping to lessen the impact of seasonal allergies,” she commented.

“Research demonstrates the importance of challenging the immune system and establishing a robust microbiome from an early age, especially during the critical developmental stages between birth and toddler age. One way in which we can positively intervene to encourage a good defence system is through the use of probiotic strains specifically targeted at infants to help support their immunity,” she commented.

So, how best to support said immune system? “Strong gut health is always dependent on a regular intake of fibre, a high intake of antioxidants from a variety of fruits and vegetables and keeping refined sugar, refined carbohydrates and alcohol to a low intake. Inulin is a prebiotic, recommended to be consumed throughout the year. It helps to promote the growth of healthy bacteria in the gut and can be found in Jerusalem artichokes, chicory, onions, banana and garlic,” Nunn advised.

Holmes added: “With healthy eating, healthy lifestyle, plenty of sleep and appropriate supplementation. Your immune system helps keep you as safe as possible from minor inconvenient illnesses (like colds, ‘flu and seasonal hay fever) and major ones (like Lyme disease, cancer and chronic illness). A diet high in processed foods and non-organic foods will contain many ingredients that the body must work extra hard to process. The detoxification system can become overloaded, impacting immune health. Microbial infections (parasites, bacteria, viral and fungal) may contribute to this load and affect immune system function.

“Sugar and simple carbohydrates have a detrimental effect on immune health. Just under 100g of glucose and other simple carbohydrates negatively impact the immune system for at least five hours. So, that glass of orange juice with the breakfast of jam on toast can substantially reduce reactivity of white blood cells, the main fighting force of the immune system.”



Anti-allergy diet

As well as eating to support a healthy immune system, there are certain considerations to bear in mind when advising clients with hay fever.

“Vitamin C is a natural anti-histamine and can help support the immune system too, good sources include berries, kiwi fruit, oranges, peppers, and blackcurrants. Avoid substances containing histamine, which are likely to make symptoms worse, such as cheese, red wine, sugar and chocolate,” Gorman advised, adding: “Reducing foods which are mucus producing, such as dairy products during hay fever season can make a big difference to nasal congestion. 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.”

Holmes continued: “Preventing the release of histamine may halt the reaction and reducing congestion may help alleviate symptoms. A diet high in processed foods and non-organic foods will contain many ingredients that the body has to work extra hard to process. The detoxification system can become overloaded, impacting immune health. Microbial infections (parasites, bacterial, viral and fungal) may contribute to this load and affect immune system function. Ensuring detoxification pathways are important.

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

Nunn also pointed out: “Foods that naturally contain high levels of histamine can make symptoms worse, creating an additional influx of chemicals which can make your symptoms worse and debilitating. Foods with high levels of histamine include alcohol such as beer, wine and spirits, dairy products, wheat and wheat related products, meat, chocolate, refined sugars and some fermented foods. Fermented foods are generally great for us as they help to support a healthy gut, which, in turn, supports a healthy immune system. However, some fermented foods can have high histamine levels in the bacteria that grows around it, so it is suggested to avoid vinegar, sauerkraut, yoghurt, or tinned fish.

“Pack your diet with colourful, nutrient dense vegetables and fruits. Don’t forget to have plenty of fibre too from rye, buckwheat, wholegrain rice or pasta, oats, flaxseeds, chia



seeds, hemp and green leafy veg. Bump up your antioxidant levels with herbs and spices such as turmeric, ginger, peppermint, nettle with teas or in cooking and pack in healthy fats to keep inflammation levels at bay. This includes oily fish, nuts, seeds and their derivatives and avocados.”

And Wiseberg suggested: “Nuts are a great source of magnesium and vitamin E, an antioxidant that protects the body from damaging free radicals, which can cause oxidative tissue damage, triggering inflammation that contributes to problems like allergies and asthma. Drinking hot tea with lemon and honey first thing in the morning activates movement of the nasal cilia, which helps prevent early morning sneezing with allergies or hay fever.

“Zinc has an antibacterial and antiviral effect in the body and fosters immunity. Legumes, whole grains and tofu are high in zinc. Natural decongestant effects may be found from spicy foods, garlic and horseradish; use with caution though, as they

may also irritate the throat, resulting in excess mucous and cough.

“Avoid chocolate as this contains histamine and drink responsibly. Reduce the amount of alcohol you drink. Beer, wine and spirits all contain histamine, the chemical that sets off allergy symptoms in your body. In addition to making you more sensitive to pollen, alcohol also dehydrates you, making your symptoms seem worse.”

Nunn also highlighted the importance of cutting back on caffeine.

“Simply because it can stress your adrenal glands, which are already working over-time to produce enough cortisol and counteract the inflammatory effects of histamine. When your adrenals glands become fatigued, the symptoms of hay fever can become much worse, making you feel miserable. Coffee is also a diuretic if consumed in excess, and dehydration has serious impacts on the immune system.”

Supplements to recommend

Much can help here, and it will really depend on a client's symptom range and severity – not to mention their diet and lifestyle.

If we start with probiotics, there is a clear benefit here in terms of strengthening the immune system.

“In a gold standard clinical trial, a combination of three probiotic strains, *Bifidobacterium infantis* Rosell-33, *Lactobacillus acidophilus* Rosell-52 and *Bifidobacterium bifidum* Rosell-71, were found to reduce childhood infections when taken daily and also decreased the risk of missing a day off school (Cazzola et al 2010). This strain-specific combination has been shown to help modulate immune activity by encouraging the growth of beneficial bacteria in the child's gut and could, therefore, be a useful recommendation for formula-fed babies and children born by caesarean section who may be more susceptible to seasonal allergies,” Oboh advised.

“Another well-researched strain that can be recommended to babies from birth to three years of age who suffer with seasonal allergies is *Bifidobacterium breve* M-16V. This strain has been extensively trialled in over 4,000 children and has been shown to help alleviate symptoms of allergy and asthma, colic and risk of infection, as well as helping to support immune function and digestive health (Del Guidice et al 2017).”

She continued: “Probiotics can also be used by teenagers and adults suffering with hay fever. Research has shown that probiotics can support gut health and that different strains of bacteria have different modes of action in the body. When choosing probiotic strains to help address hay fever, it is, therefore, important to select those backed by research that demonstrates their benefit for this particular condition. For birch pollen allergy sufferers, there is research to suggest that taking probiotics in advance of the pollen season may help to reduce the distressing symptoms of this allergy.

“Clinical research found that a specific combination of *Lactobacillus acidophilus* NCFM and *Bifidobacterium lactis* BI-04 significantly lowered the presence of eosinophils in the nasal area amongst individuals taking this two-strain combination when compared to the placebo group (Ouewhand et al 2009). Additionally, these individuals had reduced symptoms of nasal congestion and discharge. Hence, these strains are an important consideration in clinical practice to help support clients throughout the hay fever season (Montalban-Arques et al 2015).”



And then there are some specific nutrients that can help with two key areas required to moderate the symptoms; reducing inflammation and lowering the histamine reaction.

Quercetin is one of the best recommendations here, with Holmes commenting: “Quercetin is an excellent natural antihistamine and powerful antioxidant, which can support body neutralisation of free radicals and positively influence immune system and mast cell balance. Studies show the flavonoid, quercetin, may inhibit histamine release and help reduce symptoms of allergy. Quercetin is also effective

prophylactically, so would be number one to recommend in cases of allergic rhinitis as a preventive measure. Quercetin should be started at least a few weeks before the usual symptomatic period (which varies individually) and is best considered a long-term strategy.”

It's also known that the likes of barley grass, with its rich content of flavonoids and chlorophyll, is a useful way to alkalise and support detoxification processes.

Looking at inflammation, Holmes recommended: “Vitamins A and E also boost the immune system, fight inflammation and have anti-histamine properties. Vitamin C, too, supports immune health and can reduce blood histamine levels. Dry liposomal powders have all the beneficial high bioavailability of liquid liposomal products, but with neutral taste, longer shelf-life and much greater convenience. Camu-camu is the large berry of *Myricaria dubia* from the Amazon Rainforest basin and is exceedingly high in vitamin C (1.6 times more than in acerola), as well as being rich in other phytochemicals that work with vitamin C to help the body to use it. As a food source of vitamin C, the superfood camu-camu is gentle on the stomach, highly bioavailable and optimally absorbed.”

Gorman highlighted serrapeptase, as it helps clear inflammation and excess mucus, and, when looking at anti-inflammatories, it's important to note how critical essential fats are.

Nunn advised: “Fish oils providing 1000mg of omega 3 fatty acids such as EPA and DHA at least are recommended. For vegans and vegetarians, there are alternatives available, Just remember that for us to utilise or absorb omega 3s properly, the body must convert it to the fatty acids with a longer chain as those found in fish. The conversion depends on several factors, but you can best support your body by choosing the most efficient one.

“Ahi flower provides a rich and effective combination of omega 3 and 6 fatty acids. Although there are many forms of plant-based, alpha linoleic acid fatty acids, such as flax, hemp, chia or sacha inchi seed, which do not offer optimal conversion to the long-chain fatty acid, EPA. Being the richest source of SDA, a type of fatty acid, ahi flower oil converts most efficiently to the omega 3 fatty acid EPA as found in fish oil.”

Nunn also turned her attention to key antioxidants, commenting: “Grapeseed extract is a wonderful one to have. Both reishi and chaga have very high antioxidant levels, although all mushrooms help to modulate the immune system.”



Simple tips

Aside from the nutritional side of things, there are some simple tricks to support a client in reducing their pollen exposure.

“Hydration is important; keep up with your hydration levels, with water or herbal teas or coconut water. Rest is very important to let your immune system and body recover, which includes the type of exercise we undertake when we want to relax from work or the daily stresses of life. Even if that means pausing on fairly relaxing exercises, such as yoga or pilates, then do so,” Nunn suggested.

“Shower before bed to remove pollen, especially from your face and hair, and try nasal irrigation. Get a neti-pot and wash nasal passages with a saline solution twice a day. If you suffer from perennial (all year round) hay fever, removing cats or

dogs and any surfaces where allergens can collect (carpets, rugs, upholstered furniture) is ideal. But if you have beautiful pets and can't really face this, try and make sure your bedroom is as allergy-proof as possible. By that, we mean, the mattress is in allergy-proof material, pillowcases, sheets, mattress pads and blankets are washed every week in hot water with additive free and fragrance free detergent. Make sure to also search the house for areas of constant moisture. Such moisture can result in the growth of black mould that is highly sensitising to people.”

Holmes added: “Avoiding pollen/mould exposure may help. Staying indoors on high pollen count days, keeping windows shut, vacuuming using a HEPA filter, pollen filters for air vents in the car, wearing wraparound sunglasses, showering after being outdoors and other evasion tactics.

Find someone else to cut the grass and avoid walking on grass. Fresh cut flowers may trigger reactions, as can smoke. Don't dry clothes and bedding outdoors where they might catch pollen.”

It's also worth being aware of the weather forecast as this plays a key role in how symptomatic a person can be.

“Pollen levels in the UK are very much dependent on the weather. A week of dull, rainy weather followed by a few days of warm sunshine can drive pollen levels sky high, so this is not good news for hay fever sufferers,” Isabelle explained.

And you could also suggest clients regularly use a pollen barrier balm, applied to the rim of the nostrils and bones of the eyes.

“It limits pollen entering the body, where it may cause a reaction,” Wiseberg advised.

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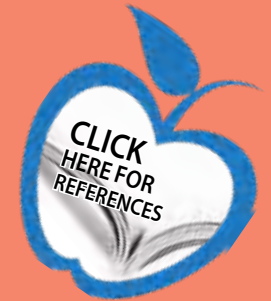


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A female health programme



Demanding lifestyles, declining diet quality and lack of key nutrients means modern women are facing some worrying health challenges. Therefore, identifying such issues and developing a female specific protocol is crucial, the experts advise.

We know that females on average are expected to live longer than men, although this gap in more recent years has been narrowing. Generally speaking, females are also thought to be the more proactive sex when it comes to dealing with health concerns, partially attributed to the fact they would more regularly visit their GP for routine health issues, such as hormone health, contraception and pregnancy.

But that picture does appear to be shifting and certainly, the data is showing the gap between male and female health is shifting; according to the most up to date information from the Office of National Statistics (ONS), there were small increases in both male and female life expectancy at birth in the UK between 2013-2015 and 2016-2018 (0.2 per cent and 0.1 per cent respectively), although the size of these increases was substantially smaller than those observed during the first decade of the 21st century. It was said that men could be expected to live on average to 79.3 years, and women 82.9.

The ONS reported that for males, life expectancy at birth increased by two months in England, and 4.3 months in Northern Ireland between 2013-2015 and 2016-2018. In England, a significant improvement in female life expectancy at birth was observed between these two periods, with an increase of 1.3 months. Furthermore, healthy life expectancy at age 65 was improving at a faster rate than life expectancy for males and females in England and Wales, reducing the number of years lived in poorer health from



age 65 since 2009-2011.

An ONS spokesperson said of the data: "The size of the life expectancy gain between 2013 and 2018 is small by historical standards, but in line with the observed pattern of stalling improvements since 2011. A decade earlier, life expectancy was growing 6.5 times faster for males and 8.2 times faster for females. Meanwhile, there were reductions in the number of years lived in poorer states

of health for both men and women at age 65 in Wales and England and for men in Northern Ireland."

In other research, according to the Health Food Manufacturers' Association's (HFMA) recent health of the nation survey, perhaps surprisingly, men were found to be spending more on their health than women, with a weekly average of £9.18, compared to £8.46 for women.

Commenting on the state of women's health, Katie Lane, Nutritionist at Savant Distribution, said: "Women's health concerns change as our society does, not only on the level of how increasing lifestyle changes impact health, but also our ability to recognise and monitor conditions is bringing issues, some often overlooked, to the surface. With a growing ability to test for health conditions, coinciding with a growing movement to bring light to them, women in 2020 might be observably 'sicker' than a generation ago, but increased testing is positive, and can shed light for sufferers of conditions previously misunderstood.

"With each new generation, greater levels of research into women's issues also means that the scope of information available to practitioners means more concerns can be acted on in this way. The differences in anatomy and function between men and women (among other reasons) mean that for a large part of history, women's health was largely misunderstood, but there is consistently new research giving ever-greater understanding to health concerns tied with being female. How our hormonal cycles exist within a network of other hormones and processes that involve stress response, mood, appetite, digestive function, and not in isolation, redirects therapies to be broader and encompass more than just focusing on one hormone (like the original oral contraceptive pill did). The more we know about women's hormonal cycles, and the hormonal life stages, and how the whole body is impacted and changed, gives a greater base



for practitioners to work off when recommending tests and supplements.

"So, while women's individual health could be viewed as being worse than that of a woman living a generation ago, it could be argued that with greater tools and holistic advice at hand, the ability to observe and improve health is greater."

Isabelle Nunn, Head Nutritionist at Kinetic, which distributes brands including Garden of Life and Nature's Answer, added: "More and more women work and take active and leadership roles in their industry. While doing so, and rightly so, they often are still juggling the management of their households or have a greater role they are playing, still at home compared to their partners.

"Women rely far more on quick fixes (just as men would), but simply because we do not have the time or the energy to look into alternatives as traditionally it used to be. They also often try to self-diagnose and self-cure their bodies and do not seek expert advice, which could be doing them more harm than good. Societal pressures could also be causing today's women to not always talk about their health and feelings, causing them to internally keep it all, which may in turn cause underlying stress levels."

She continued: "In the modern world, women are also surrounded by more endocrine disruptors, essentially an exogenous agent that interferes with the production, release, transport, metabolism, binding, action or elimination of natural hormones in the body, responsible for the maintenance of homeostasis and the regulation of developmental processes. Sources include, for example, soft plastics that these can act as functional oestrogens in vivo. Mineral water has been found to potentially contain xenoestrogens, which partly originate from the compounds leaching from the plastic packaging materials. Other examples include insecticides and pesticides from the food we eat. Ingredients found in detergents or paints, or even dioxins that are found in paper manufacture."

However, women's health expert, Dr Marilyn Glenville PhD, sees it slightly differently, commenting: "The average woman would be considered to be in better health than a generation ago. Women have become much more proactive in taking responsibility for their health and thinking about prevention, as well as keeping themselves healthy on a day to day basis."

Key health concerns

Women will experience specific health issues at different stages of their life, and this changes as they age.

According to Dr Glenville: "My clinics are seeing women with a number of different hormone issues, including infertility, menopausal symptoms, menstrual problems (including no periods, heavy periods, painful and irregular periods), premenstrual syndrome (PMS), polycystic ovary syndrome (PCOS), endometriosis and fibroids. The other key health concerns are thyroid problems and also very common is a sense of general anxiety and stress, which is definitely increasing with modern life."

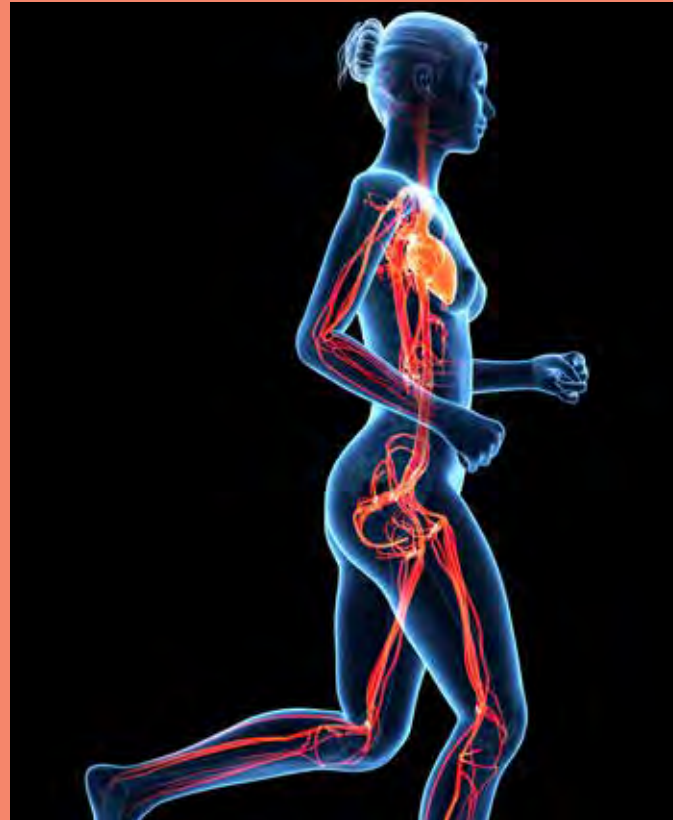
However, Nunn added: "We are seeing more and more issues, not just on their own but as multi symptomatic cases."

Lane continued: "It's largely felt that the pace of modern life is increasing; with so much to do, see, and experience, it can be difficult to stay on top of what most would consider to be the basics: sleep, a well-balanced diet, and relaxing downtime, are all needed to maintain good health."

"Practitioners everywhere are seeing women for help with stress, sleep, and energy, in much the same way they would have been five years ago. But while the issues practitioners are seeing might not be changing hugely, the ways in which they can be treated, definitely have. Some newer supplements to the market are offering different approaches to support these areas, for stress, ashwagandha, for example, is a new staple in health stores."

Rose Holmes, Registered Nutritionist and Education and Training Manager at Rio Health, highlighted the issues surrounding stress.

"Health concerns associated with stress are prevalent across all ages of women, with busy working women and ageing individuals perhaps being the most likely clients. Self-imposed high expectations commonly factor in the stress experienced by women and managing this stress may help women toward improved health," she explained.



In clinic protocol

There are certain steps the experts recommended are taken when assessing a female client, both ascertaining her nutritional status and also her general quality of life.

"Having a good completed nutritional questionnaire is important so that the practitioner can see what the woman's goals are in terms of her health and other aspects, such as a food diary etc. Also, the questionnaire should allow space for what medication she might be taking, whether she is already taking supplements and her family history," Dr Glenville recommended.

"It would also be important to know whether she has had tests done with her doctor, such as blood tests and ultrasound scans to confirm a diagnosis. Nutritional testing for deficiencies (particularly vitamin D and omega 3), gut dysbiosis, adrenal stress etc., can be really useful and the choice of those will depend on the nature of the woman's health concerns."

She added: "In order to help women with female health issues, the aim is to recommend a good diet, correct any nutrient deficiencies, control substances such as endocrine disrupting chemicals coming in from the environment that will disrupt hormones and look at lifestyle issues, such as stress, in order to make sure that the woman is getting all the nutrients that she needs and the tools for her body to regulate itself."

Nunn continued: "Full clinical case history taken, check tests that have been done already by a GP, gynaecologist or other professional – some key tests include a thyroid panel, a blood serum panel including ferritin and iron levels, and vitamin D3. Blood glucose and insulin may be raised, for instance, in someone suffering from PCOS, as well as cholesterol levels (especially apolipoprotein A), LDL, triglycerides, amongst other markers. Looking at a salivary adrenal stress index can help sometimes, such as in PCOS."

"Perhaps a hormonal profile might be needed to look at markers such as testosterone, DHEA, estradiol, estrone, 16 alpha-hydroxyestrone and look at genetic tests if needed, such as MTHFR. For those going through symptoms of endometriosis or PCOS, other tests, such as pelvic exam or ultrasound scan, may be needed, and referral to a gynaecologist. Practitioners would always refer for all these tests above and we can help by looking at the results and symptoms experienced and other areas of health affected and put the whole picture together to support the client as a whole."

Lane agreed, added: "As with all clients, women's health will be about recognising key areas to support and implementing a plan that both targets her immediate needs and making sure to promote a solid foundation off which to base specific nutrient therapies. Recognising what her goals are for short-term, whether it's better energy, sleep, mood, will guide protocols, but without a good base, less can be achieved. Looking at a greater picture is consistently helpful as there will likely be environmental/lifestyle elements affecting her health, for example, mould, lack of fresh air, allergies to detergents etc."

"Initial tests that are useful for establishing a healthy base include thyroid function, iron status, and, depending on the time of year, vitamin D status. At the same time, encouraging, as much as possible, a diet that includes many nutrient dense foods, reduced processed foods, and up to 10 servings of fresh fruit and (especially) vegetables."

Hormone support

Hormones and reproductive issues are perhaps among the key matters that women will have concerns about, and Dr Glenville pointed out that research has suggested oxidative stress can influence the entire reproductive lifespan of a woman and have a role to play in many female hormone problems.¹

“It is known, for example, that women with endometriosis have lower antioxidant intakes of vitamin C, vitamin E, selenium and zinc and, as endometriosis severity intensifies, an even lower intake of antioxidants is present.² The body makes beneficial prostaglandins from essential fatty acids. Certain prostaglandins help to prevent inflammation, regulate the immune system and reduce abnormal blood clotting. They play a major role in helping with period problems and also endometriosis, so they are extremely important when thinking about balancing hormones.

“Low intakes of omega 3 fatty acids have been associated with period pains and one study stated ‘there is also some evidence that supplementation with omega-3 FA might help to prevent pre-eclampsia, postpartum depression, menopausal problems, postmenopausal osteoporosis, and breast cancer’³. The aim would be to suggest the woman follows the dietary recommendations and a supplement programme for three months and then retests those areas that were outside the normal range. At that point, it may be possible to widen the dietary recommendations and it would be necessary to adjust the supplement programme in light of the new results.”

Looking in greater detail if advising on hormonal issues later in life as part of the menopause, Holmes also suggested certain herbs to help with the adjustment.

“Since menopause is a time of physiological and associated psychological change, adaptogenic herbs may help a woman adjust to the changes. *Rhodiola rosea*, *Muira puama*, *suma*, *damiana* and *Maca* are adaptogenic herbs which can help alleviate hormonal change symptoms and give natural boost to energy. In traditional Andean culture, *maca* has been used to combat fatigue, improve stamina, for male impotence, menstrual disorders and as an aphrodisiac. *Maca* has shown significant anti-stress effects and studies show it significantly reduces depression, anxiety and sexual dysfunction in



menopausal women without any negative effect on female sex hormones. *Maca* has been shown to improve sleep, mood, energy and reduce hot flashes/night sweats.”

There are also other areas to note around the menopause that can become an issue, including vaginal dryness. This is an area that Herbalist, Kathie Bishop, has worked to address with the creation of the new *Into the Wylde* brand.

“Vaginal dryness and intimate irritation is so very common and it is probably totally under reported, because it is still, unfortunately, a taboo subject. Almost all women will experience this at least once in their lifetime and many of them much more. This obviously can have a knock-on effect on someone’s mental health, with anxiety and depression being common side effects,” she explained.

“Menopause, bacterial vaginosis (BV) and recurrent thrush are some of the most common reasons women suffer, but vaginitis, which can be a non-specific reason, is also common and frustrating to get to the bottom of. Bacterial vaginosis can be confused with thrush, as it is not so often mentioned, but

the symptoms can be quite different, with grey watery, ‘gushy’ discharge, instead of the cottage-cheesy discharge of thrush. Quite often thrush and BV can be recurrent or alternating and can take quite a lot to get under control and resolve.

“In general, sea buckthorn oil is excellent for dry, intimate mucous membranes. Research into the vaginal microbiome is growing, and the link between that and the gut microbiome is via translocation from the anus to the intimate space. Therefore, what you put into your gut, such as fermented and pre/probiotic foods, may have an impact on vaginal health.”

And you could also recommend intimate products but be clear on what to recommend.

“Hygiene and sexual practices also have a big impact and should also be investigated. Generally, look for something that is pH matched to the intimate area (between pH 3.8 to 4.5), doesn’t contain nasties such as glycerine, mineral oils or any harsh essential oils. Also, it’s important that the osmolarity of any product put into this area isn’t high enough to dry the already delicate intimate tissues,” Bishop added.

Nutritionally strong

When focusing on an effective nutrition plan, Dr Glenville advised: "The plan will, of course, depend on the health concern and also what the results of the various tests are showing. What she is eating should be the foundation of her health and this would need to be amended depending on her condition and test results. Supplementation may be needed to correct any deficiencies and also to address any imbalances that have come up in the various tests, for example, digestive stool analysis, adrenal test."

Lane added: "If there's any constraint on eating a wide variety of these foods, superfood powders can be useful to fill the gaps. On top of this, it's very important to get the macronutrient ratios right, and not to forget fibre. A typical western diet is higher in carbohydrates than either fat or protein, but it's important to make sure it isn't almost entirely carbohydrates. It can be easy to have limited protein sources, so women are only consuming the same amino acids again and again, or, more likely, to have a low intake of good fats. Once the base diet is discussed, the next step can be to make sure digestion is good, maybe introduce some enzymes or probiotics if digestive capability is compromised."

And Nunn continued: "In general, we know that certain key nutrients are vital for women's hormonal balance and general health. It is always important to also support the immune system, as well as the liver. Endometrium cells, for example, spreading through the body in the bloodstream or lymphatic system, a series of tubes and glands that form part of the immune system.

"From a nutritional perspective, on a broad scale, these should be considered and tweaked, depending on the case:

- Essential fatty acids obtained from oily fish, avocado, nuts and seeds, for instance.
- Antioxidants obtained from colourful and bright vegetables and fruits but also things like green tea or matcha tea.
- Making sure to also reduce trans and saturated fats.
- Decrease sugar and refined food intake.
- Phytoestrogen-containing foods such as flaxseeds are great for women's health, they can help balance hormones and support fertility. Also of great support during the menopause. About two tablespoons a day of flaxseed (lignan content), grounded is a great addition to the diet. Other examples

of phytoestrogens include tofu, non-GM soy products, beans, tempeh and legumes. Phytoestrogens can help modulate oestrogen levels by up regulating the amount of SHBG in the liver and slow down the conversion of androgens to oestrogens.

■ Fibre from wholegrains (gamma-oryzanol content), pulses, fermented foods, vegetables and fruits are great for the liver, the digestive system and the immune system and help support a women's health, especially when taking medication.

■ Cruciferous vegetables contain DIM, an indole that helps to inhibit the conversion of oestrone to 16 hydroxyesterone. Vegetables examples include broccoli, cabbage, kale, collards and Brussels sprouts, amongst others.

■ Increase the methylation ability of your body, include foods rich in folic acid, vitamin B6, B12 and B2. Vitamin B6 also has shown protective effects on oestrogen modulation."

Dr Glenville highlighted the importance of supporting the liver, given its involvement in so many aspects of health.

"With any female hormone imbalances, such as fibroids, endometriosis, polycystic ovary syndrome, it is important that the woman's liver is functioning at optimum level. The liver is the waste disposal unit of the body, not only for toxins, waste products, drugs and alcohol, but also for hormones. If the liver is not functioning efficiently, old hormones can accumulate. These old hormones are left over after each menstrual cycle, but unless they are deactivated by the liver, they can return to the bloodstream," Dr Glenville commented.



"As well as avoiding substances that can compromise the liver, such as alcohol, nutrients and herbs can help liver function. The B vitamins are especially important because they are essential for the liver to be able to convert oestradiol (the more carcinogenic oestrogen) into the relatively harmless oestradiol, which is then excreted."

Of course, lifestyle plays a key role in the health of everyone, but there are certain factors to bear in mind when dealing specifically with female clients.

Nunn added: "Exercise is often not taken into consideration enough. As important as the diet to help lower insulin resistance, support mental health, help reduce stress hormones and, therefore, supporting our adrenal glands, and also during the menopause, as well to support bone density and help maintain adipose tissue increase at bay as our metabolism slows down. Of course, we can be uncomfortable or in pain at times, but on days when you feel better, aim for gentle exercise where you can."

Added support

As part of an overall health plan for a female client, there will be some supplements you want to add in, the experts suggest.

“I would suggest that women are recommended to take a good quality multivitamin and mineral supplement that is designed for the age and stage of their life. For instance, I use a supplement designed for the menopause for any woman over the age of 45. A good maintenance supplement programme would be a multivitamin and mineral, omega 3 and vitamin C,” Dr Glenville suggested.

Lane added: “Supporting women’s health through different stages of womanhood is very important to get the balance right of essential nutrients. As hormones change, from puberty through to post menopause, supplements can be of huge benefit to supporting brain function, mood, sleep, energy, and other areas that fluctuating hormones will impact. Maintaining, at all stages of a woman’s life, a good health foundation is crucial to then supporting any changes, internal and external, which bring up new symptoms.”

Holmes discussed the supplements needed to support women through periods of stress, commenting: “Natural products that may support adrenal health include Rhodiola rosea, ashwagandha, curcumin, liquorice, vitamin D, magnesium and vitamin C, which is secreted by adrenal glands in response to stress. Vitamin C has particular importance and usefulness for female health as an antioxidant and support for collagen, as well as adrenal support. Supporting our internal and external ‘skin’ is important for health, and in menopause, women may have thinning skin of both types. This may mean increased propensity for thinning of vaginal walls, leading to distressing urinary symptoms and/or painful intercourse, as well as the visible signs of aging in wrinkled skin.

“Liposomal delivery provides high bioavailability. Liposomes can be described as bubbles consisting of a double ring of fatty acid molecules. These are phosphatidylcholine molecules, a substance also produced by the body. These liposomes are easily absorbed into the bloodstream as the body recognises the naturally occurring substance and incorporates it as a whole. This is unlike with conventional supplements for which a large proportion of the active substance is broken down first by digestion. Once in the bloodstream, the liposome with its active substance is transported to the cells.”

Nunn focused on essential fats, advising: “Omega 3 fats are particularly good for hormonal balance, often great to help inhibit AA and, therefore, reducing the inflexibility of cell membranes that is shown on the ovaries and cysts. EPA at about 2000mg is also known to help prostaglandin or kinase modulation.”

She also suggested turmeric, explaining: “Curcumin has great anti-inflammatory containing actives that research has linked with a beneficial effect in women suffering from endometriosis, and it may help to reduce the estradiol production. Known to also help in the menopausal stages and reducing inflammation during uterine fibroids.

“And milk thistle is great for the liver, the organ helping to detoxify the body of any excess oestrogen circulating in the body for pre-menopausal women experiencing potential symptoms of PCOS, irregular periods, endometriosis. When looking at milk thistle, it is important to seek a supplement devoid of additives and alcohol, which is often used to preserve milk thistle when in a liquid form. An alcohol free liquid extract is the best option.”

Lane discussed supporting the liver, highlighting certain supplements for supporting its proper function.

“Environmental factors like, for example, modern toxins, including ingredients of products typically aimed at women (for example, make-up and perfumes), as well as typical lifestyle products (scented items, home sprays, cleaning products etc), can negatively affect the liver and other detox organs. Supplements that support a woman’s detox pathways can enhance her ability to break down these substances, as well as sex hormones, medications, and maintain a healthy digestive system.

In terms of internal changes, depending on age, supplements can aid with balancing hormones in puberty, support fertility, post-partum needs, menstrual support, and pre- and post-menopause changes,” she advised.

Lane highlighted certain herbs, suggesting: “A key herb in ancient ayurvedic medicine, ashwagandha comes in many forms. Some ashwagandha extracts are appearing on the market in forms such as KSM-66,

which has an impressive amount of research attached to it. KSM-66 has been trialled specifically for stress with positive results, including stress related to weight gain, and, focusing on women’s health, also women’s sexual function and thyroid health.”

Then there is consideration for CBD, arguably one of the biggest supplement areas that has grown to prominence in recent years. But is this an area to recommend?

Lane commented: “Customers would ideally buy a full spectrum hemp extract that contains more than just CBD (full name cannabidiol), just one compound in a set of cannabinoids extracted from hemp. By activating our internal



endocannabinoid systems, CBD oil can have wide reaching effects. Primarily researched as a nootropic, a substance that increases or enhances brain function, CBD has been shown to have a positive effect in treatment and management of several neurological disorders and has the potential to aid in many areas of women's health, including sleep."

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Urinary concerns

One of the biggest issues to affect women compared to men is with regard to urinary tract infections.

Linda Greenhall, speaking on behalf of the Cysticlean brand, advised: "Recurrent UTIs are one of the most common problems seen in the doctor surgery. As antibiotic resistance grows, treatment options are narrowing. If the sufferer has already visited her doctor to confirm it's uncomplicated UTI/ cystitis, it is advisable to talk about preventative measures."

Holmes added: "A urinary tract infection is an infection in any part of the urinary system – bladder, kidney, ureters (narrow tubes that carry urine from kidney to bladder), and urethra (tube that allows urine to pass outside the body). UTIs commonly involve the lower urinary tract (bladder and urethra) and are generally caused by bacteria. Infection of the bladder (cystitis) is commonly caused by *E.coli*. Infection of the urethra commonly occurs when gastrointestinal bacteria spread from the anus but can also be caused by sexually transmitted infections, including herpes, chlamydia, mycoplasma, and gonorrhoea.

"Although men, too, can get UTIs, women are more susceptible due to their anatomy. Women's urethras are approximately 1.5 inches, whereas in a man, the urethra is approximately eight inches. This means bacteria have a much shorter distance to travel, and women are at greater risk from bacteria that cause UTIs. Additionally, in women, there is closer proximity to the anus where *E.coli* in faecal matter may compound the risk."

In terms of addressing the risk and symptoms (likely to be a key reason a woman seeks the advice of a Nutritional Therapist), Holmes continued: "The use of some types of feminine hygiene products may be increasing the risk and thus incidence of UTIs. Deodorant sprays, scented pads, scented toilet paper, bubble bath and similar products may irritate the urethra, increasing risk of UTI occurrence. In addition, antibiotic over-prescription and over-use may be contributing to the rising resistance to antibiotics used for combatting UTIs.

"Understanding the potential causes of and risk factors for urinary tract infections is important. A therapist may need to educate the client on these. In addition to recommending a blood sugar balancing diet, optimal hydration and

good hygiene, Nutritional Therapists may wish to look for antimicrobial alternatives to suggest for UTIs. Barberry (an extract from the oregon grape root) has been shown to benefit re-*E.coli* infectionⁱ and may benefit re-UTIs by selectively suppressing synthesis and assembly of fimbriae (which mediate adherence) by uropathogenic organisms, thus preventing adhesion.ⁱⁱ Berberine has been shown to have direct antibacterial effect and demonstrates benefit re UTIs.ⁱⁱⁱ ^{iv} Dietary advice may also improve resilience; a high vegetable and berry-rich diet may benefit. Alcohol and some meats may increase risk."

Greenhall highlighted the importance of proanthocyanidins (PACS), commenting: "It reduces the opportunity for the *E. coli* bacteria adhering to the bladder wall, the cause of uncomplicated UTI. At a time when we really need to reduce our reliance on GPs, this is a very important time for preventative measures to be taken."

And Holmes added: "The South American botanical, quebra pedra, has been shown to benefit in urinary tract infections due to its antispasmodic, analgesic and antibacterial properties. Quebra pedra has also shown safety and efficacy for eliminating kidney stones and gallstones and may be useful to help prevent recurrence.

"In addition, a number of ayurvedic herbs have been shown to help maintain the health of the kidneys and urogenital system. Look for a product that includes shilpushpa, pashanabheda, manjishtha, nagaramustaka, apamarga gojihva, sahadevi and shilajeet."



EXPERT ADVICE

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



Can you advise on the best protocol to follow when advising on the immune system and its link to the gut?

LISSA LEADER RECOMMENDED: Maintaining a strong immune system is top of mind for us all in the current climate and supporting our gut health plays an integral part. This is due to the fact that around 70 per cent of the immune system actually lies in the gut⁽¹⁾.

The gastrointestinal tract (GI tract) performs a dual role in helping us to digest the nutrients from our diet and maintain immune homeostasis by protecting us from any external pathogens we are exposed to via the food we eat and the environment we live in⁽²⁾. This is achieved thanks to the complex mucosal barrier that lines the GI tract and contains a range of immune cells, including B cells, T cells, macrophages and dendritic cells, which are involved in both innate and adaptive immune function. These cells live within structures called Peyer's Patches that lie amongst the delicate hair-like villi covering the intestinal wall⁽¹⁾.

The GI tract is also resident to trillions of bacteria known as the microbiome and research now suggests that these bacteria can communicate with the immune system to help determine an appropriate response. Our commensal bacteria supports immune function by addressing dysbiosis (the imbalance of good and bad bacteria), displacing pathogens, increasing production of antimicrobial peptides and mucins, helping to strengthen mucosal barriers to sustain tight junctions and modulating cell-mediated immune responses⁽³⁾. It is, therefore, important to maintain the equilibrium of the microbiome to support optimal intestinal health. This is where



probiotic intervention can help and there are several strains in particular that have been shown to have a positive effect on immune function, helping to address a range of conditions:

- *Lactobacillus paracasei* CASEI 431 has been found to reduce the incidence and duration of colds and 'flu and improve immune responses to infection⁽⁴⁾.
- *Saccharomyces boulardii* has extensive clinical research demonstrating its efficacy in reducing diarrhoea and removing harmful bacteria such as *E.*

coli from the body⁽⁵⁾ and producing natural anti-fungals, (capric, caproic and caprylic acids) to help eliminate pathogenic yeasts, for example, *Candida albicans*⁽⁶⁾.

■ *Bifidobacterium breve* M-16V has been studied for its immune modulation in infants with severe atopic dermatitis and has been shown to reduce T-helper cell Th1/Th2 ratios and improve symptoms⁽⁷⁾.

To conclude, there is increasing evidence to demonstrate the importance of the microbiome to immune function. Hence, optimising our gut health and using a strain-specific probiotic approach can help to support our overall wellbeing.

ABOUT THE EXPERT

Lissa Leader is a Registered Nutritional Therapist and gained her diploma at CNM London. She is a registrant of the Complementary and Natural Healthcare Council (CNHC) and a Registered Nutritionist with BANT. Lissa works on the practitioner support team at OptiBac Probiotics, providing training and assistance to complementary and alternative medicine practitioners. She also runs her own practice, Nutrileader, offering both private consultations and corporate nutrition services.





Would fasting diets be something to recommend in clinic and if so, what factors must be considered to assess if a client may benefit?



KATHERINE PARDO EXPLAINED: To fast or not to fast? That is the question. Fad diets have been a mainstay of the weight loss industry for decades, each season bringing with it a brand new quick-fix diet to help you shed a few pounds, lose a clothing size and achieve the 'perfect' body. It would be easy to dismiss the recent surge in popularity of various fasting regimes as just another one of those fads, but to do so would be to ignore an abundance of scientific evidence and a rich history of cultural tradition that points to some not insignificant health benefits to be gained.

Fasting in some form or another is deeply rooted in many cultures and religions, and research has shown that although there can be benefits for weight loss, there are an abundance of additional benefits to fasting that affect nearly every system in the body, ultimately leading to better overall health and prevention of chronic disease.^{1,2}

The gut is one such body system that benefits enormously from

fasting, according to the research. While most people focus on what happens in the gut when we eat something, equally important functions occur when we're not. When we've finished eating, digestion goes into a kind of 'housekeeping' mode, busying itself with the vital clean-up operation required to keep the gut functioning optimally. Undigested food particles, enzymes and unwanted bacteria are flushed through the system towards the colon, from where they can be excreted.

The system responsible for running the housekeeping is called the Migrating Motor Complex, or MMC, a series of involuntary muscular contractions that pulse in waves throughout the gastrointestinal tract, propelling food, waste and bacteria down through the body for excretion. It occurs approximately two to three hours after your last meal and continues for about 90 minutes, but importantly, this process occurs only in a fasted state. As soon as food is consumed, the MMC stops dead in its tracks and diverts attention away from the clean-up and instead towards digestion.

Fasting, therefore, lends itself well to this clean-up process, involving as it does the restriction of all or some foods or drinks for a period of time. In particular, it is the practice of intermittent fasting, or time-restricted feeding, that can be particularly beneficial for the MMC. Intermittent fasting simply refers to the period of time that occurs between eating meals and is more correctly referred to as an eating pattern, rather than a diet as the types of food eaten are not restricted.

There are numerous methods of intermittent fasting that can be employed, all involving splitting the day or the week into eating and fasting periods. These include:

- **The 5:2 diet** – involves capping your calories at 500 for two days a week, whilst continuing to eat normally for the remaining five days.
- **Alternate day fasting** – involves calorie restriction every other day whilst continuing to eat normally on the days in between.
- **Time-restricted eating** – involves set fasting and eating windows, for example, the 16:8 method of only eating within an eight-hour window and fasting for 16 hours, and the 14:10 method of eating within a 10-hour window and fasting for 14 hours.
- **24-hour fasting** – this method involves fasting for a full 24 hours

and is only done once or twice a week.

■ **Spontaneous meal skipping** – involves missing meals at random throughout the week.

Which method confers the most benefit to health is up for debate and will ultimately come down to a combination of the individual health goal and personal preference. However, for optimal daily benefits to digestive health and the MMC, some form of time-restricted eating is generally advised, giving the body a significant window during the day without eating in which to clean up. In addition, this form of fasting is arguably much easier to adopt as it avoids the necessity to go an entire day without food. For instance, with the right timing on the 16:8 diet, you can eat your last meal at 7pm and eat your first meal of the day at 11am the following day, essentially just delaying breakfast.

As well as demonstrable benefits for the MMC and gut function,³ research has shown fasting can positively influence our bodies on the cellular and molecular level too, causing human growth hormone levels to go up^{4,5} and insulin levels to go down,⁶ making it easier for the body to burn fat for energy (thermogenesis) and maintain a healthy weight. Cellular repair processes and healthy gene expression are also facilitated whilst fasting, helping to keep our cells healthy and protect against disease.⁷⁻¹⁰ Fasting has also been shown to have many inflammation fighting mechanisms too.¹¹

ABOUT THE EXPERT

After beginning her career as a writer and editor for various healthcare publications, Katherine Pardo BSc (Hons), Dip ION trained as a Nutritional Therapist, graduating from London's



Institute for Optimum Nutrition in 2001. She went on to practice as a Nutritional Therapist before becoming Nutrition Team Manager at Nutri Advanced, where she heads the team of nutritionists, writers and researchers who together develop Nutri Advanced's range of innovative products, programmes and educational resources.



Can you set out the key nutrients for both men and women to increase the likelihood of conception?

PENNY SHAW ADVISED: Successful conception can depend on the health of both partners. Alongside plenty of water, exercise and good blood-sugar balance, men and women share a lot of the same requirements for nutrients to bring their health up to scratch. Often starting with a good multivitamin, alongside a varied healthy diet and regular exercise can be a good start.

Some of the nutrients needed include B vitamins to support DNA and RNA synthesis, zinc for utilisation of reproductive hormones, and beta carotene, a vegetable precursor to vitamin A, which supports the egg and sperm. Essential fatty acids are crucial for inflammation and hormone functioning. Whilst we do need a balance of omega 3, 6 and 9, omega 3 is the one we tend to get less of in a typical western diet. Getting a good balance and enough omega 3 essential fatty acids can be done by increasing fish or fish oils.

Men can benefit from increasing their intake

of vitamin C, L-arginine, L-carnitine, zinc and selenium. Folate is typically associated with female support in fertility, but it is also useful for men too, especially when combining folate with B12. Vitamin B12, zinc, selenium and arginine all help to increase sperm count and support the formation of the cells. Vitamin C, whilst a powerful antioxidant that protects the body from toxic overload, also protects and enhances sperm quality. L-carnitine has been found to be largely present in high sperm counts.

CoQ10 is found in nearly every cell in the body in the mitochondria (energy factories of the cells) and is useful for men if sperm motility is low as its concentrations are in the area between the head and the tail. It also helps with the metabolism of carbohydrates and therefore balancing effects on blood sugar, which is important for both men and women.

Women can benefit from B vitamins such as folate, B12 and B6, which regulates hormones and optimises B12 absorption. As well as all the ingredients also mentioned, ingredients women can also benefit from can be herbs and botanicals that regulate hormones, such as maca, dong quai and agnus castus, which is an adaptogen that works to balance hormones and help regulate the pituitary gland and subsequently hormones in ovulation improving fertility.

It's good to remember that creating a healthy egg can take three months so improvements to diet, lifestyle and supplements taken should be consistent for at least that time in order to see results.

ABOUT THE EXPERT



Penny Shaw is a Registered Nutritional Therapist and works as Brand Quality Manager at G&G Vitamins.



Spotlight on glutathione

Vital for cellular protection and necessary for many aspects of cellular function, Nutritional Therapist and researcher, Jackie Newson BSc (Hons), examines the use of glutathione.



With the world currently focused on immune system support, lung health and a new interest in understanding how 'cytokine storms' damage lung tissue during respiratory infections, now is the perfect time to highlight ways in which glutathione contributes to the body's first-line defences.

Glutathione is the smallest intracellular thiol molecule, a tripeptide composed of glutamic acid, cysteine and glycine. It is one of the most powerful intracellular antioxidants found in almost every cell in the body and is highly active, particularly in cells that are most susceptible to harmful toxins, such as cells in the brain, kidneys, liver, heart, lungs, skin and eyes.

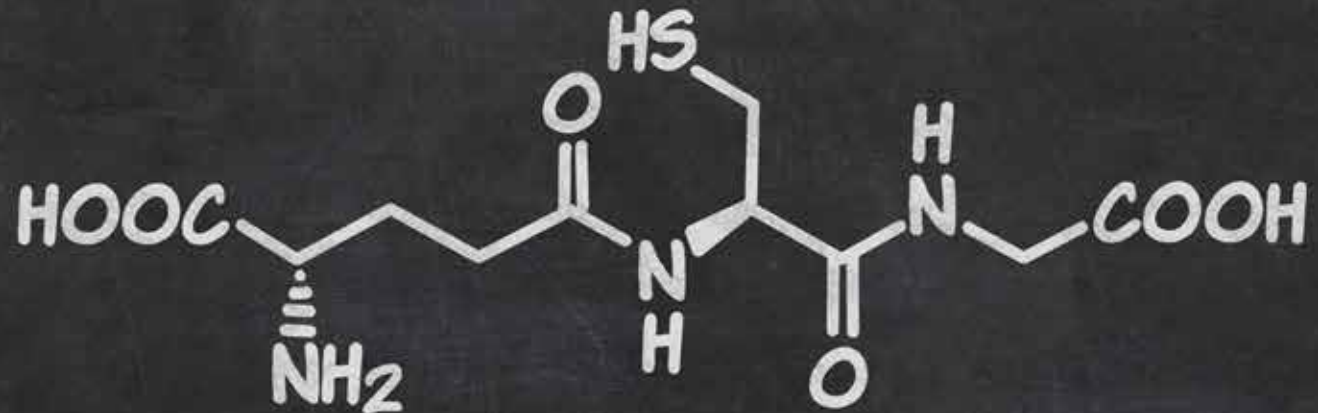
The many functions of glutathione

Glutathione is vital for cellular protection and necessary for many aspects of cellular function. It acts as an important cofactor for many enzymes and is needed for the growth, reproduction and differentiation of white blood cells, and as such is essential for a fully functioning immune system.

Glutathione also plays an active role in a multitude of metabolic and biochemical reactions, including gene expression and protein synthesis.

Equally as important is its detoxifying function, protecting the body against reactive oxygen compounds and harmful free radicals produced by exposure to radiation, carcinogens and toxins. The key role it has in liver detoxification protects the body from cigarette smoke, pesticides, cleaning products, exhaust fumes and pharmaceutical drugs. Glutathione is also responsible for recycling other antioxidants, such as vitamins C and E, to their active forms.

Glutathione



What are the natural sources of glutathione?

Glutathione is produced primarily in liver cells, which form glutathione peroxidase, an enzyme that plays a key role in intermediary metabolism and immune response. Glutathione is also found naturally in many vegetables, fruits and meats, however, absorption rates of glutathione from food sources in the human digestive system tend to be low.¹ The best natural plant sources of glutathione include asparagus, avocado, cabbage, Brussels sprouts, spinach, broccoli, garlic and walnuts.

Different forms of glutathione

There are numerous delivery forms for glutathione: intravenous, nebulized, nasal spray, liposomal, transdermal and oral dosage forms, including tablets, capsules, powders, and sprays. Glutathione is available in the following preparations:

- **L-Glutathione or reduced glutathione** – is the most commonly found supplemental form. To be an effective free radical scavenger, glutathione needs to be in a reduced state.
- **Liposomal glutathione** – traditionally, glutathione is not thought to be systemically bioavailable when taken orally due to its enzymatic breakdown in the intestine¹. The advantage of liposomal glutathione is that the glutathione is encapsulated within a phospholipid barrier, similar to a natural cell membrane, which offers protection from gastrointestinal juices, aiding absorption into the bloodstream and

helping transport it rapidly to cells. The use of liposomes has already been seen as an effective means of drug delivery, allowing for greater bioavailability and delivery of both lipophilic and hydrophilic substances.

- **Acetyl glutathione** – adding an acetyl function group makes the glutathione molecule more stable and is thought to enhance delivery through the circulation and to the brain.
- **Other nutrients** – alpha-lipoic acid, N-acetyl cysteine, selenium and SAMe are also useful as they help support cellular glutathione production.

Supporting research

Studies have identified that those with chronic diseases such as liver disease, heart disease, lung disease, arthritis, Parkinson's and diabetes may have lower levels of glutathione. A strong correlation has also been seen between immune deficiency diseases, such as HIV, and low glutathione status. Research evidence from the last decade further supports these findings.

Glutathione and lung conditions

Glutathione is normally found in high concentration in the epithelial lining fluid (ELF) of the lungs, where it acts as first line defense against oxidative stress-induced damage² and supports the functional activity

of different immune cells.³

However, research reveals that diminished glutathione in the ELF is associated with cystic fibrosis (CF),⁴ some lung disorders⁵ and acute respiratory distress syndrome ARDS.⁶ Interestingly, long-term use of inhaled glutathione is reported to be particularly effective in CF.

In CF, it's thought that impaired transport of glutathione occurs due to a defective CF transmembrane conductance regulator protein⁷, which functions as a transport channel in the membranes of cells that produce mucus.⁸

A 12-month, small randomized, single blind, controlled trial by Abete P et al., evaluated the effects of inhaled glutathione versus placebo in patients with CF, indicating a statistically significant improvement in forced expiratory volume values after three months with inhaled glutathione. This persisted at six and nine months, but not at 12, which may be related to reduced compliance after time⁹.

Glutathione and gastric infections

Glutamyltranspeptidase (GGT) from *Helicobacter suis* has been identified as a key factor for epithelial cell death and modulation of lymphocyte responses. The mechanism of GGT is mainly dependent on the breakdown of glutamine and glutathione, which is believed to lead to a deficiency for the host, possibly initiating or promoting several pathologies.¹¹ *H. Pylori* has been widely studied, but De Bruyne et al.,¹²



pioneered the importance of the glutamate-producing metabolism of *H.suis*.

Using an animal model, they supplemented with glutamate and glutathione and noted enormously beneficial effects on the *Helicobacter* infected stomach with 90 per cent reduction of gastritis, and a marked protection against parietal cell death. In conclusion, this study suggests that supplementing with glutathione could be an important supportive therapy during and after *Helicobacter* eradication therapy.

Liposomal glutathione helps elevate body stores

Glutathione concentrations in a number of tissues appear to decline with age.¹³ Theoretically, supplementing with glutathione may help to maintain cellular defences to help combat various age-related diseases. However, standard oral glutathione is subject to destruction due to gastrointestinal secretions.

A small study by Calcagnotto et al.,¹⁴ investigated whether oral supplementation of liposomal glutathione in healthy volunteers could be effective at enhancing glutathione levels. Participants were divided into two groups – oral liposomal glutathione 500mg, twice daily (low dose) or 1000mg twice daily (high dose).

Results indicated that after administration of liposomal glutathione, body stores of glutathione were higher in both groups and oxidative stress biomarkers had decreased, with effects seen as early as one week. In addition, liposomal glutathione had positive effects on immune function.

Promising results that merit further larger studies for the role of liposomal glutathione and immune function and antioxidant capacity during ageing.

Glutathione and diabetic melioidosis

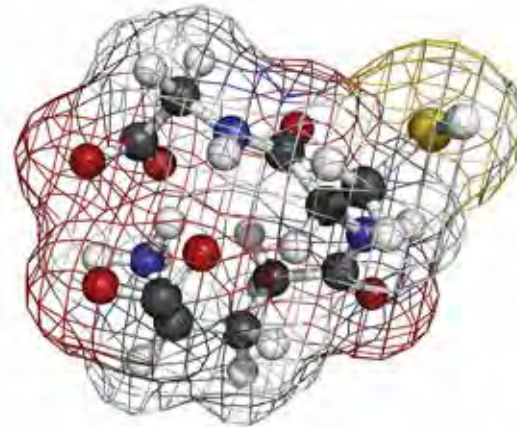
Diabetics are more susceptible to infectious diseases including melioidosis caused by *B.pseudomallei*, which is proving difficult to treat as the bacterium is inherently resistant to antibiotic therapy.¹⁵

B. Pseudomallei is associated with a wide spectrum of disease manifestations, ranging from acute or chronic pneumonia, to localised infection involving one organ, as well as septic shock. The mortality rate can be as much as 40 per cent. Identifying the mechanism for increased susceptibility to melioidosis in diabetic patients opens up

opportunities for new therapies to protect diabetic patients.

Research carried out at the University of Singapore has established a link between glutathione deficiency in diabetes and increased susceptibility to melioidosis.¹⁵ The results suggest that the prevalence of melioidosis amongst diabetics is due to impairment in IL-12p70 production, which is a key cytokine for the induction of Th1 immune responses.¹⁶

An impairment of this kind results in decreased cytokine IFN production and insufficient microbicidal killing. This type of cytokine is shown to be important for the innate host defence against *B.pseudomallei*. Furthermore, the addition of glutathione was shown to significantly boost the production of both IL-12 and IFN-γ in *B. pseudomallei*-infected cells.



The outcome of this study demonstrates that there is a unique link between glutathione concentrations in peripheral blood mononuclear cells and susceptibility to intracellular bacterial infections in type 2 diabetes.

Glutathione and non-alcoholic fatty liver disease

Glutathione plays a dual role as a redox regulator and antioxidant¹⁷ and is a key component in liver detoxification pathways. For this reason, scientists have utilised its potential for chronic liver disease in research. Historically, intravenous injection of glutathione has been the most used method of delivery.¹⁸ In a recent study, researchers from Yokohama City University reviewed the effect of oral glutathione for

patients with non-alcoholic fatty liver disease (NAFLD).¹⁹

During this small study, 34 patients with NAFLD received 300mg/day glutathione for four months following a three-month period of improved diet and exercise. Levels of alanine aminotransferase (ALT) were monitored to assess the course of NAFLD. Positive results were demonstrated in all patients that took part. ALT levels significantly decreased and additionally triglycerides, non-esterified fatty acids and ferritin levels also decreased with the glutathione treatment.

Findings from this study suggest that oral administration of glutathione may increase the incorporation of protein-bound glutathione into the liver or decrease the pathological excretion of glutathione from the liver.

Glutathione and rheumatoid arthritis

Rheumatoid arthritis (RA) affects women three times more than men and is characterised by synovial inflammation, bone erosion and loss of joint function. Other clinical manifestations include elevation in rheumatoid factor (RF), inflammatory markers in the blood, muscle soreness and joint tenderness. A recent study in laboratory rats demonstrated the potential of utilising liposomal glutathione as an effective therapy for RA.²⁰

The rats were given intravenous daily doses of either glutathione or liposomal glutathione for a period of 30 days.²¹ Results from the trial indicate that both liposomal-glutathione and glutathione significantly reduced RF and oxidative stress biomarker levels, with liposomal glutathione showing the most pronounced effect. Liposomal glutathione shows promise as a therapy for RA.



Jacqueline Newson BSc (Hons) is a Nutritional Therapist and a consultant researcher and health and nutrition copywriter, working with wellbeing brands including Abundance and Health, the European distributor of Liposomal Altrient Glutathione GSH. Although this review details results from animal studies, these have been used to illustrate the possible benefits of glutathione. Abundance and Health and Altrient do not support animal testing.

CPD DIRECTORY

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

FORTHCOMING WEBINARS

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

Register at www.ihcanconferences.co.uk/webinar

The Art of Digestive Wellness Online Course

Innovative Healing Academy (this is a companion course to Dr Liz Lipski's newly revised 5th edition of her acclaimed book, *Digestive Wellness*)

Online

CPD hours: BANT 20 hours

Speakers: Dr Liz Lipski, PhD, CNS, FACN, BCHN, IFMCP, LDN

Cost: \$397

Website: www.innovativehealingacademy.com

Nutritional Genomics Interpretation Programme myDNAhealth

Online

CPD hours: BANT four hours

Speakers: Eve Pearce PhD (Medicine), DiplON, mBANT, CNHC

Cost: £125

Website: <https://mydnahealth.co.uk/education/>

BANT Professional Supervision

May 11 – online group three

May 15 – online group four

CPD hours: BANT two hours

Speakers: Emma Stiles

Cost: £30

Website: emma@emmastiles.co.uk

BANT Local Network Meeting – Thyroid

May 16 – online

CPD hours: BANT two hours

Speakers: Christine Bailey

Website: bant.org.uk/members-area/bant-local-networks/local-network-coordinators-list/#Rosie_Pearce

The Mucosal Barrier and Immunity – How the Microbiome Optimises our Defences

invivo

Tuesday May 19, 6.30pm-7.30pm

Presented by Debbie Cotton, ND

Learning objectives:

- The importance of the mucosal barrier in the GIT as a part of the innate immune system.
- Anti-microbial and innate immune peptides stored in the mucosal barrier and their functions.
- What happens when the mucosal barrier thins – the role of a degraded mucin lining in local and systemic diseases.
- The microbes that play a role in protecting or degrading the mucosal barrier and testing for them.
- Foods, fibres, phytochemicals and nutrients that support the bacteria that support the mucosal lining and the innate immune response.

The Microbiome and the first 1,000 days of life

OptiBac

Tuesday, June 9, 6.30pm-7.30pm

Presented by Christina Georgallou BSc. (Hons), DIP, CNM

The first 1,000 days of life – the period from conception to two years of age – represents a critical pathway that indicates a tight regulatory interdependence, with poor microbial development implicated in numerous pathologies. During this webinar, Christina will discuss the importance of this initial colonisation, the factors that may impact its development and the potential of early intervention with a strain specific probiotic approach to improve the short and long-term health of our next generation.

COVID-19: Mycoimmunotherapy guidelines

Tuesday, May 12, 6.30pm-7.30pm

Presented by Catalina Fernández de Ana and Esteban Sinde Stompel



This webinar will cover:

- Medicinal mushrooms as adaptogens.
- Immunomodulation and antiviral capacity.
- Definition of MDR. Storm control of CTks.
- Mycotherapy, protocols for prevention and clinic setting.
- Mycotherapy, protocols for specific patients with clinical pictures of post-traumatic stress, anxiety, insomnia and asymptomatic infected patients, mild symptoms (tiredness, loss of taste and smell) and post-illness protocol (virus negativisation and recovery).

Supporting Immunity with Integrative Biocommunication

ZYTO

Tuesday, May 26, 6.30pm-7.30pm

Presented by Leonie Baxter MSC

This webinar will explore explanations of biocommunication, looking at health through the eyes of physics, exploring a new health paradigm, relevant evidence, history, and clinical practice. It will also explore how biocommunication works in the body and key pioneers of biocommunication in history, integrating biocommunication as a practice, and alongside other modes of inquiry. Gaining insight into clinical validity of biocommunication and how to effectively use it as one of many lines of inquiry.

Raising the bar with CBD

With CBD among the fastest growing categories of recent years, we have seen an influx of brands to the market. With a focus on quality and testing, CBDfx is one brand working hard to raise standards. Rachel Symonds hears from its Europe Managing Director, Carlo Buckley, on how the business plans to do it.



When the idea for CBDfx was born back in 2014, it was when the market for CBD products was in its relative infancy. At that time, there weren't many brands on the market, and people were just discovering its true benefits.

Of course, in 2020, the picture is different; today, we see all manner of brands – big and small – producing CBD products, finding them in everything from tinctures and skincare to sweets and coffee. It is a market with huge interest globally and with a growing awareness among consumers. But with such growth has come concern at the quality of some brands, in terms of both their raw materials and their processing.

This is something CBDfx is committed to raising awareness around and indeed is the cornerstone of the brand.

Carlo Buckley is Managing Director Europe and explained: "In 2014, the CBD market was really in its early, embryonic stage. There were very few products on the market and next to no regulation on compliance, quality, testing etc. In essence, there wasn't a market in the sense of what we see today.

"CBDfx was a pioneer and one of the key brands responsible for leading the way in terms of quality, compliance, testing and product innovation."

A COMPREHENSIVE OFFERING

Today, CBDfx boasts a portfolio of around 100 individual products of varying concentrations, including tinctures, topical and edible products.

In terms of how the company sets itself apart when producing its products, there are some clear standards.

Carlo commented: "Having six-plus years of experience in producing hemp products definitely has its advantages. Rather than become vertically integrated, we took the decision early on to work with only the very best partners to deliver on our mission. The best farms. The best extractor. The best contract manufacturing partners who are experts in their particular field. The best testing laboratories.

"One key advantage is that we've had many years to develop a very close relationship with all our partners, particularly our supplier of hemp extract, which is industry leading in pretty much all facets of their business. Due to this relationship, we don't speculate or go to the wider market to buy hemp extract. Instead, we have gained significant value in working with the very best in the industry, which ensures we have the cleanest and best quality raw material to work with. It's certainly not the cheapest but we know exactly where the hemp is grown and that it is grown in the cleanest soils under organic principles."

The brand also prides itself on the technology used to extract the broad-

ESTABLISHING THE BRAND

CBDfx was founded in 2014 when Jameson Rodgers, one of the co-founders, was talking to a retail buyer about CBD.

“The buyer had heard really good things about it, wanted to get some into their stores but didn’t know where to start. When Jameson and his co-founder, Ali, dug deep into what CBD was, where it came from, what the potential health benefits were and what people were saying about taking CBD, they saw the tremendous opportunity in creating a CBD brand that did things right but also a little differently. Above all else, one that was a force for good,” Carlo explained.

“He did just that and launched CBDfx, with his friend’s garage as the company’s first office/warehouse and that retailer being his first customer! Fast forward six years and we’re now the US’s third largest privately-owned CBD brand in a market that’s exploding but also fraught with challenges. Luckily, challenges that we’re well equipped to deal with.”

As a company, CBDfx wanted to do things different and Carlo highlights its ‘Feel the Difference’ ethos as being core to this.

“CBDfx was founded on the belief that everyone should have access to the remarkable benefits of CBD and so every product we launch must be efficacious,” he explained.



“Our brand is built on three key pillars:

■ **Highest quality:** All our products are carefully formulated using only the best ingredients available, including organically farmed hemp plants. We also strive for layered functionality – meaning that the ingredients we use other than hemp extract are extremely beneficial. We believe that our products are the very best quality broad spectrum hemp products on the market.

■ **Innovation:** We aim to always be refreshingly innovative, with all our product formulations being developed from scratch. They are not just a white label/off the shelf products. They are lovingly crafted to provide the purest supplement experience possible.

■ **Accessible:** Our mission is to empower both new and experienced CBD users by providing access to products at reasonable prices.”

This core set of principles also applies to other areas of the business, from packaging design to its marketing campaigns and customer service.

And Carlo added: “It hopefully applies to as many other touch points within the business as possible but we’re always looking for ways to improve. Thankfully, we have a team of passionate and dedicated people who work really hard every day to help us achieve our goals.”

spectrum hemp extract; the brand uses only CO₂, pressure and temperature to extract and remove unwanted cannabinoids (for example, THC).

“Many companies will quote that they use CO₂ extraction, but they will more than likely use ethanol as a residual solvent in some part of the downstream process. Our proprietary method does not use any solvents whatsoever,” Carlo explained, adding: “Knowing every detail of your supply chain, right from where the hemp is grown through to your finished product and working with companies that employ best practice and are third party audited is the cornerstone to everything we do. This sort of experience is impossible to get overnight.”

Testing is one of the key messages for CBDfx and is something all the products in the portfolio undergo. But why such a focus?

“Testing is critically important in the production of hemp products and to the credibility and longevity of the industry,” Carlo explained, adding: “It’s important to note that not all testing is equal, but it is a very complex area and can be confusing. In simple terms, laboratories need to have the requisite certifications and validated procedures in place to test hemp products accurately and consistently. The methods that they use to prepare the samples are so important.

“Testing accurately for cannabinoids is crucial so that you can be assured that the product is legal and that consumers are getting what they pay

for in terms of CBD content. On the former point, the legal limit for THC is frequently misquoted as being 0.2 per cent. This only applies to the THC content in the growing hemp plant. The UK legal limit in any product is 1 mg of THC. We use a broad-spectrum hemp extract in all our products that contains non-detectable levels of THC, both in the raw material extract we use to manufacture the finished products and also in the finished products themselves.

“What’s important here is the level of detection (LOD) used by the testing lab as that ultimately determines the milligrams of THC in a particular finished product. The third party accredited laboratory we use has a LOD of 0.0027 per cent for THC. What this means is that if our certificates of analysis say non-detectable, it means that there is less than 0.0027 per cent THC in the particular product, which means there is absolutely zero chance of the THC level being anywhere near the 1 mg threshold.”

He continued: “Guaranteeing the CBD potency in all products is also essential so that consumers can dose accurately but also to ensure they get what they pay for as CBD products aren’t cheap. For example, there are certain topical/beauty products that call themselves CBD products, however, only state hemp seed oil in the ingredients. There is zero CBD found in the hemp seed and none of these companies publish any certificates of analysis or state how much CBD is in the product. This should not be allowed but many





retailers and buyers don't have the technical knowledge or do their due diligence thoroughly enough. Unfortunately, this sort of thing is all too common with our industry, but this will undoubtedly change over time as the market matures."

CBDfx goes one step further in terms of offering assurances.

Carlo explained: "We were one of the first, if not the first brand, to introduce QR codes on our pack labels so that consumers could scan them with their smartphones to access full certificates of analysis. We realised pretty early on how important transparency was, how important it was to verify potency and for compliance purposes. We don't just test for cannabinoids, we also test for the absence of anything harmful: pesticides, microbials, heavy metals, mycotoxins, and residual solvents. We can, therefore, guarantee to our consumers that they have the very best and cleanest products around."

A CHANGING MARKET

With such popularity of CBD products, it was perhaps inevitable that we would see some regulation come to the fore, which occurred early this year in what Carlo describes as a massive, positive step forward for the hemp industry; the UK's Food Standard Agency announced that unless companies and brands have submitted a validated Novel Foods application with the European Food Standards Authority (EFSA) by March 31, 2021, those products cannot be sold.

Carlo commented: "The key part of the announcement was that brands could continue to sell their products in the interim, subject to certain

criteria. They also issued some dosage advice based on the Committee of Toxicity's review of scientific studies of CBD and hemp extracts. Their recommended safe dose for an adult was 70mg of CBD per day. In that advice were also concerns about potential side effects, which is largely why they want companies to go through the Novel Foods process. We take this very seriously and will be submitting our application by the end of 2020 at the very latest. Ultimately, the safety of consumers comes first and foremost over anything else."

It is areas around testing and regulation that CBDfx is well-positioned to respond to, thanks to the extensive experience within the business.

"We have a fantastic team of professionals that are dedicated to helping us collectively achieve our goals. In total, we're a team of 70-plus from all disciplines. One area we pay particular attention to is the regulatory landscape in every market in which we operate. We therefore have an internal regulatory officer, whose sole role is to keep on top of the ever-changing regulation across all jurisdictions," Carlo advised.

"In addition, all our stakeholders (suppliers, contract manufacturers, third party testing laboratories etc.) have dedicated professionals across all disciplines. We lean heavily on their expertise, as well as using external expert consultancies where necessary."

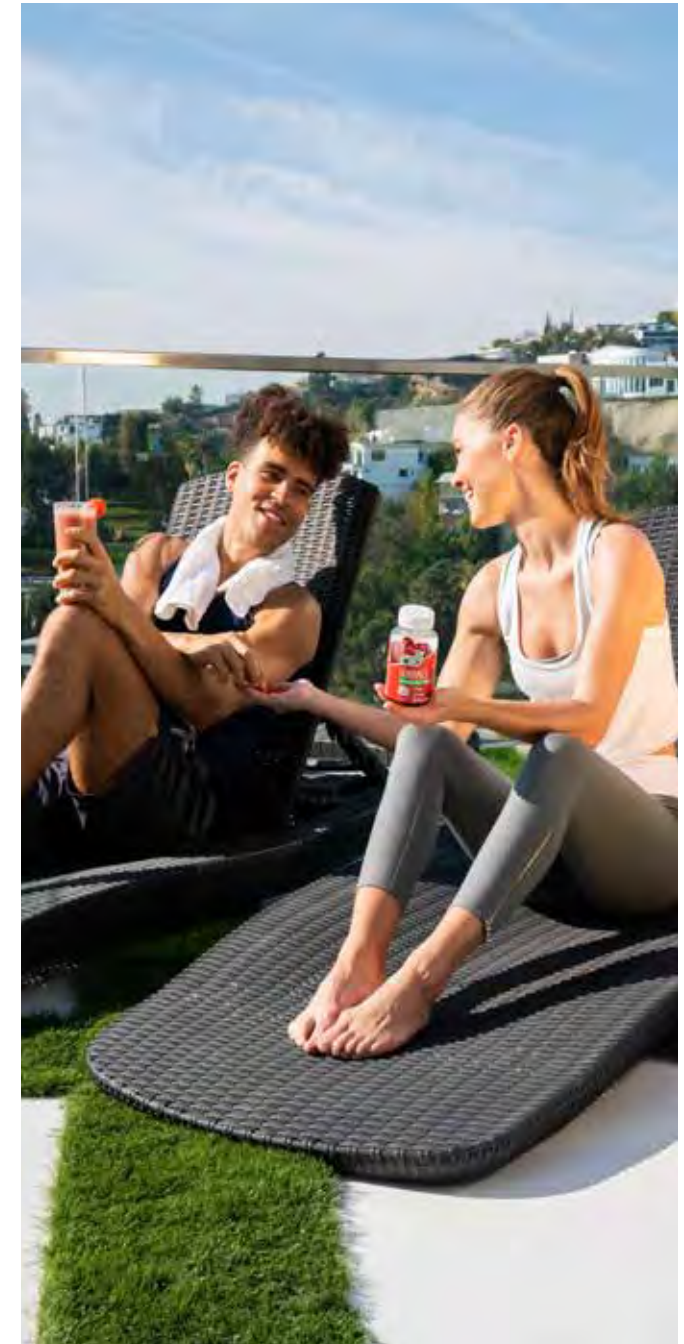
So, what plans are ahead for developing the brand in the future?

"The hemp and CBD market is still in its infancy, despite its size and incredible growth. We plan to continue improving to ensure we lead the way in every aspect of the market. Innovation is critical and we have a very strong product innovation pipeline," Carlo commented.

"It's not about producing just another CBD product for the sake of it. There has to be some real consumer benefit to any new product or improvement over existing products. Another area that we are investing heavily in is packaging innovation and in particular how we can improve access to information for consumers via technology that can be incorporated into the retail packaging of our products."

Looking at the specifics of NPD, Carlo revealed that it is launching a wellness tincture that includes broad-spectrum hemp extract with the addition of curcumin and coenzyme Q10.

"Curcumin is known for its anti-inflammatory properties and coenzyme Q10 is widely recognised for being associated with increased cellular energy release. As well as having the verified quantity of CBD, it will also include quantifiable levels of some of the minor cannabinoids that have very promising potential health benefits. It also includes a proprietary blend of terpenes designed to help the body absorb the beneficial compounds, as well as reduce inflammation," Carlo commented.



Reversing the risk of diabetes

Discover new recipes from Katie and Giancarlo Caldesi to help people lose weight and reduce their risk of diabetes, with help from nutritionist, Jenny Philips and pioneering GP, Dr David Unwin.



Apple, carrot and walnut loaf with cream cheese frosting



Amal's spinach falafel and beetroot hummus



Broccoli, ginger and coconut soup



Apple, carrot and walnut loaf with cream cheese frosting

Serves 10

This easy-to-make, versatile loaf cake is perfect on its own with a cup of coffee, spread with butter and Sicilian Clementine Marmalade for breakfast or dressed up with a cream cheese frosting for tea.

INGREDIENTS:

- 100g (3½ oz) butter or coconut oil, melted, plus a little extra to grease
- 2 Medjool dates, pitted and roughly chopped
- 2tbsp very hot water
- 1 carrot, approximately 120g (4½ oz), coarsely grated
- 2 medium apples, peeled, cored and coarsely grated
- 25g (1oz) ground flaxseed
- 50g (1¾ oz) coconut flour
- 4 eggs, beaten
- 100g (3½ oz) ground almonds
- 2 heaped tbsp gluten free baking powder
- 1tbsp vanilla extract
- 2tsp mixed spice

For the topping:

- ½ tsp finely grated orange zest
- 180g (6¼ oz) full-fat cream cheese
- 1tsp vanilla extract
- 2tbsp milk
- 50g (1½ oz) pecans or walnuts, cut into slivers

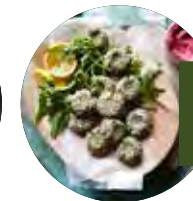
METHOD:

- 1** Preheat the oven to 200°C/180°C fan/400°F/gas mark 6. Generously butter and line a 650g (1lb 7oz) loaf tin with baking parchment. Put the pecans on a small baking tray and cook for eight-10 minutes to brown.
- 2** Remove from the oven and leave to cool. Chop the nuts roughly and set aside.
- 3** Mash the date into the very hot water in a large mixing bowl using a fork to form a paste. Add the grated carrot and apples to the bowl, then the remaining ingredients and mix together thoroughly with a large spoon.
- 4** Spoon into the prepared tin, level the surface and bake for 45 minutes. Check that a cocktail stick comes out clean when inserted into the centre; if not, cook for a few minutes longer. Remove from the oven and leave to cool in the tin for five minutes. Turn out of the tin and leave to cool completely on a wire rack before serving.
- 5** Make up the frosting by beating the orange zest into the cream cheese in a bowl, then stir in the vanilla and milk. Spread it on top of the cooled cake and scatter over the nuts.

BROCCOLI, GINGER
AND COCONUT SOUP



AMAL'S SPINACH FALAFEL
AND BEETROOT HUMMUS





Amal's spinach falafel and beetroot hummus

Makes 20 falafel

Amal Alquatani is a good friend of ours from Kuwait. She loves to cook for parties and large family gatherings. Any leftovers are perfect to take to work the next day. Here, she uses half spinach and half chickpeas in the recipe to reduce the carb count. One standard can will do for the falafel and the hummus. I use frozen spinach to make these; it doesn't need to be cooked but do make sure it is defrosted and squeezed very dry before using.

INGREDIENTS:

- 50g (1¾ oz) sesame seeds, to coat
- 1 small leek, finely chopped
- 1 small brown onion, roughly chopped
- 2 garlic cloves, finely chopped
- 25g (1oz) coriander, finely chopped
- 150g (5½ oz) very well squeezed cooked spinach (or use frozen, defrosted from approximately 500g/1lb 2oz weight)
- 50g (1¾ oz) ground almonds
- 120g (4¼ oz) cooked chickpeas (½ x 400g/14oz can), well drained
- 1tsp ground cumin
- 1tsp salt
- ½ tsp chilli flakes
- A generous amount of freshly ground black pepper
- 50g (1¾ oz) sesame seeds, to coat
- Olive oil, to grease

METHOD:

- 1 Preheat the oven to 200°C/180°C fan/400°F/gas mark 6.
- 2 Put the sesame seeds in a bowl. Put everything else in the food processor and pulse the mixture to a bumpy paste.
- 3 Grease a baking tray with a little olive oil.
- 4 Roll the mixture into 20 walnut-size balls using your hands and drop into the sesame seeds to coat. Press them into shape – you want them about 5cm (2in) in diameter. Put them onto the baking tray and make a shallow hole in the top of each one with your finger. Cook for 30 minutes or until lightly browned. Serve warm or at room temperature with the hummus.

Beetroot hummus

Serves 8

This happy pink dip is wonderful in contrast to green falafel or the fresh green herbs and salad often served with it.

INGREDIENTS:

- 1 medium raw or cooked beetroot (weighing approximately 125g/ 4¼ oz)
- 2tbsp olive oil
- 3tbsp tahini
- 120g (4¼ oz) chickpeas (½ x 400g/14oz can), well drained
- Juice of ½ lemon
- 4tbsp Greek yogurt
- Salt and freshly ground black pepper

METHOD:

- 1 Boil the raw beetroot for 45 minutes to one hour until tender, then drain. If you are using cooked, omit this step.
- 2 Put all the ingredients except the yogurt in a food processor and blitz until smooth. Stir in the yogurt, then adjust the seasoning to taste. The dip will keep in the fridge for up to five days.

APPLE, CARROT AND WALNUT LOAF WITH CREAM CHEESE FROSTING



BROCCOLI, GINGER AND COCONUT SOUP





Broccoli, ginger and coconut soup

Serves 4

This speedy soup can go from chopping board to serving bowl within 15 minutes. We like the crunch of peanuts at the end, but they can be omitted. It is a filling soup that really hits the spot for flavour.

INGREDIENTS:

- 1 garlic clove, roughly chopped
- 1 heaped tbsp finely chopped ginger
- ½ red chilli, finely chopped, plus extra, thinly sliced, to garnish (optional)
- 1 tsp salt
- 2tbsp coconut oil or ghee
- 400g (14oz) broccoli, cut into small florets and the stalk thinly sliced
- 25g (1oz) coriander, stalks and leaves roughly chopped, a few leaves reserved for garnish
- 1 x 400ml (14fl oz) can of coconut milk
- 50g (1oz) unroasted peanuts (optional)
- Freshly ground black pepper
- Lime wedges, to serve (optional)

METHOD:

1 Fry the garlic, ginger, chilli and salt in the coconut oil in a saucepan for a couple of minutes to release their flavour. Add the broccoli stalk and coriander and stir through. After five minutes, add the florets. Pour in the can of coconut milk, then fill the can with warm water and add this to the pan.

2 Cover and bring to the boil, reduce the heat and let the soup bubble gently for five to seven minutes or until the broccoli stalks are tender. Meanwhile, dry fry

the peanuts, if using, until lightly browned, tip onto a board and roughly chop.

3 Remove the soup from the heat and use a stick blender or food processor to blend it to a smooth consistency. Adjust the seasoning as necessary.

4 Pour into warm bowls and garnish with the coriander leaves, peanuts and black pepper or extra slices of red chilli and with lime wedges alongside for squeezing, if you wish.

AMAL'S SPINACH
FALAFEL
AND BEETROOT
HUMMUS



APPLE, CARROT AND
WALNUT LOAF
WITH CREAM CHEESE
FROSTING



The Reverse Your Diabetes Cookbook, by Katie and Giancarlo Caldesi, with Jenny Phillips. Published by Kyle Books, priced £20. Photography: Maja Smend.

I-Mag giveaways



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



ULU AMINO CBD OILS

A powerful combination of amino acids with ULU full spectrum 10 per cent CBD, which influences the endocannabinoid system (ECS), while CBD can help reduce inflammatory and neurogenic pain. The calming GABA acid aids better quality of sleep and amino L-tryptophan helps improve mood and enhances your daily intake of essential L-glutamine acid, which can enrich the energy to immune and intestinal cells during stressful times.

I:Win: We have five to give away.

HAYMAX

HayMax is giving away its very special VIP packs, containing one of each variety of its multi award-winning organic allergen barrier balms (each VIP pack is worth £34.95). In Allergy UK's independent survey, 80 per cent of respondents said HayMax works. These drug free balms are suitable for pregnant and breastfeeding women, children, machine operators and drivers.

I:Win: We have five to give away.




RIO AMAZON CAMU-CAMU 8:1 JUICE EXTRACT CAPSULES

Each capsule contains bioactive-rich food powder from *Myrciaria dubia* fruit, which contains the most concentrated source of vitamin C of any other known fruit on earth. Each 500mg 8:1 extract capsule contains the equivalent of 4,000mg of camu-camu fruit, with vitamin C content delivering synergistically alongside other constituents naturally found in the fruit. Available in 60 or 120 vegicapsules.

I:Win: We have five 60 capsule packs to give away (RRP £15.99 each).



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