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JAN/FEB 2018

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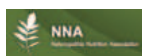
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Welcome



As a magazine that is committed to supporting and developing the careers of Nutritional Therapists as they begin their journey into the industry, we are really excited to reveal our latest news.

Working in partnership with the popular practitioner brand, Nutri Advanced, this issue we are proud to launch the inaugural *Nutrition I-Mag* Excellence in Education Award 2018, created with the express aim of recognising

those students and recent post graduates who have demonstrated their commitment to learning.

The idea of this award is to support Nutritional Therapists on their journey into practice, and we are now inviting entries; you can either self nominate, or if you are a tutor impressed with a student, you are also invited to nominate.

And it is certainly worthwhile entering; not only could you be the winner of this prestigious accolade, but you will also receive valuable support from

Nutri Advanced and its education team, as well as having the opportunity to write in the pages of this magazine, among other prizes.

Full details of the award can be found on page 5 or by [clicking here](#).

And don't forget that there is still time to enter the *Nutrition I-Mag* Product Awards; all those products in the running can be found at www.nutritionimag.com, where you can also vote. And keep an eye out for the March/April issue, where you can read all about who scooped an award.

Until 2018, we thank all our readers and advertisers for their support this year and look forward to delivering more of what we know you want next year.

Rachel

RACHEL SYMONDS, EDITOR

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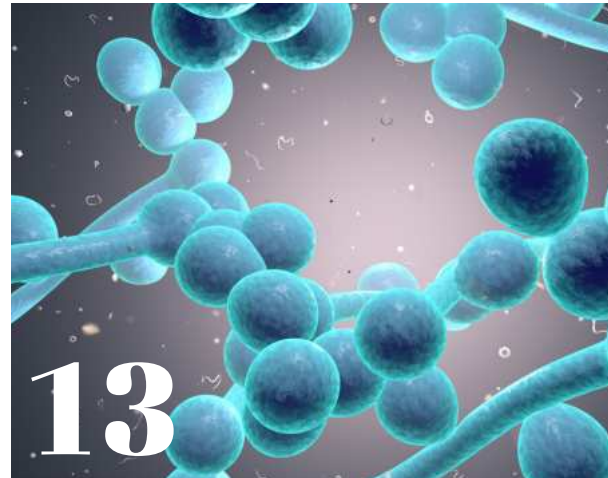
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in partnership with



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

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



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, the UK's leading natural and organic product distributor, working with nutritional brands such as Nature's Answer, Garden of Life, Jarrow, Nutiva, Barlean's and Amazing Grass.



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.



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.



Jenny Logan

Jenny Logan DNMed is the Technical Training Manager for Natures Aid and has worked in the natural products industry for over 20 years. She is a Nutritional Therapist and ran her own very successful health food store for 13 years, before setting up in private practice.



Nicky Ester

Nicky Ester MSc DnMed RNutr has over 10 years of experience in clinical practice, during which she worked for Erica White for three years before setting up her own clinical practice. During this time, she also taught as a clinical tutor at Premier Training International and joined Cambridge Nutritional Sciences as a nutritionist in 2012.



Wendy Richards

Wendy Richards is a Certified Practitioner in practice and principles of the blood type diet. She is also a Fellow of the Institute of Human Individuality (MIFHI). She represents SWAMI, for the ultimate in personalised nutrition or people who are still battling chronic conditions and has been involved in the health and fitness industry for more than 20 years, and is passionate about the use of nutrition in the prevention and treatment of disease and enhancement of longevity.



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• To be nourished the pathways should be open •



• Opening pathways, not beating down the door •



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News bites

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



Education in Excellence Award announced



Nutrition I-Mag is proud to have teamed up with Nutri Advanced to launch the inaugural Excellence in Education Award.

Celebrating the achievements of the rising stars of Nutritional Therapy, the accolade is designed to recognise students who have demonstrated their commitment to learning.

Working in partnership with Nutri Advanced, the awards are now open for nomination; this can either be done by the student themselves, or by their tutor. Once nominated, you will then be asked to fill out a detailed application as to why you believe you are a deserving winner.

And it is worthwhile entering the awards, as a number of prizes are up for grabs; as well as securing the award, the winner will benefit from one hour per month of phone advice from Nutri Advanced, which can include both nutritional advice and/or setting up practice advice, as well as £500 of Nutri products.

The winner will also receive free subscriptions to *Nutrition I-Mag* and *IHCAN* magazines for one year, the chance to write a mentoring scheme feature in *Nutrition I-Mag* during 2018, and will also win a place at the September IHCAN conference.

To enter, visit www.nutritionimag.com/educationawards

Half of Brits admit to sleep struggles as sales of OTC aids forecasts limited growth

A new report has revealed that half the nation struggles to sleep, with the market for over-the-counter (OTC) sleep aids expected to reach an estimated £51m by the end of 2017.

According to Mintel, the average Brit sleeps for just six hours and 51 minutes per day, and overall, some four in 10 (39 per cent) of adults are failing to achieve seven hours of sleep per night, with one in 20 (five per cent) getting by on four hours or less. It seems the average daily hours of sleep consumers get reduces with age, falling from seven hours and 23 minutes among 16-24-year-olds to six hours and 34 minutes among the 45-54 age group.

Hera Crossan, Personal Care Analyst at Mintel, commented: "Britain's sleep deprivation problem is now an epidemic – half of consumers are not getting the sleep we need. The middle-aged group are particularly struggling with sleep and there are several factors playing into their sleep reduction, ranging from the hormonal disruption of menopause to the stress and lack of time caused by raising children and looking after elderly parents, as well as balancing employment.

"Everyday stresses and strains appear to be making it harder for UK adults to switch off when they finally fall into bed, putting them at risk of developing long-term physical and mental health



issues. To an extent, a lack of sleep has become almost acceptable; as more and more tasks fill the day, time in bed is increasingly viewed as a luxury that can be relinquished when necessary."

One in three (32 per cent) of adults have used sleep aids, with aromatherapeutic sleep aids (21 per cent) and botanical-based tablets/capsules (14 per cent) the most commonly used. Brits were found to instead be more likely to adopt lifestyle adjustments when it comes to improving their sleep.

Crossan added: "Despite a growing culture of sleep issues in the UK, a reluctance to reach for over-the-counter sleep aids remains; growth of the category has been compounded by technology developments, as well as a preference for making lifestyle adjustments over seeking remedies."



Organisation pledges to continue legal challenge over NHS homeopathy cuts



A leading homeopathic organisation has pledged to continue its efforts to lobby the NHS over its proposals to stop funding

prescriptions for homeopathy.

The British Homeopathic Association (BHA) says that NHS England's decision that homeopathy should not be prescribed in primary care is disappointing, but not unexpected given what it described as a fundamentally

flawed consultation it conducted around homeopathy.

In a statement, the BHA said: "Instead of listening to patients who have benefited from the therapy, or to the doctors who have treated them, NHS England chooses to base its decision on the discredited House of Commons Science and Technology Committee's report from 2010 and the 2015 study by Australia's National Health and Medical Research Council, which is so flawed it is currently being investigated by the Commonwealth Ombudsman, facts NHS England conveniently failed to mention in the reams of documentation it produced for its board meeting.

"It is shocking that when decisions to cut health

services are being made, no critical questions as to how this will affect patients are asked by NHS England board members. Failure to explain what other treatments patients can expect to receive instead of homeopathy – along with the comparative costs of these treatments – is indicative of an organisation that has scant regard for the patient experience, and only pays lip service to the idea of genuine engagement with those who will be most affected by the decisions being made."

The BHA says it is going ahead with its legal challenge, calling for a judicial review of NHS England's consultation.

Food supplement lobbyist secures merit

A leading food supplement lobbyist, who has worked with key industry organisations, has passed a Master of Arts with merit.

Chris Whitehouse, whose specialist food sector lobbying agency, The Whitehouse Consultancy, services the European Specialist Sports Nutrition Alliance and Consumers for Health Choice, stood aside from the business to write his 15,000 word dissertation as the final stage of his study for a Master of Arts in Contemporary Ethics at London's 400-year-old specialist philosophy institution, Heythrop College.

Chris, who has now returned to his position as the agency's Chairman, commented: "Never having had a first degree, it was

always going to be a challenge to study at post-graduate level. I'm as surprised as I am delighted that I didn't just pass, but did so 'with merit' overall and even 'with distinction' in one of the five modules, Bioethics and Sexual Ethics."

His dissertation was on Discrimination Against the Disabled in the Abortion Law of England, Scotland and Wales, which, says Chris, "permits abortion up until the moment of birth for disabled babies with even the most minor handicaps, such as club foot or hare lip; but for healthy babies the general limit for abortion is 24 weeks. This is blatant discrimination against the disabled, which should have no place in a civilised society".

Global nutraceutical market set for further growth

Vigorous growth of the global nutraceutical market has been forecast for the coming years.

According to a report by Transparency Market Research (TMR), the market is anticipated to undergo promising growth opportunities thanks to increasing consumer demand for high-protein diets with natural ingredients.

The U.S. market for nutraceuticals, which stood at US\$64.8bn in 2015, is expected to exhibit a CAGR of 5.3 per cent over the forecast period from 2016 to 2024, and reach an estimated US\$102.6bn by the end of 2024. Demand for fluid nutraceuticals is significantly higher among buyers than alternate types of nutraceuticals.

Factors such as the developing prevalence of multi-herb supplements is one the key patterns driving the development of this market.

NCA secures high praise

A new survey has heaped praise on the offering at the Northern College of Acupuncture (NCA).

According to the recent National Student Survey (NSS), students at the NCA have voted it as one of the UK's best Higher Education Institutions (HEIs) to study.

Completed by students at all publicly funded HEIs across the UK, the NSS is a chance for undergraduate students to give honest feedback on their courses, and what it's like to study at their particular institution. The results, which are made available through the Unistats website, help give an insight into the quality of higher education in the UK. BSc Acupuncture students gave the college 95 per cent rating for their 'overall satisfaction', compared with the national average of only 84 per cent.

In Research

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

Type 2 diabetes found to go into 'remission' through weight loss programme

A major new study has revealed that almost half of people with type 2 diabetes who were supported by their GPs on a weight loss programme were able to reverse their diabetes in a year.

The first year results, which have been published in *The Lancet*, also revealed that almost nine out of 10 people (86 per cent), who lost 15kg or more, put their type 2 diabetes into remission.

The study was led by Professor Roy Taylor, from Newcastle University, and Professor Mike Lean, from Glasgow University, who found that 45.6 per cent of those who were put on a low calorie diet for three to five months were able to stop their Type 2 diabetes medications. Furthermore, long-term support by routine GP staff was given to help the participants maintain their weight loss.

The trial, called DiRECT (Diabetes Remission Clinical Trial) and funded by Diabetes UK, recruited 298 people between the two universities and builds on Professor Taylor's earlier pilot work.

Professor Taylor, lead researcher of the DiRECT trial, commented: "These findings are very exciting. They could revolutionise the way type 2 diabetes is treated. The study builds on the work into the underlying cause of the condition, so that we can target management effectively.

"Substantial weight loss results in reduced fat inside the liver and pancreas, allowing these organs to return to normal function. What we're seeing from DiRECT is that losing weight isn't just linked to better management of type 2 diabetes; significant weight loss could actually result in lasting remission."

Remission was defined as having blood glucose levels (HbA1c) of less than 6.5 per cent (48mmol/mol) at 12 months, with at least two months without any type 2 diabetes medications. Of the 298 people recruited to take part in DiRECT, half received standard diabetes care from their GP, whilst the other half received a structured weight management programme within primary care.

The programme included a low calorie, nutrient-complete diet for three to five months, food reintroduction and long-term support to maintain weight loss.

Type 2 diabetes remission was found to be closely related to weight loss. Over half (57 per cent) of those who lost 10-15kg achieved remission, along with a third (34 per cent) of those who lost five-10kg. Only four per cent of the control group achieved remission.

Professor Lean explained: "Putting type 2 diabetes into remission as early as possible after diagnosis could have extraordinary benefits, both for the individual and the NHS. DiRECT is telling us it could be possible for as many as half of patients to achieve this in routine primary care, and without drugs. We've found that people were really interested in this approach – almost a third of those who were asked to take part in the study agreed. This is much higher than usual acceptance rates for diabetes clinical trials."

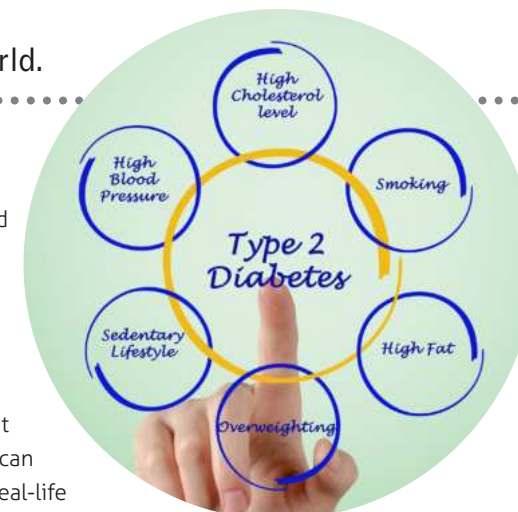
DiRECT is a two-year trial, which aims to find an effective and accessible way to put type 2 diabetes into remission for the long-term. The trial is delivered through GP practices across Tyneside

and Scotland to find out if the benefits of a structured weight management programme can be felt in a real-life primary care setting. DiRECT also aims to understand why significant weight loss results in remission, to understand which groups might benefit in the future.

Diabetes UK has committed more than £2.8m to the DiRECT study. Recently, £300,000 has been committed so participants who wish to continue can be followed for up to three years and the full cost-effectiveness of this programme can be evaluated.

Dr Elizabeth Robertson, Director of Research at Diabetes UK, commented: "These first year findings of DiRECT demonstrate the potential to transform the lives of millions of people. We're very encouraged by these initial results, and the building robust evidence that remission could be achievable for some people.

"The trial is ongoing, so that we can understand the long-term effects of an approach like this. It's very important that anyone living with type 2 diabetes considering losing weight in this way seeks support and advice from a healthcare professional" ➤





People failing to take diabetes medication over side effect concerns

A new study has found that a third of people are not taking prescribed diabetes medication due to side effects

Diabetes patients who take the most commonly prescribed diabetes drug, metformin, are the least likely to follow medical advice regarding their medication due to its side effects, a new article in the journal *Diabetes, Obesity and Metabolism* reported.

Researchers from the University of Surrey examined in detail how likely 1.6m people with type 2 diabetes were to take their medication. The study combined data from clinical trials and observational studies looking at adherence rates for both tablet and injectable medicines.

They found that those who took metformin, the most commonly prescribed drug to treat Type 2 diabetes, were the least likely to take the required dosages compared to other diabetes drugs. It was discovered that 30 per cent of metformin doses prescribed to patients are not taken compared to 23 per cent of sulfonylureas (such as

gliclazide) and 20 per cent for pioglitazone.

Interestingly, DPP4 inhibitors (gliptins), one of the newer medication classes, have the highest rates of adherence, with only 10 to 20 per cent of medication doses not taken.

Researchers believe the variance in adherence rates are in part due to side effects of the different drugs. Metformin commonly causes gastrointestinal symptoms, such as diarrhoea and flatulence, whereas DPP4 inhibitors are generally better tolerated by the body. It is also thought that having to take the multiple doses a day required for some drugs may have an impact on people taking the required medication.

Dr Andy McGovern, Clinical Researcher at the University of Surrey, said: "We have known for a long time that a lot of medication prescribed for chronic diseases never actually get taken. What this latest research suggests is that patients find some of these medication classes much easier to take than others."

Researchers add weight to links between Med diet and mental health

New research from the University of South Australia has confirmed that the Mediterranean diet offers protection against depression.

The results of the study, published in the journal *Nutritional Neuroscience*, found that participants who switched to a Mediterranean diet experienced on average a 45 per cent reduction in the severity of symptoms and an improved quality of life.

The six-month study included 152 participants with severe depression, of which 75 were put on Mediterranean diets, while the other 77 formed a social group with no dietary restrictions. The diet group attended fortnightly nutrition and cooking workshops to teach a range of Mediterranean recipes and principles. Participants were then given hampers containing recipe ingredients and additional items, such as extra virgin olive oil, vegetables, fruit, tinned legumes, tinned tuna, mixed nuts and a three-month supply of fish oil capsules.

The social group, which also met fortnightly for three months, achieved a small but far less significant reduction in symptoms.

University of South Australia Senior Research Fellow, Dr Natalie Parletta, led the study and said it followed a body of research over the past decade that has shown links between diet and depression and anxiety.

"The brain is an organ and like any organ, it needs nutrients to function well, it needs healthy blood flow and basically poor physical health impacts on the brain and on mental health," she commented. "The reason we chose the Mediterranean diet is because it's been the subject of a lot of research and it's basically a diet

that's high in plant foods, such as vegetables, legumes, nuts, seeds and the use of olive oil as the main fat also distinguishes it from a lot of other diets. It is also low in red meat consumption, processed foods and sweets."

The latest study follows similar research conducted by Professor Felice Jacka, at Deakin University in Melbourne, and published earlier this year.

"These are the first two randomised control trials looking at diet and depression worldwide and the results were incredibly similar so hopefully people are going to start taking notice," Dr Parletta added. "It's high time that diet and lifestyle changes are considered at the forefront of treatment options for both physical and mental health, which are closely related. This research has important implications for people suffering from depression – a debilitating condition that carries the largest burden of disease worldwide."



New to market

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

SKINCARE BRAND TEAMS UP WITH HOLISTIC PRACTITIONER FOR NEW RANGE

A new skincare range for those with sensitive and allergy prone skin has launched to the UK.

ORGANii teamed up with expert holistic health practitioner and herbalist, Hannah Pearson, to produce the exciting new range. Hannah has extensive knowledge in treating skin complaints naturally. Her interest in natural remedies and plant medicine was sparked after suffering from severe eczema throughout her childhood. It put her on a journey to study alternative ways of treating eczema, without the use of steroids.

The Intensive range is targeted at those with delicate, dry and sensitive skin, prone to eczema, psoriasis and rosacea. It includes two products, Intensive Face & Body Oil and Intensive Soothing Cream, which are both vegan, cruelty free and certified organic and natural by the Soil Association.

The products contain a blend of sunflower seed oil, rosehip seed oil and nettle leaf extract. The unique formulations include ingredients known for their ability to ease itching and inflammation, which helps to break the cycle and start the healing process.



ACTIVE ADDITION

Pukka Herbs has expanded its portfolio of teas with a focus on turmeric for recovery from activity.

Turmeric Active is blended using medicinal-grade herbs, including turmeric, ginger, galangal, nettle and celery seeds, herbs that are used to treat inflammation, alleviate pain and support the joints.

The tea, a warm, spicy and invigorating blend with sweet hints of orange, has been blended by Pukka's medical herbalist and Ayurvedic practitioner, Sebastian Pole.

Naturally caffeine-free, it contains 100 per cent organically grown ingredients.



MAGNESIUM EXPANSION FOR BETTERYOU

The natural health brand, BetterYou, has developed its magnesium range with the addition of new skincare products.

The MagnesiumSkin range features Body Butter and Lotion to offer a luxurious experience using skin-kind ingredients to restore the body's balance of magnesium, as well as supporting cell energy levels.

Offering easy application and superior absorption, both formulations contain a blend of BetterYou MagnesiumOil to help cells detox, in addition to shea butter, cocoa butter and vitamin E to improve skin elasticity and overall skin health.

MagnesiumSkin Body Butter is deeply rich, intensively moisturising formula, which contains 75mg (21.5 per cent RDA) of pure magnesium chloride per 5ml.

MagnesiumSkin Body Lotion is a lighter daily formula ideal for all-over application and contains a higher concentration of pure magnesium chloride, delivering 150mg (43 per cent RDA) per 5ml.

Both are dermatologically tested and suitable for use during pregnancy.



FUNCTIONAL FOCUS FOR VIRIDIAN



Two new organic functional drinks have been developed by the experts at Viridian Nutrition.

After launching its 100% Organic Curcumin Latte, the ethical supplements

brand unveiled two further additions, formulated to respond to research papers on anti-ageing and cell protection.

The first new product is Organic Pine Bark & Berry, which features ingredients from an organic forest harvest of wild red lingonberries, and bilberries, blended with proanthocyanidin-rich Arctic pine bark and Arctic bilberry extracts, all sourced from Finnish Lapland.

Certified organic by the Soil Association, 100% Organic Pine Bark & Berry is sustainably harvested and carefully blended to create a pleasant-tasting nutrient-dense beverage with quality and flavour appeal.

Then there is the 100% Organic Wild Chaga & Raw Cacao beverage, with wild Nordic chaga extract combined with flavanol-rich cacao from the Peruvian rainforest. Harvested in two hemispheres, from organically certified forests to ensure purity and sustainability, and carefully blended to create a pleasant-tasting, nutrient-dense beverage.

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Outstanding success of IHCAN Conferences to continue for 2018

Following a hugely successful series of conferences in 2017, don't miss out on your place this coming year.



It has been another unmissable year of education for the 2017 IHCAN Conferences in collaboration with BANT. And with another sold out event taking place in November, each conference has been a resounding success.

We have seen 17 expert speakers present cutting-edge research on six topics, with 25 CPD hours on offer, and we have welcomed a record number of delegates through the doors of the Cavendish Conference Centre, in London, over the course of the year.

The last conference of the year, which took place in November, focused on 'Ageing', welcomed Dr Leo Pruimboom to discuss 'Intermittent living: the vaccine against the deleterious, ageing effects of modern life.' Alongside Dr Pruimboom, gerontology and geriatric medicine expert, Dr Craig Willcox, looked at 'Secrets of living longer (and healthier) from those that have lived the longest'.

Delegates at this conference said that it was an exceptionally good event with the latest update on very common topics, and another added that they had made personal requests and the Target and IHCAN team have gone out of their way to be helpful.

A LOOK AHEAD TO 2018

Early-bird booking is now open for the 2018 IHCAN Conference series, which will be starting with a bang on Saturday, March 17. The first conference of the year, which has been extended to a full day, will focus on 'Autoimmunity' and will see Dr Tom O'Bryan (*pictured*) take the main stage.

Dr O'Bryan is a world expert on gluten and its impact on your health. He is an internationally recognised and sought after speaker and workshop leader, specialising in the complications of non-coeliac gluten sensitivity, coeliac disease, and the development of autoimmune diseases as they occur inside and outside of the intestines. He is the founder of www.theDr.com and the visionary behind 'The Gluten Summit – A Grain of Truth', bringing together 29 of the world's experts on the gluten connection to diseases, disorders, and a wide range of symptoms and ages.

Dr O'Bryan is considered the 'Sherlock Holmes' for chronic disease and metabolic disorders. He is a clinician par excellence in treating chronic disease and metabolic disorders from a functional medicine perspective. He holds adjunct faculty positions with the Institute for Functional Medicine and the National University of Health Sciences. He has trained thousands of practitioners around the world in advanced understanding of the impact of food related disorders and the development of individual autoimmune diseases.

His 2016 critically acclaimed, groundbreaking book, *The Autoimmune Fix*, outlines the step-by-step development of



SAVE THE DATE

Arrangements for the 2018 IHCAN Conference series are well under way and early bird booking is now open! To book your place, go to www.ihcanconferences.co.uk, or call the team on 01279 810080.

- **March 17:** Autoimmunity
- **April 14:** Gut health
- **May 19:** Alzheimer's
- **June 9:** Functional sports nutrition
- **June 30:** IHCAN Summit
- **September 8:** Gut health
- **November 17:** TBC

degenerative diseases and gives us the tools to identify our disease process years before the symptoms are obvious.

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IHCAN 2018
conferences

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Integrative Healthcare and Applied Nutrition
IHCAN
magazine

Early-bird booking now open

Don't miss out on your place



17 March: Autoimmunity

14 April: Gut Health

19 May: Alzheimer's

9 June: Functional Sports
Nutrition

8 September: Gut Health

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BANT News

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



BANT MEMBERSHIP RENEWAL

BANT would like to remind its members that the 2018 membership renewals are open from January 1-31 2018. The 2017 membership expires on December 31 2017.

BANT is pleased to confirm that, once again, there will be no increase in membership fees. BANT Full Membership is still worth x35 the membership fee (re-calculated in October 2017) and BANT Student Membership is worth x23 your membership fee.

The benefits of being a BANT member are multiple; over the past year, BANT directors, managers and volunteers have been working tirelessly to ensure BANT Membership continues to offer value for money and 92 per cent of responders from the 2017 survey agreed that this was the case. BANT is continuously negotiating special deals and savings on services, career opportunities, business development benefits and professional support. In 2017, the organisation established a new Wellness & Lifestyle Member Benefit category to support members personally.

Over the past year, BANT has achieved many of its strategic objectives, including the below and some of BANT's goals for 2018 continue to build on these successes in a number areas.

- Launch of the Nutrition Evidence research portal.
- Development of a new online membership system.
- Increase in social media presence.
- Active issuance of responses and opinion lead pieces on

a wide variety of topics.

- Establishment of several new Supervision groups.
- Consolidation of the Regional Branch Meetings Initiative.

Click here for a full list of member benefits, offers and discounts. If members do not renew between January 1-31, 2018, membership will lapse and costs will be incurred if membership is renewed at a later date.

Members due for renewal will receive an email on January 1, reminding how to renew. All student members who have completed their course but not yet applied for Full Membership need to upgrade their membership. **Click here** for the necessary upgrade forms to complete. All other student members need to renew as normal.



BANT welcomes Royal Society for Public Health recognition of practitioners registered with the Complementary and Natural Healthcare Council

The British Association for Applied Nutrition and Nutritional Therapy (BANT) welcomes the news that the Royal Society for Public Health (RSPH) has recognised that practitioners registered with the Complementary and Natural Healthcare Council (CNHC) support public health in the UK by encouraging their positive lifestyle changes that could improve their health and wellbeing.

A report, released by the Professional Standards Authority for Health and Social Care (PSA) and RSPH looked at the potential impact that the 'untapped resource' of practitioners on Accredited Registers (ARs) could have on the nation's public health.

The PSA/RSPH report made a key recommendation that AR practitioners have the authority to make direct NHS referrals, in appropriate cases, to ease the administrative burden on GP surgeries. The report found that because practitioners on accredited registers build relationships of trust with their client and have comparatively long appointments, they are uniquely suited to offer brief interventions and 'effective signposting' for health concerns. This confirms that BANT nutrition practitioners are recognised by the Professional Standards Authority to be as competent as other traditional healthcare providers. It has been recognised that they can make a difference by working together with healthcare providers as part of multidisciplinary teams under NHS commissioning.

BANT Chair, Miguel Toribio Mateas, commented: "I would like to congratulate the CNHC on behalf of BANT Council. It is notable that of the 23 Accredited Registers in existence when the project began, CNHC is the only one to be quoted in the RSPH report. Additionally, of eight individual practitioners who are quoted, five are CNHC registrants, and one is a member of BANT. It highlights the fact that what BANT members do goes far beyond the provision of dietary advice."





"BANT Nutrition Practitioners practice lifestyle medicine, described as the application of behaviour changes to benefit health and prevent disease, based on the knowledge of how diet, nutrition and the environment interact with our genes to promote long-term stability and resilience at cellular level. Registered Nutrition Practitioners are the key workforce asset to harness 21st century lifestyle medicine to tackle the rising tide of obesity, type 2 diabetes, dementia and other chronic diseases of ageing, and other CNHC registrants further support the changes needed for an individual to stay healthy."

BANT member Registered Nutritional Therapists are regulated by the CNHC, which holds an Accredited Voluntary Register (AVR) for the Professional Standards Authority for Health and Social Care (PSA). The PSA oversees statutory bodies and accredits organisations holding voluntary registers for health and social care occupations in the UK. By choosing BANT nutrition practitioner, registered with the CNHC, you can be confident that they are properly trained, qualified and insured.

For a full copy of the report, visit <https://www.professionalstandards.org.uk/docs/default-source/publications/untapped-resources---accredited-registers-in-the-wider-workforce-november-2017.pdf?sfvrsn=0>

BANT RESPONDS TO OECD REPORT HIGHLIGHTING THE UK AS SIXTH MOST OBESE NATION

In November 2017, the OECD published its annual *Health at a Glance 2017* report, giving the UK the dubious honour of being the sixth most obese nation overall.

BANT acknowledges the many articles, reports and comments expressing shock about this statistic, but highlights that this news isn't surprising, the UK's obesity crisis has been building for years. BANT has continuously emphasised that applying a group solution to an individual problem will not and cannot work. The way forward is personalised lifestyle medicine recommendations, including nutrition.

BANT Chair, Miguel Toribio Mateas, commented: "In order to address the progression of chronic conditions and to reduce the burden and societal impact they pose, Government and industry must get to grips with a problem that is robbing individuals and society of future health and economic security. Alison Tedstone, of Public Health England, commented that "Rome wasn't built in a day" when claiming

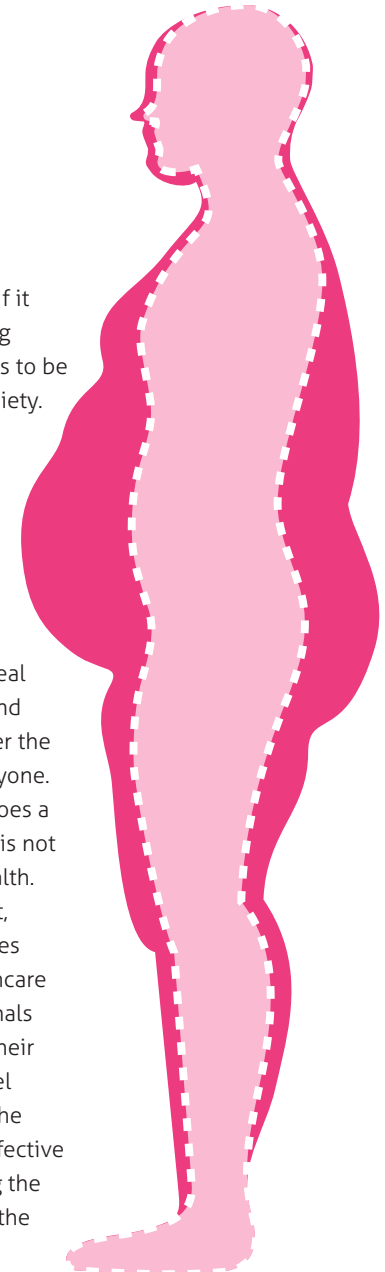
that the UK is being ground-breaking in how it tackles this issue, sounds nothing short of ludicrous and gives me, as an individual living in Britain, little hope that I would get the help I need if I was obese."

Obesity and diabetes are complex issues, which require interventions at multiple levels to achieve both effective prevention and successful treatment. The causes of obesity are multi-factorial and can include increased stress levels, systemic low-grade inflammation, lack of exercise and choice of foods and their preparation/cooking methods, amongst others. There is growing evidence that minimally processed foods like non-starchy vegetables and fruit are more satiating and elicit less of a glycaemic response than ultra-processed foods, so prevalent in typical British diets. Additionally, minimally processed foods are associated with a decreased risk of cardio-metabolic disease.

Miguel Toribio Mateas continued: "Influencing the current environment of obesity

will not deliver the desired economic and social results if it is not accompanied by lasting behaviour change. This needs to be addressed at all levels of society. Obesity needs interventions at multiple levels to achieve both effective prevention and successful treatment of existing problems. This only comes about by education on healthy eating and home economics in school, and a real understanding of how diet and lifestyle influence health over the short and long-term for everyone.

"Reducing calorie intake goes a long way towards this, but it is not the only factor in dietary health. Whilst it is an important start, prevention of chronic diseases needs a new model of healthcare delivery. Nutrition professionals who are fully up-to-date in their field can help deliver a model that will ultimately provide the public health system with effective disease prevention, reducing the overall cost to the NHS over the long-term."



CANDIDA CONTROL

– A NUTRITIONAL PERSPECTIVE

◦ Understand the correct approaches when it comes to dealing with candida overgrowth.



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It is found in the gut of around 70 per cent of adults, and is usually harmless, yet many people will be seeking advice from a practitioner to cope with the effects of *Candida* overgrowth. This is understandable, given the symptoms can for some be quite difficult to deal with, often causing digestive upset, vaginal yeast infections and recurrent UTIs, to name but a few.

"The symptoms of *Candida* overgrowth can be wide ranging, potentially affecting almost every system in the body, with the gastrointestinal, genitourinary, endocrine, nervous and immune systems being particularly susceptible. Several of the symptoms in distant body areas have been ascribed to immunologic or allergic reactions," explained Nutritional Therapist, Hannah Braye, Technical Advisor at Protexin, which has brands including Bio-Kult Candéa, targeted at *Candida*.⁴

"Genitourinary symptoms include recurrent vaginal thrush, urinary burning, frequency, and dysuria, premenstrual symptoms, painful menstruation, excessive bleeding, infertility, ovarian failure, and sexual function difficulties.⁴ Gastrointestinal complaints are among the most frequent, and include oral thrush and symptoms of irritable bowel syndrome, such as chronic recurring diarrhoea and/or constipation, abdominal cramps, gas, bloating, and nausea.⁴ Central nervous system symptoms are also common and include fatigue (often severe and incapacitating), depression, headaches, anxiety symptoms, panic attacks, and reduced cognitive efficiency with reduced concentration and memory.⁴

"Other systemic manifestations include musculoskeletal and joint pains, transient or long-standing neurological dysfunctions, skin conditions such as urticaria, psoriasis or local fungal infections, various problems in the oral, nasal, and pharyngeal

passages, increased inhalant allergies (especially to volatile chemicals and to molds), food intolerances (frequently to yeast-containing foods), and cravings for certain foods, especially those high in simple carbohydrates.⁴

WHAT IS CANDIDA?

"*Candida* consists of approximately 200 species of oval budding polymorphic yeasts, which are ubiquitous in the environment.¹ Yeasts, mainly *Candida* species, are present in the gut of around 70 per cent of healthy adults,² and are normally harmless. However, where there are disturbances in the host's defence systems, such as an imbalance in the intestinal bacteria, the gut-associated immune system or the mucosa itself, certain species (such as *Candida albicans*) can become opportunistic, changing to an invasive fungus,³ where hyphae attach to the gastro-intestinal or vaginal wall, destroying tissues and creating bio-films, explained Braye.²

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Vesna Manasieva, Nutritionist, who works in product development at HealthAid, added: "*Candida* species are ubiquitous organisms (Odds, 1998). They are one of the many kinds of fungus that live in the human body. Being a type of yeast, *Candida* species live in small amounts in places such as the mouth, gut, skin and vagina without causing any problems. However,

Candida species are most frequently isolated from the oral cavity and are detected in approximately 31-55 per cent of healthy individuals (Fidel *et al.*, 1999).

"When the environment is right, the yeast could multiply and grow out of control. The yeast overgrowth could affect the way the body absorbs nutrients, which is why *Candida* could lead to a wide range of symptoms. The common symptoms of *Candida* overgrowth are recurrent thrush, urinary tract infections, digestive problems such as bloating, fatigue, thinning of the hair, and concentration problems – sometimes described as 'brain fog'."

Egzona Makolli, Commercial and Technical Nutritionist at Kinetic, which distributes brands including Garden of Life, Nature's Answer and Organic Traditions, added: "*Candida albicans* is a single-celled fungus which is present in intestinal tracts, skin and birth canal⁽¹⁾. It is present in disproportionate quantities and can result in infections when it overproduces.

And what steps can you take to ascertain if this is the problem?

Makolli advised: "*Candida* overgrowth can be difficult for a health care physician to diagnose as the infection can present different ways in different people. Symptoms are also dependant on the organ or system infected by *candida*. Some common symptoms may be a sign of other conditions too, which make it difficult for a physician to diagnose."

CANDIDA OVERGROWTH TRIGGERS

There are all sorts of reasons a person can experience *Candida* overgrowth.

"*Candida* overgrowth could be triggered by various lifestyle factors, dietary habits, medications and pathological changes in the body. Modern lifestyle





could contribute to *Candida* overgrowth; stress could weaken the immune system, stopping it from keeping the yeast in check," Manasieva explained.

"Eating large amounts of sugary foods and drinking too much alcohol would also trigger *Candida* overgrowth. Additionally, long-term use of antibiotics could upset the levels of friendly bacteria in the gut, allowing the yeast to grow. Contraceptive pills and hormone replacement therapy could also affect body's delicate balance, allowing the yeast to thrive. Furthermore, having a health condition that affects the immunity, such as HIV or diabetes, could be another trigger for *Candida* overgrowth.

"An increasing incidence of fungal infections with *Candida* species has been noted in immunocompromised patients such as intensive-care, postsurgical, and neutropenic patients (Beck-Sague & Jarvis, 1993)."

Braye continued: "In most individuals, *Candida* resides as a lifelong, harmless commensal.⁵ However, a number of factors may predispose individuals (especially those who are immuno-compromised) to *Candida* overgrowth. The pathogenesis of chronic candidiasis usually results from disturbances in the host's defence systems, such as an imbalance in the intestinal bacteria, the gut-associated immune system or the mucosa itself.³

"Prolonged antibiotic use is believed to be one of the biggest risk factors, due to the detrimental impact on the microbiome. Our resident gut and vaginal bacteria play a critical role in suppressing yeast overgrowth by preventing *Candida* from finding adherence sites on mucous membranes. Beneficial strains of bacteria also act to lower the gut and vaginal pH,⁶ making it more difficult for *Candida* (which has been shown to have the ability to significantly and

quickly raise pH)⁷ to thrive. Other risk factors for *Candida* overgrowth include diet (particularly diets high in sugar and refined carbohydrates),⁸ decreased digestive secretions, impaired liver function,⁹ nutrient deficiencies,¹⁰ medications such as oral contraceptives,¹¹ and conditions such as diabetes mellitus".¹²

"The pathogenesis of chronic candidiasis usually results from disturbances in the host's defence systems, such as an imbalance in the intestinal bacteria, the gut-associated immune system or the mucosa itself."

Makolli added: "There are 20 different types of *Candida* that can result in a fungal infection and under normal circumstances, *Candida* is not problematic and coexists with other bacteria in the intestinal tract. *Candida* becomes a problem when it grows and overpopulates the digestive tract and can spread throughout the rest of the body, which results in *Candida* overgrowth⁽²⁾.

"In most cases, *Candida* overgrowth can be triggered by some lifestyle and dietary factors, such as a high sugar diet as *Candida* (yeast) requires food in the form of sugar to survive, studies have shown that sugar can be one of the worst offenders to facilitate the growth of bacteria, including *Candida*⁽³⁾. Frequent use of antibiotics can also eliminate good gut bacteria, which help candida and prevent overgrowth⁽⁴⁾. Studies have also shown elevated of cortisol may weaken the immune system and cause a more hospital environment for *Candida* to flourish⁽⁵⁾."

It is known that some people can have recurring

Candida overgrowth, but can this have an effect on long-term health?

According to Manasieva: "Prolonged *Candida* overgrowth is linked with leaky gut syndrome (Fidel et al., 1999). This is when the yeast overgrowth would cause small holes in the gut, which would allow tiny food particles to escape into the blood stream. The immune system would not recognise the food particles and could respond with attack, which would lead to becoming intolerant to a range of foods. Over time, this could lead to food intolerance and result with missing out on important nutrients."

DIFFERENTIATING CANDIDA SPECIES

One of the most important considerations when advising clients with potential *Candida* overgrowth is to identify the actual species.

"As symptoms are vague and varied, it is difficult for *Candida* to be recognised, except in people with seriously reduced immunity, such as those with HIV. Most commonly used method for early detection is the isolation of *Candida* species from a single blood culture, which is considered to provide sufficient evidence for the initiation of systemic antifungal therapy (Yera et al., 2001)," Manasieva explained.

"However, blood cultures could lack sensitivity. Previous reports have suggested that combined serological detection of mannanemia and anti-mannan antibodies could be even more efficient for the diagnosis of candidiasis caused by different *Candida* species, demonstrating specificity and sensitivity 93 per cent and 80 per cent, respectively (Yera et al., 2001). "After being diagnosed, *Candida* species can be easily differentiated from one another by either established commercially available biochemical tests or molecular biology techniques. With the advent



of molecular genetics, newer identification methods have also emerged. These methods use comparative analysis of chromosomal DNA to identify *Candida* species from each other, and also to delineate different strains within a species. These newer methods include restriction fragment length polymorphisms, pulsed-field gel electrophoresis, randomly amplified polymorphic DNA, and DNA probes (Cuenca-Estrella et al., 2012)."

Reaching the point where *Candida* overgrowth is known can take time, so, what do the experts advise?

"*Candida* diagnosis can be difficult for a health care professional to diagnose but there are a few tests which can be performed. A comprehensive stool analysis can be used to analyse the levels of yeast, pathogenic bacteria and friendly bacteria⁽⁶⁾. A biochemical antibody test can also determine whether any of the antibodies which respond to a candida infestation are raised, which can indicate an overgrowth of candida," Makolli recommended. "Another method is a urine sample, which can be used to analyse the acid levels which may suggest an imbalance of gut bacteria and be associated with candida overgrowth. A *Candida* questionnaire may be used by many health care professionals but unfortunately, as many symptoms can be associated with other disorders, it's best to seek the above analysis to confirm *Candida* overgrowth."

Braye added: "The possibility of *Candida* overgrowth is often to be identified by taking a comprehensive case history, where clues can be picked up from the client's history, food diary and presenting symptoms. *Candida* questionnaires used to rate client's symptoms can be a useful tool to assess whether further testing to assess *Candida* overgrowth is required.

"A Comprehensive Dietary Stool Analysis (CDSA) is one useful way of detecting *Candida* overgrowth within the gut. Another laboratory method involves measuring the level of antibodies to *Candida* or the level of antigens in the blood.¹³



As *Candida* has the ability to suppress the immune system, it may be prudent to test total IgG, IgA and IgM levels, along with *Candida* antibodies, to avoid false negative results. *Candida* may also be indicated by high levels of certain waste products, such as D-Arabinitol, shown on urinary organic acid tests."¹⁴

DIETARY RECOMMENDATIONS

"The availability of nutrient sources plays an important role in the pathogenesis of fungal infections. Carbohydrates consumed in the diet are the primary and preferred nutrient sources for *Candida* and a constant supply of sugars such as glucose, sucrose, and starch may create an environment conducive to *Candida* colonization," Braye explained.⁸

"Removing refined sugars and carbohydrates from the diet is therefore a key strategy. Certain foods, such as garlic and coconut oil, also possess potent antifungal properties and have been shown in studies to suppress *Candida* growth.^{15,16} Therefore, consumption should be encouraged.

"Pro-inflammatory cytokines have been shown to be elevated in gastrointestinal *Candida* overgrowth and studies indicate that *C. albicans* may create a vicious cycle in which low-level inflammation promotes fungal colonisation and fungal colonisation promotes further inflammation.¹⁷ This, in turn, may cause damage to the gut lining via oxidative stress. A diet high in antioxidants and anti-inflammatory phytonutrients is therefore advisable."

For Manasieva, grains, sugars, fruits, starches, alcohol and anything fermented, such as yeast extract, blue cheeses or soya sauce, should be removed from the diet.

"Avoiding sugar is probably the most important dietary change. The *Candida* yeast cells need sugar to build their cell walls, expand their colonies and switch into their more virulent, fungal form (Cuenca-Estrella et al., 2012). In terms of vegetables, sweet, starchy varieties, such as potatoes, carrots, sweet potatoes, yams, beets, peas and parsnips should also be avoided," she said.



"Instead, green leafy and non-starchy, cooked vegetables such as broccoli, cauliflower and asparagus should be consumed due to being able to provide valuable nutrients that fight *Candida*. In addition to that, drinking pure water, a minimum of 72 ounces per day, would be another important dietary change to be implemented in order to help flush the *Candida* and any by-products from the system."

And Makolli added: "If a client has tested positive for *Candida* overgrowth, then they will need to adapt certain dietary changes in order to reduce the growth. Considering that studies have shown that sugar feeds *Candida*, avoiding sugar is one of the first steps to take when adapting a diet against *Candida* overgrowth. It's best to seek advice from a qualified healthcare professional in dietary changes, which are required for *Candida* overgrowth. Dietary changes need to adapt to and followed by the client.

TRIGGER CHECKLIST

In addition to dietary changes, making your clients aware of the impact certain lifestyle choices can have on the risk of *Candida* overgrowth is worthwhile.

"A change, such as identifying the stress in life which may be lowering immunity, could be a good starting point in tackling *Candida* overgrowth. Also, working towards reducing the stress is another crucial lifestyle change. Sufficient rest and sleep is important to combat daily stress," Manasieva recommended.

"Relaxation techniques such as yoga, meditation, tai chi, massage and walking in the fresh air could also be beneficial in reducing stress. Massage, shiatsu, reflexology and other body work would also help the body to relax. Furthermore, doing low and moderately low intensity exercise could have positive impact on reducing *Candida* overgrowth. In addition to this, any

alcohol consumption should be removed completely from the diet."

And Braye pointed towards the importance of removing toxins from your lifestyle.

"Smoking can negatively affect the immune system,¹⁸ and cigarette smoke is associated with increased risk of oral candidiasis by increasing *Candida* adhesion, growth and biofilm formation.¹⁹ Clients who smoke should, therefore, be encouraged to quit, for this, and many other health reasons," she said, adding: "Encouraging good sleep patterns and reducing stress will also be an important part of any anti-*Candida* protocol in order to support the immune system."

KEY SUPPLEMENTS

There are plenty of effective supplements you could also advise as part of an overall action plan.

"Eradicating *Candida* overgrowth is not an easy process and is likely to require a sustained commitment to a gut healing protocol, such as the 5R approach. Natural antifungal agents are likely to be beneficial as part of any such protocol to reduce yeast within the gut," Braye advised.

Probiotics will be considered one of the most important.

"As dysbiosis within the intestinal bacterial community plays a crucial role in *Candida* overgrowth pathogenesis, replenishing levels of beneficial bacteria within the gut is therefore a key therapeutic aim. Studies have shown that probiotics, in particular *Lactobacilli*, appear to have inhibitory effects on the development of *C. albicans* from yeast-to-hyphae form and biofilm formation, through mechanisms involving cell-to-cell interactions and secretion of exometabolites," Braye explained.²³ "Multi-strain formulas which contain strains of bacteria specifically

chosen for their ability to inhibit *C. albicans*, have been shown to be more effective at inhibiting pathogens than component strains administered separately,²⁴ and as different strains exert their effects in different parts of the gastrointestinal tract, multi-strain products are likely to be of wider benefit.

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"Probiotics are just as important for tackling cases of vaginal candidiasis and there have been a number of clinical studies examining their effects.²⁵ One study, involving a group of women with recurrent urogenital infections, including vaginal candidiasis, consumed *Lactobacilli* probiotics for 14 days. Within one week, *Lactobacilli* dominated the vagina of all women and no recurrences of yeast vaginitis appeared during the study and follow-up.²⁶

Supplements to support the immune system and help restore integrity to the lining of the gastrointestinal tract, thereby reducing intestinal permeability caused by yeast disruption to tight junctions, should also be considered."

Manasieva added: "Probiotic bacteria are known to inhibit the growth of pathogenic microbes (Hatakka et al., 2007). Probiotics could give the body healthy bacteria, which could help reduce the presence of yeast. A study by Hatakka et al. (2007) suggested that probiotic bacteria could be effective in controlling



oral *Candida* in the elderly. Hatakka et al. (2007) conducted 16-week, randomised, double-blind, placebo-controlled study with 276 elderly people, who consumed daily 50g of either, probiotic (n = 136) or control, cheese (n = 140).

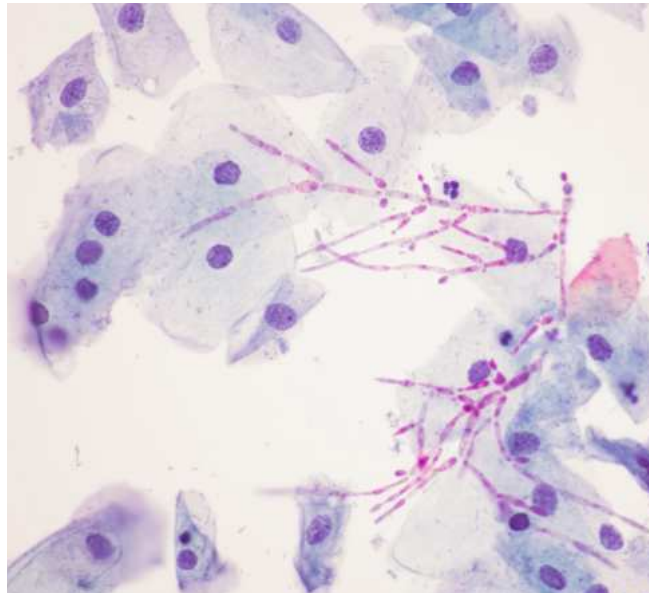
"The primary outcome measure in this study was the prevalence of a high salivary yeast count ($\geq 10^4$ cfu/mL) analysed by the Dentocult method. The prevalence decreased in the probiotic group from 30 per cent to 21 per cent (32 per cent reduction), and increased in the control group from 28 per cent to 34 per cent. Overall, this study demonstrated that probiotic intervention could reduce the risk of high yeast counts by 75 per cent."

Garlic is also known to be supportive.

"Garlic is another important supplement that has ability to fight fungal infections and boost the immune system. Allicin, one of the active compounds of freshly crushed garlic homogenates, has a variety of antimicrobial activities (Ankri & Mirelman, 1999). Allicin in its pure form was found to exhibit antifungal activity, particularly against *Candida albicans*," Manasieva explained.

"Also, antibacterial activity against a wide range of gram-negative and gram-positive bacteria, antiparasitic activity against major human intestinal protozoan parasites, such as *Entamoeba histolytica* and *Giardia lamblia*, and antiviral activity. The main antimicrobial effect of allicin is due to its chemical reaction with thiol groups of various enzymes, such as alcohol dehydrogenase, thioredoxin reductase, and RNA polymerase (Ankri & Mirelman, 1999)."

Braye agreed, adding: "The antifungal activity of garlic has been widely studied and is attributed to the active compound allicin.²⁰ Allicin has been shown in numerous studies to exhibit antifungal activity against



C. albicans, as well as strong antioxidant activity.²¹ Garlic appears to be effective at preventing transition of *C. albicans* from its yeast-like form to an invasive filamentous fungus.³ Interestingly, allicin has been shown to down-regulate the expression of one of the specific genes involved in this transition, with a similar mechanism to a common antifungal drug.³ *C. albicans* has the ability to exist in biofilms, which are often resistant to antifungal drugs. Allicin has been shown to significantly reduce biofilm growth, to disrupt the fungus membrane and decrease further production."²²

And also remember vitamin C, a powerful support against *Candida* overgrowth.

Manasieva explained: "Vitamin C has an important role in tackling *Candida* due to its ability to boost immune function. Vitamin C is an efficient water-soluble antioxidant that could protect host cells against the actions of reactive oxygen species (ROS)

released by phagocytes. Many infections lead to the activation of phagocytes, which would release oxidising agents, known as reactive oxygen species (ROS).

"Phagocytes have a specific transport system by which the oxidised form of vitamin C (dehydroascorbic acid) is imported into the cell, where it is converted into the reduced form of vitamin C (Hemila, 2017). Therefore, increased ROS production during the immune response to pathogens could lead to decrease in vitamin C levels. Previous studies have already suggested that plasma, leukocyte and urinary vitamin C levels decrease in the common cold and in other infections (Hemila, 2017)."

Grapeseed oil could be another beneficial supplement against *Candida* infections, due to its antimicrobial activity.

Manasieva continued: "Kalemba and Kunicka (2003) assessed essential oils *in vitro* for not only their antimicrobial activity against pathogens, but also their effect on beneficial gut bacteria, their stability under low pH conditions, and their efficacy against the target pathogen in the presence of gut microbiota. Kalemba and Kunicka (2003) further identified that grapeseed oil possess strong antimicrobial activity."

But Makolli also added a note of caution when it comes to *Candida*, as there is not a one size fits all approach.

"Each client will have different symptoms so they need to be recommended individualised supplements by their health care professional. There are certain foods which may have antifungal properties but not enough literature exists to ensure that these help kill off *Candida* but it may be worth adding garlic, oregano, cloves, onion and ginger root to a client's daily dietary intake," she advised. ●



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Bio-Kult Candéa confronts candida



Bio-Kult Candéa is a scientifically developed 7 strain live bacteria supplement that is proven to survive the high acidity of the stomach and reinforce the gut microflora, helping to prevent *Candida* from finding binding sites in the gut to grow. These bacteria lower the gut pH so that *Candida* cannot thrive, as it prefers a more alkaline environment. It also contains garlic and grapefruit extract, well known for their naturally powerful properties. Candéa does not need to be refrigerated and can be taken alongside antibiotics, by babies, when pregnant, by vegetarians and as part of a healthy diet. For more information visit www.bio-kult.com



New Adrenal Function Profile available from CNS

Cambridge Nutritional Sciences have recently launched their new functional test; the hugely popular Adrenal Function Profile. This adrenal screen requires a convenient saliva sample collection, taken at 5 intervals throughout the day, thus enabling a more precise analysis of an individual's 24-hour cyclic cortisol concentration. Importantly, this helps to accurately pinpoint the significant cortisol surge, which should assist practitioners in giving more personalised support to their clients. In addition, morning and afternoon DHEA measurements are taken, allowing the hugely significant Cortisol/DHEA ratio to also be identified. Contact Cambridge Nutritional Sciences on 01353 863279 or nutrition@camnutri.com for more information.



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COMBATING SKIN CONDITIONS

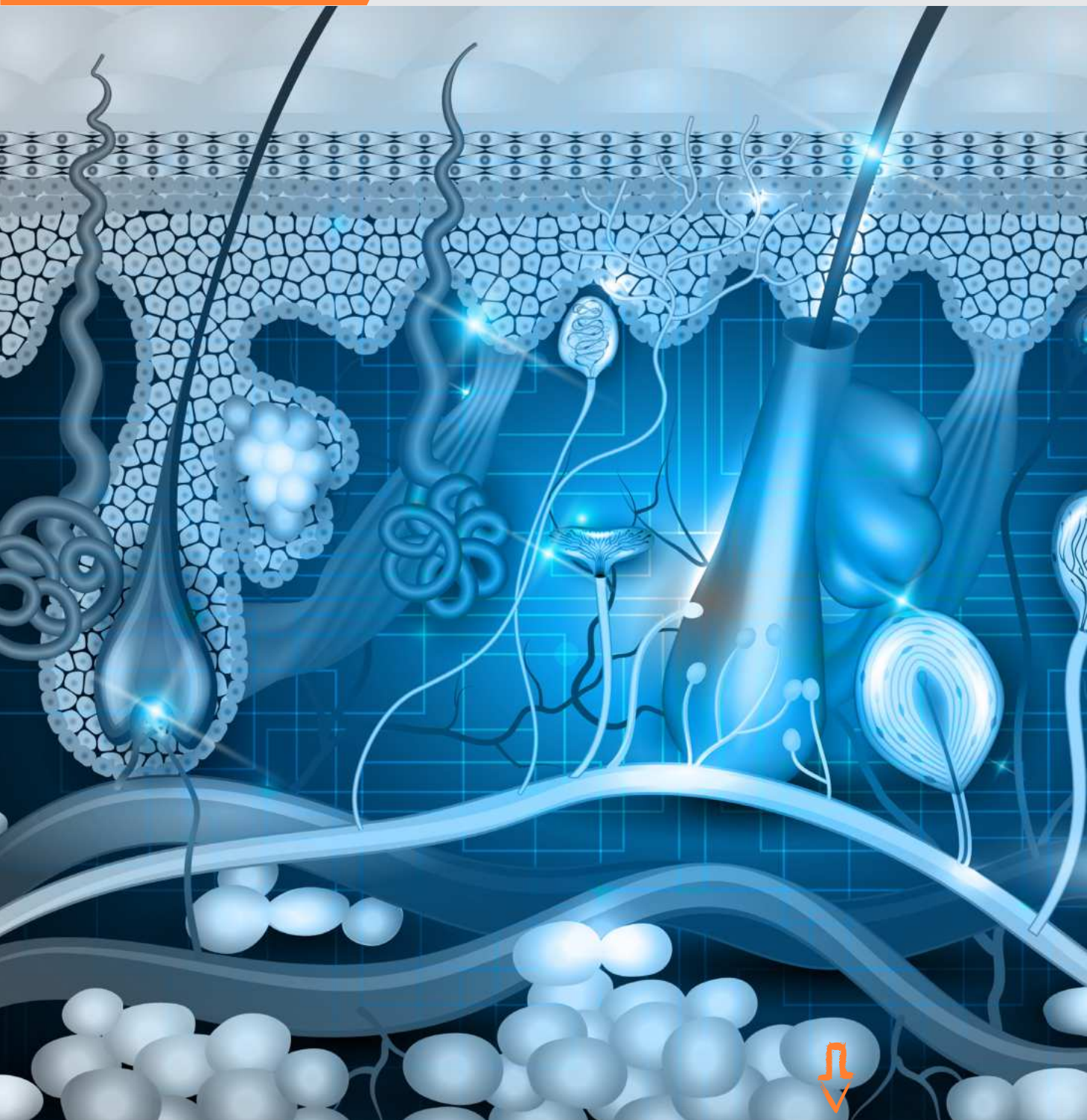
Nutrition I-Mag presents a guide to approaching the right protocol around skin conditions.

You will know that the skin is considered the largest organ of the body, and it is one that is susceptible to damage from a range of external factors. The things we put on it and inside our bodies can have a huge impact on the health of the skin.



And it seems our modern living could be having an impact on the health of the skin, borne out by the fact that the incidence appears on the rise – or at the very least the reporting of them has improved – and more than half the population is believed to suffer, with millions of people seeking treatment from their GP each year.

Nutritional Therapist, Hannah Braye, Technical Advisor at Protexin, which has the brands Bio-Kult and Lepicol in its portfolio, pointed out: "The International Classification of Disease lists more than 1,000 skin or skin-related illnesses. However, a few common conditions account for a large majority of cases."¹





Nutritionist, Vesna Manasieva, who works in product development at HealthAid, added: "Far from being an inactive covering for the body internal organs, the skin is an intricate system of nerves, glands and cell layers that play a fundamental role in overall health and wellbeing. Being the largest organ of the body, the skin is responsible for temperature control, protection, excretion of toxins and sensations of touch, heat, and cold."

But what could be down to this perceived rise?

"Allergy is said to be a malfunction of the immune system. One potential explanation for this malfunction is the 'hygiene hypothesis', which suggests the sterile environment of the Western world has reduced our interaction with a wide range of micro-organism ('old friends'), necessary to enable a healthy development of the gut microbiome and immune system.⁷ This could potentially explain why there is a higher incidence of AD in urban/industrial settings, where children play outdoors less," Braye pointed out.

"The rise in popularity of infant formulas and a move away from breastfeeding may also have played a role (immune factors in breast milk have been shown to contribute to the gut microbiome and intestinal lining, offering protection against AD)."⁸

COMMON CONDITIONS

To talk about skin conditions is a hugely broad term, as it encompasses so many different issues and often with varying contributory causes. But there are some common ones that you are more likely to see in clinic on a more regular basis.

"Skin disease is one of the most common human illnesses. It pervades all cultures, occurs at all ages, and affects between 30 per cent and 70 per cent of individuals (Scholfield *et al.*, 2009). Skin conditions

including acne, fungal and subcutaneous diseases were noted to be in the top 10 most prevalent diseases worldwide in 2014 (Hay *et al.*, 2014)," Manasieva explained.

"Allergy is said to be a malfunction of the immune system. One potential explanation for this malfunction is the 'hygiene hypothesis', which suggests the sterile environment of the Western world has reduced our interaction with a wide range of micro-organism ('old friends'), necessary to enable a healthy development of the gut microbiome and immune system."

"Moreover, skin conditions such as atopic dermatitis, eczema, psoriasis and impetigo have been significantly on the rise in the last few years (Scholfield *et al.*, 2016). Acne affects nearly 80 per cent of all people between ages 11 and 30 in Western cultures (Scholfield *et al.*, 2016). Researchers have found that atopic dermatitis is three times more prevalent today (Murray *et al.*, 2016), and prevalence of eczema and psoriasis was identified as doubled between 1995 and 2008 (Hay *et al.*, 2014)."

Braye added: "The incidence of allergic diseases (such as AD) is increasing and the UK has some of the highest prevalence rates of allergic conditions in the world.⁵ AD has increased by two- to threefold in industrialised countries during the past three decades."⁶

Acne is particularly common, affecting most people at some point in their lives. It causes oily skin and unsightly, sometimes painful spots on the face and

parts of the body, such as the back and chest.

"Research has shown that 85 per cent of young people between the ages of 12 and 24 years have acne, and while it is most common in teenagers, acne continued to affect eight per cent of adults aged 25 to 34 years and three per cent of adults aged 35 to 44 years.²

"Dermatitis (also known as eczema) is a common collection of skin conditions, where the skin becomes inflamed, often leading to crusty scales or blisters that ooze fluid. Contact dermatitis is a localised rash or irritation caused by contact with a specific substance. Atopic dermatitis (AD) on the other hand, is thought to be caused by dysregulation of the immune system and mutations of the filaggrin gene, which regulates epidermal barrier function, allowing increased exposure to irritants and allergens. AD is the most common form of dermatitis, especially in infants,³ affecting 15 -30 per cent of children and up to 10 per cent of adults."⁴

She added: "Fungal skin infections (such as athlete's foot, ringworm and yeast overgrowth) are also prevalent and represent the fourth most common health condition globally.¹ Other common skin complaints include psoriasis, rosacea, pruritus (itching without attributable cause), alopecia, urticaria (hives), scabies, impetigo, abscess and other bacterial skin diseases, cellulitis, warts, and non-melanoma skin cancer."¹

FOOD AS A TRIGGER

You will know as Nutritional Therapists that food can play a huge role in the development of a skin condition and this is for a variety of reasons.

Manasieva explained: "The food we eat could have a great impact on the risk of developing skin conditions





by triggering internal inflammatory processes. Dietary habits such as consumption of grains (wheat/gluten), sweet and sugary foods could contribute to the rise of various skin conditions. Wheat is one of the grains in many of the processed foods that interferes with a healthy complexion and contributes to psoriasis, eczema and acne outbreaks."

Turning more specifically to acne, Manasieva added: "Gluten would lead to more permeable gut, which would then allow proteins to get into the bloodstream that would otherwise have been excluded, sensitising the immune system and promoting inflammation, which would lead to acne (Cordain *et al.*, 2002). Wheat also affects both blood sugar levels and the release of insulin. Wheat is a carbohydrate and once metabolised, increases the blood glucose levels and triggers the release of insulin and insulin-like growth factor, called IGF-1. This growth factor could increase the secretion of male hormones, such as testosterone.

"The release of male hormones is not enough to trigger growth of secondary sex characteristics, such as hair or muscle growth, but may be enough to increase the secretion of sebum. This is a greasy substance on the skin that traps acne-promoting bacteria. IGF-1 may also cause skin cells known as keratinocytes to multiply, a process associated with acne. On the other hand, glutinous proteins found in gluten could increase the permeability of the intestinal tract, sensitise the immune system and contribute to the worsening of acne. Individuals who have an increase in intestinal permeability may also experience a release of insulin when the immune system is activated by the bacteria and protein invaders. This results in both an increase of IGF-1 and an increase in the risk of developing insulin resistance and type 2 diabetes."

She went on: "A study found in the *American Journal of Clinical Nutrition* found young men who suffered from acne exhibited significant improvements in both acne and insulin sensitivity after eating a low-glycaemic diet for 12 weeks (Smith *et al.*, 2007). Another study demonstrated that a high glycaemic diet and frequent dairy consumption are also linked to acne (Burris *et al.*, 2013)."

It is also known, Manasieva pointed out, that "some proteins in the wheat are known to trigger inflammatory processes in the body, and as a consequence lead to various skin conditions (Murray *et al.*, 2016)".

She went on: "Two substances found in wheat have been identified as responsible for cellular changes in the body. Gliadin is the primary immunotoxic protein found in wheat gluten that is among the most damaging to health. Gliadin gives wheat bread its doughy texture and is capable of increasing the production of the intestinal protein, zonulin, which, in turn, opens up gaps in the normally tight junctures between intestinal cells (enterocytes).

"Lectins are carbohydrate-binding proteins present in most plants. Cereal grains and legumes have relatively high concentrations of a variety of lectins. Humans have been consuming grains for approximately 500 generations. However, in the recent years, the human body fails to digest gluten completely, which is unlike any other protein. Dr Alessio Fasano, the Director for Celiac Research and the Chief of Paediatric Gastroenterology and Nutrition at Massachusetts General Hospital, commented: "The immune system seems to see the gluten as a component of bacteria and deploys weapons to attack it, and creates some collateral damage we call inflammation."



CONTRIBUTORY FACTORS

Keep in mind too that there are plenty of other factors that can raise the risk of developing a skin condition, and, if you do, of suffering more severe symptoms.

Let's start with diet.

Braye discussed: "Medical opinion on the role of food allergies and intolerances in skin conditions such as acne and atopic dermatitis is divided. However, many people report substantial improvements in symptoms when certain aggravating foods are removed from their diets.

"Acne has been linked with milk consumption, and it is thought that hormones and bioactive molecules





found in milk could potentially influence sebum and hormone production in consumers.⁹ Low glycaemic index diets have also shown improvements in symptoms.⁹ Acne remains rare in non-Westernised societies, such as the Inuit, Okinawan Islanders, Ache hunter-gatherers, and Kitavan Islanders, who eat diets low in sugar, refined carbohydrates and processed foods. Therefore, acne sufferers may be best advised to avoid sugary foods and refined/simple carbohydrates.

"Sensitivities and intolerances to certain foods are often identified by parents as a contributing factor to atopic dermatitis. It's thought that food hypersensitivity could be important in up to 20 per cent of children with AD under four years¹⁰ and some clinicians have found that elimination of specific foods (found to elicit symptoms) can improve symptoms.¹¹ Common culprits include cow's milk, eggs, gluten and solanaceous vegetables, such as tomatoes."

Then we need to address stress.

Manasieva explained: "In addition to eating a healthy diet, effectively addressing stress is another important aspect to be considered in preventing skin conditions. Previous research has found that life experiences and how an individual deals with them could have a great impact on skin's health. Previous research has also determined that stress lessens the skin's ability to function properly, and that extended exposure to psychological stress could speed up the ageing process of the cells and cause them to die at a faster rate than normal (Bowe & Logan, 2011).

"On the other hand, new evidence in the field of epigenetics is also emerging, which emphasise the notion that environmental factors such as stress and diet could be directly responsible for the expression of the genes. According to groundbreaking research done by Bruce Lipton, PhD., a forerunner in the field

of epigenetics and The New Biology, the genetic expression is ruled by the mind and emotions. In other words, being able to maintain a more positive outlook could influence the expression of the genes, and thus directly impact the health and appearance of the skin."

When addressing stress, Manasieva recommended: "Research by dermatologists, John Stokes and Donald Pillsbury, suggested that emotions could alter the microflora in the intestines, which could therefore contribute to systemic inflammation that would exacerbate acne and other skin conditions (Cordain et al., 2002).

"Experimental studies show that psychological stress stagnates normal small intestinal transit time, encourages overgrowth of bacteria, and compromises the intestinal barrier. SIBO [small intestinal bacterial over growth] is strongly associated with depression and anxiety, while eradication of SIBO improves emotional symptoms. Although the frequency of SIBO in acne vulgaris has not yet been investigated, a recent report indicates that SIBO is 10 times more prevalent in those with acne rosacea versus healthy controls. Correction of SIBO leads to marked clinical improvement in patients with rosacea." (Bowe & Logan, 2011).

DIETARY PROTOCOL

Skin conditions are linked to a range of factors, including diet and also environmental elements, such as pollution. There is also a known genetic link.

But where there are modifiable factors, what kind of protocol could you be following in clinic to address this?

Let's start with a client's dietary regime.

Manasieva advised: "Making changes in the diet could have positive impact when dealing with skin conditions. For example, when dealing with eczema,

foods that cause allergic reactions such as eggs, dairy, soy, peanuts, fish, corn, tomatoes, citrus and gluten products should be avoided for a period of time, usually three to four weeks. This would enable to monitor symptoms; it is important to notice visible and non-visible changes. Additionally, in the presence of acne, gluten-containing grains and foods that contribute to insulin resistance (namely sugar) should be avoided. Instead, low-sugar and high-nutrient-dense fruits like berries should be included in the diet.

"Previous research has also determined that stress lessens the skin's ability to function properly, and that extended exposure to psychological stress could speed up the ageing process of the cells and cause them to die at a faster rate than normal."

"Alkalizing the body is also important when dealing with skin conditions. The pH balance is a key in skin conditions, as symptoms of acne, eczema and psoriasis often occur when the body's pH is out of balance. A body too high in acid or too high in alkaline foods could cause eczema to flare. Additionally, too high acid environment could contribute to the outbreaks of more acne."

She added: "Hydration is another important factor. Drinking plenty of fresh, pure water every day would help hydrate the body and facilitate cell growth and regeneration, elimination of wastes, and sloughing away dead skin cells."

Braye added: "A variety of nutrients (such as zinc, vitamin E, vitamin A, and essential fatty acids) are important for skin health, and many work





synergistically together. Therefore, eating a varied, balanced, wholefood diet, rich in fruit and vegetables and healthy sources of fat and protein, is likely to reduce the risk of developing skin conditions and preserve skin health."

"Having a healthy gut is crucial in the prevention of skin conditions. In other words, pure, flawless skin is a reflection of clean intestines."

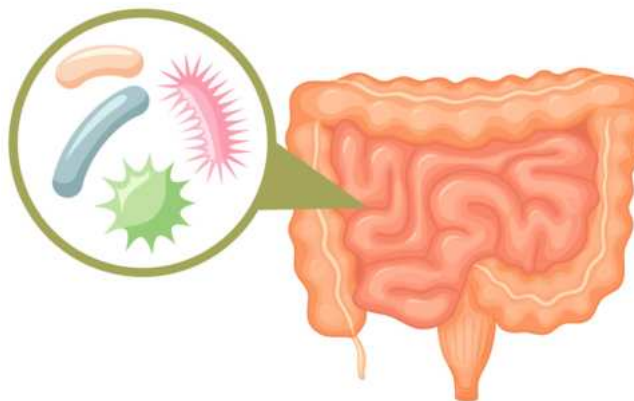
GUT STRONG

Healthy skin requires a healthy gut and focus must be placed on that in clinic.

"Having a healthy gut is crucial in the prevention of skin conditions. In other words, pure, flawless skin is a reflection of clean intestines. The liver, kidneys, adrenals and thyroid are also dependent on the condition of the small and large intestines. These two organs not only provide nutrients to other organs, but are also responsible for the removal of waste products from the body. The small and large intestine release nutrients in the body and help to keep the food moving onward and out. Removing waste in a timely manner is crucial, when food waste meant for elimination remains in the intestines for too long could lead to thick, oily and blemished skin," Manasieva explained.

"However, the consumption of gluten found in grains could increase the permeability of the intestinal tract, leading to the development of leaky gut. Gaps would develop between the cells that make up the lining of the intestines, allowing undigested food, bacteria and metabolic waste products to leak

into the bloodstream, hence the name leaky gut syndrome. These foreign substances would challenge the immune system and increase inflammation in the body. Research published in *Gut Pathogens* has theorised that an inflammatory response which starts in the gut could spread through the rest of the body and affect the skin (Bowe & Logan, 2011). This has been known as the gut-brain-skin connection."



And Braye added: "Skin is the largest organ in the body. Crucially, it is the only organ we have ongoing visual access to and its appearance can often give useful insights into the health of other systems within the body, especially the digestive system. It has long been understood that skin status can benefit from reinforced gut homeostasis.¹²

"Intestinal permeability occurs when the lining of the digestive tract is damaged, often by pathogens such as yeast overgrowth, low beneficial bacteria levels, diet or lifestyle factors. This allows proteins from foods and toxins to pass into the bloodstream, leading to inflammation, which can be reflected in our skin.¹³ If carrying out an elimination diet with clients,

it's therefore important to do further gut healing work to eradicate pathogens, increase beneficial bacteria and restore the integrity of the lining of the digestive tract, along with implementing lifestyle changes."

In terms of strengthening the gut, Braye advised: "Probiotic supplementation has been shown to be useful in this regard. *Lactobacilli* and *Bifidobacterium* species of bacteria have been shown to help support the integrity of tight junctions lining the gastrointestinal tract, preventing epithelial barrier dysfunction via metabolites such as acetate.¹⁴

"The gut mucosal barrier also houses approximately 70 per cent of the body's immune cells,¹⁵ and is lined and influenced by a diverse population of micro-organisms that play an important role in the development and function of the immune system.¹⁶ An imbalance in gut bacteria levels has been observed in those suffering with allergic diseases such as AD,¹⁷ ¹⁸ and studies suggest supplementation with a multi-strain probiotic is beneficial in helping to regulate immune responses in suffers.¹⁹ For example, in 2011, Farid *et al* found that bacteria strains used in Bio-Kult Infantis significantly reduced eczema symptoms in infants and young children within just eight weeks.²⁰

Probiotic bacteriotherapy has also been shown in studies to have great potential in preventing and treating acne, allergic inflammation, skin hypersensitivity, UV-induced skin damage, wound protection, and as a cosmetic product in already healthy skin.²¹

Manasieva continued: "Probiotics could give the immune system a boost and help when dealing with skin conditions. Probiotics or 'good bacteria' could help soothe inflammation and stimulate the body to produce antibodies that are vital for preventing the body from overreacting to allergens." ●

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Given the fact that the majority of the western population is sub-clinically deficient in vitamin K2, Kiran Krishnan, Chief Science Officer of Microbiome Labs, explains the wide impact that this is having on our health:

- Brief understanding of the background of vitamin K2, its discovery, how it is produced, sources in nature and comparison to the more well-known, vitamin K1.
- Understanding the difference between the various forms of vitamin K2 on the market and the important features that will lead to efficacy or non-response.
- Overview of the studies to understand vitamin K2's role in bone health, heart health, diabetes and cancer.
- New discoveries in the function of vitamin K2 – going beyond carboxylation and into redox reactions.
- Understanding why vitamin K2 may be considered one of the most important nutrients to positively impact chronic diseases.



VITAL VITAMIN K

Critical for good health, yet one that is often lacking in the average Brit, here, nutritional experts discuss the importance of vitamin K.

In recent years, public health campaigns when it comes to nutrition have very much focused on vitamin D, and thanks to these efforts, awareness among the general population is now far more advanced. But another vitamin that has far less awareness, yet is crucial for many aspects of health, is the K vitamins.

Peter van Hogerhuis, founder of Springfield, which specialises in vitamin K2 supplements, commented: "Surveys regarding food consumption in the Netherlands, the UK and the US show that a considerable percentage of the population, adults as well as children, do not obtain enough vitamin K."

And Egzona Makolli, Technical and Commercial Nutritionist at Kinetic, which distributes brands including Nature's Answer and

Garden of Life, added: "Deficiency is common amongst individuals who have fat malabsorption related diseases but can also occur from extremely inadequate intake in individuals. Adults are more likely to be vitamin K deficient if they use coumarin anticoagulants. Worldwide vitamin K deficiency is most common in infants and can lead to morbidity and mortality."

Nutritional Therapist, Jenny Logan, Technical Manager at Natures Aid, continued: "Up to 97 per cent of western populations are deficient in vitamin K2 (12) and it can be quite difficult to obtain vitamin K2, especially from a typical western diet. Vitamin K1 can be converted into vitamin K2, however, this will only occur if the body has sufficient K1 to meet its needs. Most people consume only enough green leafy vegetables to provide their bodies K1 needs (if that), meaning that the manufacture of K2 is unlikely to occur. Plus, this conversion relies on the presence of the right type of bacteria being present in the gut."

UNDERSTANDING VITAMIN K

In terms of vitamin K and its effect, van Hogerhuis explained: "K vitamins are a group of fat soluble vitamins that are essential for the body to utilise calcium for healthy bones, and healthy arteries and tissues. K vitamins are also needed by the liver to effectively clot our blood. Hence, this group of vitamins is substantial for life. Historically, K vitamins were





thought to be a single vitamin, referred to as vitamin K.”

Katherine Pardo, Head of Nutrition at Nutri Advanced, continued: “Vitamin K plays an important role in coagulation, or blood clotting. Most people only become aware of vitamin K when they have a baby as it’s routinely offered to newborns to prevent internal bleeding. Other than that, most people wouldn’t know how to obtain vitamin K from their diet or how it helps to maintain health. Aside from its role in the clotting process, vitamin K is becoming increasingly well-known for its important partnership with vitamin D in maintaining bone health and preventing arterial calcification, a known risk factor for heart attack.”

It is important to note that there are different forms of vitamin K, and each has different effects.

“The two most important forms are vitamins K1 (phylloquinone) and K2 (menaquinones). Vitamin K1 is the principle source of dietary vitamin K and is needed for proper blood coagulation. Vitamin K2 exists in several forms and the most common ones are the synthetic menaquinone-4 (MK-4) and the natural menaquinone-7 (MK-7),” van Hogerhuis explained.

“Vitamin K2 as MK-7 is found in fermented foods such as mature cheeses, curd, natto and lichen. Vitamin K2 is essential to build and maintain strong bones, as well as avoiding calcium deposits in the arteries.”

Logan added: “Vitamin K – although the name suggests differently – is not a single compound. It consists of a group of fat-soluble vitamins that are essential for the body. The vitamin K family is divided into vitamin K1 – one molecule (phylloquinone), and vitamin K2 – a group of molecules (menaquinones).

“Vitamin K1 is required for normal blood clotting. While vitamin K2 has sparked a great deal of interest in recent years, due to research indicating its important role in the maintenance of healthy bones and a healthy heart. The

interest really in vitamin K, as practitioners, should be in vitamin K2 and its potential to be the missing link in heart disease and osteoporosis. It could also be key in child bone health and development.”

Makolli added: “Vitamin K functions as a coenzyme for vitamin K dependent carboxylase, an enzyme essential for the synthesis of proteins involved in blood clotting (hemostasis) and bone metabolism and many other physiological functions⁽¹⁾. There are two natural occurring forms of vitamin K, vitamin K1, which is found in plants, and vitamin K2, which is produced from vitamin K1 by bacteria in the digestive tract.”

BENEFITS TO HEALTH

There is a growing body of evidence confirming the importance of vitamin K.

“Vitamin K is essential for newborns as vitamin K transport across the placenta is poor, thus increasing the risk of babies being born with vitamin K deficiency⁽²⁾. Individuals with malabsorption, such as coeliac, inflammatory bowel diseases, cystic fibrosis and short bowel syndrome, may not absorb vitamin K efficiently⁽³⁾. Vitamin K can also be low in individuals who have had a bariatric surgery; these individuals need to be closely monitored for vitamin K deficiency and may require vitamin K supplementation,” Makolli commented.

Van Hogerhuis added: “We are all familiar with vitamin K as a vitamin involved in blood clotting. Scientific research has revealed at least two other important functions of vitamin K. People who do not ingest enough vitamin K from the daily diet can suffer from ageing processes in their bones and blood vessels at a much younger age or in a more serious way.

“The new discoveries imply that we need vitamin K to keep our bones and vessels in a good condition so we won’t suffer unnecessarily from bone fractures due

to reduced bone mass (osteoporosis) or cardiovascular diseases leading to a heart attack or a stroke. Especially women after menopause are at high risk to develop these diseases when the production of oestrogen is decreased.”

From a research perspective, the results are encouraging.

“Two studies of the University of Maastricht with 180mcg vitamin K2 a day over a three year period showed positive results. The dosage of 180mcg of menaquinone-7 daily resulted in a significant decrease of the age-related loss in bone mass and an improvement of the bone strength⁽¹⁾,” van Hogerhuis explained.

“In the second Maastricht study, the vascular stiffness was measured using two different methods; echo-tracking (ultrasound technique) and pulse wave velocity (PWV). After three years, the vascular stiffness in the vitamin K2 group has not only decreased, but the flexibility of the vascular wall has also improved. After three years of supplementation with vitamin K2, the blood levels of inactive MGP decreased by 50 per cent compared to the placebo. This also indicates a reduction in the risk of cardiovascular disease⁽²⁾.”

Logan advised: “Vitamin K2 has been shown by research, to have a number of important applications.

■ **Bone health – in adults:** The World Health Organization estimates that osteoporosis currently affects some 200 million people globally. Whilst orthodox medicine focuses on calcium and vitamin D to help with this epidemic, they are overlooking a vast amount of research pointing to vitamin K2 as a vital addition to any bone health regime. The entire skeleton is replaced every seven years. This process is regulated by osteoblasts – building up the skeleton and osteoclasts – breaking down the skeleton. Osteoblasts produce a vitamin K-dependant protein, called osteocalcin – this is the protein which binds calcium to the bone matrix, increasing the bone mineral





density. Osteocalcin needs vitamin K2 to become active⁽¹⁾. A breakthrough study carried out over three years showed that healthy women taking vitamin K2, as MK-7, showed significant protection of bone strength and density, including the critical spine and hip measurement⁽²⁾. Showing that vitamin K2 could be critical for all menopausal and postmenopausal women.

■ **In children:** Studies have shown that children have eight to 10 times more inactive osteocalcin than adults.⁽³⁾ This means that a child's requirement for vitamin K2 will be higher than that of an adult. Young bones will depend on a healthy level of vitamin K2 to establish healthy bones for life, as 90 per cent of peak bone mass is acquired by the age of 20.⁽⁴⁾ Studies have shown that children with bone fractures have two times lower vitamin K2 status, than healthy controls.⁽⁵⁾

■ **In heart health:** Calcification contributes to cardiovascular disease by increasing the stiffness and fragility of the blood vessels, impeding the flow of blood to and from the heart.⁽⁶⁾ Scientific studies have confirmed that matrix Gla protein (MGP) is one of the most potent modulators of vascular calcification.⁽⁷⁾ In order for MGP to bind calcium and thus keep it away from the blood vessels and arteries, it needs to be activated by vitamin K2.⁽⁷⁾ This shows the potential for this vitamin in preventing calcification. The Rotterdam Study (2004) showed that high dietary intake of vitamin K2 (not K1) has a strong protective effect on cardiovascular health. This study was conducted over a 10-year period and included 4,807 men and women over the age of 55 and it concluded that consuming at least 32mg vitamin K2 per day reduced the risk of arterial calcification and cardiovascular death by up to 50 per cent.⁽⁸⁾ A further study investigating the effects of vitamin K2 on 16,057 women, over eight years, concluded that the vitamin reduced the risk of heart disease by nine per cent for every 10mcg of



vitamin K2 consumed. This study also found that the MK-7 form of vitamin K2 appeared to be one of the most active.⁽⁹⁾ In addition, a double-blind, randomised, clinical trial evaluated the benefits of 180mcg of vitamin K2 supplements as MK-7, taken daily over a three-year period, in a group of post-menopausal Dutch women. This trial not only showed substantial benefits in preventing age-related stiffening of the arteries, it also resulted in an unprecedented, statistically significant improvement of vascular elasticity measured, both with soundwaves and pulse wave velocity (PWW).⁽¹⁰⁾

Logan added: "It is important to note here that osteoporosis is linked with an increased risk of developing cardiovascular disease, hardening of the arteries, characterised by calcium deposits in the arteries.⁽¹¹⁾ This indicates that osteoporosis is not caused by a shortage of calcium, but rather by an inability to properly manage and utilise that mineral. The results of the trials on vitamin K2 showing its importance in bone mineralisation and the

prevention of cardiovascular disease, really shows us that this vitamin could be the key link for the prevention of both 'age related' diseases."

MECHANISM OF ACTION

In terms of how it works, van Hogerhuis explained: "Vitamin K2 is needed as a co-factor to activate more than eight vitamin K-dependent proteins, among which coagulation factors, the bone protein osteocalcin, necessary for the bone mineralization, and the interstitial tissue protein matrix-Gla-protein (MGP), which is one of the strongest factors in the vascular wall to inhibit calcification of the blood vessels."

When looking at intakes, Makolli advised: "Food sources include vegetables, especially green leafy vegetables, certain vegetable oils and some fruits. The highest source of vitamin K is Natto, with approximately 850mcg of vitamin K (as MK-7) per serving, collards, turnip greens, spinach, kale and broccoli are all high in vitamin K⁽⁴⁾.

"Current recommendations are at 1mcg of vitamin K for each kilogram of body weight, for example, if someone weighs 60kg, they would need 60mcg of vitamin K in the day. Vitamin K should be consumed through a varied and balanced diet, with supplementation only being necessary in deficient individuals."

Logan added: "To ensure adequate amounts of vitamin K1 are being consumed, eat a lot of green leafy vegetables. To try and support the conversion of K1 into K2, it would also be helpful to ensure a healthy gut flora by consuming fermented foods. Certain fermented foods can also provide a good dietary source of vitamin K2, including sauerkraut, fermented soya beans, brie and gouda. Although yogurt and kefir are good for supporting a healthy gut flora, they apparently do not contain the correct bacteria for K2, so could not be used as a dietary source of this vitamin.





"The best way of getting vitamin K2 into the diet is to include Natto – nattō is a traditional Japanese food made from soybeans fermented with *Bacillus subtilis* var. natto. This is a delicacy in Japan and can provide a full week's vitamin K2 in a single serving. However, it has a very powerful smell and flavour, so is not agreeable to many western palates. Just for comparison and to be clear on why so many people are deficient in this vitamin, Natto provides 775mcg per 100g. Beef will provide only 45mcg in 8.8 pounds of meat, whilst to obtain 45mcg from milk we would need to drink five litres a day. The best way therefore to ensure optimal K2, is to take a daily supplement."

And bear in mind vitamin K2 is also powerful when combined with others.

Pardo pointed out: "Vitamin D and vitamin K2 also work together to produce and activate Matrix GLA Protein (MGP), an important substance found around the elastic fibres of your arterial lining. MGP helps to protect against the formation of calcium crystals, which can lead to arterial calcification. It's currently thought that supplementing with vitamin D and K2 together may help slow the progression of arterial calcification, whereas vitamin D on its own may not."

IN CLINIC PROTOCOL

When ascertaining if a client is vitamin K deficient, there are some recommendations to follow.

"A lot of the problems associated with low levels of vitamin K2 are 'silent' diseases, in that there are very few symptoms, before a problem has developed. So, people with osteoporosis won't often discover the problem until they have broken a bone. Similarly, hardening of the arteries only really becomes apparent once the problem has developed," Logan explained.

"However, as low levels of vitamin K1 will lead to low

vitamin K2, it is sensible to look out for symptoms which indicate low vitamin K1, such as bruising or bleeding. As good bacteria are also necessary for this conversion, look out for symptoms of gut dysbiosis. Additionally, it would be safe to assume that post-menopausal women will have a need for additional K2, as will most children and anyone with osteoporosis, those with a lot of dental cavities and people with cardiovascular disease.

"There is also evidence emerging that vitamin K2 may play a role in the development of memory issues (due to its impact on the build-up of plaque), so anyone concerned about brain function could also be candidates for supplementation."

Pardo added: "Signs of vitamin K2 deficiency may include easy bruising, excessive bleeding from wounds or surgical sites, heavy menstrual periods, weakened bones and tooth decay."

Makolli continued: "Vitamin K deficiency should be diagnosed by a health care professional as blood coagulation studies are used to confirm diagnosis and some professionals use serum vitamin level to diagnose vitamin K deficiency. The most common manifestation is bleeding as individuals who are deficient in vitamin K tend to bruise easily and mucosal bleeding occurs, blood may ooze from sites or incisions. In children, especially newborns, intracranial bleeding may occur but this specific deficiency should also be diagnosed by a health care professional."

Be aware when recommending a vitamin K supplement to clients.

"There are many factors to take into consideration when choosing a vitamin K supplement as vitamin K is present in most multivitamin supplements and is in a lower dose. Vitamin K is also available as an individual supplement or combined with other nutrients, which will give a higher dose of vitamin K usually," Makolli explained.

"There are several forms of vitamin K supplementation, including vitamin K1 as either phyloquinone or phytionadion (both synthetic forms of vitamin K1) and vitamin K2 as MK-4 or MK-7. Not much literature exist on the relative bioavailability of the various forms of vitamin K supplements, with a few studies showing that MK-7 supplementation is well absorbed⁽⁵⁾. It's always beneficial to see where the source of vitamin K derives from as many will use synthetic forms, whilst only a few brands will use wholefood-based forms from fermented Natto in the form of MK-7."

Pardo continued: "As vitamin K2 is more difficult to obtain from the diet, supplementation with a K2 supplement may be advisable, particularly in the MK-7 form, which is naturally present in fermented foods, such as natto (fermented soy beans)."

Logan also recommended checking the form of the supplement.

"MK-7 has been identified as one of the most effective forms of K2, so ensure that any supplements contain this, rather than other forms. Secondly, the MK-7 should be naturally sourced, via fermentation, to ensure optimal bioavailability. Some Vitamin K2 supplements are synthetic forms – check with any supplier before buying," she explained.

"Finally, the people who are doing all the research into K2 are Nattopharma, which produce MenaQ7, a natural, patented MK7 vitamin K2. It is this specific form which has been used in many of the positive clinical trials and they have just received a European grant to further fund their research, as their results are deemed so important. Therefore, using supplements containing MenaQ7 would ensure that the client is receiving the product on which all the research has been done. The minimum amount for a supplement is 45mcg and 180mcg is the optimal amount to take daily for full clinical benefits."⁽¹⁰⁾ ●

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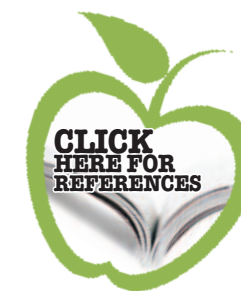


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BetterYou™

EXPERT ADVICE

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



Q

Every year in January, clients feel motivated to tackle my weight issue, but despite eating healthily and exercising on a regular basis, they struggle to lose weight. What can I recommend this year that will make a difference?

NICKY ESTER EXPLAINED: On a positive note, you are not alone in this situation. There are many people who despite 'doing' everything right still struggle to lose weight and in some instances even gain it. More and more people are beginning to appreciate that losing weight is not a simple case of eating a low calorie diet and leaving the rest to exercise. The body is a complex organism, everything is interconnected and like any symptom, it is necessary to identify the underlying cause.

The adrenal glands are a good example of this complex interplay, where a disruption in hormones has a direct impact on energy, but can also impact other body systems, for example, weight gain and sleep quality. This cascade occurs as the adrenal glands do not sit in isolation, positioned as they are in the Hypothalamic, Pituitary, Adrenal (HPA) axis.

Put simply, the adrenals secrete a hormone called cortisol, which rises and falls throughout the day, helping us to be

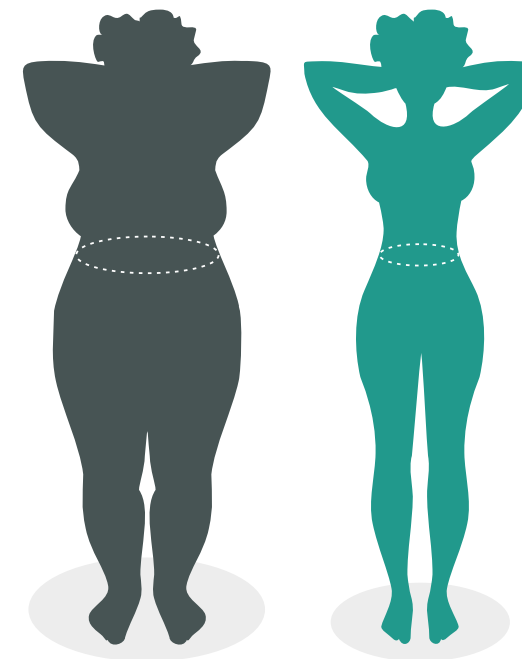
energetic during the day and sleepy at night. If the adrenals experience chronic stress, the hormones they secrete can become disrupted and it is this disruption which negatively impacts the HPA axis.

What is interesting is that studies have also shown that the HPA axis is hyperactive in people who suffer with obesity. In addition to this, when you look at some of the most common methods used to facilitate weight loss, calorie restriction and exercise, research shows us that these can negatively impact cortisol secretion.

Restricting calories, for example, has been shown to increase total cortisol output, as has moderate to high exercise. If the adrenal glands are already experiencing chronic stress, these activities could unwittingly exacerbate the situation, rather than help improving to encourage weight loss. In part, this will relate to how the direct impact this rise in cortisol will have on the HPA axis and why adrenal support should be considered as an important role in helping to support

long-term weight management. This is true even for individuals who may not necessarily 'feel' stressed.

Based on the above, I would, therefore, advise you to support the adrenal glands by identifying how cortisol secretions vary throughout the day. It is possible that this could play a role in why a client is finding it difficult to lose weight and putting in place specific dietary, supplement and lifestyle recommendations, they will hopefully find that this year you are able to achieve your ideal weight.



CLICK FOR MORE QUESTIONS



THE EXPERT



NICKY ESTER MSc DnMed RNutr has over 10 years of experience in clinical practice, during which she worked for Erica White for three years before setting up her own clinical practice. During this time, she also taught as a clinical tutor at Premier Training International and joined Cambridge Nutritional Sciences as a nutritionist in 2012.



THE EXPERT



WENDY RICHARDS is a Certified Practitioner in practice and principles of the blood type diet. She is also a Fellow of the Institute Of Human Individuality (MIFHI). She represents SWAMI, for the ultimate in personalised nutrition or people who are still battling chronic conditions and has been involved in the health and fitness industry for more than 20 years, and is passionate about the use of nutrition in the prevention and treatment of disease and enhancement of longevity.

Q

Can you offer me some advice on understanding personalised nutrition through blood type and epigenetics?

WENDY RICHARDS SUGGESTED: Blood type is the key to how we should eat, as well as the key to how we should live. This is a provocative statement that has gained validity with the rapid progress of genetic research and the study of blood type's cellular influence in every area of human physiology. A one-size-fits-all approach to nutrition does not work.

Food fads come and go, but the facts are clear; everyone does not have the same basic nutritional needs. Your blood type affects more than just the type of blood you'd need in the event of a transfusion – your blood type is a genetic factor that plays many roles in the human body. Choosing low-lectin, non-agglutinating foods that create a hospitable environment for your 'good' intestinal flora and selecting foods that combat your disease risks are two good first steps in creating an individualised nutritional program.

Your blood type antigens are not just in your blood.

They are everywhere in your body, particularly in the surfaces that interact with the environment. These include your digestive tract, from your mouth to your large intestine, as well as your nasal passages and lungs. Because these blood type antigens are everywhere, they influence how your body reacts to the food you eat through several factors.

And there is the importance of secretor status. A secretor is defined as a person who secretes their blood type antigens into body fluids and secretions like the saliva in your mouth, the mucus in your digestive tract and respiratory cavities, etc. A non-secretor puts little to none of their blood type into these same fluids. Being a non-secretor does appear to be a potential health disadvantage. At a very basic level, being able to secrete blood type into your saliva, mucus, etc. allows for an added degree of protection against the environment, particularly with respect to

microorganisms and lectins.

Nutrigenomics is the new buzzword in nutrition. It is the science of individuality, the realisation that we can no longer recommend the same diet and supplement regime to whole populations.

Current research is at last catching up and recognising the fact we are indeed unique individuals. I trained, along with many other health practitioners and Medical Doctors, with Dr D'Adamo and I am passionate about his work because clinically it works so well. I have used his protocols as a backbone to the way in which I have treated my clients with immense success. I also use the individualised range of supplements, protein powders, protein bars and teas. These are the only supplement range designed to be right for individual genetic types. My aim is to teach people how to maximise their chances of living a long, healthy, happy, active life using individualised nutrition and lifestyle advice.

CLICK FOR MORE QUESTIONS





Can you advise me of the best protocol to follow when handling cases of interstitial cystitis?

ANNA SAWKINS RECOMMENDED: Interstitial cystitis (IC) is a chronic condition, where the bladder is inflamed, causing recurrent pain and increasing the urgency and frequency of urination. Pain can be experienced in the pelvic area, perineal area or in the urethra. IC pain may increase during sexual intercourse, during urination or during menstruation.

It has long been considered that IC is not caused by bacteria. However, more recently, it is beginning to be recognised that standard urine testing may fail to show up low grade infections, so it is always worth seeking regular tests to see whether the IC is non-bacterial or not.

What do we know from current research about IC? Women are much more likely to experience this (they form 90 per cent of reported cases) and that certain conditions that increase the likelihood include:

- Fibromyalgia
- Endometriosis
- Irritable Bowel Syndrome
- Rheumatoid Arthritis
- Chronic pelvic pain
- Recent pelvic surgery
- Urinary stones
- Recurrent Urinary Tract Infections
- Vulvodynia
- Migraine
- Depression
- Anxiety
- Reduced oestrogen

Whilst there are a number of pharmaceutical and

surgical treatments for IC, patients are increasingly searching for a more natural approach to managing IC. A frequently used food supplement is D-Mannose. Look for a well-respected brand that contains pure D-Mannose with no cranberry (acidity is a reported irritant). D-Mannose is non-harmful and does not cause any known interactions with any other medications. Customers experience benefit from D-Mannose very quickly in terms of pain and symptom reduction. For long-term IC issues, you may need to continue to take D-Mannose for longer.

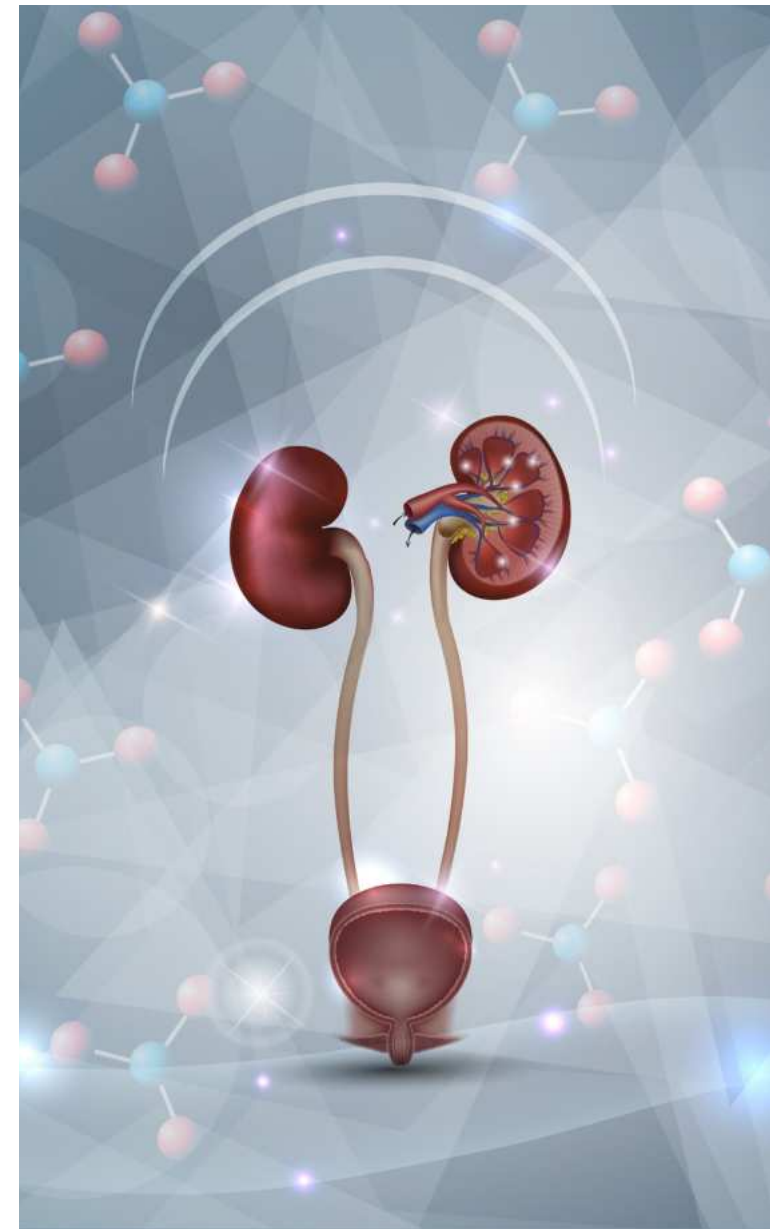
The following extract is from a six month clinical trial of D-Mannose, this part directly concerning sufferers of interstitial cystitis: Abstracted from a study by Michael Blue, M.D., Urologist (Norman, OK).

"Those females who were not confirmed by culture to have bacterial UTI but had UTI-associated symptoms were classified into a painful-bladder-syndrome (PBS) group. Of the 18 PBS females who were treated daily with D-Mannose, 17 (94 per cent) reported symptom improvement. Eighty per cent became totally symptom free."

THE EXPERT



Anna Sawkins is passionate about naturally safe, plant-based products, produced without potentially harmful excipients. She is the founder and Managing Director of Sweet Cures, which has specialised in healthy and essential sugars, such as D-Mannose, D- Ribose, L-Arabinose, and D-Xylose.





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ESSENTIAL CHROMIUM



Nutritional Therapist,
Hannah Braye,
examines the essential
role that chromium plays
in so many areas of
our health.

24
Cr
chromium
51.996





Chromium (Cr) is an essential trace element. Although its mechanisms of action in the body and the amounts needed for optimal health are not fully defined, it is best known for its role in blood glucose regulation and carbohydrate and lipid metabolism. As such, it is an increasingly popular addition to many weight loss protocols.

There are a number of complex contributing factors to the pathophysiology of obesity, not solely related to over consumption and lack of exercise. Whilst as Nutritional Therapists, we understand there is no one wonder ingredient that will magically help shed weight, used as part of a multi-faceted approach, research indicates that chromium may be a useful tool for weight management, and may also have therapeutic benefits in a number of conditions related to impaired glucose tolerance and insulin resistance.

MAINTENANCE OF BLOOD GLUCOSE LEVELS

One characteristic of chromium deficiency is impaired glucose tolerance, which can induce a diabetic-like state that appears to be improved by chromium supplementation.¹ It was initially thought that chromium potentiated the actions of insulin as part of an organic complex, glucose tolerance factor (GTF). More recent studies,² have suggested that chromium may function as part of the oligopeptide 'low-molecular weight chromium' (LMWCr)-binding substance (also known as chromodulin), which is composed of glycine, cysteine, glutamic acid, and aspartic acid.³ It is thought that LMWCr participates as part of an insulin signal amplification system, binding to insulin receptors, potentiating the actions of insulin,⁴ thereby contributing to the maintenance of normal blood glucose levels.⁵

In light of the association of insulin resistance and dysregulated blood glucose levels in the pathogenesis of many diseases, studies indicate that chromium may be of



therapeutic benefit in a number of conditions:

■ **Type 2 diabetes:** For many years, researchers have studied the effects of chromium supplements for type 2 diabetes. Whilst some clinical studies have found no benefit, others report that chromium supplements may reduce blood sugar levels, as well as the amount of insulin people with diabetes need. For example, daily chromium supplementation appeared to significantly decrease both fasting plasma glucose (FPG) and glycated haemoglobin (HbA1c) in diabetes sufferers, with a reversion to pre-intervention values once supplementation was withdrawn.⁶ As chromium may lower blood glucose levels, people with diabetes already taking blood glucose lowering medications are advised to supplement with chromium under supervision of a health care practitioner, to avoid the theoretical risk of hypoglycaemia.

■ **Poly-Cystic Ovarian Syndrome (PCOS):** PCOS is associated with insulin resistance and a number of studies indicate chromium may be useful in the condition to increase insulin sensitivity and stimulate ovulation.⁷ A recent systematic review and meta-analysis also concluded that chromium picolinate supplementation may have beneficial effects on decreasing BMI, fasting insulin and free testosterone in PCOS.⁸

■ **Heart blood pressure:** Animal studies suggest that chromium may help lower blood pressure. One study found that niacin bound chromium supplementation lowered sugar-induced high blood pressure in rats via increased sensitivity to insulin and decreased activity of the renin-angiotensin system.⁹ Further studies are required to assess whether these effects can be replicated in humans.

■ **Lipid metabolism:** Impaired glucose tolerance is associated with adverse changes in lipid profiles and increased cardiovascular disease (CVD) risk. Clinical studies about whether chromium can lower cholesterol have been mixed but do show promise. For example, one found that a combination of chromium picolinate and biotin reduced artherogenic index of plasma (AIP), improved LDL to HDL ratios and improved correlated CVD risk factors in people with type 2 diabetes.¹⁰

“Research indicates that chromium may be a useful tool for weight management, and may also have therapeutic benefits in a number of conditions related to impaired glucose tolerance and insulin resistance.”

■ **Body composition:** Improving blood glucose regulation and insulin sensitivity is a key strategy in any weight loss protocol. In addition to regulating glucose metabolism, insulin is also known to affect fat and protein metabolism.¹¹ Again, studies on the use of chromium for weight loss have been mixed, (in part due to failure to adequately control eating habits and other variables across studies). However, a meta-analysis of randomised trials found that for body weight, a significant differential effect was found in favour of chromium picolinate (weighted mean difference 1.1kg).¹² This effect may in part be due to chromium's ability to suppress appetite, in particular,





carbohydrate and fat cravings. One study in adult women demonstrated that chromium picolinate may reduce food intake, hunger levels, and fat cravings, tending to decrease body weight.¹³ In addition, a 2013 study looking at the effects of chromium supplementation on binge eating found that the intervention group reported lower frequency of bingeing episodes and symptoms of depression.¹⁴

One explanation for the lack of consistency across chromium studies is that only individuals with insufficient dietary intake and initial low levels of chromium are likely to observe beneficial effects on clinical markers after supplementation.¹⁵ However, as chromium status is difficult to determine, and plasma may not accurately reflect stored levels, identifying clients most likely to respond may prove difficult.¹⁶ Supplementation on a trial basis, based on case history, is therefore a practical strategy.

WHAT CAN LEAD TO LOW LEVELS OF CHROMIUM?

Absorption of chromium from the intestinal tract is low, ranging from less than 0.4 per cent to 2.5 per cent of the amount consumed.¹⁶ Antioxidants such as vitamins C and E,¹⁷ and vitamin B3 (niacin), have been shown to increase chromium's absorption and potentiate its effects.¹⁸ In addition, the body's chromium content may be reduced under several conditions.

Diets high in simple sugars, infection, acute exercise, pregnancy, lactation, ageing and stressful states increase chromium losses and can lead to depleted levels, especially if dietary chromium intakes are low.¹⁹⁻²⁰⁻¹⁶⁻²¹

FOOD SOURCES

Chromium is widely distributed in the food supply, but most foods provide only small amounts (less than 2mcg per serving).¹⁶ As such, it's estimated that up to 90 per cent of

the population may have low levels (although true deficiency is rare).²² Food sources include whole grains, lean meats, cheeses, certain spices, such as black pepper and thyme and brewer's yeast.²² Broccoli is also a high plant-based source.¹⁵ In contrast, diets high in simple sugars result in increased urinary chromium excretion.²³

SUPPLEMENTATION

The most stable oxidation state of chromium in biological systems is trivalent chromium (Cr3+), which is ubiquitous in nature.²⁴ Man-made hexavalent chromium (Cr6+), on the other hand, is a toxic form that results from industrial pollution.

Trivalent chromium is available as a supplement in several forms, including chromium chloride, chromium nicotinate, chromium picolinate, and high-chromium yeast. These are available as standalone supplements or in combination products. Chromium has been safely used in doses of up to 1000mcg daily for up to six months.¹⁴⁻²⁵ However, most studies use chromium doses in a range of 150-600 mcg per day and supplement doses are typically between 50-200 mcg per day.¹⁶ ●



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.



Garden of Life arrives in the UK

A hugely popular brand in the US, the wholefood supplement brand, **Garden of Life**, has arrived in the UK, and is already proving popular thanks to its advanced formulations.

Many brands that have become integral in the world of nutritional therapy have been founded in response to their own health issues, and this is very much the case when it comes to Garden of Life.

This US brand was founded in 2000 by Jordan Rubin, who was suffering from chronic and debilitating digestive disorders. Doctors were unable to cure his Crohn's disease, so he began a journey to research and source probiotics – and many other fermented and whole food ingredients – in order to restore his own digestive health.

Dawn Jarvis, Senior Director of Nutrition Science and Educational Content, explained: "After he recovered without surgery, he spoke at health food stores to share what he had learned, mostly to help other people with digestive problems. He subsequently wrote books and founded Garden of Life to make the whole food probiotics, and other whole food products that he developed, available to other people."

And now, the company has teamed up with the natural products distributor, Kinetic, which is now distributing the range across the UK.

"Although our products have been available through small independent distributors in the UK for a few years, we recently partnered with Kinetic, which is now our official partner in the UK and Ireland. In November, we launched our first 19 products in the UK – the same formulas as our US products, but labeled with

UK labels to comply with UK regulations," Dawn explained.

And looking ahead, there will be a lot more development since the news broke that Garden of Life has been acquired by Nestlé. This, naturally, will raise some questions among the trade, and is something the company is keen to respond to.

Dawn commented: "We believe that our future partnership with Nestlé through its upcoming acquisition of Atrium Innovations will enable us to continue to grow the Garden of Life brand and help us to bring our clean, organic and non-GMO products to a much wider audience. We are working on some line extensions, including additions to our SPORT line and many other food products. We are also working on some brand new products, while making sure to listen to our customers so that we can meet their needs with clean, organic and healthy options. We are very excited about the opportunities that lay ahead for our brand."

ORGANIC FOCUS

Garden of Life has grown considerably over the years after Jordan sold the company in 2009 to Atrium Innovations, which enabled the company to grow and invest in partnerships with organic farmers.

As a business, Garden of Life worked hard to become the number one brand of Certified USDA Organic and non-GMO Project Verified dietary supplements, and subsequently, became





the top brand of dietary supplements in the natural products industry in the U.S.

Dawn continued: "In 2014, Atrium was acquired by Permira. Permira fully supported Garden of Life's mission of Empowering Extraordinary Health and enabled the company to grow. Today, Garden of Life has a total of 263 employees in the U.S., of which 141 are based at our corporate headquarters in Palm Beach Gardens, Florida, and 122 work remotely around the country. We also have two distribution facilities; one designated to the West Coast and one to the East Coast."

"We have three key principles that we follow when sourcing new ingredients for our products; they must come from real whole food, be Certified USDA Organic and Non-GMO Project Verified. Only when an ingredient has all three attributes will we consider using it in one of our organic products."

As a brand, there are a number of USPs, and this is down to its commitment and dedication to produce the cleanest whole food ingredients possible.

"We have shown our commitment to 'dual certified' ingredients, which means both Certified USDA Organic and Non-GMO Project Verified by third party certifiers. We partner closely with our farmers, across the US and globally, to build a supply

chain for each ingredient," Dawn explained.

"This enables us to maintain traceability of our ingredients from the seeds in the ground, through every step of our supply chain, all the way through to the finished product in the bottle. Additionally, we have a Product Development and Science Team, which works alongside outside scientists, farmers and researchers to provide the most up-to-date, clinically researched ingredients that are supported by Peer Reviewed Science."

There is currently a large range in the US, with 324 products, plus a very extensive R&D portfolio over the next three years.

But what is coming up in terms of NPD, and what does the company look for when launching something new?

"We have three key principles that we follow when sourcing new ingredients for our products; they must come from real whole food, be Certified USDA Organic and Non-GMO Project Verified. Only when an ingredient has all three attributes will we consider using it in one of our organic products," Dawn explained.

"Our formulas are created by our experienced Product Development Team, which partners with other scientists and experts to create innovative formulas based on peer reviewed science. Another major factor for us is the building of the

supply chain so that we can supply demand. Some of our products have over 30 whole food ingredients, so this means that we have to build a sustainable supply chain for these ingredients to meet growing demand over the future years."

QUALITY FOCUS

As Nutritional Therapists, quality in terms of products that you may be recommending is crucial, so what does Garden of Life offer in that respect?

Dawn explained that control over its supply chain is one area it can take pride in.

"By knowing our farmers personally and working closely with them, we can ensure the quality of our organic ingredients right from the start. Then, we have to make sure that the organic ingredients are handled correctly and not processed with chemicals throughout the entire supply chain," Dawn explained.

"Our hands-on approach means that we audit all our facilities ourselves, as well as being GMP audited. We require traceability at every step. Our products are not only tested by independent labs to make sure that they meet all our required specifications for quality testing, both for raw material and finished products, but they are also inspected and tested by





third party certifiers. Basically, any brand can claim whatever they like on their label, but without third-party certification, it is not guaranteed clean. Having an independent, third party certifier test the product and validate it is imperative for the consumer because it gives them a guarantee that the information is accurate."

In terms of manufacture, most of the products are either produced by its sister companies that are owned by the parent company, where Garden of Life can mandate its requirements, or they are produced by companies that it has close relationships with and where it can specify its unique production needs.

"Our nutritionists and educators work closely with nutritionists and other health practitioners in the field to provide them with detailed product training, nutrition articles about our products, relevant research, and additional tools they need to help their clients."

"Just like with our farmers, we also partner closely with our manufacturers to develop the best and cleanest way to produce our products. A great example of this is how we pioneered Clean Tablet Technology for our mykind Organics vitamins by working with a manufacturing company to make tablets for us only using food ingredients and not using the standard list of chemicals used by the rest of our industry," Dawn explained.

BUILDING THE UK MARKET

After a number of years building the brand in the US, it was felt the time was right to launch the brand in the UK.

"We did our research and spoke with all the key retailers in the UK and learned that Kinetic had the best reputation, and it also had the capacity to handle our brand. It is a professional



company, with a team of credentialed nutritionists, who understand our products and our diligence to sourcing and formulation," Dawn said.

"They also believe in educating their customers, and they share our passion for clean, certified organic whole foods. We believe they can do our products justice in the UK."

In the UK, practitioners will be an important part of the business, with Dawn explaining: "Garden of Life has always been dedicated to education and we spend a large amount of time educating our own staff, our retailers and our consumers. Our nutritionists and educators work closely with nutritionists and other health practitioners in the field to provide them with

detailed product training, nutrition articles about our products, relevant research, and additional tools they need to help their clients."

As a business, there is a lot of expertise in the business, across various departments, including Science, Product Development, Regulatory, Quality and Supply Chain.

"Also, we are able to collaborate with outside scientists in our sister companies, which employ many practitioners and scientists. We also work with independent scientists and researchers, including our long-term partnership with Innovative Scientific Solutions (ISS). In total, we have access to 17 PhDs," Dawn said. ●

CPD DIRECTORY

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

BANT Supervision Group

January 8 – York

January 9 – Birmingham

January 31 – Manchester

February 26 – York

February 27 – Birmingham

CPD hours: BANT 2.5 hours

Speakers: Dalbinder Bains

Cost: £30

Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Dalbinder_Bains

BANT Supervision Group

January 18 – Totnes

CPD hours: BANT two hours

Speakers: Elizabeth Bray

Cost: £30

Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Elizabeth_Bray

BANT Online Supervision Group

January 22 – online

CPD hours: BANT two hours

Speakers: Carmel Buckley

Cost: £30

Website: bant.org.uk/members-area/bant-supervision/meet-the-supervisors/#Carmel_Buckley

Forthcoming webinars...

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



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Pain & Inflammation – Effective Integrative Management



Presented by Philip Rouchotas, MSc, ND

Tuesday, January 30, 6.30pm-7.30pm

A large number of common health concerns fall under the umbrella term autoimmune disease, and their prevalence is on the rise across all ages of our population. Some common ailments sharing autoimmunity as their cause include arthritis, asthma, allergy, inflammatory bowel disease, skin ailments, such as acne, eczema, and psoriasis, and even chronic headache. An anti-inflammatory diet is key in managing these common concerns, and often delivers large and important magnitudes of benefit. A selection of natural health products are also key in quelling inflammation and re-establishing immunological tolerance to common substances in our environment that drive autoimmunity.

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





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Equipment: baking tray

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INGREDIENTS:

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- 30g spelt flour
- 30g milk
- Active sweet starter (see page 184)

METHOD:

1 Add the sugar, flour and milk to the whole quantity of active sweet starter and leave loosely covered overnight at room temperature.



Nutrition note: These biscuits may look like and taste like a Ben's cookie, but because the core ingredients have been fermented and they have no refined sugar, their GI levels are much lower than that of a shop bought version, which can contain additives and preservatives.

Day 2

INGREDIENTS:

- 90g recipe starter made on day 1
- 50g coconut oil, melted and cooled
- 75g coconut sugar
- 1tsp vanilla extract
- 65g ground almonds
- 50g spelt flour
- 50g coconut sugar, sweetened
- Chocolate or your favourite healthy chocolate, chopped into chunks
- ½ tsp bicarbonate of soda

METHOD:

- 1 Preheat the oven to 200°C/fan 180°C/ gas mark 6 and line a baking tray with baking parchment.
- 2 In a large bowl, mix, the recipe starter with the coconut oil, coconut sugar and vanilla extract.
- 3 In another bowl combine the ground almonds, flour, chocolate chips and bicarbonate of soda.
- 4 Add the flour mix to the starter mix and stir well. The mixture should have the consistency of a loose dough.
- 5 Place eight tablespoon-sized balls of the dough onto the baking sheet. Leave plenty of room between them as they will spread during baking.
- 6 Bake for 12-15 minutes. The biscuits should be crisp around the edges but still soft in the middle. Allow to cool on the baking tray then store in an airtight container for up to five days.

Tahini and olive oil bars



Multi-seed sourdough





Multi-seed sourdough

This is the most popular loaf at the bakery. It has a devoted following among regular customers – one family buys 10 at a time for their freezer – and the most frequent first loaf for new customers. It is earthy and honest with primal qualities, no doubt the second leavened bread made by man. Under any analysis, made with well-sourced ingredients, this loaf is as healthy as it gets, with the seeds providing a protein hit as well as extra fibre and layers of extra flavours. Yet despite all this goodness and history, it's still an everyday loaf that every member of your family will enjoy.

Day 1

INGREDIENTS:

- 50g strong white flour
- 50g water, at hand warm temp (32-37°C)
- Active wheat starter (see page 41)
- 35g sunflower seeds
- 35g pumpkin seeds
- 35g golden flaxseeds
- 15g sesame seeds
- 335g water

METHOD:

- 1 Mix the flour and water with the whole quantity of the starter and leave loosely covered at room temperature overnight.
- 2 Soak the seeds in the water and leave at room temperature overnight.



Multi-seed sourdough

Day 2

INGREDIENTS:

- 100g recipe starter made on day 1
- Water and seed mix from day 1
- 335g strong white flour
- 40g rye flour
- 8g salt
- Extra seeds for topping



Nutrition note: We soak the seeds for a couple of reasons. The first is to do with the bread-making process. If you don't soak the seeds, they will absorb water from the dough, resulting in a drier dough and a heavier texture in the bread. So soaking the seeds guarantees a much more consistent loaf. The other benefit is that you activate them, which makes them release additional nutrients so that they are easier for your body to absorb.

METHOD:

- 1 In a large bowl, combine the recipe starter with the water and seeds and mix gently.
- 2 In another bowl combine the two flours and the salt.
- 3 Add the flour mix to the first bowl and mix using one hand until a dough forms. This takes only a couple of minutes. It's a good idea to use only one hand, leaving the other one clean for using utensils, etc. Use a plastic dough scraper around the bowl to make sure all the flour is mixed in. Cover the bowl with a shower cap or damp tea towel and leave it to rest at room temperature.
- 4 After five-10 minutes, give the dough a fold in the bowl. Use slightly wet hands to prevent the dough sticking to them. Pull a section of the dough out to the side and fold it into the middle of the ball. Repeat this going around the ball of dough until you get back to the beginning (four or five folds). Use the scraper to turn the dough upside down, cover the bowl and leave for another five-10 minutes. Repeat this three times. After the final fold, cover the bowl again and leave to rest for one hour at room temperature.
- 5 Turn the dough out of the bowl onto a lightly floured surface. Stretch out one side of the dough and fold it into the middle. Repeat this with each of the four 'sides' of the dough. Put the dough back in the bowl upside down and leave to rest for another hour at room temperature.
- 6 Shaping a round loaf: Once the dough has rested, turn it out onto a lightly floured surface. Stretch one side of the dough out and fold it into the middle. Repeat this all around the outside of the dough until you get back to your starting point. Flip it so the seam side is facing down. Use your left hand to hold the dough in place and use your right hand to rotate the dough, tucking it under and tightening it as you go around (if you are left-handed, you might want to use your right hand to stabilise and your left hand to rotate). The idea here is to increase the strength of the dough without tearing it. The final surface of the dough should be taut to the touch.
- 7 Put the remaining seeds in a bowl. Brush the top of the dough with water and dunk it in the seeds so that they are evenly spread over the top. Place the dough so that the seam is facing up and the seeds face down in a round proving basket. There is no need to flour the basket as the layer of seeds will

prevent the dough from sticking.

8 In the bakery at this point, we put the dough in our cool retarder cabinet for it to prove slowly overnight. This helps it to develop more flavour and become even healthier as it 'pre-digests' more of the gluten and ferments even more probiotic qualities. Your version of our retarder is your fridge – and you can leave the proving basket in it overnight, covered with the tea towel or shower cap. Take it out as you are heating the oven. It's fine for it to go in cold. However, if you would prefer to speed things up a little, you can leave the dough in a warm place (ideally 24°C) until it has more or less doubled in size. This should take two to four hours. To test when the dough has proved enough, press your finger about 2-3cm into it, then remove. If the dough pushes back out slowly it is ready. If it springs back quickly, it is under proved; if it doesn't spring back at all, it is over proved. There isn't much you can do about that. The bread will be edible, but more liable to collapse.

9 Preheat the oven to 250°C/fan 240°C/Gas mark 10 or the highest temperature on your oven. Place a roasting dish in the bottom of the oven to heat up. Fill a cup with water and place to one side ready to use. Also put a flat baking tray in the oven to heat up.

10 When the oven is up to temperature, take the hot baking tray out, lightly dust it with flour and then turn the dough from the proving basket out onto the tray. Slash the dough with a sharp knife. Make sure that when you slash, you use one quick, smooth action, do not saw at the dough. This will give you a much cleaner line. In the bakery, we use a single diagonal slash down the loaf, but there are endless variations you could use.

11 Place the baking tray in the oven and pour the glass of water into the preheated roasting dish at the bottom of the oven. The moisture from this makes the dough lighter, helps to set the crust and gives it a lovely sheen.

12 Turn the temperature down to 240°C/fan 220°C/Gas mark 9 and bake for approximately 30 minutes. To check if the bread is baked through, tap the bottom – it should sound hollow.

13 Leave the bread to cool for at least an hour before eating. If you eat it when it's still hot, it will not have settled and so will be more difficult to digest.

Chocolate chip
sourdough cookies



Tahini and olive
oil bars





Tahini and olive oil oat bars

We return here to one of our favourite baking combinations, tahini and olive oil. We sometimes throw in a small handful of goji berries or anything else we want to try out. If you're anything like us, you won't be able to resist buying new ingredients you come across. The sweetness comes from the deep, rich flavour of maple syrup. And the quinoa, ground almonds and sesame seeds enhance the nuttiness.

INGREDIENTS:

- 150g light tahini
- 150ml olive oil
- 100g maple syrup
- 1tsp vanilla extract
- 100g cooked quinoa
- 165g oats
- 50g ground almonds
- 50g sesame seeds, plus extra for topping pinch of salt

METHOD:

- 1 Preheat the oven to 200°C/fan 180°C/Gas mark 6 and line a 26cm x 20cm brownie tray with baking parchment.
- 2 In a bowl, mix together the tahini, olive oil, maple syrup and vanilla extract.
- 3 In another bowl, combine the cooked quinoa, oats, ground almonds, sesame seeds and salt.
- 4 Add the tahini mix to the oat mix and thoroughly combine.
- 5 Pour the mixture into the tin, pack it down really well and sprinkle with sesame seeds.
- 6 Bake for 30 minutes until an even golden brown all over. Allow to cool in the tin and once completely cool, turn out onto a chopping board and cut into eight bars.



Nutrition note: Tahini is a great nutrient powerhouse for vegans as it contains calcium, zinc and iron, which are all nutrients that can be hard to get hold of in a vegan diet.

Modern Baker by Melissa Sharp with Lindsay Stark is out now in hardback (Ebury Press, RRP £26),



Chocolate chip
sourdough cookies



Multi-seed
sourdough



I-Mag giveaways

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



NUTRI ADVANCED VITAMIN D3 DROPS WITH K2

The delicious orange flavoured Vitamin D3 Drops with Vitamin K2 are an easy way to ensure you're getting the full benefits of vitamin D, with each serving (three drops) providing you with 1000iu of vitamin D3, as well as 45µg of vitamin K2. Vitamin K contributes to the maintenance of normal bones, working with vitamin D3 to ensure that calcium is not only absorbed, but sent to our bones where we need it the most.

🍏 **I-Win:** We have five 30ml bottles to give away.



NUCLEOTIDE NUTRITION NUTRI-TIDENT

The IHCAN award-winning food supplement, Nutri-tide NT, developed purely for health professionals, harnesses the power of nucleotides. This quality tested product contains therapeutic levels of these breakthrough micronutrients in the form of the sophisticated and balanced Nutri-tide IM nucleotide blend, delivering a high concentration of purified, soluble and balanced pyrimidine and purine nucleotides to support the natural proliferation of cells integral to the digestive tract and immune system.

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



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🍏 **I-Win:** We have 25 to give away.

FAT AROUND THE MIDDLE, BY DR MARILYN GLENVILLE PHD



If you are one of the many women who are apple shaped or 'Fat Around the Middle' then help is at hand. This groundbreaking book reveals – for the very first time – the secret of why fat builds up around your middle and gives

you a practical action plan showing how you can get rid of that bulge once and for all. Dr Marilyn Glenville PhD, the UK's leading nutritionist specialising in women's health, gives you all the tools you need to lose that 'Fat Around the Middle' – for good. Inside you will discover a simple, easy-to-follow, three-month 'lose-your-belly' plan, why you are fat around the middle (and no it's not just down to diet), how to stop the stress hormones, adrenaline and cortisol, from storing fat around your waist, foods to eat – and foods to avoid – for a trim tummy and vitamins and minerals you can take to change your body shape faster, among others.

🍏 **I-Win:** We have 10 to give away.

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