



Nutrition

I-Mag

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RESEARCH AND EDUCATION FOR TOMORROW'S PRACTITIONER

JUL/AUG 2018

TREATING THE TRACT

A comprehensive guide to advising on UTIs

A LOOK AT LYME

Experts discuss issues around lyme disease diagnosis

CHILD'S PLAY

Early years nutritional education





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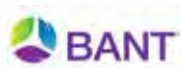
To run the groups we require you to attend one full day training on the practice and principles of the blood type diet.

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Welcome



Despite years of growing statistics telling us that the state of children's health in the UK is a cause for concern – namely, with the rising rate of obesity among the young – still the issue appears to only be getting worse.

You only have to look on the news pages of this magazine to get just a snapshot of what we are talking about; first, we have the news from Public Health England, which

has revealed that children in England are consuming double the amount of sugar than is recommended. And this in the same issue where we have Cancer Research UK calling for action after it was revealed that Scottish toddlers are collectively consuming a staggering one million sweets each week. Both stories can be read in full by [clicking here](#).

Which makes our annual children's health feature even more timely; in this feature, we hear from a range of nutrition experts about the health concerns to be aware of, the nutritional deficiencies children are often

exhibiting in today's modern world, and the kind of dietary support that is to be recommended. You can read the full feature by [clicking here](#).

Also in this issue, leading authorities in the field of Lyme disease offer their insights and we also discuss how Nutritional Therapists can best help their clients combat urinary tract infections.

And there are still educational opportunities remaining for the rest of 2018 with our programme of IHCAN Conferences. Log onto www.ihtcanconferences.co.uk to find out the dates, speakers and how to book.

Rachel

RACHEL SYMONDS, EDITOR

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in partnership with



NUTRITION I-MAG EXCELLENCE IN EDUCATION AWARD

We're on the look out for stand-out students who have excelled in the past year. You may have excelled academically, received glowing reviews from tutors or colleagues, or maybe you've gone that extra mile to help students in your class. Whatever the reason, we want to reward students of nutritional therapy for all their hard work and commitment.

The award is being run in partnership with **Nutri Advanced**, one of the leading suppliers of high quality nutritional supplements to practitioners in the UK. **Nutri Advanced** is passionate about nurturing students throughout their educational journey and hope these awards will inspire students to move into practice and form successful businesses that lead people towards living healthier lives.

So, if you think you deserve this award, or know someone who does, take two minutes to tell us why at:

www.nutritionimag.com/educationawards

Entries close Monday August 1, 2018, winner will be contacted by telephone on August 15, 2018.

NEW

THE WINNER RECEIVES:

- One hour per month of phone advice from Nutri Advanced, with guidance on how to set up your practice when you graduate
- £500 worth of free products from Nutri Advanced
- Free print subscription to *IHCAN* magazine for one year
- Free place at the September's IHCAN Conference
- Chance to write a mentoring scheme feature in *Nutrition I-Mag*
- Free lifetime subscription to *Nutrition I-Mag*

OUR CONTRIBUTORS

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



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 the British Association of Applied Nutrition and Nutritional Therapy (BANT) and listed on the Complementary and Natural Health Care Council (CNHC)'s approved accredited register. She is a Technical Advisor at Probiotics International (Protexin), manufacturers of the Bio-Kult and Lepicol ranges.



Gillian Crowther

Gillian Crowther is a Naturopath and registered Nutritional Therapist, who has been practising within the Academy of Nutritional Medicine (AONM), a large network of doctors and complementary therapists, for close to a decade. She holds the position of Director of Research, and works closely with different laboratories they represent, for example, ArminLabs for bacterial and viral infections, and Moleculera, USA, for detecting autoantibodies directed against neuronal targets in the brain.



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.



Katherine Pardo

Katherine Pardo BSc (Hons), Dip ION is Head of Nutrition at nutritional supplement company Nutri Advanced, one of the leading educators in the field of Functional Medicine. She originally trained as a Nutritional Therapist at the Institute for Optimum Nutrition in London and is committed to helping people make realistic and sustainable food and lifestyle choices for improved health and wellbeing.



Egzona Makolli

Egzona Makolli is a fully qualified Nutritionist with a Bachelors and a Masters degree in science related subjects. She is currently Technical and Commercial Nutritionist for Kinetic, UK's leading natural and organic product distributor, working with nutritional brands such as Nature's Answer, Jarrow, Nutiva, Barlean's and Amazing Grass.



Dr Marcus Stanton

Dr Marcus Stanton is a holistic doctor, journalist and lecturer, who spends a lot of time working on specialist health cases for clinics across the globe. He is a founding member of the Network of Interdisciplinary Complementary Oncology and IFOS Academy, is Medical Consultant and Editor of the *CO'MED (Journal of Complementary Medicine)* and on the Medical Advisory Board for Nouveau Health. He lectures frequently on the role of the immune system and its link to mainstream health conditions.



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News bites

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

Call for action on obesity as research reveals Scottish toddlers consume more than one million sweets a week



Cancer Research UK has called for action after its new analysis revealed that toddlers in Scotland are consuming more than one million sweets a week.

The shocking research, which focusses on the eating habits of children aged two to four, highlights the need for urgent action, and, as part of its expected obesity strategy,

Cancer Research UK is calling for the Scottish Government to introduce new laws to restrict multi-buy offers on junk food to help people eat a healthier diet.

Excess weight is Scotland's biggest preventable cause of cancer after smoking, and around 2,200 (seven per cent) cases of cancer a year in Scotland – around six a day – are down to being overweight or obese.

Professor Linda Bauld, Cancer Research UK's prevention expert, who is based at the University of Stirling, commented: "It's clear from these new figures that Scotland's love affair with sugar begins at an early age. While there's no harm in the occasional treat, it's clear from this new analysis that sweets and chocolate are regularly being eaten by young children in large quantities.

"Unfortunately, this is leading to far too many children becoming overweight – something which could have serious consequences for their future health. As part of its forthcoming obesity strategy, the Scottish Government has an opportunity to make a real difference to the lives of these children. Introducing laws to restrict harmful

multi-buy offers on junk food would be one of the most effective ways to help families shop more healthily."

Responding to the research, Food Standards Scotland's Senior Dietary Advisor, Anne Milne, commented: "There is no single solution to our nation's long-standing problems with obesity and this research really brings home the scale of the challenge we face in Scotland. Around a fifth of the calories and fat we eat and almost half of the sugar comes from discretionary foods, including confectionery. With almost a third of children already overweight or obese, a range of measures is urgently required to make significant change.

"We know that families can find it difficult to make healthy choices, particularly when a lot of foods on promotion are those which are higher in fat, salt or sugar. This research reinforces the need for our recommendations and proposals which were included in the Scottish Government's diet and obesity consultation, including restricting the promotion of unhealthy products and encouraging shoppers to buy healthier foods.

Academy of Nutritional Medicine to host event focused on pathogen-triggered disorders



Practitioners can now register for a forthcoming event being held by The Academy of Nutritional Medicine.

The organisation is hosting its annual conference on November 18, on the theme Bursting the Bubble: Challenging the Misconceptions and Misdiagnosis of Neuropsychiatric and Pathogen-triggered Disorders.

Featuring international experts in the field of Lyme disease and related conditions, it will be chaired by Dr Judy Mikovits, with Keynote speaker being Jenna Luche-Thayer. Fellow speakers include Dr Robert C. Bransfield, Dr Madeleine W. Cunningham, Dr Jodie A. Dashmore, Dr Joseph G. Jemsek and Dr Armin Schwarzbach.

To register, visit www.aonm.org/upcoming_events/

Children consuming more than double recommended sugar content, PHE reveals

Shock statistics from Public Health England (PHE) have revealed that children in England have already consumed more than a year's worth of sugar.

PHE revealed that children aged four to 10 years should have no more than the equivalent of five to six cubes of sugar each day, but are consuming on average 13 cubes. This means they are on track to consume around 4,800 cubes of sugar by the end of the year, more than double the maximum recommendation.

Sugary soft drinks remain one of the main contributors of free sugars to children's diets, more than ice cream and puddings combined. Apart from fruit juice, which counts as one of our five a day, the other main sources of sugar in children's diets are:

- Sugary soft drinks (including squashes, juice drinks, energy drinks, cola and other fizzy drinks) – 10 per cent.
- Buns, cakes, pastries and fruit pies – 10 per cent.
- Sugars, including table sugar, preserves and sweet spreads – nine per cent.

- Biscuits – nine per cent.
- Breakfast cereals – eight per cent.
- Chocolate confectionery – seven per cent.
- Sugar confectionery – seven per cent.
- Yoghurt, fromage frais and other dairy desserts – six per cent.
- Ice cream – five per cent.
- Puddings – four per cent.

Dr Alison Tedstone, Chief Nutritionist at PHE, commented: "We're barely halfway through the year and already children have consumed far more sugar than is healthy – it's no surprise this is contributing to an obesity crisis. Snacks and drinks are adding unnecessary sugar to children's diets without us even noticing. Swapping to lower or no added sugar alternatives is something all parents can work towards."

PHE's Change4Life campaign is urging parents to make simple changes: swap sugary drinks for plain water, lower fat plain milks, sugar-free or no added sugar drinks.

Younger generation buying takeaways and energy drinks at least once a week

Worrying new research has revealed that 60 per cent of young people in the UK are buying takeaways and energy drinks at least once a week.

The study, from the British Nutrition Foundation (BNF), found that 60 per cent of 11 to 16-year olds say they buy food such as chips or fried chicken from takeaways at lunchtime or after school at least once a week, along with almost a third (31 per cent) saying they have an energy drink at least once a week. When asked about the three snacks they eat most, encouragingly, fruit was the most popular snack, with over half of both primary and secondary school students surveyed saying it was one of the snacks they ate most. However, almost

half of children aged seven-11 snack on crisps (46 per cent) and chocolate (46 per cent). While both primary and secondary school students report getting most of their snacks at home, about one fifth of primary and a third of secondary students also say they get snacks from a shop.

Roy Ballam, BNF's Managing Director and Head of Education, commented: "While it's encouraging that children are motivated to eat well, many of the children we surveyed also said they didn't like the taste of healthy foods or thought they were boring. This is where education about nutrition, cooking and food provenance can play a key role in helping children understand and get familiar with the foods that make up a healthy diet."

Post-Brexit trade deals may pose risk to public health, leading organisation warns

The Soil Association has issued a warning of risks posed to public health in post-Brexit trade deals.

The leading organic certifier has published a new report, which said that unhealthy eating and obesity in the UK could increase if post-Brexit trade deals do not account for public health outcomes.

The report, *Brexit: Trade, Healthy Eating and Obesity*, identifies three major risks if the UK is unable to secure new trading relationships that promote healthy eating.

The three risks are:

- Low-cost ultra-processed foods could flood the UK market, with the potential increase in production, availability, affordability and promotion of 'ultra-processed' foods in the UK.
- Price volatility for fresh veg might result in reduced consumption as fruit and vegetables become less affordable for British households post-Brexit due to inflation, unfavourable exchange rates, alterations to the free movement of goods and the rising cost of seasonal labour.
- Action to promote healthier diets and tackle obesity could be undermined by a reversion to World Trade Organization (WTO) rules on tariffs, adversely affecting the UK's ability to introduce or extend voluntary initiatives that promote healthier eating.

Honor Eldridge, Policy Officer at the Soil Association, commented: "The future of the UK's trading relationship with the EU and other countries remains uncertain. Such ambiguity is concerning as half of the UK's food is imported. Any future trade deal will have profound impacts on our food and farming systems and, by consequence, on public health."

The organisation believes all future trade negotiations must be underpinned by three principles to promote healthy eating, and it is calling on Government to ensure that the trade of food promotes public health by making fresh and minimally processed foods more available and more affordable, that agricultural and trade policy is aligned to support British farmers to produce high quality food that benefits public health, the environment and animal welfare, and that procurement and trade policy is aligned, with public procurement used to stimulate demand for British produce, supporting British farmers to compete to supply high quality affordable food.

"With diet-related ill health and obesity on the rise, it is vital that the UK's future trade relationships gives the UK the ability to implement policies that deliver healthy food at a reasonable cost to all citizens," Eldridge added.

In Research

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

Study confirming power of probiotics on IBS symptoms published

Described as the largest ever trial, research showing that probiotics improve IBS gut symptoms and anxiety has been published.

The randomized placebo-controlled clinical trial of a multi-strain probiotic formulation (Bio-Kult) in the management of diarrhea-predominant irritable bowel syndrome can now be found in the journal *BMC Gastroenterol*.

In the study of 360 patients who had IBS with diarrhoea as their predominant symptom (IBS-D), it was found that those patients who took the probiotic supplement Bio-Kult reported a 69 per cent decrease in abdominal pain, compared to 47 per cent in a group who took a placebo.

The four-month study, conducted by the University of Bangabandhu Sheikh Mujib Medical University in Dhaka, Bangladesh, also found the number of patients who rated their symptoms as moderate to severe at the beginning of the study was reduced by 86 per cent in the Bio-Kult group, compared to only 52 per cent in those who took a placebo. Furthermore, a total of 33.7 per cent in the Bio-Kult group said all their symptoms had disappeared at the end of the 16 weeks compared to just 12.8 per cent in the placebo group.

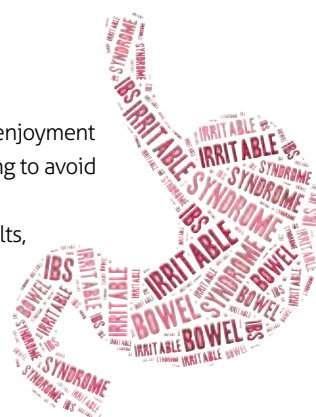
As well as relieving IBS-D symptoms, Bio-Kult was also shown to markedly improve all aspects of Quality of Life (QoL) evaluated using a 34 point IBS-QoL questionnaire. These included psychological issues, such as anxiety about

health, depression, lack of enjoyment of life, and feelings of having to avoid stressful situations.

Commenting on the results, Dr Philip Burnet, Associate Professor at Oxford University, a leading UK expert on the gut microbiome/brain axis, said that although several symptoms within the IBS-QoL survey in the study were significantly improved after taking probiotic supplements, the reduction in dysphoria (unease or generalised dissatisfaction), and health worries were particularly noteworthy.

"The influence of gut bacteria on the brain is a topical area of research in neuroscience and the microbiome-gut-brain-axis is considered a potential therapeutic pathway for brain disorders. Using probiotics that influence brain function, or the so called 'psychobiotics', may in the future help alleviate conditions such as depression and anxiety," he commented.

"Indeed, there is a strong link between depression and IBS, and some researchers have suggested that mood disorders themselves may arise from dysbiosis (a microbial imbalance within the body, such as within the gut)."



Turmeric supplement quality under the spotlight

A new analysis of turmeric supplements has revealed the differences in quality of products.

A new study, which has been published in the journal *Molecular Nutrition and Food Research* entitled *Curcuminoid Content and Safety-Related Markers of Quality of Turmeric Dietary Supplements Sold in an Urban Retail Marketplace in the United States*, reported on the rapidly expanding usage of turmeric. Therefore, researchers analysed the turmeric dietary supplement (DS) formulations available for sale in an urban US retail marketplace, while point of sale information was related to measures of quality relevant to safety.

A total of 87 turmeric DS products were identified, with the majority (94 per cent) containing turmeric-derived curcuminoid extracts (TD-CE), which were combined with other bioactives in 47 per cent of products, including piperine (24 per cent), an additive

that could alter the metabolism of concurrent medications. While curcuminoid content was within 80 per cent of anticipated for the majority of products analysed, curcuminoid composition (per cent curcumin) did not meet USP criteria for TD-CE in 59 per cent and was suggestive of possible unlabelled use of synthetic curcumin in some.

Lead content was associated with inclusion of turmeric root and exceeded USP limits in one product and residues of toxic class one to two solvents, which are not needed for TD-CE isolation, were present in 71 per cent of products, although quantified levels were within USP-specified limits.

In conclusion, the researchers commented: "Assessment of turmeric DS quality at point of sale is difficult for consumers and may best be managed in partnership with knowledgeable health care professionals."





Vitamin K2 research programme announced

A research project to establish an RDI for vitamin K2 has been announced.

The Vitamin K2 RDI Program is being spearheaded by NattoPharma, which will join with leading researchers to establish the basis of a much-needed K2 RDI.

While global cardiovascular and bone health has been negatively impacted by widespread vitamin K2 deficiency, yet there is still no established Recommended Daily Intake (RDI). And so NattoPharma has enlisted research partners to start a program to establish one, which will begin with a team of researchers at Maastricht University, the Netherlands, a group that has led the way discovering and validating the health benefits of vitamin K2, guided by Dr Leon Schurgers, Professor of Biochemistry of Vascular Calcification at Cardiovascular Research Institute at Maastricht University (CARIM).

"The RDI for vitamin K is established based on coagulation factors only, but research continues to emerge that vitamin K and vitamin K-dependent proteins have physiological roles beyond coagulation," commented Dr Schurgers, noting that the AI (Adequate Intake) for vitamin K was established at 90 µg/d for women and 120 µg/d for men for the US and Canada, and in Europe it is 1 µg/Kg/d. This was based on median phyloquinone (vitamin K1) intakes estimated from national surveys back in 2001.

"More recent research has confirmed different bioavailability/activity between K1 and K2, and additional biological functions of K2 due to different side chains. Further, all epidemiological

and interventional studies showed that only K2 was cardio-protective or has a beneficial effect on the arteries. This has not been considered in the forming of dietary recommendations," Dr Schurgers.

Dr Schurgers' team will be joined by the International Science and Health Foundation (ISHF), a research consortium responsible for the educational portal, VitaminK2.org.

According to Dr. Katarzyna Maresz, ISHF President, VitaminK2.org was specifically created to educate consumers and practitioners about the proven benefits.

"We have seen in comprehensive studies – in adults, as well as children – that correcting vitamin K2 deficiency can greatly improve bone health, and studies in adults have delivered unprecedented improvement in cardiovascular health," she commented. "Yet studies also show that 97 per cent of the Western population remains deficient. Establishing an RDI is an important step in educating the public about their absolute dietary need, providing them much-needed direction."

Both NattoPharma and the researchers recognise the scope of this undertaking, with Eric Anderson, Senior Vice President of Global Marketing and Business Development at NattoPharma, commenting: "Convincing the Government to recognise how essential specific nutrients are is an arduous process. We have been working with Maastricht University for almost two decades validating the health benefits of vitamin K2, creating this category. Our work, in addition to others', is building that body of evidence. Now it is time to lead the way, ensuring that a global recommendation exists so we can ensure vitamin K2 is adequately attained for the betterment of the world population – men and women, adults and children."

Protein in spotlight as research finds high levels slightly increase heart failure risk

New research from the University of Eastern Finland has revealed that a high protein diet may slightly raise the risk of heart failure in middle-aged men.

The researchers found that for middle-aged men, eating higher amounts of protein was associated with a slightly elevated risk for heart failure than those who ate less protein.

The research, which has been published in the journal *Circulation: Heart Failure*, reported that 2,441 men, age 42 to 60, were involved at the study's start and they were followed for an average 22 years. Overall, researchers found 334 cases of heart failure were diagnosed during the study, with 70 per cent of the protein consumed from animal sources and 27.7 per cent from plant sources. The researchers divided the men into four groups based on their daily protein consumption. When they compared men who ate the most protein to those who ate the least, they found their risk of heart failure was 33 per cent higher for all sources of protein, 43 per cent higher for animal protein, 49 per cent higher for dairy protein, and 17 per cent higher for plant protein.

Higher intake of protein from most dietary sources was associated with slightly higher risk. Only proteins from fish and eggs were not associated with heart failure risk in this study, researchers said.

"As many people seem to take the health benefits of high-protein diets for granted, it

is important to make clear the possible risks and benefits of these diets," commented Jyrki Virtanen, PhD, study author and an Adjunct Professor of Nutritional Epidemiology at the University of Eastern Finland, in Kuopio.

"Earlier studies have linked diets high in protein – especially from animal sources – with increased risks of type 2 diabetes and even death."

Heli E.K. Virtanen, MSc, first author of study, PhD Student and Early Career Researcher at the university, added: "As this is one of the first studies reporting on the association between dietary protein and heart failure risk, more research is needed before we know whether moderating protein intake may be beneficial in the prevention of heart failure. Long-term interventions comparing diets with differential protein compositions and emphasising differential protein sources would be important to reveal possible effects of protein intake on risk factors of heart failure. More research is also needed in other study populations."



New to market

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

SOLARAY LAUNCHES ORGANIC AND EXCIPIENT FREE RANGE

A new range of excipient free supplements has been created by Solaray.

Responding to increasing concern about the levels of colouring agents, preservatives and fillers included in natural supplements, Solaray has rolled out the range of herbs, which will sit alongside the company's other recent launch of organic fermented mushrooms.

Products included in the range include fermented beet, dandelion, ginger and echinacea, while in the fermented mushrooms range, there is lion's mane, cordyceps and turkey tail.

The new product lines are part of Solaray's plan to drive the brand forward in 2018, catering to emerging trends and consumer demand. Through continued innovation and intensive expansion plans, Solaray will be introducing more than 100 new products in the UK this year.



KEFIR WATER BRAND LAUNCHES

New to the growing kefir market is a range of dairy free bottled kefir waters.

Purearth Kefirs are sparkling low sugar, dairy free drinks, which are naturally fermented, refreshing and naturally sparkling, made with billions of live cultures. They combine live kefir benefits with ingredients such as the blue Spirulina, and vitamin C-rich Grapefruit. There is also Green Apple + Mint Kefir to fight fatigue or the Coconut + Lime Kefir, which is a great alternative to regular coconut water.

The line is also infused with adaptogenic superfoods and cold-pressed organic juices.

PORTFOLIO GROWS AT G&G

G&G Vitamins has focused on digestive health with its latest product launch.

Saccharomyces Boulardii has a number of reported health benefits and may aid repair of gut lining, healthy bowel microflora, support the gut during antibiotic use, support against diarrhoea, helps fight against candida, children with autism and people with IBS.

Suitable for vegetarians, vegans and kosher, no refrigeration is required.



FERMENTED FRIENDS

Cicioni is the latest addition to the fermented food market.

The brand has launched a plant-based product, which, it says, is set to revolutionise the free from and fermented food category.

Cicioni is the first product in a whole new category called Fermentino – the act of fermenting nuts in a unique process with water and salt. High quality almonds and cashew nuts are blended with water and a pinch of salt, which then undergoes a careful fermentation process, resulting in a pure, raw, fermented food that is versatile and full of flavour.

Free from additives, preservatives and sugar, as well as being 100 per cent organic and natural, Cicioni is suitable for vegans, vegetarians and those following a dairy free and lactose free diet. What's more, thanks to the fermentation process, it is enriched with proteins, essential amino acids and vitamins that are much more easily digested compared to raw nuts.

Originating from Italy, Cicioni was created by Italian vegan chef, Daniela Cicioni, with the main aim of creating a fermented food product that is not only good for you, but tastes great too.





NourSea Calanus® oil Omega 3 wax esters

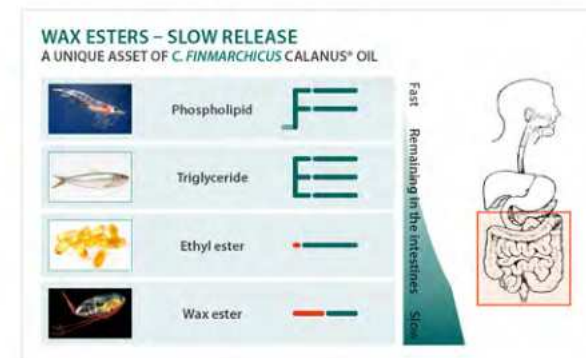
Natural plankton lipid extract
More energy-rich and better absorbed

Health through nature, science and innovation



Calanus® oil is a new and bioactive form of omega-3. This oil is a natural lipid extract derived from the plankton of northern waters.

Calanus® oil comes in the form of natural wax esters. This oil is more energy-rich and has a better absorption. The form of omega-3 is at least as important as the amount that is taken.



Calanus Finmarchicus is caught in northern Arctic waters. The total biomass is about 300 million tons, several times larger than the total biomass of fish in those waters. Calanus® oil is the purest and most potent energy package Arctic nature can offer.

NourSea Calanus (*Calanus firmmarchicus*) crustacean oil (zoo-plankton) 500mg contains:

- wax esters 425mg
- unsaturated fatty acids 145mg
- omega-3, 105mg in total
- astaxanthin 300mcg

The recommended use is one to two softgels twice daily with or after a meal. Do not exceed the recommended use.
NourSea calanus oil 500 mg - 60 softgels - RRP £ 29.95*

** Made from fish gelatin.*

Available at Natural Dispensary

More information: www.springfieldnutra.com
E info@springfieldnutra.com | T +31 186 - 626173

BANT News

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



BANT SUPPORTS JAMIE OLIVER'S CHILDHOOD OBESITY MANIFESTO AND IS SADDENED BY EUROPEAN OBESITY DAY

Obesity continues to be in the headlines and BANT expressed both its support of Jamie Oliver's Childhood Obesity Manifesto and its sadness and disappointment that the crisis has grown to such an extent that there is now a European Obesity Day.

On March 7, 2018, BANT announced its full support of Jamie Oliver's endeavours and confirmed that it has long called for a different approach to the obesity crisis and indeed it reflects what was called for by the House of Commons Health Select Committee in its Childhood Obesity inquiry. BANT admires Jamie Oliver's tenacity as a parent, celebrity chef, restaurateur and healthy eating ambassador in campaigning for the greater good; the fundamental right of good health for British children.

Earlier this year, BANT highlighted its delight on hearing the news that the Government is planning to ban junk food advertising and two for one promotions. Jamie Oliver's manifesto is one of common sense and it is time that British lawmakers and their advisors recognised that the nutrition policies of the last several decades are not working and that a radical new approach needs to be embraced, one that sticks to the scientific evidence and the health needs of our nation, over the objectives of business and politics.

Since its inception in 1997, BANT has repeatedly called for a change in the UK's national obesity strategy, including participating in the Commons Health Select Committee's Childhood Obesity Inquiry. British children are suffering the brunt of this health crisis and things cannot continue in the same way.

In addition to Jamie Oliver's points, BANT would like to suggest:

- The reintroduction of home economics classes in school.
- Education about healthy eating; how diet and lifestyle can influence health over the short and long-term, but not based on the inherently flawed Eatwell Guide.
- Promotion by Government Agencies of the consumption of healthy ingredients and unprocessed food.

Jamie Oliver's Manifesto and BANT's similar repeated calls would set the background for establishing the changes needed to engender a long-term cultural and environmental shift. We need to move away from the current state, which actively promotes unhealthy indulgence, either knowingly or in ignorance.

On May 18, 2018, BANT expressed its sadness that the obesity epidemic has grown to such proportions that a European Obesity Day has been designated. BANT confirmed that it and its over 2,500 nutrition practitioner members have continually called for the UK's healthy eating strategy to be modified so that it reflects today's scientific evidence and not the objectives of business and politics.

British children are growing up bombarded with advertisements promoting poor food choices. Home economics classes, once a permanent feature on a school timetable, have disappeared. Many children, often from the most vulnerable backgrounds, are growing up unable to recognise different fruit and vegetables, fundamental for good health. Whilst the core curriculum does include diet and lifestyle teaching, this is based on the inherently flawed Eatwell Guide and major



food brands often provide the education materials to support these modules. BANT continues its clarion call for Government Agencies to promote the consumption of healthy ingredients and unprocessed foods, disassociating commercial interests.

BANT continues to promote its Wellbeing Guidelines campaign to encourage the British people to eat more individual ingredients and unprocessed food.

BANT experts carefully developed a set of Wellbeing Guidelines, based on the latest science and research in the field of nutrition for optimal health. The BANT Wellbeing Guidelines were specifically designed to provide clear, concise, easy to understand information, avoiding outdated information and research, and addressing some of the most common health concerns. The most frequent reasons people seek nutritional advice is for weight management and/or for general health and wellbeing. These issues are addressed by BANT with the following (<http://bant.org.uk/wp-content/uploads/2015/09/WELLNESS-SOLUTION-IMAGE.jpg>) and (<http://bant.org.uk/wp-content/uploads/2015/09/FIGHT-THE-FAT-IMAGE.jpg>)



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BANTNews

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



HARNESSING THE POWER OF MICROBIOME ASSESSMENT TOOLS AS PART OF NEUROPROTECTIVE NUTRITION AND LIFESTYLE MEDICINE INTERVENTIONS



Jessica Fonteneau, BANT Communications Manager, interviews BANT Chair, Miguel Toribio Mateas, about his recently published paper in *Microorganisms*.

Miguel has written an excellent review of how the kind of information you can find in the results of a stool test can inform your clinical decisions as a nutrition practitioner.

Miguel, an experienced Nutritional Therapist and Clinical Neuroscientist, who is conducting his doctoral research in this area, tells us that "there's an extensive body of evidence documenting the importance of the gut microbiota and its microbiome, both in health and in a variety of human diseases. There's a lot of cell and animal studies describing

this relationship, but human (clinical) studies exploring the associations between changes in gut microbiota and the corresponding metabolites in instances of neurodegeneration have only just started to emerge".

An added issue, Miguel adds, is that of the translatability of findings, i.e. the kind of easy-to-implement recommendations we can give to our clients/patients when they come to see us with any degree of neurodegeneration, from mild cognitive impairment to chronic fatigue, MS, or simply the sequelae of long-term exposure to stress. If they've done a stool test that reveals dysbiosis, for example, what kind of clinical applications are triggered as a result, and how can we measure them.

Miguel's research focuses on patient-reported outcome measures. He tells us that "nutritional therapists are early adopters of science, so we're often working a step ahead of clinical trials. This gives us the opportunity to document the real-world evidence we experience in our own practices by adopting the role of practitioner-researchers, so the journey of improvement we often see in our clients/patients is recorded and not just locked away in our clinical notes".

He added: "The purpose of my paper was to appraise the literature on a few faecal biomarkers from my own clinician perspective. I could describe it as a practical review that aims to examine how these are related to both gastrointestinal, as well as

brain health, in the context of the characterisation of commensal bacteria, the identification of potential opportunistic, pathogenic and parasitic organisms and the quantification of gut microbiome biomarkers and metabolites. I believe stool testing can help us hugely to inform nutrition and lifestyle medicine and hope that you find my paper useful."

In the short space of time it's been available, the response to Miguel's paper has been phenomenal, so much so that it has even been featured on the Editor's homepage. We believe it's an educational tool you cannot miss out on. It focuses on how dietary diversity is key, and what the benefits of a 'rainbow diet' are on both the gut and the brain, so if you use food as a tool in your clinical practice, you will find this very useful. It also includes a very handy chart that enables your clients/patients report on their dietary diversity. It is available on open-access, i.e. free to read and download. We're of course proud to see the kind of things we do in clinical practice as Nutritional Therapists documented in a peer-reviewed paper. Publishing at this level is extremely hard work, so our congratulations to Miguel for this achievement.

■ Toribio-Mateas, M. Harnessing the Power of Microbiome Assessment Tools as Part of Neuroprotective Nutrition and Lifestyle Medicine Interventions. *Microorganisms* 2018, 6, 35. Available from <http://www.mdpi.com/2076-2607/6/2/35>.

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Students on either course learn how to shop, prepare, cook, combine, preserve and store foods for maximum nutrient content. Presentation and photography is also covered, along with essentials such as recipe writing, culinary maths, scaling and costing, food safety and sanitation.

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Four down, two to go

With two more IHCAN Conferences left for 2018, attention turns to the September offer on the theme of gut health.



Dr Michael Murray



Dr Ashton Harper

Integrative Healthcare and Applied Nutrition

IHCAN 2018 conferences

One of the world's leading authorities on natural medicine, naturopathic physician, Dr Michael Murray, ND, joins us as keynote speaker at the next IHCAN conference on Saturday, September 8, with a focus on gut health.

With a focus on gut health for much of his career, Dr Murray's research has highlighted the importance of digestive enzymes; he is currently Chief Science Officer at specialist providers, Enzymedica, and will present on 'Clinical Applications of Digestive Enzymes'.

Joining Dr Murray and kick-starting the morning of education will be international GI expert, Dr Ashton Harper, MB BS, MRCS, who talks on 'The microbiome-gut-brain axis: implications for health and disease', with an emphasis on both irritable bowel syndrome and migraine headaches.

BOOK YOUR PLACE

Places at the remaining two conferences, on the theme of gut health in September, and then the immune system in November, are very close to selling out, so we recommend securing your place now to avoid disappointment.

Standard tickets are priced at £95, with significant discounts available for previous attendees, students and members of associations.

To book, go to www.ihcanconferences.co.uk or call the team on 01279 810080.





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magazine

Gut Health

8 September 2018 at the
Cavendish Conference Centre, London

Featuring Dr Ashton Harper

International speaker and published author in nutrition and gastrointestinal disease, Dr Ashton Harper will present **'The microbiome-gut-brain axis: implications for health and disease'**.



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CHILD MATTERS

Nutrition experts discuss the health concerns facing the next generation, and pinpoint the role Nutritional Therapists can have in early years health.



Rates of obesity among the young remain on the rise, while data reveals that increasing numbers of children experience difficulties with cognitive and social development. These are just some of the health-related concerns facing children these days, and in which early years intervention and education can have a hugely beneficial impact.

So, what role can a Nutritional Therapist play here? And what kind of approach could you take in clinic when you are advising parents on their child's health?

THE HEALTH OF CHILDREN

We should start with how healthy British children are considered to be these days.

Ellie Isom, Clinical Nutritionist at BioCare, commented: "The question of the health of British children is one which has been, and will continue to be queried and discussed for many years. It has been recognised that the level of obesity within children continues to rise, with 30 per cent of children between the ages of two and 15 classified as overweight or obese. This statistic can have a significant impact when generalising the overall health status of British children, potentially swaying the health of this population into the decline as these levels continue to rise.

"There are also other aspects of children's health to consider, for example, up to eight per cent of children under three have food allergies, a dramatic rise since 1990. There has also been a huge increase in children experiencing difficulties with social, emotional and cognitive development, with over 200,000 children in England exhibiting a primary special educational need, 80 per cent of which have a moderate learning difficulty and five per cent profound, multiple learning difficulties.

"In general, the health of the population of British children could be improved, especially when considering that these children are our future adult population. Addressing any health concerns at this stage in life and helping to prevent any further grievances could be key for improving the health of this population, as well as the health of future adult populations."

"It has been recognised that the level of obesity within children continues to rise, with 30 per cent of children between the ages of two and 15 classified as overweight or obese."

Nutritional Therapist, Hannah Braye, Technical Advisor at Protexin, which has the Bio-Kult and Lepicol brands, continued: "Before the NHS was set up in 1948, around one in 20 children died before their first birthday and illnesses like polio, tuberculosis and measles were commonplace. Seventy years on and child health has been transformed, with overall child mortality rates at an all-time low. However, despite these achievements, progress appears to have plateaued in recent years and many children in the UK now experience worse health outcomes than those in similar countries, and their parents' generation in childhood.¹"

Nutritional Therapist, Jenny Logan, Technical Training Manager at Natures Aid, added that the UK appears to be lagging in terms of the health of children.

"The Royal College of Paediatrics and Child Health (RCPCH)⁽²⁾ report states that child health in the UK is falling behind that of many other European countries,

with obesity and mental health issues being key areas for concern. The report looked at 25 key health indicators, including asthma, diabetes, epilepsy and obesity, as well as levels of breastfeeding and smoking during pregnancy. Rates of smoking in pregnancy are higher in the UK than in many other European countries, standing at 11.4 per cent in England and 15 per cent in Scotland," she commented.

"According to recent reports, sadly, many British children are not particularly healthy, nor are they following healthy diets. The National Diet and Nutrition Survey⁽¹⁾ indicated deficiencies across the board and obesity on the rise. Recent figures show that nearly 10 per cent of children in reception classes are obese, and of those in their final year of primary that figure stands at 32.4 per cent for girls and 36.1 per cent for boys. In early 2017, The Royal College of Paediatrics published a report stating that the UK had higher child death rates, obesity and ill health than in many other European countries."

IN CLINIC ISSUES

If we then look at the health-related concerns that you as a Nutritional Therapist are likely to deal with, it is varied.

"There are a range of common health issues which can be present within the children and young adults. Low intake of foods such as fruit and vegetables within this population could be contributing to a poor nutritional status. This could be having an impact on their immune system, increasing the risk of infection such as colds and 'flu,'" Isom pointed out. "Additionally, the presence of dieting and eating disorders is also higher during the young adult population, further contributing to this poor nutritional status. Other mental health disorders can also be common within

this population, such as depression and anxiety.”

Turning more specifically to childhood obesity, Braye described the issue as a “major public health crisis, both nationally and internationally”.

“Being overweight or obese in childhood is known to have a significant impact on both physical and psychological health. Overweight and obese children are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age.² Despite childhood calorie intake increasing, nutrient intake has decreased, with many overweight children suffering from concomitant vitamin and mineral deficiencies²,” she explained.

“It appears that many childhood conditions, such as allergies and food intolerances, are also on the rise, with more than one-third of parents reporting adverse food reactions in their young children.⁴ With a life time prevalence of 15-30 per cent in children, the incidence of atopic dermatitis has increased by two to threefold in industrialized countries during the past three decades.⁵ While the reasoning behind this increase is not entirely clear from evidence-based studies, it is likely a number of factors have contributed. The increase in caesarean birth, bottle feeding, antibiotic use, processed foods in the diet and reduced exposure to a diverse range of micro-organisms from outdoor activities are all likely to have an impact on the child’s microbiome and corresponding immune system development.”

We must also pay attention to mental health in the young, with Logan advising: “Mental health is an increasing issue for children and young adults. Suicide is now the second leading cause of death during the teen years. Other major challenges include autism spectrum disorders, including Asperger’s

syndrome, learning disorders, and attention deficit hyperactive disorder (ADHD).”

Katherine Pardo, Head of Nutrition at Nutri Advanced, agreed, adding: “Worryingly, in older children, NTs are seeing more and more teenagers with stress, anxiety and depression and fatigue disorders.”

ADDRESSING DEFICIENCIES

Turning the focus specifically on nutritional intake, there is no doubt that children have access these days to far greater foods that are devoid of nutrition, and this is certainly where early years education on the right diet is important.

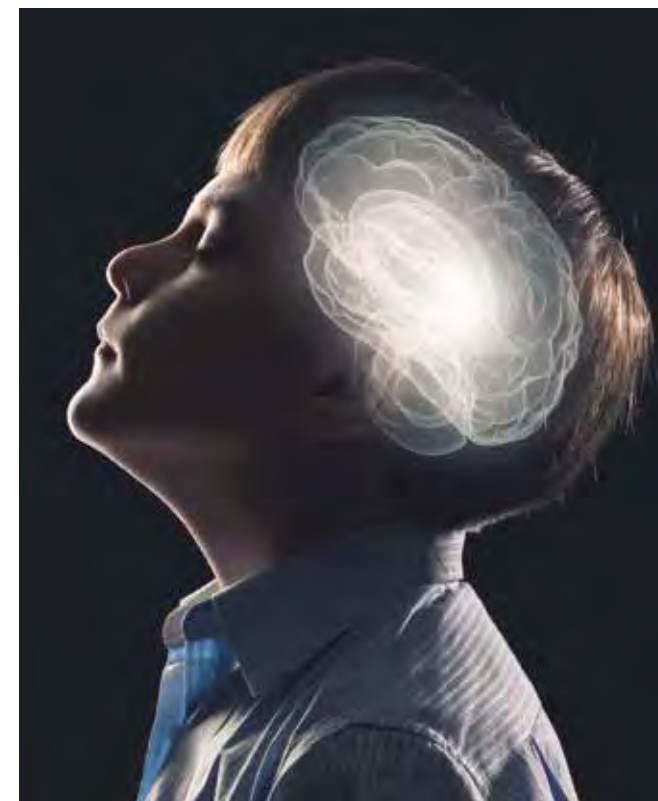
And the data is quite shocking, Logan pointed out.

“Recent published findings from the National Diet and Nutrition Survey (NDNS)⁽¹⁾ revealed that many children have shockingly low levels of several key vitamins and minerals. One of the most concerning findings from the NDNS was the fact that only eight per cent of young people between 11-18 ate the suggested five or more portions of fruit or vegetables – with the average intake being a meagre 2.8 portions,” she explained.

“In this group of children, it was also discovered that:

- 28 per cent of girls and 15 per cent of boys had low levels of folate.
- 16 per cent of all children had low levels of vitamin A.
- 48 per cent of girls and 27 per cent of boys had low intake of magnesium.
- 44 per cent of girls and 23 per cent of boys had a low intake of selenium.

“This list continues, indicating that deficiencies in UK children are broad scale and likely to be leading to



health issues both now and in their future. A survey of 21,000 people was carried out by the British Dietetic Association and found not one single person achieved the RDA for all basic nutrients. Highlighting the importance not just of trying to promote a healthier diet, but also of multi nutrient formula.”

It’s important to be aware of the most common deficiencies youngsters can face.

“Children require a varied and balanced diet to provide all the macro and micro-nutrients nutrients they need to grow healthily. Certain nutrients are,

however, more difficult to obtain from the diet and consequently many children are found to be lacking. These include vitamin D and omega 3 fatty acids," Bray explained.

"There are higher expectations socially and academically and lots of demands on their time. These increased expectations can sometimes result in higher levels of stress and anxiety, which can increase the need for nutrients such as magnesium and B vitamins."

"Along with the well-known relevance for bone health, research is showing the importance of vitamin D in terms of its impact on the innate immune system (to prevent infections), and the adaptive immune system (to modulate autoimmunity) and its neuro-hormonal effects on brain development and behavior, with a link between deficiency and mental health disorders.⁶ Infants are born with low vitamin D stores and are dependent on breast milk, sunlight or supplements as sources of vitamin D in the first few months of life. As the vitamin D content of breast milk is dependent on maternal vitamin D status and this is often low, infants are particularly vulnerable to vitamin D deficiency. Public Health England (PHE), therefore, now recommends that all babies and children take a daily vitamin D supplement⁷."

Isom continued: "Vitamin D deficiency in children is on the rise, with more cases of rickets being reported. As vitamin D is synthesised via sunlight exposure, the increased use of game consoles, televisions and computers could be the root cause for the increased

prevalence of this nutrient deficiency. Vitamin D is integral for the immune system, the health of bones and teeth and can have an impact on cognition and mood.

"Finally, iron is another nutrient commonly flagged as being particularly low within the childhood/ adolescent population, particularly within adolescent females, with 54 per cent of children consuming iron at levels lower than the NRV, putting them at risk of deficiency. Low iron status can coincide with symptoms such as fatigue, shortness of breath, headaches and a pale complexion. As children grow and develop, it is important that their nutritional needs are met to help grow healthy bones and develop their body's systems. Certain nutrients are essential to optimise their baseline nutrition status, immune defences, digestion, memory, concentration and mood."

And let's not forget essential fats too.

"Omega 3, in particular EPA and DHA, are vital in brain growth and development, visual development and in supporting heart function. The period from birth to two years of age is considered primary growth phase for the human brain. Development, however, continues throughout childhood and into adolescence," Logan explained. "Myelination of the frontal lobes begins around six months, with spurts of development identified at two years, seven to nine years and then again during mid-adolescence. Tissue content of DHA is thought to be important for this development

"One of the key studies on the benefits of DHA in children was the DOLAB I study. This study investigated the effects of omega 3 on reading and behaviour in primary school children (ages six-10).

⁽⁴⁾ The study involved 362 children from 74 schools

and compared the effects of DHA supplementation with a placebo. Reading ability and behaviour both showed significant improvement in the DHA groups. The poorest readers actually gained the greatest benefits. The body is unable to manufacture DHA, so it is essential that it is provided in our diets or supplements. The best food sources of DHA are salmon, fresh tuna, trout, mackerel and sardines. However, it is recognised that typical intake of these foods in children worldwide is low⁽⁵⁾."

Nutrient demands change as youngsters get older too.

"Nutrient demands continue to increase throughout growth and development, with the recommended Nutrient Reference Values (NRVs) for all vitamins and minerals increasing through to later childhood/ early teenage years," Isom explained. "Additionally, as children develop into young adults, life can get a bit tougher. There are higher expectations socially and academically and lots of demands on their time. These increased expectations can sometimes result in higher levels of stress and anxiety, which can increase the need for nutrients such as magnesium and B vitamins."

ESSENTIAL NUTRITION

There are plenty of guidelines when it comes to ensuring children are consuming the correct diet, and getting an adequate intake of nutrients, and this includes eating a rainbow diet.

Logan advised: "Obviously, we need children to be following a healthy diet, including plenty of good quality protein, oily fish, wholegrains, fruit and vegetables. However, we are not always going to manage to get children, particularly those with poor diets, to conform to that ideal. Suggestions should

therefore be:

- Realistic – make small achievable changes, that reinforce the parents and child's belief that they can do what is required.
- Wholefoods, fruits and vegetables do need to be included – but look for fun and easy ways to do this, including easy recipes the children can make and the addition of very finely diced vegetables to pasta sauces.
- Look for ways to include the whole family in an improved healthy eating program.
- Suggest ways of making healthy cakes and snacks – for example, raw food brownies and cocoa energy balls.
- Look for ways to add value and nutrition to foods they are comfortable eating."

And when looking specifically at a dietary programme, what should be considered?

"Fill their diet with the widest variety of fruits and vegetables (mainly vegetables) of different colours. Aim for seven to nine portions of different types per day to maximise their nutrient intake to support the health of every system in their body. Try sneaking additional fruit and veg into smoothies, soups, stews and tomato sauces," Isom explained.

Pardo continued: "In general terms, it would be exactly the same as for an adult; plenty of variety, wherever possible, coming from wholefoods and wholegrains, fresh fruit and veg, high quality protein sources (beans, pulses, fish and meat) and healthy fats (nuts, seeds, oily fish etc). Obviously, limiting fast foods and convenience foods wherever possible too. You might want to advise more

iron-rich foods for a girl, as anaemia and low iron can be a problem when girls start menstruating, especially if they're not getting enough iron in their diet in the first place. Iron-rich foods include meat, seafood, beans, dark leafy veg and dried fruits."

You should also incorporate choline-rich foods, with Isom adding: "Choline is a key substrate for the neurotransmitter, acetylcholine, which is fundamental to memory and learning. The best food sources of choline include runny egg yolks (eggs and soldiers!) and sunflower lecithin."

Essential fats are also important so trying to encourage consumption of oily fish is beneficial.

Isom added: "Daily intake of omega 3-rich foods to boost immunity, mood, memory and concentration. Try sprinkling freshly ground hemp and flaxseeds onto their porridge, adding walnuts to smoothies and oily fish to homemade fish pies. Good sources of omega fats include eggs, mackerel, salmon, flax seeds, chia seeds and walnuts."

TARGETED SUPPLEMENTATION

There are a number of supplements it is recommended children take on a daily basis to guard against any deficiencies, and there may be additional nutrients to bring into any kind of programme, depending on their specific needs.

"The most important supplements for all age groups will include a multivitamin developed and balanced for their age group. Although all ages will benefit from a multi nutrient, due



to deficiencies in diet and food quality, the need for nutrients obviously increases with age and size. Consideration should also be given to the way the product is presented; 'gummies' and chewies will often contain many additional ingredients, such as sugars and flavourings, which significantly reduce the health properties of the product. Ideal products would be naturally flavoured, liquid formulations, with minimal ingredients and a 'clean' label," Logan suggested.

"All age groups could also benefit from an omega 3 supplement. For infants, DHA is particularly key, as infants have limited ability to convert EFAs into DHA, as much of their fatty acid intake is used to produce energy. As children age, omega 3 remains important and unlikely to be delivered in the diet. Research has indicated that omega 3 fortification is ineffective, in part due to inferior, poorly absorbed omega 3s⁽⁶⁾. Supplementation to support brain and cognitive development, as well as visual and heart health, will be important throughout all growth phases."

Pardo added: "I would definitely build in a fish oil as most kids don't eat enough oily fish, and due to the level of contaminants in fish it's not necessarily healthy to eat it more than twice a week anyway. Omega 3 fatty acids from oily fish are vital for the healthy development of the brain and nervous system, and have been shown to be beneficial for brain and cognitive function, concentration and memory. I always recommend supplementing with a fresh and stable fish oil that's been cleaned thoroughly of toxic contaminants."

Isom continued: "Targeted supplementation with a specialised children's multi nutrient, omega 3 and additional immune supportive nutrients and botanicals, including elderberry, zinc and vitamin

C to optimise their baseline nutrition status, immune defences, memory and concentration could be beneficial and provide the foundations for supporting overall health. Additionally, the Department of Health recommends that all infants and young children aged six months to five years take a daily supplement containing 7-8.5µg of vitamin D."

Consider the gut too as digestive health is interlinked to so many other functions.

Braye explained: "Having the optimum balance of microflora is important for everyone, but especially important from birth to give the infant the best possible start in life. Research is indicating that there is a 'critical window' in the first 1,000 days of life that can significantly affect the development of a child's immune system, with potential knock on effects for health later in life.¹¹ Over 70 per cent of immune cells are located within the gut¹² and their development in infants is profoundly influenced by the gut flora.¹³ Probiotics are considered safe for infants of all ages,¹⁴ and supplementation is reported to positively influence the infant's gut flora balance and support the developing immune system.¹³

"Recent evidence suggests that the gut microbiota is involved in the control of body weight and plays a role in the pathophysiology of obesity. Prebiotics and probiotics (used in conjunction with diet and lifestyle modifications) are of particular interest to researchers because they have been shown to alter the composition of gut microbiota and to affect food intake and appetite, body weight and composition and metabolic functions.^{3"}

Looking closely at what should be recommended for children, Braye continued: "Studies have shown that newborns have complex microbial communities

in the gut within the first few weeks, which then fluctuate in bacterial composition until a relatively mature diversity is reached around three years.¹¹ The first bacteria to establish in the newborn gut are usually aerobic, which then consume oxygen and change the environment of the intestines, making it more suitable for anaerobic bacteria to thrive.¹⁵ 75-95 per cent of gut bacteria in breastfed infants is *bifidobacteria*, with *B.infantis* and *B.breve* being two of the most predominant species.¹⁶

"Multi-strain probiotics have been shown to be more effective at inhibiting pathogens than their component strains administered separately,¹⁷ and as different species work in different parts of the digestive tract, they are likely to offer more all-round support. Selecting an infant-specific, multi-strain product, including higher levels of *bifidobacterium* is, therefore, advisable in children under three. Adult probiotic products taken at a reduced dose are suitable for older children."

In addition, for teenagers, there are some additional considerations.

"During the teen years, we have to consider the effects of puberty and the increased need for specific nutrients. Zinc is particularly important with its roles in skin health and sexual development. Teen boys are highly likely to be low in zinc due to the demands for it in the regulation of testosterone and the production of sperm. Teenage girls are also at risk of low iron levels, once menstruation has started.

As well as these specific nutrients, teenagers would also benefit from a B vitamin complex, to support the nervous system and energy production. Vitamin A, calcium and iodine are also known to be low in teen diets, again highlighting the importance of a broad spectrum multi nutrient." ●

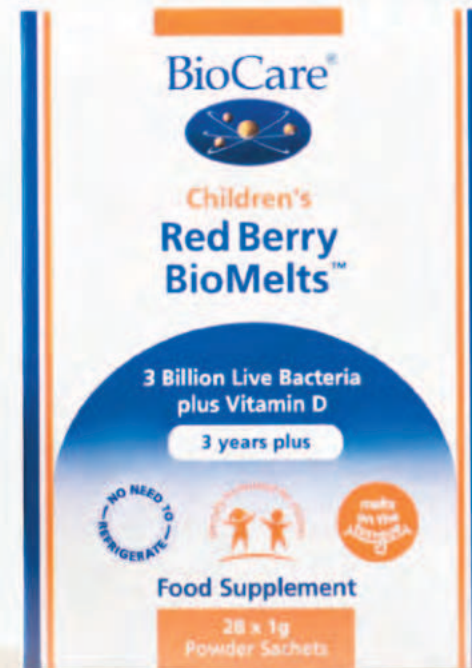
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TRACT UNDER ATTACK

Hugely common and one where NutritionalTherapists can make a huge impact, our panel of experts offer their most up to date advice on dealing with urinary tract infections (UTIs).



Urinary Tract Infections (UTIs) can be difficult to treat with conventional medicine due to our increasing resistance to antibiotics, and so sufferers – many of who experience recurring bouts – can find real relief when they turn to nutritional therapy.

And given it is such a common complaint, and with many interlinked issues, it is an area that as a Nutritional Therapist going into practice, you are likely to address frequently.

Jenny Carson, Technical Supervisor at Viridian Nutrition, commented: "UTIs have a greater occurrence in women than men. It is estimated that one in five women will have a UTI at some point in their life, with high recurrence rates of up to 20 per cent. In females over 55 years, the recurrence rate is 53 per cent compared to 36 per cent in younger women reporting a recurrence within one year.

"Conventional treatments employ antibiotics, however, with evidence of increasing resistance, this does not prevent the return of an infection. Recurring UTIs are sometimes associated with bacteria from the bowel infecting the urethra, which explains why women are anatomically more prone to infection. The female urethra is shorter than the male's, making it easier for bacteria to travel to the bladder. But the main cause is any occurrence which results in the bladder improperly emptying."

Jenny Logan, Nutritional Therapist and Technical Training Manager at Natures Aid, added: "Fifty per cent of women will experience at least one UTI in their lifetime, and 20-30 per cent will experience recurrent UTI's.⁽²⁾ One of the reasons for this will be the use of antibiotics to treat the initial infection. It has been noted that antibiotics also kill off the probiotic

bacteria, which would help to prevent a reinfection. The negative effects of antibiotics can last for up to a year, so taking a good probiotic after any antibiotic treatment will reduce the risk of a recurrent infection."

THE URINARY TRACT

So, what is a UTI and why does it affect us?

Nutritional Therapist, Hannah Braye, Technical Advisor at Protexin, which has the Bio-Kult Candéa brand in its range, continued: "Lower UTIs are commonly known as 'cystitis', whereas upper UTIs are known as 'pyelonephritis'. In more than 80 per cent of cases, UTIs are caused by the overgrowth of the bacteria *Escherichia coli* (*E.Coli*),¹ originating from the digestive system or vagina. *Enterobacteriaceae* infections are also common in children.¹ Infections from the digestive system are most common,² as bacteria from the gut are able to move easily from the anus to the urethra, especially in women."

Logan added: "A UTI is an infection in any part of the urinary tract – the kidneys, bladder and urethra. Most infections involve the lower urinary tract, the bladder and urethra. Chlamydia could cause an infection in the urethra, as can mycoplasma bacteria. A bladder infection is referred to as cystitis, other UTIs include urethritis – an infection of the urethra and pyelonephritis, an infection in the kidneys.

And Dr Gras Balaguer, Technical Director at Cysticlean, continued: "Cystitis and urinary tract infections, often referred to as UTIs, are among the most common types of bacterial infection in outpatient medicine. Uncomplicated cystitis (UC) is the most common urinary tract infection in the world, mainly affecting women and elderly men¹, and it is a symptomatic cystitis without fever and general

discomfort.

"*Escherichia coli* (*Ec*) is the most frequent causative pathogen of this infection¹. The diagnosis of UTI refers to the presence of clinical signs and symptoms arising from the genitourinary tract, plus the presence of one or more microorganisms in the urine exceeding a threshold value for significance."

Someone suffering with a UTI will generally experience some obvious symptoms, with Logan pointing towards a relentless need to pass water and a burning sensation, bloody or cloudy urine, strong odour to the urine, pelvic pain in women or rectal pain in men, nausea and vomiting and fever⁽²⁾.

"Fifty per cent of women will experience at least one UTI in their lifetime, and 20-30 per cent will experience recurrent UTI's.⁽²⁾ One of the reasons for this will be the use of antibiotics to treat the initial infection."

Braye added: "More serious upper UTIs could cause nausea, fever, lower back pain and confusion.⁴ Medical advice should always be sought if you experience these symptoms."

Dr Balaguer discussed the issue around antibiotics.

"A significant issue here is the use of antibiotics in the treatment of UTI's. Acute antibiotic treatments are the conventional therapy, used successfully in various regimens, to treat UC. Several studies reported that these antibiotic treatments were effective in more than 90 per cent of these patients, however, the prevalence rates of antibiotic resistance among *Ec* and other



uropathogens have significantly increased^{iii,iv,vi} he explained.

“Recent studies indicate that *Ec* shows an antibiotic resistance higher than 50 per cent against the most common antibiotics prescribed to treat UC (i.e. ciprofloxacin, Fosfomycin or trimethoprim/sulfamethoxazole). In these cases, several other antibiotics are needed to successfully treat UC, increasing the risk of resistance developing to these additional antibiotics. Antibiotic resistance, which has traditionally been a problem only in nosocomial complicated UTI, is also now becoming a major risk in uncomplicated community-acquired UTIs^{vii}. Therefore, UC treatment should be a serious concern, and prudent use of antibiotics is increasingly important.”

UNDERLYING ISSUES

There are a number of contributory factors that can cause people to suffer with a UTI.

“UTI infections can be exacerbated in those with physiological anomalies, such as a kink in the urethra or scar tissue in the urinary system. The elderly and those with poor mobility may drink less fluid in an attempt to reduce trips to the toilet. Unfortunately, less

frequent urination can increase the chance of bacterial adherence to the bladder or urethra wall and the consequent infection,” Carson explained.

“Urinary tract infection is one of the main differentials for pelvic pain in a gynaecological setting. Therefore, UTIs must be excluded before further diagnoses are made but recorded comorbidities are overactive bladder or bladder pain syndrome.”

Logan added: “Women are at higher risk of developing UTIs than men, due to the fact that they have a shorter urethra, making it easier for bacteria to access the bladder. Hormonal imbalance, the Pill and HRT can also all increase risk. For men, the risk is lower, although it increases as they age and the prostate gland is also at risk of infection.”

Certain people can find they are more susceptible, with Logan commenting: “People of all ages and sexes can develop a UTI, however, the following issues will all increase this risk:⁽²⁾

- Frequent sexual intercourse with a new partner, or multiple partners.
- Diabetes.
- Problems with emptying the bladder completely.
- Bowel incontinence.
- Kidney stones.
- Menopause.
- Low immunity.
- Spermicides and tampons – as they interfere with the microflora balance.”

And Dr Balaguer also advised: “Among risk factors associate to UC are lack of physical activity, history of recurrent cystitis (more than three or four per year), sedentary lifestyle, urinary retention, insufficient water ingestion, obesity, hypotonic pelvic floor and prostatitis. There are also other unknown factors

(genetics) and often it is possible to find a combination of described risk factors in patients with UC. In men, especially those with prostate enlargement, UTIs may become an issue. As the prostate gland enlarges, it begins to press down on the tube that carries urine from the bladder. The complications of not emptying the bladder sufficiently are recurring urinary tract infections to the tip of the penis, causing the classic symptoms of the urge to urinate frequently.”

Braye also highlighted a raised risk among those who suffer with diabetes.

“Diabetes sufferers have been shown to be at an increased risk of UTIs.⁵ This may be due to several factors, such as high urine glucose content and defective host immune factors. Hyperglycemia causes neutrophil dysfunction by increasing intracellular calcium levels and interfering with actin and, thus, diapedesis and phagocytosis⁶,” she explained.

“Vaginal candidiasis and vascular disease also play a role in recurrent infections.⁶ In addition, medical conditions necessitating antibiotic use may result in long-term alteration of the normal microbiota of the vagina and gastrointestinal tract and the development of multidrug-resistant microorganisms and uropathogens,⁷ increasing the risk of UTI occurrences.”

Carson also raised the issues that pregnancy can have.

She explained: “There is an increased risk of UTIs in pregnancy; they necessitate investigation and treatment as even asymptomatic bacteria can be associated with adverse pregnancy outcomes. The maternal complication of pyelonephritis, the spread of infection to the kidneys with associated inflammation, pain and in some cases, fever has a high recurrence rate.”

UTI PROTOCOL

In terms of advice to clients to reduce the risk of developing a UTI, especially relevant if they experience recurring bouts, there is much to recommend.

"Interventions to support the immune system fight off infections are a key preventative strategy. The urinary tract is constantly exposed to microorganisms which inhibit the gastrointestinal tract, but generally resists infection due to the versatility of its innate immune defences.⁸ Malnutrition associated with a deficiency of protein, vitamins and minerals has been shown to cause a decline in immune functions and results in susceptibility to infection.⁹ Both physical and mental stress can also disturb immune function,⁹ so getting good quality sleep and working on stress reduction techniques with clients is important," Braye advised.

"Increasing fruit and vegetable intake and ensuring good quality protein is advisable to ensure adequate amounts of important immune supportive nutrients, such as vitamin C, vitamin A and zinc. Those eating a typical Western diet tend to consume high amounts of sugars and refined carbohydrates from grains. Animal nutritional research has shown that such diets will favour certain *E. coli* strains.¹⁰ Those prone to UTIs should, therefore, reduce sugar and refined carbohydrates in the diet. Fermented milk products containing *lactobacilli* strains have been shown to protect against UTI recurrences.¹¹ Incorporating fermented foods such as sauerkraut, kimchi, live organic yoghurt, kombucha and kefir into the diet on a daily basis is therefore also recommended."

Lifestyle changes are essential.

"Along with the above dietary recommendations, UTI sufferers should be advised to refrain from sexual intercourse during infection, ensure sufficient water intake and completely void the bladder when urinating, including immediately after sex. Both partners should

be encouraged to practice good hygiene and vaginal irritants such as personal care products, tampons, diaphragms and spermicides may need to be avoided," Braye explained, adding: "Some women also find avoiding tight fitting clothing and wearing breathable natural fibres to be of benefit. Avoiding substances such as alcohol and smoking which depress the immune system,¹²⁻¹³ is also advisable."

And Carson advised: "Hydration is key; an individual that aims to drink at least two litres of water daily should flush the urinary system so that there is regular urination with complete emptying of the bladder and so the reduced instance of holding urine in the bladder for extended periods. Further lifestyle advice would be to ensure the diet is rich in fruits and vegetables; these foods provide immune supporting nutrients while offering an alkalisng effect to tissues, which makes it harder for pathogenic bacteria to adhere. Sulphur-rich foods such as garlic, onions, leeks and cruciferous vegetables again help to repel the adherence of pathogenic bacteria, while fermented foods help with bacterial balance and consequently keep pathogenic colonies at lower levels."

Dealing with digestive issues is also important.

"UTIs are more common in people with chronic constipation, because when waste remains in the rectum for a prolonged time, it can affect the emptying of the bladder, which is an important step in removing bacteria from the urinary tract⁽⁴⁾," Logan advised.

"And keep blood glucose levels under control – UTIs are more common in people suffering with diabetes. Urine generally contains little or no glucose, as kidneys filter it back into the bloodstream. However, when glucose reaches levels that cannot be filtered by kidneys, it can leak into the urine. Glucose in urine acts as food to the harmful bacteria, leading to infections⁽⁵⁾."

PROBIOTICS AND UTIS

Probiotics are to be highly recommended to those experiencing UTIs and for good reason.

"The composition of our gut and vaginal microflora plays a pivotal role in modulating the immune system and protecting against pathogens. Frequent consumption of fermented milk products containing probiotic *Lactobacilli* species have been shown to protect against UTI recurrences,¹¹ and probiotics have been shown to restore the gut and vaginal microflora¹⁸," Braye explained.

"Supporting the microbiome through a good quality probiotic supplement may therefore be of benefit. Certain *Lactobacilli* species have been found to be of most benefit.¹⁹ For example, *Lactobacillus acidophilus* PXN 35 and *Lactobacillus plantarum* PXN 47, have been shown in vitro to significantly inhibit *E.coli* and *E.faecalis* growth²⁰."

Logan added: "Certain strains, including *Lactobacillus plantarum* and *Bifidobacteria lactis* have been found to be important in helping to maintain a healthy urinary tract. Those who have suffered repeated infections could find a daily, high strength probiotic supplement helpful⁽²⁾."

SUPPORTIVE SUPPLEMENTS

As part of an effective protocol, research is growing around nutrients that are important to support those with a UTI, both in reducing the risk and cutting the duration if clients do suffer.

Cranberry is a popular choice here.

"Cranberry extract has long been known to benefit those suffering with UTIs. This is because the flavonols they contain, known

as proanthocyanidins (PACS) (specifically type A), have been shown to help block bacterial adhesion to uroepithelial cells.¹⁴ A daily dose of cranberry extract containing 36mg of Type A PACs has been shown to be as effective as the commonly prescribed antibiotic trimethoprim, without the adverse side effects¹⁵," Bray advised.

Logan added: "A good, high strength cranberry tablet – research has shown that cranberry may help to inhibit the adhesion of *E coli* bacteria to the bladder wall, impairing colonisation and subsequent infection. Tablets are known to be more effective than the juices, because they are concentrated and contain no sugars⁽³⁾."

Dr Balaguer continued: "Cranberry juices and cranberry extracts vary wildly in their composition. Cranberries contain fructose, a carbohydrate called mannose and also a group of very specific antioxidants called proanthocyanidins (PACs). Recurring urinary tract infections can result in damage to the bladder walls, encouraging bacteria to attach to the walls of the bladder, where they can proliferate and cause infection. PACs have the ability to block the 'receptors' existing on the bladder walls, improving the bladder's ability to flush away the bacteria and hence prevent infections.

"This anti-adhesive effect of PAC on infection causing *E.coli* is proven in vitro studies to be dose dependent. Most juices only contain around 36mg PAC and cranberry extracts range considerably, with testing methods on PAC composition always in hot debate."

In terms of other supplements, Carson added: "Mannose is a carbohydrate that commands a beneficial mechanism of action against UTIs, through the inhibition of bacterial adherence to urinary cell walls. *In-vitro* testing has demonstrated this inhibition

of bacterial adherence, as well as a reduction in bacteria levels. Consequently, a randomised controlled-trial of women with reoccurring UTIs were randomly assigned to treatment groups of either 2g of mannose daily, 50mg of the antibiotic Nitrofurantoin daily or no treatment for six months. The results showed that supplementation with mannose significantly reduced the incidence of UTIs compared to no treatment, while it was as effective as antibiotic treatment in the prevention of reoccurring UTIs."

"A good, high strength cranberry tablet – research has shown that cranberry may help to inhibit the adhesion of *E coli* bacteria to the bladder wall, impairing colonisation and subsequent infection. Tablets are known to be more effective than the juices, because they are concentrated and contain no sugars⁽³⁾"

Immune supporting supplements are also crucial. "Vitamin C is an important vitamin for immune function and evidence suggests it has beneficial properties in relation to UTIs. Specifically, vitamin C has demonstrated bacteriostatic actions in urine. The effect is mediated by a reduction in urinary nitrates. Subsequently, a dose dependant association has been seen between vitamin C intake and UTI risk," Carson explained, adding: "Alkalisising urine has proved to be effective in the treatment and reduction of UTI symptoms. Subsequently, potassium citrate makes a preferable, sodium-free method of alkalization. A study compared the beneficial effects of potassium citrate vs. sodium bicarbonate on UTIs. It was reported

that potassium citrate supplementation was as effective as sodium bicarbonate at alkalizing urine without the associated increase in sodium intake.

"The evidence shows that supplementation with these ingredients would give the best possible chance of UTI eradication, however, it should be noted that if the UTI has not cleared in five days then a course of antibiotics may be necessary."

And Logan also recommended: "Support the immune system – to fight infection and prevent recurrence, utilising beta glucans, vitamin A, vitamin D and zinc." ●



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FOCUS ON: LYME DISEASE

Nutrition I-Mag hears from leading experts about the rise in incidence of lyme disease, and the recommendations you could follow in clinic.



Lyme disease is something that has been in existence for centuries, yet in more recent years, we have seen its incidence reported more frequently, being discussed more, and with an expanding body of research.

But is it the case that it is increasing in incidence, and if so, why?

"The disease was first reported in 1975 in Lyme Connecticut, where a cluster of children and adults experienced uncommon arthritic-like symptoms. In 1977, the *Ixodes scapularis* tick was linked to transmission of the disease. It was not until 1982 that William Burgdorfer identified the bacteria as its cause; the spirochetal bacteria was named *Borrelia burgdorferi* in his honour. *Bb* is, however, a 15 million-year-old bacterium, with its oldest known carrier being 5,300-year-old Otzi the Iceman, who was determined to be infected with Lyme spirochetes when he died," commented Rose Holmes, Nutritionist, BSc, Dip.ION, PGCE, MBANT, Education and Training Manager at Rio Health.

"Although not a new phenomenon, Lyme borreliosis is an emerging disease. It was only 40 years ago that the tick was determined to be causative agent of Lyme and the collection of diverse symptoms. Awareness of the condition has increased and is increasing. Incidence is also increasing, which means more people will know of, or hear about, sufferers. Severity and associated health risks impact awareness of Lyme borreliosis."

She continued: "The WHO reported in 2006 approximately 85,000 cases annually in Europe, recognising the number as largely underestimated. Conventionally used tests often give false negative results, causing under-diagnosis. Wrong diagnosis means wrong or no treatment. The true number of

new cases per year in the UK is not known because Lyme disease is not a notifiable disease. Public Health England states that the true number could be around 3,000 yearly but other estimates suggest a true figure might be tens of thousands, according to Lyme Disease UK, a charity patient-support network.

"Wrong diagnosis means wrong or no treatment. The true number of new cases per year in the UK is not known because Lyme disease is not a notifiable disease."

"Lyme disease has, is, and likely will continue to affect large numbers of people. Although this disease is initiated by a tick bite and the resulting bacterial infection with *Borrelia burgdorferi*, it is the co-infections that complicate the disease, which only really manifests in those with weakened immune system."

Gillian Crowther, Naturopath/Nutritional Therapist, MA (Oxon), ND/NT, mBANT, mNNA, CNHC reg, Director of Research at AONM, added: "Climate change is leading to expansion of the tick population, as well as their habitat. And there is more outdoor recreation when it is warmer, which increases the risk of infection. Suburbanisation and reforestation are additional factors. Under reporting has always been a big problem, too. 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."

And there are other factors too, with Crowther

continuing: "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. The EliSpot (enzyme-linked immunosorbent spot) system of testing is now available from Germany, such as from ArminLabs, where it has 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)."

Nutritional Therapist, Jenny Logan, Technical Training Manager at Natures Aid, continued: "Lyme disease is the most common disease spread by ticks in the Northern Hemisphere.⁽²⁾ It is estimated to affect 300,000 people a year in the United States and 65,000 people a year in Europe.⁽¹⁾ Infections are most common in the spring and early summer. Lyme disease was diagnosed as a separate condition for the first time in 1975 in Old Lyme, Connecticut. It was originally mistaken for juvenile rheumatoid arthritis.⁽³⁾ The bacteria can spread throughout the body during the course of an infection and could attack the skin, the joints, the nervous system and the heart.⁽⁴⁾"

A LYME DEFINITION

"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,” Holmes explained.

“*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. It is a multi-microbial inflammatory infection with systemic (all-body), multi-symptom and often chronic effect.”

Crowther continued: “Lyme disease is a bacterial infection that results from the bite of an infected tick – sources exist substantiating other vectors too, such as horseflies, sand flies, mosquitos and fleas. Ticks may carry *Borrelia burgdorferi*, the spirochete that causes Lyme disease, but also many other coinfections – *Babesia*, *Bartonella*, *Ehrlichia*, *Anaplasma*, to name just a few. Each has specific manifestations, which alter as the bacteria become disseminated over the body. Some specialists, like Dr Joe Burrascano, who wrote the *Lyme Treatment Guidelines* in the USA, refer to infection with *Borrelia* as ‘Lyme Borreliosis’, and use ‘Lyme disease’ to denote a broader definition that includes co-infections.”

Logan continued: “According to NHS figures, there has been an increase in the number of people in the UK with Lyme disease. It is thought that this is due to global warming. Climate change is increasing the range in which Lyme disease carrying ticks can survive and also the amount of time they can feed and breed. This

is causing them to spread into new territories and become active earlier and earlier in the year. As a result of this, awareness has had to be increased with campaigns to highlight the growing risks.

“Lyme disease itself is not a lifelong condition, and can generally be resolved in three to six weeks. However, 10-20 per cent of sufferers develop what is referred to as ‘post-treatment Lyme disease syndrome’, or chronic Lyme disease. The symptoms of this are long-term and are very similar to fibromyalgia and chronic fatigue. General medical opinion is that the cause of the post-Lyme disease syndrome is unknown, some experts think that the symptoms are caused by persistent bacteria that weren’t destroyed by the antibiotics. Others believe that the disease damages the immune system and tissues. The damaged immune system continues to respond to the infection, even after the bacteria are destroyed, causing symptoms.”

RAISING THE RISK

There are certain factors that can contribute to an increased risk of the disease.

“Like other vector-borne (caused by insects) diseases (malaria, West Nile virus, dengue fever), Lyme disease incidence may be affected by climatic factors. These diseases are transmitted by bite of infected mosquito, tick or sandfly; survival and reproduction rates of these species are affected by weather, as well as habitat destruction, pesticides and many other factors. Increased numbers of deer, cows and rodents in nature mean more ticks in general,” Holmes pointed out.

“Ticks may be living longer, spreading into new areas, and reproducing more, moving into human species in unprecedented numbers. Current trends in human leisure activities of walking, cycling and trekking potentially increase our exposure. And current diet and lifestyle trends may influence immune defence, making us less immune-resilient and more susceptible to infection. Recent trends of diets high in processed foods and low in nutrients needed for immune function, for example, may play a role in the number of reported cases of Lyme disease.

“*Bb* transmits also through blood, semen, unpasteurised milk, breast milk and from placenta to foetus – facts that may not be well-known. Other possibly contributory factors to rising incidence of Lyme borreliosis include the theoretical possibility of infection through unscreened blood transfusions.”

SYMPTOM CHECK

So, what are the most obvious signs of Lyme disease? Crowther explained: “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 (amongst many others), 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, and cardiac, for example, myocarditis, pericarditis, bundle branch block, heart rhythm disturbances can occur 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. There may, of course, be overlap between the different stages.”

Holmes added: “*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. Neurological symptoms may also occur, including hearing loss, depression, extreme mood swings, memory dysfunction and seizures.

“*Bb* can depress the immune system, allowing other co-infections to take hold. Common co-infections include *Bartonella*, *Babesia*, herpes simplex virus (HSV) that causes cold sores, *Rickettsia*, *Candida*, roundworm

and hookworm. 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.”

“To effectively address this complicated collection of invading micro-organisms, the patient with Lyme may need to support a variety of body systems and functions, adrenal, thyroid, gastrointestinal, nervous, hormone, energy, sleep and most importantly, immune and detoxication systems.”

CLIENT PROTOCOL

More and more is being understood about Lyme disease, both in terms of testing and diagnosis, and also with regard to a protocol to help sufferers manage symptoms.

“To effectively address this complicated collection of invading micro-organisms, the patient with Lyme may need to support a variety of body systems and functions, adrenal, thyroid, gastrointestinal, nervous, hormone, energy, sleep and most importantly, immune and detoxication systems. These systems must be supported if antimicrobial protocols are to be effective; supporting these first and simultaneously can facilitate recovery. And long-term, ongoing immune and detoxification support should be considered,” Holmes explained.

So, what is the recommended course of action from

the experts?

“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.”

It is also worth pointing out that conventional treatment isn't always effective.

“*Bb* cycles between the different forms; in its inactive (non-spirochetal) forms, antibiotic therapy is ineffective. Short courses of conventional antibiotics are not only ineffective, they also very often result in relapses. When exposed to antibiotics, *Bb* develops granules and cyst and, by morphing into round-body forms, *Bb* can resist antibiotics.”

NUTRITIONAL NEEDS

Dietary recommendations form a cornerstone to a protocol for anyone suffering with the disease.

“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

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carbohydrates therefore really makes sense," Crowther pointed out. "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 vital, in the right balance (not everyone's needs are the same – a fatty acid test is useful, and also checking for elevated kryptopyrroles, as that is a condition often seen in Lyme patients, and frequently leads to omega 6 deficiency).

"Glutathione is our number one intracellular antioxidant, without which we can't mount an efficient immune response. Glycine, cysteine and glutamic acid are its precursors, so these amino acids are crucial. High quality sources of protein will deliver them, but only if we have sufficient hydrochloric acid to break them down, so it's important to check for HCL. Usually, there's a deficiency of digestive enzymes across the board. It's to do with down regulation of the patient's parasympathetic system responsible for digestion, because the nervous system has switched to hypervigilance. Keeping living enzymes in foods is therefore helpful – i.e., having a good proportion of your food raw.

"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. Eating organic is another key, as pesticides and antibiotics are a burden on an already overtaxed liver. They also impair our mitochondria, essential for restoring cellular health. Feeding our cells and mitochondria with high-quality, nutrient-dense anti-inflammatory foods plays a huge part in recovery, but there is no one-size-fits-all. Nutrition needs to be tailored to the individual, and ideally guided by testing."

And Logan also recommended: "The role of nutrition in Lyme disease is not going to be in treating the initial infection, but rather in helping the body to recover from both the illness and the treatment. Suggestions should therefore be based on:

- Reducing systemic inflammation.
- Improving digestion and absorption and dealing with leaky gut issues.
- Strengthening the immune system.
- Supporting the microbiome.

"Anyone who has had Lyme disease is likely to have taken strong antibiotics over a prolonged period of time. This is going to have destroyed their microbiome⁽⁷⁾ and allowed leaky gut and food intolerances to develop. It will also have impacted digestion and absorption.⁽⁸⁾ It is known that the microbiome is important in supporting a healthy immune response and that gut dysbiosis can lead to inflammation as well. Therefore, dietary suggestions should be based on supporting and strengthening the microbiome.

- Minimise sugars, caffeine and saturated fats.

- Include fermented foods.

- Include the following foods, which are known to nurture the microbiome; olive oil, oily fish – salmon, tuna, sardines, mackerel, trout, fresh vegetables, turmeric, cider vinegar, onions, leeks, garlic, oats, flaxseeds, fermented foods – sauerkraut, kefir and kimchi, plus prebiotic fibres like inulin or FOS.

It is also thought by some practitioners that the bacteria which cause Lyme disease could be causing excess alkalinity, so it could be worth checking pH levels of any clients."

IMMUNE FOCUS

Any programme you formulate for your clients must have a focus placed on supporting the immune system.

Holmes advised: "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."

Being aware of a person's toxic load is also critical.

"The quality of the diet impacts nutrient status, as well as gastrointestinal function. This may impact detoxification and elimination, important considerations for immune health and defence against microbes. Toxins weaken the immune system, allowing Bb and co-infections to thrive. Man-made toxins create conditions that allow access to aluminium. Bacteria, fungi and parasites – which produce biotoxins – are thought to respond defensively to EMF (electromagnetic field). So, microbial infection and

environmental conditions contribute to the toxin load," Holmes added.

Crowther raised the issue around EMPFs.

"EMFs can have a huge impact on our cells; Professor Martin Pall has extensive scientific evidence for how they alter intra and extracellular ion exchange, weakening our immunity (and thus driving the virulence of pathogens)," she explained. "So, shielding yourself from EMFs to the maximum extent possible is very helpful – anti-wave clothing, switching off routers/iPhones at night, using fixed lines instead of cordless phones, etc."

And don't forget the impact stress can have.

"Stress of any kind leads to a cell danger response (CDR), where cells down regulate their normal metabolism. This compromises their ability to fight intracellular pathogens. Nitric oxide, triggered by iNOS, normally responsible for intracellular 'gas warfare', may be switched off altogether. It is essential to reduce stress on all levels to backpedal this CDR and restore full functionality. So, lifestyle changes will most definitely be called for, but what they are will vary hugely depending on each individual's circumstances."

A DETOX PROGRAMME

Detoxification forms an important of what you advise.

Holmes advised: "When antimicrobials 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 antimicrobials to address the infections, die-off reactions are inevitable. For all these reasons, detoxification must be incorporated into any protocol to address Lyme disease."

And what should the recommendations involve?

"First in any detox programme is to ensure the elimination routes are working; colon, liver, kidney, lungs, blood, lymphatic system and skin. It is also important to eliminate/avoid toxin exposure. The diet should be fresh and organic (to avoid antibiotics in livestock, as well as agricultural pesticides). Skincare and household products should be assessed. Addressing EMF should be considered," Holmes suggested.

"So, our increasing toxic environment encourages conditions whereby microbial infections may thrive, and microbial infections create toxins."

"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*). Parsley (*Petroselinum crispum*) may aid detox of liver, kidneys and lymphatic system. Particularly useful to minimise Herxheimer or die-off reactions is the South American herb, *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."

And there are lifestyle considerations to make here

too.

Logan explained: "Lifestyle changes could have been enforced on sufferers of chronic Lyme disease. Realistically, additional changes in lifestyle are about learning to manage the chronic condition, and should include:

- Learning to manage energy levels – much like sufferers of chronic fatigue, people will have good days and bad days. If on good days people exhaust themselves, they will pay the price the following day.
- Engage with gentle exercise, but not to exhaustion.
- Stay hydrated.
- Engage with meditation or other stress management techniques."

SUPPLEMENT PLAN

There is much to consider when choosing a supplement programme for Lyme sufferers.

"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 of course rule out supplements. But in severe cases the full protocol may need to include pharmaceuticals," Crowther pointed out.

For Holmes, there are some specific choices.

"Protocols based on botanicals, like the Cowden Support Programme (CSP) (developed by Wm Lee Cowden, MD), utilising primarily South American botanicals, may help to resolve many of the root causes of most Lyme patients' symptoms. Central to the CSP are two broad-spectrum anti-microbial South American botanicals," she explained.

"The first of these is Tetracyclic Oxindole Alkaloid (TOA)-free version of *Uncaria tomentosa* (cat's claw), which, due to its Pentacyclic Oxindole Alkaloids (POAs) may have an immunomodulatory effect, as well as antimicrobial action. It is important to use the TOA-free version of *Uncaria tomentosa* and not products just labelled 'cat's claw' as the TOAs in cat's claw negate the beneficial effect of the POAs needed by the Lyme patient.

"Research has shown both TOA-free *Uncaria tomentosa* and *Otoba parvifolia* (aka Banderilla roja bark extract), the other central broad-spectrum antimicrobial in the CSP, to be effective against different forms of Bb and many of the co-infections."

Holmes then moved onto what to recommend regarding antimicrobials for co-infections.

"South American herb *Tabebuia impetiginosa* (Pau d'Arco/Lapacho) is another broad-spectrum antimicrobial, particularly known for its anti-fungal effects. Another South American botanical, *Campsiandra angustifolia*, may also help in fungal infections," she explained. "A variety of herbs may benefit in cases of parasitic infection (for example, *Inula helenium*, *Ipomoea jalapa*, *Achillea millefolium*, *Juglans nigra* and *Eugenia caryophyllata*) or viral infection (for example, flavonoid-rich *Houttuynia cordata*, *Cecropia strigosa*, *Astragalus membranaceus*). Many of these are included in the CSP."

And Logan suggested: "A high strength probiotic, which includes *L. plantarum*, *L. casei*, *L. acidophilus* and *B. lactis*. These bacteria have specifically been shown to help repair leaky gut and reduce food intolerance – both of which are common in those who have chronic Lyme disease, and those who have used strong antibiotic treatments. Start with a high strength 100bn per capsule as an intensive initial treatment, then follow up with a

30bn daily dose.

"Essential fatty acids will be key, especially omega 3, to help reduce systemic inflammation. Ideally a super strength fish oil with high EPA and DHA levels. For vegetarians, consider an algal oil or flax oil capsules. A good immune support supplement to help the immune system properly recover from the infection. Beta glucans have been shown to be vital in supporting both the innate and adaptive immune response, so choosing a product that combines beta glucans with vitamin A, vitamin D, zinc and selenium should provide an effective all-round immune support."

TESTING MATTERS

While it has moved forwards, Crowther highlighted issues around testing.

"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. As testing methods improve, the number of cases identified rises," she explained.

"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."

RESEARCH INVESTMENT

There is increasing research relating to Lyme, which can

only be encouraging.

Crowther commented: "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. 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 auto-antibodies 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."

Logan continued: "Apart from research into the reasons for the increase in Lyme disease cases, nothing has really changed in the knowledge of how to tackle this disease. However, new tests are being developed to allow for quicker and more accurate diagnosis. Additional research has also indicated the vital importance of regular full body checks after walking or hiking. Researchers have compared infection rates after 24, 48 and 72 hours and discovered that no infection is likely if the tick is removed within 24 hours. However, the infection rate increases to 57 per cent if the tick remains in place for 72 hours.⁽⁶⁾" ●

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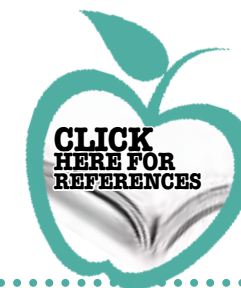
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EXPERT ADVICE

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



Q What is epigenetics?

EGZONA MAKOLLI EXPLAINED:

Epigenetics is defined as the study of gene expression variation without alteration in DNA sequences, which means that certain factors, such as diet, lifestyle and environment, may play a role in switching our genes on or off via epigenetics and studies show that some epigenetic changes can be reversed. Essentially, this means that certain factors can cause chemical marks to attach or remove from our DNA and influence our phenotype without altering our genotype. Epigenetics differs from genetic alterations, as epigenetic actions are not changes in gene function, which occurs

in combination with DNA sequence changes.

In recent years, epigenetics has been shown to possibly be involved in a range of diseases, such as type 2 diabetes, obesity, inflammatory disorders, such as Crohn's disease and arthritis and many cancers. Although the current evidence is exciting, the possibility of developing a treatment or discovering preventative measures of these diseases requires more in-depth evidence and further studies.

Epigenetics is essential to healthcare professionals as theoretically any nutrient, bioactive component or condition can affect the gene expression. Current evidence shows that many bioactive components in nutrition, for example, may directly affect enzymes involved in epigenetic mechanisms,

for example, tea catechins affects DNA methyltransferases (Dnmt), resveratrol may inhibit HDAC and curcumin inhibits histone acetyltransferases (HAT). These enzymes are altered by these compounds and may affect physiological and pathological processes by altering gene expression, which can affect gene expression epigenetically.

Current literature shows that nutrients in different foods and supplements consumed may be able to adjust or reverse epigenetic mechanisms, although more studies are required to support this. Epigenetics is fast becoming a fascinating area of interest, which, with more studies, may be used to support better lifestyle choices and used by healthcare professionals in day-to-day clinics.

THE EXPERT



Egzona Makolli is a fully qualified Nutritionist

with a Bachelors and a Masters degree in science related subjects. She is currently Technical and Commercial Nutritionist for Kinetic, UK's leading natural and organic product distributor, working with nutritional brands such as Nature's Answer, Jarrow, Nutiva, Barlean's and Amazing Grass.



Q

What are the most commonly suffered IBS symptoms that need to be addressed, and what is the most effective programme to offer some relief?



HANNAH BRAYE ADVISED: Irritable bowel syndrome (IBS) is a chronic functional disorder of the gastrointestinal tract and is one of the most commonly diagnosed gastrointestinal diseases, affecting between 10 per cent and 20 per cent of the general population.¹

Sufferers present with varying symptom profiles, most commonly diarrhoea predominant (IBS-D), constipation predominant (IBS-C) or mixed symptom profiles (IBS-M). Abdominal pain, discomfort and distension are common accompanying symptoms. Diagnosis is made using Rome IV criteria after other differential diagnoses (such as inflammatory bowel disease, coeliac disease, carbohydrate intolerance and small intestinal bacterial overgrowth) have been ruled out.

The first-line approach to IBS includes dietary education whilst looking at foods responsible for the onset and worsening of symptoms.² The avoidance and progressive re-introduction of specific food components, such as FODMAPs, gluten and dairy, may help identify triggers. Removal of aggravating foods for a period of time also provides opportunity for further gut healing work to be carried out to address dysbiosis, restore epithelial barrier integrity and optimise digestive secretions using a 4 R approach. Supplementation with gentle forms of fibre, such as psyllium husk, introduced gradually, may also be of benefit in some cases.

Accumulating evidence supports the view that an imbalance of gut bacteria contributes to IBS. In the largest trial of its kind on the use of probiotics in IBS (published in May this year), 400 adult patients

with moderate-to-severe symptomatic IBS-D were randomised to treatment with either a multi-strain probiotic containing 14 different bacterial strains or placebo for 16 weeks.³ It was found that probiotic treatment significantly reduced bowel movements compared to placebo and also improved the severity of abdominal pain (a 69 per cent reduction for probiotic versus 47 per cent for placebo). After five months, the proportion of patients who rated their symptoms as moderate-to-severe was reduced from 100 per cent at baseline to 14 per cent for the multi-strain probiotic group (versus 48 per cent for placebo) and one third were symptom free.

Psychological stress also appears to be an important factor for the development of IBS and can have a marked impact on intestinal sensitivity, motility, secretion and permeability.⁴ IBS can, therefore, be seen as a combination of 'irritable bowel' and 'irritable brain'. Probiotics may be of therapeutic benefit here via modulation of the 'microbiota-gut-brain-axis'. In the recent clinical trial discussed above,³ in addition to relieving IBS symptoms, the multi-strain probiotic markedly improved all dimensions of quality of life assessed using an IBS-QoL questionnaire, which included questions relating to psychological issues, such as anxiety about health, depression, lack of enjoyment of life, and feelings of having to avoid stressful situations. Protocols which combine dietary and supplement interventions with stress reduction techniques, such as mindfulness, meditation and CBT are likely to be particularly beneficial.

THE EXPERT



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 the British Association of Applied Nutrition and Nutritional Therapy (BANT) and listed on the Complementary and Natural Health Care Council (CNHC)'s approved accredited register. She is a Technical Advisor at Probiotics International (Protexin), manufacturers of the Bio-Kult and Lepicol ranges.

Q Are we facing a diet with a great carcinogenic potential?

HELENA RUTLLANT ADVISED: Carcinogenic means having the potential to cause cancer. From the moment we are born until we die, eating is something we do every day. If we eat in a balanced and healthy way, we do ourselves a great favour throughout our life, otherwise we enter a phase of continuous aggression, which charges us a high price. What is wrong with our diet? We have abandoned the diet of our grandmothers. It has changed from being hours in the kitchen to just a few minutes to heat or fry pre-cooked dishes. We prefer to eat very refined foods and persist in eating fruit and vegetables out of season.

We started doing things wrong when fruit and vegetables were available at any time of the year. When we change the course of nature, we are distorting a balance and that is not the only problem; nowadays, we force plants to grow quickly and not get sick. Plants have to make an effort to grow as it will help to develop protection mechanisms and be more resistant. Using so many products to 'protect the plant' from external agents, we are blocking the innate ability to defend itself and simultaneously make it absorb pollutants through the soil, leaves and fruit. Therefore, if we contaminate cropland, the fruit will end up incorporating all those toxins. We pay for aesthetics, and eat with our eyes, we prefer a huge apple, bright and without spots, no matter if what makes it shine is a layer of wax or plastic material. As we force plants to grow fast and without blemishes, we do the same with animals, we medicate them so they do not get sick, we 'engorge' them through feeding them food containing products so that they reach a high weight and all this

ends up accumulating in their organism, which sooner or later will end up at our table.

If we add up all these changes and prolong it over time, we are facing a diet with a much higher carcinogenic potential. If to all this we add factors such as smoking, pollution, stress, insomnia, electromagnetic waves, we are creating a sickly society. We must moderate the consumption of many products and be generous in the consumption of others.

■ **Carbohydrates:** We do not have to stigmatise any food. When we think of carbohydrates, we usually think of pasta, rice and potatoes, but we should break that myth, as vegetables are also carbohydrates. Not only the amount of carbohydrates is valued, but also how quickly it is digested and absorbed. Healthy carbs versus not advisable carbs; the not advisable are the most refined, white sugar, white flour, pasta, and white rice. Their whole grain equivalent is a much more beneficial option. Carbohydrate's main function is providing us with energy and are necessary, they must provide between 40-55 per cent of daily caloric intake.

■ **Fibre** is recommended for patients with diabetes, cardiovascular diseases, dyslipidemia and chelating of intestinal toxins. It has been studied that lots of patients diagnosed with colorectal cancer have been on poor diets low in vegetables and fibre, for years.

■ **Butter, yes or no?** We need fat to absorb the fat-soluble vitamins (A, D, E, K), to build cell membranes, to obtain energy. Our brain is made up of 60 per cent fat and cholesterol. Fats of vegetable origin are the healthiest; extra virgin olive oil, avocado, nuts, also known as unsaturated, liquid fats. Reserve sporadic consumption, therefore, less healthy, known as saturated fats, usually of animal origin. We hear more about trans fats, which come from hydrogenated



vegetable oils, which are related to increased LDL or bad cholesterol and lower HDL or good cholesterol.

How can we improve? The solution is easy; eat varied and healthy, respect seasonal products, try to eat less processed food, eat vegetables, legumes and fruit on a daily basis. Include high quality protein and use raw virgin olive oil to dress salads. Use whole grains as much as possible, avoid white sugar and be aware that many types of food contain sugars without being able to perceive them, such as crisps, roasted nuts etc. Health begins with oneself, respecting oneself, respecting the environment.

THE EXPERT



Helena Rutllant M.D. studied Medicine at the University of Barcelona. A member of SEMAL (Spanish Society of Anti-Aging Medicine and Longevity) and Master in Aesthetic Medicine, she studied Nutrition and Dietetics at the C.O.M.B. and worked in the Age Unit with Herrero Jover Doctors in Teknon Clinic, in the Obesity Unit (Dr. O. Puig) of Corachán Clinic. She has a Medicine-Nutrition Consultation in Corachán Clinic. Accredited Medical Consultant of Enerzona and Medical Visit Oncology line of Laboratory Vitae.



HOW TO GET THE MOST OUT OF ZEOLITES

Medical doctor, **Dr Marcus Stanton**, discusses a unique method to remove heavy metals, histamine and ammonium.

If you haven't heard of zeolites and their many uses, chances are that your protocols aren't working as well as they could be and your clients aren't achieving the maximum success they should be achieving. To understand why, we need to explore what zeolites are and how using the right one can boost your patient outcome.

Zeolites are mineral based, microporous particles derived from a chemical reaction between volcanic ash and salt water. These particles are negatively charged, giving them the ability to attract positively charged ions and store them in ducts and cavities, which run through their microporous structure. Essentially, zeolites absorb these ions into their structures via ion exchange. Such ions include the likes of heavy metals (mercury and lead), histamine and ammonium⁽¹⁾⁽²⁾⁽³⁾, a combination of which cause and contribute to a vast array of health problems.

THE PROCESSING

In order to get the most out of zeolites, they must be correctly processed as not all zeolites available are entirely safe for the body. Firstly, the right zeolite must be chosen. Out of over 270 types of zeolite, clinoptilolite is one of the most effective due to its high content of silicon, which produces the negative charge that it exhibits. Having already absorbed substances from the ground, clinoptilolite must then be cleaned to ensure it doesn't poison the body with anything it absorbed prior to being mined from the ground. This gives a purified clinoptilolite, which now has a higher capacity to absorb positively charged ions as the ducts and cavities are stripped of any ions they had once absorbed.

The final step of the process is optimisation of the particle size, whereby the particles used are between six to 10 micrometres. This ensures they are not small enough to pass through the intestinal barrier and into the body, yet they are not large enough to absorb nutrition and vital substances needed by the body. The resulting ingredient is known as

MANC (Modified and Activated Natural Clinoptilolite) and it is the safest method of using zeolites to eliminate harmful substances from the body. When consumed, MANC passes straight through the digestive tract and selectively binds harmful substances, both of which are then eliminated through natural bowel movements.

"The main advantages of using MANC in your protocols can be summed up by exploring the role of the substances that it eliminates – ammonium, heavy metals and histamine."

WHY SHOULD YOU INCLUDE IN YOUR CLIENTS' PROTOCOLS?

Using nutrition as a means to heal a client has many advantages, but oftentimes, an overburdened body can become unresponsive and options can become exhausted, leaving clients stuck!

The main advantages of using MANC in your protocols can be summed up by exploring the role of the substances that it eliminates – ammonium, heavy metals and histamine.

AMMONIUM

Ammonia is a toxic by-product of protein digestion and is also released from urea in the intestines via urease producing bacteria.

Gut bacteria that create short chain fatty acids provide the necessary conditions for protonation to occur, whereby an extra hydrogen atom is donated to ammonia, converting it to its ionic form, ammonium. Ammonium is then transported to the liver via the portal vein, placing a huge toxic burden on the liver, which must use bicarbonate, acquired from the stomach, to detoxify ammonium⁽⁴⁾. As a result, the stomach may have a shortage of

bicarbonate, which would otherwise be used to counteract hydrochloric acid, and an excess of stomach acid can occur, resulting in heartburn.

Once detoxified, ammonium enters the blood in the form of urea, it is expelled via the kidneys. It's clear to see how excess loads of ammonium produced in the intestines can overburden the metabolic organs and cause related diseases, whilst also being potentially neurotoxic⁽⁵⁾.

In addition, ammonium can be produced in the stomach by *Helicobacter pylori*. In this instance, ammonium neutralises gastric acid as it is an alkali substance and this can lead to low stomach acid levels and improper digestion.

HEAVY METALS

Heavy metals poison the body through food, inhalation and through the skin, and are notoriously hard to avoid. Once inside the body, substances such as mercury and lead are very slowly eliminated as they are placed in enterohepatic circulation. After the liver processes them, heavy metals enter the intestinal tract with bile via the gall bladder for elimination through natural bowel movements, however, the majority are reabsorbed in the colon as the body mistakes them for amino acids⁽⁶⁾.

This cycle continues, and as the liver is continuously burdened with more heavy metals, among other harmful substances, the body starts storing them in fat, muscle, bones and other tissues⁽⁷⁾. The resulting impact of these heavy metals, particularly mercury, which is free to cross the blood brain barrier, includes a wide range of physical and mental symptoms, as well as autoimmune diseases and inflammation⁽⁸⁾⁽⁹⁾.

HISTAMINE

Histamine plays an important role in the body and, as an inflammatory mediator, it is involved in the immune system's inflammatory response, causing many symptoms of food intolerances⁽¹⁰⁾. An excess of histamine in the body can continue to cause inflammation in parts of the body where histamine



receptors exist⁽¹¹⁾, which is usually an immune response to a substance identified (often wrongly) as foreign.

This particularly occurs in those with increased intestinal permeability, whereby inflammation in the lining of the gut acts as a barrier to the absorption of nutrition, whilst the compromised tight junctions allow for the passage of substances that would otherwise be kept in the intestinal lumen. As a result, a wide range of health problems can arise, including autoimmune conditions, digestive issues, migraine, itching, urticaria and rashes. A recently published study also suggests that histamine may have a role in promoting tumour growth by suppressing the immune system by inducing the activation, survival and proliferation of myeloid derived suppressor cells (MDSC's)⁽¹²⁾.

With the ability of MANC to have such an effect on so many aspects of health due to its diversity and affinity for toxic ions, it's clear to see the advantages of adding MANC into any clients' health regime. In the GI tract, MANC directly removes ammonium to relieve the toxic burden on the liver, heavy metals are captured and taken out of enterohepatic circulation and eliminated via natural movements, and histamine from the intestinal wall is bound, thereby reducing inflammation, which gives the intestinal wall a chance to repair itself. This makes MANC ideal as an excellent base to any protocol as the chances of delivering a successful patient outcome will increase.

Tests (carried out in simulated conditions of

the GI tract) showed that MANC bound to 45 per cent of mercury, 85 per cent of ammonium and 94 per cent of histamine⁽¹³⁾, and the most recent study showed decreased levels of zonulin in leaky gut patients after using MANC⁽¹⁴⁾, indicating that the strength of the intestinal barrier had increased i.e. the lining of the intestinal had reduced in permeability.

MANC provides no nutritional or calorific value to the client. Rather, by removing these toxic substances from the GI tract before the body attempts to metabolise them, the effects of other supplements in your protocols will be enhanced.

Using this unique method to optimise detoxification pathways by removing ammonium, heavy metals and excess histamine, MANC really is the missing link between nutrition and health. ●

Dr Marcus Stanton is a holistic doctor, journalist and lecturer, who spends a lot of time working on specialist health cases for clinics across the globe. He is a founding member of the Network of Interdisciplinary Complementary Oncology and IFOS Academy, is Medical Consultant and Editor of the CO'MED (Journal of Complementary Medicine) and on the Medical Advisory Board for Nouveau Health. He lectures frequently on the role of the immune system and its link to mainstream health conditions.



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Coyne Healthcare

– educating and empowering

As **Coyne Healthcare** launches to the UK practitioner market, Editor, Rachel Symonds, heard from its founder, Kevin Coyne, about his focus on natural therapeutics.



To say that Kevin Coyne is rooted in the nutritional world would be pretty accurate. The South African-born entrepreneur began his healthcare career in sports nutrition, before meeting his wife, who is a Nutritionist, which led him to discover a sector he is truly passionate about.

So passionate – partly due to personal experience when his mother developed cancer – that he

decided to create Coyne Healthcare, which distributes a range of nutritional health products.

Kevin, who is launching the business to the UK market, explained that the USP of Coyne Healthcare is its collaborative nature and resourcefulness.

"We seek out the very best of the best and work directly with them. This allows us to deliver a unique proposition to the marketplace and what we like to think of as a market leading position, even as a small company. We are in a constant mode of evolution in our company and this extends right from our people to our products," he explained, adding: "Natural health is on the crest of a massive wave around the world, people wanting to make better choices for themselves and their families. It's an

exciting time in our world and an evolution!"

Kevin added that while he is not a practitioner or scientist, his role has always been to connect the two.

"I look for the expert in a particular field and then take their message, research and development to people who can benefit from them," he explained, adding: "I have spent my career working in the healthcare industry. In the beginning, sports nutrition was my passion, which evolved into overall healthcare after meeting my wife and today, my focus is on natural therapeutics and this stemmed from my mum's personal journey with cancer."

CREATING COYNE

Kevin is honest when he admits that the creation of Coyne Healthcare was not quite the perfectly designed plan, but more an organic evolution through personal experience.

"I was happily working in my consulting company, which provided services and solutions to the healthcare industry. My mother had been dealing with ovarian cancer, which had become non-responsive and she had various metastases. The prognosis was not good, oncology could offer her no more as she had stopped responding to all treatment," he recalled. "It was a rollercoaster and we were on the big dip at this point. I remember sitting on the end of my bed accepting this was the end, all options exhausted."

It was around this time that Kevin's wife, Vanessa, discovered



COYNE

HEALTHCARE

Salvestrols and soon after, his mother began to take the supplement.

"My mother at this point had been given months to live. Six months later, a scan revealed most of her tumours had dissipated. My mom lived for years past that point, there were ups and downs and eventually she passed. It was an incredible gift and one I will always be grateful for and this experience became the birthplace of Coyne Healthcare. I simply wanted to make available what we had to other families going through the same experience."

The idea for the business was at the time just to make Salvestrols available in South Africa, which then evolved into developing supportive solutions with various partners.

Kevin explained: "There are a number of brilliant companies, people and products out there operating in different categories and areas. We really look to take the best of what the world has to offer and make it accessible to practitioners and patients."

Turning to the USPs of the company, and its offering, Kevin said it is simply that the products it offers are therapeutic, clinically validated and, of course, natural.

"Our products are produced under GMP and in collaboration with world leading experts and researchers in their respective fields. I personally use our products every day and so does my family and friends and I only want to give them the best and the same is true for anyone using our products. A lot of pride and care goes into delivering the very best possible," he explained.

And when developing new products and adding anything new to its portfolio, Kevin points out that he will not compromise, explaining that it must be natural, clinically validated and therapeutic, with a unique proposition and

market leading.

"It makes no sense whatsoever for us to promote something when we believe there is a better alternative. How can you feel good about saying 'use my product' when there is a better alternative, so this is why respectfully and humbly we say, if we are going to enter a category, it needs to be a market leader in efficacy and quality. We achieve this through working with experts who co-develop with us," Kevin added.

UK LAUNCH

This year marks Coyne Healthcare's launch to the UK market, starting with two products, Bio-curcumin and Origine 8.

"Bio-curcumin with BCM-95 is a market leader worldwide based on its ability to deliver up to seven times freer or bioactive curcumin. Important for practitioners to understand why and how this is different, free curcumin versus total curcumin. It exclusively uses turmeric and is a combination of curcumin plus Ar turmerone oil," Kevin explained.

"The latest count is 40 published clinical trials and this is ongoing. There are a lot of curcumin extracts out there but the evidence speaks for itself when weighing them up. We would indicate this for any inflammatory condition and here it is simply so efficacious that the results practitioners and their patients experience have given rise to its popularity worldwide."

Then there is Origine 8, described by Kevin as a breakthrough product and the first of its kind.

He advised: "Origine 8 is a highly bioavailable green tea extract. A single capsule delivers the polyphenol and catechin content of more than 25 cups of green tea over 24 hours, making it the most powerful supplement in this category, without the caffeine and stimulants. It is also 100 per cent natural and proven via a human clinical trial. Catechins and green tea have extensive (thousands of published studies) confirming their benefits. We now deliver these benefits like never before."

He added: "Some great work has been done by famous UK and Irish nutritionists, Aidan Goggins and Glen Matten, available via their book, *The Sirtfood Diet*, around polyphenols and catechins, a good read and you realise this is foundational to good health."

Furthermore, Kevin revealed that the company has also just launched two new products, a powdered liposomal vitamin C, and Biomax PQQ, which is BioPQQ with a specialised and highly bioavailable CoQ10.



The turmeric farm

Here in the UK, there is a fully accessible support team, which is particularly important to the company when managing clients with chronic conditions and on various medications.

Kevin added: "We have a professional team and network, which we welcome any practitioner to make use of. We are essentially new to the UK and this space will evolve in time but our desire is to become a trusted partner, which is something we have earned at home. Our greatest reward is the ability to be of service and so where there is a need and where we can help, allow us to."

"We are here for the long run and here to make a positive contribution to the natural health industry, where we will become a trusted name."

As an innovative and developing business, there is plenty of opportunity in the UK, and many plans being put in place for the future.

"We have only just begun in the UK, although I say the same for South Africa and may still be saying this 20 years from now. We are working with partners in various parts of the world to allow us to reach people in the EU, US and Australia and New Zealand. The UK, however, is unique for us as here we have physically set up our own resource and intend to have our own presence here versus working with a partner," Kevin revealed.

"We are here for the long run and here to make a positive contribution to the natural health industry, where we will become a trusted name. As a business, we measure ourselves against the normal metrics of numbers which are needed to make a business work but then we also consider the impact of good and this is immeasurable. Last week, I received a text message from a practitioner in the UK, who had used one of our products with tremendous results in a client with a chronic condition, the patient was his mum. It makes everything worth it and this text message is what fuels our ambitions." ●



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CPD DIRECTORY

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

BANT supervision

June 25 – Colchester
July 13 – Woolpit

CPD hours: BANT two hours
Speakers: BANT Supervisor, Fiona Mealing
Cost: £30
Website: <https://bit.ly/210Najm>

BANT supervision

June 27 – Cobham

CPD hours: BANT two hours
Speakers: BANT Supervisor, Emma Stiles
Cost: £30
Website: <https://bit.ly/210Najm>

Cardiometabolic Health

BANT Regional Branch Meeting

June 27 – London

CPD hours: BANT 4.5 hours
Speakers: Dr Deanna Minich, Pol de Saedeleer, Ben Brown
Cost: £40 (the event price includes registration and morning break refreshments, in addition to a specially designed lunch menu. There will be a book signing with Dr Minich (please bring pre-purchased books along; books are not on sale on the day)
Website: <https://bit.ly/2lp7ptG>

Nutritional Support for Sleep

Lamberts

June 27 – London
July 3 – London
July 11 – York

CPD hours: BANT six hours
Speakers: Lorraine Nicolle, Shoela Detsios, Justine Bold, Katie Sheen
Cost: £44.95
Website: www.lambertshealthcare.co.uk

BANT supervision

June 28 – Romsey

CPD hours: BANT two hours
Speakers: BANT Supervisor, Ruth Taylor
Cost: £30
Website: <https://bit.ly/2I9z6jg>

The Potential of Hypothiocyanites in Combating Infections

BANT Regional Branch Meeting

June 28 – Nottingham

CPD hours: BANT two hours
Speakers: Richard Stead, KIB500
Website: <https://bit.ly/2yu3RzM>

Eating Conundrum – Diets and Disease in the 21st Century

CNELM

June 29 – Wokingham or online

CPD hours: BANT 5.5 hours
Speakers: Dr Deanna Minich
Cost: Graduates £69, BANT Members £60, students £45
Website: cnelm.co.uk/courses/cpd/

Advancements in Assessment of the Gastrointestinal Microbiome

BANT Regional Branch Meeting

June 29 – Leeds

CPD hours: BANT three hours
Speakers: Deidre Nazareth, Sue Camp
Cost: BANT member £15, BANT student member £10, Non-BANT member £30
Website: <https://bit.ly/2JWYK0v>

BANT supervision

July 2 – Widcombe Hill
July 4 – Stroud
July 5 – Bristol

CPD hours: BANT two hours
Speakers: BANT Supervisor, Natalie Gillan
Cost: £30

BANT supervision

July 2 – Micklegate
July 3 – Birmingham
July 4 – Manchester

CPD hours: BANT two hours
Speakers: BANT Supervisor, Dalbinder Bains
Cost: £30
Website: <https://bit.ly/1plfnU5>

BANT supervision

July 4 AM – Tunbridge Wells
July 4 PM – Shoreham-by-Sea
July 5 – Richmond
July 9 – online

CPD hours: BANT two hours
Speakers: BANT Supervisor, Carmel Buckley
Cost: £30
Website: <https://bit.ly/1NDt2vU>

BANT supervision

July 4 AM – Radyr
July 4 PM – Shoreham-by-Sea

CPD hours: BANT two hours
Speakers: BANT Supervisor, Beatrice Cutler
Cost: £30

The Essence of Adaptation

BioCare

July 5 – Wokingham

CPD hours: BANT four hours
Speakers: Marta Anhelush DipCNM, mBANT, CNHC, Chris Newbold BSc, Dip NutTh, mBANT
Website: www.biocare.co.uk/education

Toxaprevent

BANT Regional Branch Meeting

July 5 – Wilmslow

CPD hours: BANT two hours
Speakers: Dilly Kulnar, Toxaprevent
Website: <https://bit.ly/2MPIdcH>

The Human Microbiome

Cytoplan

July 6 – Bristol

CPD hours: BANT four hours
Speakers: Miguel Toribio-Mateas, MSc, BSc (Hons), PgDip, FBANT, NTCC, rCNHC, NT-Dip, mBANT, rCNHC, Helen Drake, BSc (Hons)
Cost: £35
Website: www.cytoplan/blog/education/events-seminars

OptiBac Probiotics Presentation

BANT Regional Branch Meeting

July 6 – Cobham

CPD hours: BANT two hours
Speakers: Clare Jeffries
Website: <https://bit.ly/2KcZXA4>

Mitochondria in Health and Disease

BANT Regional Branch Meeting

July 6 – Colchester

CPD hours: BANT two hours
Speakers: Ray Griffiths

Putting you in the Picture About Nucleotides and Their Role in Human Health

BANT Regional Branch Meeting

July 11 – Bourne End

CPD hours: BANT two hours
Speakers: Rachel Hoyle, Nucleotide Nutrition
Cost: £2-£3 toward room hire dependent on numbers
Website: <https://bit.ly/2MMWK8U>

Energy Crisis

BioCare

July 14 – London

CPD hours: BANT four hours
Speakers: Alessandro Ferretti Dip ION mBANT NTCC CNHC, Chris Newbold BSc, Dip NutTh, mBANT
Website: www.biocare.co.uk/education

Nutrigenomics in Practice 101

Lifecode GX

July 14 – Bristol

CPD hours: BANT 5.5 hours
Speakers: Karen Harrison BSc (Hons) Dip CNM mBANT rCNHC
Cost: £119 (£99 for BANT members with code BANT20)
Website: www.lifecodegx.com/events/

BANT supervision

July 19 – online

CPD hours: BANT two hours
Speakers: BANT Supervisor, Ruth Taylor
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Ruth_Taylor

BANT supervision

July 19 – Milton Keynes

CPD hours: BANT two hours
Speakers: BANT Supervisor, Felicia Jones
Cost: £30
Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Felicia_Jones

Discussion About Research Articles and Client Cases

BANT Regional Branch Meeting

July 26 – Nottingham

CPD hours: BANT two hours
Speakers: Eva Humphries
Website: bant.org.uk/members-area/bant-local-networks/local-network-coordinators-list/#Eva_Humphries

Forthcoming webinars...



Forthcoming webinars...

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

Bacteria and Bacterial Infection: Natural Therapies

Presented by Rose Holmes, Nutritionist BSc, Dip.ION, PGCE, MBANT
Tuesday July 10, 6.30pm-7.30pm



Whilst we know that not all bacteria are dangerous, and many have co-evolutionary relationships with humans, headlines abound about bacterial 'superbugs', highlighting conventional medicine's increasing inability to 'combat' what our generation has considered as 'treatable' infections.

Bacteria are intelligent, highly adaptable microorganisms that increase their rate of learning and thus survival in the presence of conventional medicine's antibiotics. Resistant strains develop at an alarming rate and we appear to be facing the end of miracle (antibiotic) drugs after significantly less than 100 years' use.

Whilst the pharmaceutical companies have substantially reduced research into new antibiotics, it is not all doom and gloom in the 'fight' against bacterial infection. Botanical options are available and have shown effect against gastrointestinal bacterial infections, skin infections, urinary tract

infections, systemic infections, Lyme and its co-infections and even against resistant bacteria.

In this webinar, we will discuss:

- Examples of Gram-positive and Gram-negative bacteria.
- *E.coli*, *Salmonella*, *Streptococcus* and others.
- MRSA 'superbug'
- *Clostridium difficile*
- Why TB is on the increase.
- Methods used by bacteria to develop and share resistance to antibiotics.
- Infections of skin, urinary tract, gastrointestinal tract and systemic infections.
- Plants with antibacterial properties.
- Use of herbs to address endotoxins and as synergists to enhance anti-bacterial herb activity.
- Strengthening the immune system.
- Diet and lifestyle to support antibacterial protocols.

Look out for more free webinars planned for 2018. For more information about webinars, including the topics and the speakers, visit www.ihcanconferences.co.uk/webinar.



VEGETARIAN SPICE

Add a twist to your vegetarian cuisine with these delicious Indian-inspired recipes.



Spiced potato patties



Jackfruit biryani



Green lentil pancake



Spiced potato patties (Serves 6-8)

Quick to prepare, tasty, and satisfying, this is the south-Indian alternative to bhajiya and samosa. This recipe is very popular as a tea time snack, starter, or even an additional dish for breakfast. Both the potatoes and the batter can be spiced, too.

Preparation time: 20 minutes

Cooking time: 12-15 minutes

INGREDIENTS:

- 9oz/250g potatoes, boiled and mashed
- ¼ tsp red chili powder
- ½ tsp ground cumin
- 1 small sprig curry leaves
- 2 fresh green chilies, de-seeded and chopped
- 1 small sprig cilantro (coriander) leaves, chopped
- Vegetable oil, for deep-frying, plus extra for shallow frying
- ½ tsp mustard seeds
- 1tsp urad dal lentils (black gram)
- Salt, to taste
- 3tbsp gram (chickpea) flour

METHOD:

- 1 Blend the mashed potatoes and powdered spices with some salt, to taste, in a large bowl, then mix in the curry leaves, green chilies, and cilantro (coriander).
- 2 Heat a little oil in a small skillet (frying pan) over medium-high heat and add the mustard seeds and urad dal. When the seeds begin to sputter and the lentils change colour, pour them over the spicy potato mixture. Mix well to combine and set aside.
- 3 In a small bowl, add a little water to the gram flour and mix to a medium-thin batter.
- 4 Heat the oil in a deep pan or deep fryer to 350°F/180°C, or until a cube of bread browns in 30 seconds.
- 5 Divide the potatoes into 10-12 portions and shape into small balls. Dip each ball lightly in the batter and deep-fry in batches for two to three minutes, until golden and crisp. Remove with a slotted spoon and drain on paper towels.

JACKFRUIT BIRYANI



GREEN LENTIL PANCAKE



Jackfruit biryani (Serves 4)

Biryani is considered the ultimate Indian delicacy. It is aromatic, plays a complex symphony of flavours, and presents an interesting interplay of textures. The trouble is that most slow-cooked biryanis are made with mutton or chicken, and sometimes with fish and prawns. There are a few rare recipes that offer the same delight to the vegetarians. This is the most popular vegetable biryani.

Preparation time: 25 minutes, plus soaking time

Cooking time: 50 minutes

INGREDIENTS:

- 9oz/250g basmati rice, soaked for 30 minutes and drained
- Vegetable oil, for deep-frying
- 2 medium onions, sliced
- 1 cup (8 fl oz/250ml) ghee or vegetable oil
- 1 bay leaf
- 2-3 cloves
- 2in (5cm) cinnamon stick
- 2 black cardamom pods
- ½ tsp black peppercorns

- 1lb 2oz/500g peeled, unripe jackfruit, cut into 2in (5cm) pieces
- 1tbsp ginger-garlic paste
- 1tsp Kashmiri red chili powder
- 2tsp ground coriander
- 1tsp ground cumin
- 1tsp ground turmeric
- ½ cup (4oz/120g) hung plain yogurt, whisked or thick plain yogurt
- ¼ cup (2fl oz/60ml) boiling water
- Salt, to taste

METHOD:

- 1 Par boil the rice in a large uncovered pan of water for about eight to 10 minutes, until al dente. Drain and set aside.
- 2 Heat the oil in a kadhai or deep fryer to 350°F/180°C, or until a cube of bread browns in 30 seconds. Deep-fry the sliced onions for four to five minutes, or until golden and crisp. Remove with a slotted spoon, season, and set aside to drain on paper towels.
- 3 Heat the ghee in a pressure cooker over high heat, add the bay leaf and other whole spices, and stir-fry for about two minutes. As soon as they start to change colour, add the jackfruit and stir-fry for three to four minutes, or until a rich brown colour and crisp. Add the garlic-ginger paste, powdered spices, and yogurt, stirring constantly to avoid curdling, then pour in the boiling water, close the lid tightly. Cook for 15 minutes over a medium heat.
- 4 In a large, heavy-based pan, start layering up the biryani; first add a layer of rice, then a layer of the cooked jackfruit with some sauce, then top with another layer of rice, repeating until both rice and jackfruit are used up. End on a layer of rice. Cover, sealing the pan tight, and cook over a low heat on a heat diffuser for about 15 minutes.

SPICED POTATO PATTIES



GREEN LENTIL PANCAKE





Green lentil pancake (Serves 4)

This green pancake is the Andhra Pradesh equivalent of a dosa. It is prepared with just lentils, not a rice and lentil batter and nor is it fermented. This pancake is coarser in texture than the dosa, but immensely satisfying.

Preparation time: 10-15 minutes, plus overnight soaking

Cooking time: 15 minutes

INGREDIENTS:

- 1¾ cups (9oz/250g) green lentils, soaked overnight
- ½ cup (1oz/25g) cilantro (coriander) leaves and stems, coarsely chopped
- 1 sprig mint leaves, chopped
- 4-6 fresh green chiles, de-seeded
- 2in (5cm) fresh root ginger, finely chopped
- Salt, to taste
- Vegetable oil, for frying

METHOD:

1 Drain the lentils (reserve the soaking water) and transfer to a mortar. Grind with a pestle, adding all the other ingredients, except the oil, to obtain a paste. Transfer to a bowl and add some of the reserved soaking water to form a thick batter.

2 Heat a griddle pan or skillet (frying pan) over medium heat and brush over a thin film of oil. Pour about one heaped tablespoon batter into the pan, spreading it out with the back of a ladle to shape a pancake about six inches (15cm) in diameter. Cook for one to two minutes. During cooking, lift the sides of the pancake with a spatula and sprinkle a few drops of oil on the pan. Flip over and cook the other side for one to two minutes.



The Indian Vegetarian Cookbook by Pushpesh Pant is published by Phaidon (£24.95)

JACKFRUIT BIRYANI



SPICED POTATO PATTIES



I-Mag giveaways

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



NUTRAMEDIX BURBUR-PINELLA

Gluten free liquid extract product in the popular NutraMedix range to support the Cowden Support Program, Burbur-Pinella contains both botanicals in equal amounts. Burbur, extract of leaves and stems of *Desmodium molliculum*, also known as manayupa, a South

American botanical that contains flavonoids, alkaloids, soyasaponins and astragalin, and pinella, extract of bark from *Pimpinella anisum*, a plant native to the Mediterranean and Asia, commonly known as anise or aniseed.

🎁 I-Win: We have 10 to give away.



O.N.E. MULTIVITAMIN

O.N.E. Multivitamin is a once-daily formula with a comprehensive profile of highly bioavailable vitamins, minerals, phytonutrients and other factors to support optimal nutrition. Activated vitamins, minerals and phytonutrients with high bioavailability, it comes in a convenient once-daily vegetarian capsule and is hypoallergenic and additive-free. It has been named Best New Product, as voted by healthcare professionals in the IHCAN Product Awards 2018, and is from the highest ranked brand in ingredient purity, quality testing, and trust, according to Practitioner Survey (U.S.) *Nutrition Business Journal* 2016.

🎁 I-Win: We have 20 to give away.

RESULTS RNA ACS200 GEL

ACS200 Gel contains a patented silver that has been proven to be at least 4,000 times more powerful than other silvers at eliminating pathogens. The soothing gel also contains glutathione, N-acetyl cysteine, acetyl-L carnitine, R-alpha lipoic acid, L-glutamine and TMG to create the most effective healing gel for the skin.

🎁 I-Win: We have 20 2oz packs to give away.



ESKIMO-3 BRIGHT KIDS JELLY SPLATS

Eskimo Bright Kids Jelly Splats is the exciting new omega 3 fish oil designed specifically for kids. Each jelly tab, or 'splat' tastes great, is easy to take and provides 250mg of DHA, which supports healthy brain function. We know that it can be difficult to get our kids to eat enough fish, which is why the brand designed a fuss free alternative. In tests, 80 per cent of kids were still voluntarily taking jelly splats daily after 15 weeks.

🎁 I-Win: We have 10 to give away.

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