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# Welcome



elcome to the September/October issue of *Nutrition I-Mag* and one that brings with it news of what is described as "breakthrough research" when it comes to pregnancy and miscarriage.

Described by those who carried out the research at the Victor Chang Institute as the most significant discovery in pregnancy research, suggesting that this will change the way pregnant women are cared for around the

world, it has certainly garnered much attention among both the specialist media and the mainstream press.

Research is, of course, one of the cornerstones of this industry, and it is times like this – similar to the discovery of folic acid and its importance to reduce the risk of neural tube defects – that experts say proves pivotal. Certainly, it is the belief of the researchers in this study, who say it will change the approach of pregnancy for women globally.

Turn to page 7 for the full story, and we would love to hear your views

about the research and its impact. Head over to our Twitter page @nutritionimag to have your say.

Research is also critical among many of the brands you may recommend as you move into practice, and in this issue, we hear from Protexin, a company that prides itself on making huge investment in the field of research, specifically with regard to digestive health, and we hear from them in this issue.

We also bring you a selection of Danish inspired recipes, offer the latest news when it comes to nutritional advances in support of the macula, and offer expert advice on everything from immune support and superfoods to our vitamin D requirements – all in all, a pretty packed issue.

Kachel

**RACHEL SYMONDS, EDITOR** 



BANT

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The Nutrition I-Mag is published by Target Publishing Limited, the leading publisher and conference organiser serving the natural, complementary health markets, as well as the leisure, education, sport and eco markets. www.targetpublishing.com ISSN 2049-4017



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# **OUR CONTRIBUTORS**

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



#### Isabelle Nunn

Isabelle Nunn, MPHARM (Hons) Dip NT is a qualified Nutritional Therapist and Pharmacist, providing expert advice at leading natural products distributor Kinetic Enterprises as Technical and Commercial Nutritionist. Passionate about nutrition, health and disease prevention, Isabelle believes in using a holistic approach to improve your overall wellbeing.



#### Martina Della Vedova

Martina Della Vedova MSc is a Nutritional Therapist, who graduated in Functional Genomics in Italy and obtained a Masters Degree in Genetics in Paris. She then developed a passion towards nutrition and in London, she qualified as a Nutritional Therapist. She is a member of BANT, is CNHC registered and is a Nutritional Advisor at Nature's Plus UK.



#### Natalie Lamb

Natalie Lamb Dip NT mBANT is a qualified Nutritional Therapist who studied a three-year diploma in Nutritional Therapy at the College of Naturopathic Medicine (CNM) and is a member of The British Association of Nutritional Therapists (BANT). Natalie saw clients in a private clinic in London for two years before joining Probiotics International (Protexin), manufacturers of 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.



#### Dr Elisabeth Philipps

Dr Elisabeth Philipps DPhil BSc (Hons) BSc Nut Med FNTP is a renowned nutritional consultant and experienced speaker. She has years of clinical experience running her own private practice, alongside managing practitioner training for Nutrigold and delivering corporate client wellbeing programmes around the country.



#### Rosalie Zieck

Rosalie Zieck is studying for her Master's degree in Pharmacy at the University of Utrecht, The Netherlands. For Springfield, she writes scientific articles and conducts literature studies to support new product development.





# **Biosynthesis**

## There's more to nutrition than nutrients

Nutrients constitute much of the vital energy in the foods we eat and equally, the more diverse and dynamic our diet the greater our potential for health. So the capacity for Nutrition Practice to exert health benefits is indeed profound. However, the modern Practitioner is routinely confronted by clients in an inflammatory, congested state with a lifestyle that does not sufficiently nourish them. To overcome these barriers the Practitioner can intervene with individual or combination supplements.

That being said, bioavailability and biological activity of nutrient combinations is dependent upon a number of factors; simply bombarding a stressed or weakened system can be either over-stimulating or just ineffective. Biosynthesis is the process through which basic nutrients and substrates are enzymatically activated into becoming much more than simply the sum of their parts. It is this process that forms Bionutri's core focus and is what Edward Joy and Sue McGarrigle will describe and unravel in their latest series of talks.

## Edinburgh Tuesday 3rd October 6-9pm

Jurys Inn 43 Jeffrey St, Edinburgh EH1 1DH (close to Waverley rail station) Harrogate Wednesday 4th October 12.30-3.30pm The Crown Hotel, Crown Place, Harrogate HG1 2RZ (10 minutes walk from Harrogate rail station, car parking available)

### Bournemouth Wednesday 11th October 2-5pm

The Orchid Hotel, 34 Gervis Rd, Bournemouth BH1 3DH (parking available) London Saturday 14th October 10am-1pmThe Wesley Hotel 81-103 - Euston Street, London NW1 2EZ (3 minutes from Euston rail station)

Birmingham/Solihull Wednesday 18th October 10am-1pm

Beckett's Farm, Heath Farm, Alcester Rd, Wythall, Birmingham B47 6AJ (Just off junction 3 of the M42, take the A435 north towards Birmingham, continue for 1 mile and turn into Becketts Farm Shop (look for the brown sign) just before the large roundabout)

Taunton Wednesday 1st November 10.30am-1.30pm Exchange House, 12-14 The Crescent, Taunton, Somerset, TA1 4EB (parking available behind Exchange House at The Crescent car park)

### Manchester Wednesday 8th November 6-9pm

Friends Meeting House, 6 Mount St, Manchester M2 5NS (tram stop St. Peters Square). 10 minute walk to First Street Car Park and to nearest train stations Manchester Oxford Road or Deansgate.

Bristol Wednesday 15th November 10am-1pm Penny Brohn UK Chapel Pill Lane, Pill, Bristol BS20 0HH (five minutes from Junction 19 of the M5)

Brighton Tuesday 21st November 6-9pm

Friends Meeting House, Ship St, Brighton BN1 1AF (several car parks nearby)

Maidstone Wednesday 22nd November 10.30am-1.30pm

Hilton Hotel, Bearsted Rd, Maidstone ME14 5AA Junction 7 M20 (Car parking available or nearest rail station Maidstone East and use Park and Ride Service)

Bury St Edmunds Wednesday 29th November 10.30am-1.30pm Best Western Priory Hotel, Mildenhall Rd, Bury St Edmunds IP32 6EH (car parking available or ten minutes walk from Bury St Edmunds Station)

Bionutri lectures will be CPD certificated and they are free of charge. Refreshments provided.

You can register for the event at www.bionutri.co.uk and click onto the secure practitioner section of the website. Or email suem@bionutri.co.uk / call Sue McGarrigle 01905 345235.

# News bites

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

# Government pressed to take action over increasing level of teenage type 2 diabetes

Anational organisation is calling on the Government to do more to support local authorities to curb the rising levels of type 2 diabetes in youngsters.

It has been revealed that more than 600 children and teenagers are being treated for type 2 diabetes, a type normally only seen in adults aged over 40 – and an increase of 14 per cent in a year.

The Local Government Association, which represents more than 370 councils in England and Wales, says the continuing rise in cases of type 2 diabetes in children is "a hugely disturbing trend" and should serve as a reminder of one of the biggest public health challenges the country faces and comes ahead of the first anniversary of the publication of the Government's childhood obesity plan.

According to figures for 2015/16 from the Royal College of Paediatrics and Child Health, 621 children and young people under the age of 25 received care for the condition from Paediatric Diabetes Units in England and Wales, of which 78.5 per cent were also obese. Fifteen children with type 2 were aged between five and nine. This is an increase of 76 on the number for 2014/15.

However, as these figures only relate to those treated in paediatric practice, and not for example, primary care, the actual number of young people is likely to be even higher.

The LGA believes this emphasises the urgency of stepping up efforts to tackle child obesity, with the "devastating consequences" already being seen at an early age. In light of this, it is calling on the Government to reverse cuts to councils' public health budgets of £531m, a reduction of nearly 10 per cent over a fiveyear period, which, it says, has impaired councils' ability to tackle childhood obesity and prevent associated conditions.

Councillor Izzi Seccombe, Chairman of the LGA's Community Wellbeing Board, commented: "Ahead of the first anniversary of the childhood obesity plan, this highlights the need to take urgent action



on this major public health time bomb. It is vital that the measures in the childhood obesity plan improve the health of young people, and can help parents make more informed choices about the eating habits and lifestyles of their children."



# **Recognising excellence**

Now is the time to get your entries in for prestigious IHCAN Awards, sponsored by Solgar.

Created by the team at *IHCAN* magazine, the accolades are designed to recognise practitioners and students who have made a real difference to their community, excelled in their field of work, or have worked hardest in their studies.

Inviting clients, colleagues and fellow students to nominate, the awards are looking for those practitioners and students who have gone the extra mile. They may have helped the local community with free taster sessions, helped set up a local club or nutrition group, or supported fellow students in their studies – whatever the reason, we want to know and reward them for their hard work.

Categories on offer are Outstanding Practice, Outstanding Contribution to the Community, and Student of the Year

Prizes include £250 worth of Solgar products, £250 cash and a winner's certificate. The awards presentation will take place at the 2018 IHCAN Summit. Entries close in April 2018, and nominations and entries can be made at www.ihcan-mag.com/awards

# Action announced to further develop UK's nutrition research offering

New proposals for nutrition research in the UK have been put forward by a coalition of organisations.

The Medical Research Council (MRC) and the National Institute for Health Research (NIHR) have responded to a wide-reaching review of nutrition research in the UK with new proposals, which, it says, is aimed at revolutionising the field.

The Review of Nutrition and Human Health Research, commissioned by the Office of Strategic Coordination for Health Research (OSCHR), was overseen by an expert Review Group and its aims included to ascertain the strengths and weaknesses of nutrition research relevant to human health in the UK, to assess whether the research base was well placed to meet the needs of policy makers and to identify opportunities for further interaction with the food/nutrition science industry, both in the UK and globally. Furthermore, it was designed to consider whether there is sufficient capacity to provide a sustainable future for nutrition research in the UK.

While praising the excellent nutrition research in the UK, the coalition warned that the field was facing a potential crisis as fewer younger scientists entered the field and experienced researchers approached retirement. It noted that while the behavioural/social science aspect of nutrition research remained strong, the basic mechanistic understanding of nutrition research and its translation to healthier food was beginning to fall behind.

In response to the review and after broad discussion, the MRC and NIHR have identified three courses of action to take place immediately, which will be followed with longer-term activities. The three key pillars will be:

■ A UK nutrition and human health research partnership: The MRC and NIHR will establish a UK Human Nutrition Research Partnership comprised of experts from academia, health research and industry to develop and realise an implementation



plan for the review recommendations.

Developing plans for global nutrition research: Global nutrition research has the potential to transform health and wellbeing across the world. Working across the Research Councils, the Department for International Development (DFID) and the Department of Health (DH), through the Global Challenges Research Fund (GCRF), the MRC will launch new funding opportunities to tackle some of these global challenges.
 Working with the food industry: The OSCHR review highlighted that to truly understand the nutrition ecosystem, we must work with all stakeholders, including the food industry – agricultural, retail, food production, packaging etc. Industry must be seen as part of the solution and partnership with the food/ nutrition science industry is vital so that research can lead to healthier products and improved nutritional support.

Professor Chris Day, Vice-Chancellor and President of Newcastle University, who chaired the Review, said: "The UK has a well-earned reputation for its nutrition research but we are in danger of falling behind if we don't consolidate our strengths and build up capacity in key areas. A new nutrition research partnership will identify challenges in the area and then direct resources to meet those challenges. Most importantly, it will inform policy.

"Working more closely with industry partners will provide opportunities to build capacity in the field, enhance the sharing of expertise and resources, and ensure that excellent nutrition science is available to all."

Dr Louise Wood, Director of Science, Research and Evidence at the Department of Health, added: "The UK has a strong history in undertaking high quality and impactful nutrition research and the report highlights the huge potential of building on this for the benefit of the health and wellbeing of the public – both nationally and globally. To realise the potential highlighted in this report, we shall be working with a range of stakeholders and, via NIHR, with other research funders, including industry to take forward the recommendations."

# **Research**

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

# Vitamin B3 birth defects research described as "one of our country's greatest medical discoveries"

A new study that found vitamin B3 could cure molecular deficiencies which cause miscarriages and birth defects could change the way pregnant women are treated, researchers say.

The findings, from the Victor Chang Institute, in Sydney, have been described by researchers as a blockbuster, world first breakthrough, which is expected to prevent miscarriages and multiple types of birth defects in one of the most significant discoveries in pregnancy research.

The research, led by Professor Sally Dunwoodie, from the Victor Chang Institute, has identified a major cause of miscarriages, as well as heart, spinal, kidney and cleft palate problems in newborn babies.

"The ramifications are likely to be huge. This has the potential to significantly reduce the number of miscarriages and birth defects around the world, and I do not use those words lightly," commented Professor Dunwoodie.

The study found that a deficiency in a vital molecule, known as NAD, prevents a baby's organs from developing correctly in the womb. Nicotinamide adenine dinucleotide (NAD) is one of the most important molecules in all living cells and NAD synthesis is essential for energy production, DNA repair and cell communication. Environmental and genetic factors can disrupt its production, which causes a NAD deficiency.

The research found that this deficiency is particularly harmful during a pregnancy as it cripples an embryo when it is forming.

Professor Dunwoodie added: "Now, after 12 years of research, our team has also discovered that this deficiency can be cured and miscarriages and birth defects prevented by taking a common vitamin."

The team discovered that simply boosting levels of vitamin B3, also known as niacin, during pregnancy can prevent miscarriages and birth defects. This is because vitamin B3 is required to make NAD and is typically found in meats and green vegetables, as well as vegemite.

Using a preclinical mouse model, scientists at the Victor Chang Institute investigated the effect of vitamin B3 on developing embryos, finding that before vitamin B3 was introduced into the mother's diet, embryos were either lost through miscarriage or the offspring were born with a range of severe birth defects. After the dietary change, both the miscarriages and birth defects were completely prevented, with all the





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#### offspring born perfectly healthy.

The institute described the discovery as akin to the revolutionary breakthrough made last century that confirmed folic acid supplementation can prevent spina bifida and other neural tube defects in babies.

Executive Director of the Victor Chang Cardiac Research Institute, Professor Robert Graham, commented: "Just like we now use folate to prevent spina bifida, Professor Dunwoodie's research suggests that it is probably best for women to start taking vitamin B3 very early on, even before they become pregnant. This will change the way pregnant women are cared for around the world.

"We believe that this breakthrough will be one of our country's greatest medical discoveries. It's extremely rare to discover the problem and provide a preventive solution at the same time. It's actually a double breakthrough."

The next step will be to develop a diagnostic test to measure NAD levels, which will enable doctors to identify those women who are at greatest risk of having a baby with a birth defect, and ensure they are getting sufficient vitamin B3.

The findings have been published in the *New England Journal of Medicine.* 

In a further statement, the institute added that "under no circumstances do we want to offer false hope to families who have been affected by miscarriage or birth defects. However, our research provides strong evidence that vitamin B3 has the potential to prevent these terrible outcomes in some cases. The Victor Chang Institute would never suggest that this discovery will explain all causes of miscarriage and birth defects".

It added: "It is not known how many cases of miscarriage and birth defects are caused by low levels of NAD. It is also not yet known what dose of vitamin B3 will prevent miscarriage and birth defects. Further research in this important area is underway at the Victor Chang Institute."

## Power of plant-based foods

A new study has highlighted how processing affects fat absorption from plant-based foods.

Preserving the natural structure of plant-based food during processing can limit the amount of fat and energy absorbed by the body, the study, published in the *Journal of Functional Foods* found.

Researchers from the Quadram Institute, King's College London, the University of Surrey and the University of Messina showed that preserving the natural structure of plant-based foods can limit how quickly fats are exposed to digestive enzymes in the stomach, helping to regulate the amount of fat absorbed by the body.

Focusing on almonds, which contain 50 per cent fat, researchers investigated the effects different processing methods had on how almonds are ingested by the body.

Despite being a high fat food, it has been shown previously that eating whole almonds doesn't result in weight gain. Investigating why this might be, the researchers provided a study participant with two almond muffins, one made with almond chunks (2mm) and one made with almond flour, which has much smaller particles (at less than half a millimetre). The muffins were chewed as normal but instead of swallowing, were put into an instrument known as the Dynamic Gastric Model, which accurately mimics the physical and chemical conditions of the human stomach and small bowel, enabling the researchers to calculate how much fat had been released.

After 60 minutes in the model stomach, which is the time calculated for this meal to pass through in humans, over 40 per cent of the total fat content had been released from the muffins made with almond flour, but just under six per cent had been released from the muffins made with larger almond chunks. Samples taken from the simulated small bowel showed that after nine hours of digestion, almost all (97 per cent) of



the fat from the muffin made with flour was released, and only 60 per cent of fat in the muffin made with almond chunks was released.

The researchers concluded that maintaining the structural integrity of the tough cell walls, which form dietary fibre, surrounding the fat-rich cells in almonds was the main factor in determining the digestibility of fats.

Dr Cathrina Edwards, from the Quadram Institute, said: "What we have found is that if the natural plant structure is maintained the level of fat the body absorbs is greatly reduced, helping in weight management and potentially helping to reduce incidences of cardiovascular disease."

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# New to market

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



## NPD WITH PEPPERMINT OIL

New to the range at ingredient supplier, HTC, is a peppermint oil softgel.

With rising demand for the popular supplement, HTC has now introduced it into its standard portfolio, with the high strength 200mg peppermint oil supplements being rapid release softgels and sourced from a GMP and BRC approved manufacturer.

It is one of the strongest anti-spasmodic pain relieving herbs and is particularly beneficial for those who suffer from bloating. Among many other conditions, people use it for flatulence, menstrual pains, diarrhoea, nausea, depressionrelated anxiety, muscle and nerve pain, the common cold, indigestion, and IBS.

# NATURAL PROTECTION

Weleda has developed its range of deodorants with a new pomegranate roll-on.

The new Pomegranate 24h Roll-On Deodorant joins other varieties Citrus and Men, all of which are NATRUE-certified vegan roll-ons suitable for use by those with sensitive skin.

The essential oils and natural ingredients help to neutralise odour-causing bacteria and is formulated with the body's natural processes in mind. They contain no aluminium salts and are formulated with natural liquorice root extract, known for its soothing, antimicrobial properties, and

natural astringent witch hazel distillate, which also helps to calm the skin. They are dermatologically tested and free from antiperspirant ingredients, synthetic fragrances, artificial preservatives and parabens.



# SOURCE OF GOOD HEALTH

Nature's Plus has introduced its new Source of Life Garden range.

The new range is the only ECOCERT ICO and USDA Organic certified range in the UK, as well as being gluten

free, vegan, sugar free and non-GMO.

Products in the range include Vitamin B12, in the active form of methylcobalamin, meaning it can be easily used by the body, and B-Complex, a unique, high-potency, all natural supplement grown from organic whole foods.

Other products in the range include Iron, organically cultivated from the curry plant, with each capsule delivering 18mg of iron for an unmatched nutritional support, Red Yeast Rice, and Curcumin, a maximum strength, fully certified, organic curcumin that delivers 400mg in each capsule.

# PUKKA FOCUSES ON WOMEN'S HEALTH WITH NEW RANGE



A new women's supplements range has been launched by Pukka Herbs to support females at all life stages. The organic producer

of herbal teas and wellbeing supplements has unveiled the new range of 100 per cent natural herbal supplements.

The new range includes Womankind Cranberry Cool (to naturally calm UTIs), Motherkind Pregnancy (to nurture conception and pregnancy) and Womankind Menopause (for natural hormone balance). The new products will join existing supplements Wholistic Shatavari and Womankind (new and improved with the addition of vitamin B).

All of the supplements within the range have one key ingredient in common; shatavari, a renowned tonic for the female reproductive system, helping to balance hormones, enhance fertility, promote conception and reduce menopausal and menstrual symptoms. As an adaptogen (naturally adapting to the needs of the body), shatavari has a regulating effect throughout the body, which is particularly nourishing to a weakened and depleted immune system.

As with all of Pukka's supplements, those in the women's range have been expertly formulated by herbalist and Pukka's Master Herbsmith, Sebastian Pole.







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  - Traveling (exposure to unusual foods)



APPLIED NATURE



For more information on the Solgar<sup>®</sup> product range, speak to your Solgar<sup>®</sup> Territory Account Manager or call 01442 890 355

1. D) Stefano M, Miceli E, Gotti S, Missanelli A, Mazzocchi S, Corazza GR. The effect of oral alpha-galactosidase on intestinal gas production and gas-related symptoms. Digestive diseases and sciences. 2007; 52(1):78-83. 2. https://www.ncbi.nlm.nih.gov/pmc /articles/PMC4340330/. Food supplements should not be used instead of a varied balanced diet and a healthy lifestyle. Solgar' is a registered trademark.

# 🖔 BANT UPDATE

# BANTNEWS SBANT

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

# BANT LONDON AND SOUTH EAST REGIONAL BRANCH MEETING – SUPPORTING FEMALE HEALTH AND HORMONES

At the end of June, nearly 150 BANT members, speakers and exhibitors gathered in London for an inspiring, sell-out BANT London and South East Regional Branch Meeting focusing on female health and hormones.

Support from BANT members for the event was overwhelming; the event sold out within just one and a half hours of being announced and accumulated a wait list of nearly 130 people.

The panel of expert speakers provided attendees with thoughtprovoking presentations on the topic of female health and hormones.

Dr Carrie Jones ND, MPH, currently Medical Director at Precision Analytical, Inc, opened the meeting with a comprehensive review of hormone balance and oestrogen metabolism. Amongst other areas, she highlighted the usefulness of using functional urinary hormone testing alongside targeted nutrigenomic testing to identify specific dietary and lifestyle intervention points to support optimal hormone balance. Thanks to Regenerus Laboratories for sponsoring Carrie's trip from the USA to speak for BANT.

Emma Beswick, Registered Nutritional Therapist, BANT member and founder of Lifecode Gx, delved deeper into the world of nutrigenomics in relation to female health. Emma's presentation focused on the importance of COMT for both hormonal and neurotransmitter balance, and explored the complex interplay between COMT and other genes, including methylation and histamine SNPs. Dawn Waldron, BSc.(Hons), DiplON, PgCert (Personalised Nutrition) specialises in supporting people with metabolic disorders, with a particular focus



on breast cancer. Dawn's inspiring presentation, as a breast cancer survivor herself, discussed 'Beyond BRCA'. Dawn explored specific SNPs that may help to inform nutritional interventions for breast cancer, including SNPs that impact the microbiome, histamine regulation and oestrogen and detoxification pathways.

Dr Lars von Olleschik-Elbheim, our final speaker of the day, has a PhD in medical microbiology and has worked for both pharmaceutical and diagnostics companies. Lars' presentation focused on optimisation of detoxification pathways for hormone balance, with particular emphasis on identifying endocrine disrupters such as heavy metals, mycotoxins and environmental toxins (including DDT). He also highlighted the potential use of a specific zeolite to support detoxification, histamine reduction and gut integrity. Thanks to Nouveau Health/Toxaprevent for flying Dr von Olleschik-Elbheim from Germany to speak with us.

Thank you also to our exhibitors Regenerus, Lifecode Gx, Toxaprevent, myDNAhealth, Lamberts, Amrita Nutrition and Rio Trading for helping to make the day such a success.

# BANT WELCOMES NEW COUNCIL MEMBERS

ANT has welcomed Abir Hamza Goodacre and Rick Miller, RD as new Council Members. Abir has been leading the BANT Network Coordinators Team for over a year, developing the Local Networks, which help members to forge relationships within their local Nutritional Therapy community, build knowledge through educational talks and grow their practices by being connected and informed. She has also played





an instrumental role in establishing the Regional Branch Meetings initiative, which offers high quality, free and local CPD events to members across the UK. Abir also oversees the BANT Worldwide Branch Committees aimed at supporting overseas members in their practices. In addition to her previous volunteer roles, Abir has taken on the Membership Support Manager role, which is enabling the Membership department to expand its support for BANT members and to develop partnerships. As a new BANT Director, Abir will be developing 'Nutritional Therapy in the Community' projects.

Following an intensive instruction in the functional medicine model of practice, Rick brings with him a breadth of experience from years as a Dietitian working in the NHS, private practice and elite sports performance.

"I am delighted to join BANT Council and look forward to bringing my experiences to the rest of the council, helping to progress lifestyle medicine and dietetics to the benefit of individuals and public at large. In particular, tackling the huge challenges of obesity, type 2 diabetes, dementia and heart disease, where diet and lifestyle have a substantial impact."



#### AGING

The importance of good vision increases as we grow older. External influences, such as UV light, play a role in the health of the eye and especially the retina.

The carotenoids lutein and zeaxanthin are to a large extent present in the central part of the eye.

An important rich source of lutein and zeaxanthin is *Tagetes erecta* (Marigold).

#### **BLUE LIGHT**

A growing concern in the last decade is the prolonged exposure to high-energy blue light from digital sources such as screens, tablets and smartphones. This may cause problems in visual performance and sleep quality.



#### SPECIAL FORMULA

Macuvite-2 is formulated on the basis of well-known research. Both lutein and zeaxanthin are part of this special formula as well as vitamin C\*& E, copper and zinc\*\*.

\* Vitamin C contributes to the protection of cells from oxidative stress. \*\*Zinc contributes to the maintenance of normal vision.

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# Keep good perspective on a clear sight

Health through nature, science and innovation

# 🖔 IHCAN CONFERENCE

# Places filling up for the final 2017 IHCAN Conference

Don't miss out on your place at the last available IHCAN Conference of the year.



s the final two IHCAN Conferences of 2017 creep ever closer, the September conference is now completely sold out.

We will be welcoming Dr Nigel Plummer, PhD, to the September Gut Health conference. Dr Plummer received his doctorate in microbial physiology from the University of Surrey. He will present on the theme of 'The Interaction of Intestinal Physiology with the Microbiome: Understanding this Cross-Talk has Implications for Diseased from Allergy to Alzeheimer's'.

The talk will focus on concisely describing the characteristics of the microbiome, how it is established and how it functions by communicating with our intestinal physiology and pathology, thereby influencing diseases ranging from allergy, through to autoimmune disease, metabolic disease and those affecting the gut-brain axis.

Dr Plummer will be joined by Naturopath, Nutritionist and science writer, Ben Brown, a frequent speaker at various educational institutions and conferences, who has had extensive clinical experience throughout his career. Ben will present 'Does irritable bowel syndrome exist? Nutritional, metabolic and digestive assessment renders diagnosis less relevant and improves treatment'.

This talk explores the underlying causes of digestive

symptoms, as well as the clinical assessment tools that can be used to identify them. It will also look at how assessment can be used to inform personalised dietary, lifestyle and nutritional interventions that improve physiological functions, restore gastrointestinal health and resolve symptoms.

The final speaker at September's conference, joining us again by popular demand, is Research Microbiologist, Kiran Krishnan, to present: 'The spectacular role of the human microbiome in preventing post-prandial endotoxemia, the number one cause of morality worldwide'. This talk will illustrate the danger of having post-prandial endotoxemia (PPE) and why this condition is being called the number one cause of mortality worldwide.

Now is the time to secure your place for the final IHCAN Conference of the year, in collaboration with BANT.

On Saturday, November 18, once again, we welcome practitioners from all over the country to the Cavendish Conference Centre, in London. This IHCAN Conference takes on the theme of 'Ageing' and we are delighted to announce that Dr Craig Willcox will be joining us.

Dr Willcox is a much sought after speaker and consultant, currently focusing on nutritional, epidemiological and epigenetic approaches to successful ageing. He holds Professorships in Gerontology and Geriatric Medicine at Okinawa International University and University of Hawaii.

On the day, Dr Willcox will present 'Secrets of Living Longer (and healthier) from those that have lived longest'. Based upon his three decades of research on the world's longest lived people, he will talk about the relative importance of genes versus environment (including newly discovered longevity genes), the most effective anti-ageing strategies, and risk factor modelling that can predict one's healthy ageing trajectory.

Joining Dr Willcox is prominent figure, Dr Leo Pruimboom, PhD, evolutionary medicine expert and lead educator worldwide for CPNI (clinical psychoneuroimmunology) – further details will be announced soon.

Places at the November conference are very close to selling out, so we recommend securing your place now to avoid disappointment. Standard tickets are priced at £95, with significant discounts available for BANT members, students and members of other associations.

To book your place for the November conference or to add yourself to the September waiting list, visit **www.ihcanconferences.co.uk/book/** or call the team on 01279 810080.

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# Integrative Healthcare and Applied Nutrition



# Dr Craig Willcox

# announces synopsis for 'Ageing' Conference

Limited places are available for the final IHCAN Conference of the year, which will include Craig Willcox, MH Sc, Ph.D. presenting 'Secrets of Living Longer (and healthier) from those that have Lived the Longest'.





**Dr Craig Willcox** 

Dr Leo Pruimboom

Craig will be joined by one of today's most prominent figures in clinical psychoneuroimmunology (CPNI), Dr Leo Pruimboom.

# November 18, Cavendish Conference Centre, London



@IHCANconference

Book now on our website www.ihcanconferences.co.uk or by calling us on 01279 810080

Significant discounts available for members of BANT, students and members of other associations.

# SPOTLIGHT ON IMMUNE HEALTH

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The importance of nutritional therapy when it comes to building a strong immune system.

REFERENCES

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There is a definite shift in autumn as the weather turns colder, the winter clothes make an appearance and the central heating gets switched on. Another telltale sign the winter is on its way is with the onset of the cold and 'flu season, signs of which can be very prevalent in clinic as people's immune systems take a collective battering.

With the UK's diets often lacking in enough of the adequate nutrients, and other environmental factors also taking its toll, it's clear to see why immune systems are under ever-increasing pressure.

## **COLD TRENDS**

There is definitely a trend for greater numbers of people to fall ill during the winter thanks to the cold and 'flu season, but it isn't necessarily because the weather is cooler.

Egzona Makolli BSc Hons., MSc, ANutr, Technical and Commerical Nutrionist at Kinetic, which has the Nature's Answer, Barleans and Nutiva brands in its portfolio, explained: "The timing of 'flu season is unpredictable and can vary in different parts of the country. There may be seasonal 'flu viruses, which can be spotted all yearround, although seasonal 'flu usually begins as early as October and continue to as late as May. Colds and 'flu do share similar symptoms, such as cough and a sore throat but both are different viruses. It's important to remember that flu can be more serious than a cold.

"As both the common cold and influenza are caused by a virus, both can be easily spread and there are many contributing factors, such as during the winter months, people spend more time indoors with the windows sealed and they are likely to breath the same air as someone who has the 'flu or cold and thus contract the virus (Elert 2013). Cold weather does not cause colds/'flu, although most are caught in the fall and winter. This is because cold/'flu viruses thrive better in colder temperatures, where there is less humidity in the atmosphere (Foxman et al., 2014). Winter days are also short and a lack of sunlight leads to low levels of vitamin D and melatonin, which can compromise the immune system and decrease the ability to fight a virus."

Dr Elisabeth Philipps PhD, Nutritional Consultant who manages practitioner training for Nutrigold, added:

"Cold and 'flu season typically starts around autumn time as the daylight hours recede, though you may be susceptible to summer colds and viruses as well. Theories for the increase of virus infections in the winter include behaviours, where we spend more time indoors and on public transport in closer contact with other people and that the body's natural defences against infection are reduced, namely levels of vitamin D reduce due to lack of sunlight exposure. Also, when we breathe in cold air, the vasculature in the nasal passages constrict to stop us losing heat so white blood cells, responsible for killing viruses, are prevented from reaching the mucus membranes. These factors play a role in viral transmission but don't fully explain why the winter season is full of colds and 'flu. That may come from the fact the cold air carries less water vapour, allowing 'flu virus to flourish – a case of thermodynamics being responsible for our winter health!"

Nutritional Therapist, Natalie Lamb, Technical Advisor at Protexin, which has the Bio-Kult and Lepicol brands in its portfolio, pointed towards low vitamin D as a big reason we fall ill.

"The sunshine vitamin that we make in the summer and store in our body's fat cells throughout the winter months is essential to support the immune system. Other common theories are due to the cold weather, dryer, indoor climate and more time spent in proximity to others."

Kerry Beeson BSc (Nut.Med) Nutritional Therapist and Head of Customer Care at OptiBac Probiotics, commented: "Some studies<sup>1</sup> suggest that seasonal humidity may be a factor, as when air is moist, particles containing viruses stay in a large format and drop to the floor; however, in dry winter air, they disperse into smaller pieces which are easily dispersed and spread. Of course, this theory is not infallible, and the 'flu still prevails in tropical climates, but in cooler climes, the lifestyle changes that naturally occur in colder weather may also contribute to the seasonal nature of 'flu; spending more time indoors in close proximity with others, for example.

"It also appears that viruses do prefer drier, cooler air and survive longer in such conditions, and studies<sup>2</sup> have suggested that our immune response to these invaders seems to be less effective in cooler weather."

### **IMMUNE SYSTEM EXPLAINED**

Our immune systems are pretty complex, and it is important you understand how they function.

Nutritional Therapist, Jenny Logan, Technical Training Manager at Natures Aid, explained: "The immune system is divided into two parts, the innate and the adaptive. The innate immune response is non-specific, quick acting, protects us from 99/100 intruders and forms the first and second line of defence.

"The skin and mucus membranes form the first line of defence. The skin forms an effective barrier designed to keep pathogens from invading. If the skin is damaged, this allows invaders an entry. Mucus membranes line the nostrils, mouth, eyes, genital area, the stomach and intestines. The role of the mucus membranes is to secrete mucus, which aims to catch and eliminate



pathogens. The stomach secretes gastric acid to kill off numerous invaders.

"The second line of defence is formed by a combination of phagocytes, natural killer cells, inflammation and fever.

■ Phagocytes are cells which protect the body by ingesting harmful foreign invaders. 'Phago' means to eat and 'cyte' means cell. They include macrophages, mast cells, eosinophils and neutrophils.

■ Natural killer cells – play a major role in the destruction of tumours and microbial infections, limiting their spread and subsequent tissue damage.

■ Inflammation – a response to tissue injury, prevents the spread of damaging agents and sets the stage for the repair process.

■ Fever – in response to infection, the body temperature is raised, increasing the metabolic rate, speeding up repair. A low-grade fever is part of a healthy immune response. High-grade fever, however, can be damaging. If the temperature goes too high, steps should be taken to reduce the fever."

Logan continued: "The adaptive immune system forms the third line of defence. It is slower to respond and mounts attacks against specific invading substances. The adaptive immune response works in conjunction with and in response to, the innate system. The main cells of the adaptive immune system are B cells and T cells. B cells are produced in the bone marrow, triggered by the production of antibodies. B cells can undergo specialisation and form memory B cells, helping to create an 'immunity' to certain infections. T cells are produced in the thymus in response to antigens to fight infection and prevent re-infection. We need these systems working well together to form an effective immune response, preventing and limiting infection."

## **RISK FACTORS**

Most of us will succumb to a cold at some point, and many nutrition experts suggest there's nothing wrong with this as it can provide the opportunity for a bit of a cleanse. However, you will suffer more regularly and to a greater degree if your immune system isn't up to scratch.

"Adults with compromised immune systems are more susceptible to colds and individuals with a lack of sleep are more susceptible. A controlled study on 164 participants found that individuals who slept fewer than five hours a night were 4.5 times more likely to get sick than those who slept seven hours or more," Makolli explained.

"Psychological stress can also be a risk factor as studies have shown an association with stress and an increased risk of acute viral infections (Cohen *et al.*, 1991). Evidence from both human and animal studies have shown that stress modulates immunity (Glaser *et al.*, 1998) and can be a risk factor for colds or 'flu."

Philipps continued: "Elderly people, young children and those with a weakened immune system are more susceptible to cold and 'flu infection. The health of your immune system determines its ability to successfully fight off infection."

But interestingly, Romina Melwani, Mycotherapist at mushroom specialist, Hifas da Terra, pointed out that usually sick people are actually not likely to be the most common client.

"Paradoxically, people who were frequently sick with viral infections as children typically have greater immunity and are susceptible to fewer infections as adults. Most susceptible people are those exposed to cold temperatures and low humidity, which can irritate or damage airways. Air pollution, indoor dust, and ash from fireplaces can also act as irritants, causing inflammation and making it easier for germs to enter our system," she explained.

Beeson continued: "As the immune response is so varied, there can be countless indicators of compromised immune function, and any unexplained persistent symptoms should always be discussed with your doctor. If you're always feeling fatigued, have more than a couple of colds and infections per year, suffer from persistent headaches or digestive issues, then it's likely that your immune system could do with some support<sup>4</sup>."

## SIGNS OF LOWERED IMMUNITY

Someone who is experiencing issues with lowered immunity can exhibit a range of symptoms.

Makolli commented: "Many individuals who have a low immune system will catch colds more easily and have at least





PHYSICAL ACTIVITY



# **HEALTHY HEART**



two colds/'flu a year. Many may also suffer from chronic infections and have swollen or sore lymph glands. Constant fatigue, tiredness and lethargy can indicate a low immune system, as can insomnia."

And Philipps advised: "Low immune system function presents as frequent bacterial and viral infections like conjunctivitis, sinus infections, cold sores and herpes, yeast infections, as well as swollen lymph nodes, diarrhoea and other gastrointestinal symptoms. Poor dietary habits, lack of quality sleep, chronic stress, nutritional status and emotional state all contribute to low immune system function."

It's also critical as a Nutritional Therapist to take into account all the factors that may cause a client to have a poorly functioning immune system, which in turn makes them more susceptible to illness.

"If you're always feeling fatigued, have more than a couple of colds and infections per year, suffer from persistent headaches or digestive issues, then it's likely that your immune system could do with some support<sup>4</sup>."

"Immune responses can be depleted for many reasons as stress, lifestyle factors, poor dietary intake and inadequate nutritional intake can have great impact on the immune system. There are many conditions which can result in a low immune system, such as cancer, HIV infection, inflammatory bowel disease, transplant surgery and advance ageing," Makolli advised.

"Ageing can also be a huge factor as children are generally more susceptible to a viral infection as they have not yet developed immunity to many of the viruses that cause colds or 'flu. Also, because their immune systems are immature and have not fully developed. Dietary intake plays a role in immunity as studies have shown that consuming too much refined sugar can suppress immune system cells, which are responsible for attacking bacteria."

Melwani continued: "The hygiene hypothesis may be one of the culprits. Often at a young age in childhood, a lack of exposure to infectious agents, symbiotic microorganisms (such as the gut flora or probiotics), and parasites increases the susceptibility to allergic diseases by suppressing the natural development of the immune system. Breastfeeding protects against infections during and most likely after lactation, as well as possibly against certain immunologic diseases, including allergies. However, many mothers choose not to breastfeed and thus don't allow the child's immune system to develop."

#### **GUT-IMMUNE CONNECTION**

As student Nutritional Therapists, you will know that there is a connection between the health of our guts and the knock-on effect to our immune system, and this should form a big part of the considerations you make with clients.

"As up to 70 per cent of our immune cells are located in the gut<sup>1</sup>, and supported by a strong microflora (mixture of bacteria and other microbes), it is incredibly important to keep these balanced. A healthy immune system is primed to provide a defence mechanism against invading pathogens and their toxic by-products that could otherwise cause infection. The immune system is responsible for the speed and effectiveness of the body's defence response to an infection, such as the common cold, so it's important to keep it working well. Those with low immunity or certain ongoing medical conditions may be more susceptible to catching colds and 'flu," Lamb explained.

In terms of recommendations here, there are plenty.

"The rationale for the use of probiotics to improve the function of the immune system is supported by their potential to influence and stabilise the composition of the gut microflora, enhance resistance to potential pathogens and modulate immune function parameters<sup>4</sup>," Lamb explained. "Viral respiratory tract infection is said to be the most common illness among humans<sup>5</sup> and is often hard to treat. Probiotics are being increasingly studied for their ability to enhance host resistance to, and recovery from, infection and have been shown in several human studies to also be a potential adjuvant to improve the effectiveness of influenza vaccines<sup>6</sup>. Results have varied but overall studies report significant Improvements.

"In 2005, Vrese *et al*<sup>7</sup> found a multi-strain probiotic at a dose of 5 x 107 CFU (50 million) given to 479 healthy adults for three months significantly shortened common cold episodes by almost two days, reduced the severity of symptoms by 23 per cent, enhanced immune system blood markers and increased *lactobacilli* and *bifidobacteria* levels in stools. A further study by Tubelius *et al*<sup>8</sup> gave 181 healthy employees 1 x 108 CFU (100 million) *lactobacilli* for 80 days. The probiotic significantly reduced the occurrence of work place sick leave from 26.4 per cent to 10.6 per cent in day workers and from 33 per cent to zero per cent among shiftworkers."

Beeson added: "A recent review of the available research, published in the journal *Frontiers of Immunology*<sup>6</sup>, concluded that the intestinal microbiota formed a vital part of the overall immune response, not just in humans but in all other vertebrates. Because

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of this association, many of the studies in the field of probiotic research are focusing on this interaction between the microbiome and the immune system, but it appears that certain strains of probiotic bacteria are displaying more potential in this area than others.

"A recent report in the Journal of Clinical Gastroenterology<sup>7</sup> reviewed the potential of probiotics for allergy prevention, and concluded that: 'The probiotic performance of strains differs; each probiotic strain is a unique organism itself with specific properties that cannot be extrapolated from other, even closely related, strains. Therefore, research activities are currently focusing on identification of specific strains with immunomodulatory potential.'

"One such strain is *Bifidobacterium lactis* HN019, which has been shown in clinical trials<sup>8,9</sup> to offer

measurable improvements in immune function, even after only a short period of consumption (six weeks). Another strain with great potential for immune support is *Bifidobacterium lactis* Bl-04. This strain was used in a randomised, double blind, placebo-controlled study<sup>10</sup> with 115 participants, who were administered with the cold virus. A probiotic group were given the strain *Bifidobacterium lactis* Bl-04 for 28 days before being infected with the virus, and then during the virus challenge. This group displayed a reduced incidence of respiratory tract infection compared to the placebo group, and reduced 'viral shedding', i.e. a reduced replication/spread of the virus, was also noted in the probiotic group."

## **IMMUNE PROTOCOL**

Experts advise a range of elements to bring into a nutritional plan for clients, with a few basics that apply to all.

"Like any fighting force, the immune system army marches on its stomach. Scientists have long recognised that people who live in poverty and are malnourished are more vulnerable to infectious diseases. In industrialised nations, immune function has been shown to be compromised in many malnourished hospitalised patients, small-for-gestational age infants, and the elderly. Obesity also may adversely influence immune function. Deficiencies of protein and some amino acids, as well as vitamins A, E, B6 and folate, are additionally associated with reduced immunocompetence," Logan explained.<sup>(1)</sup>

"Healthy lifestyle choices include don't smoke, maintain a healthy weight, control blood pressure, drink alcohol only in moderation, get adequate sleep and take steps to avoid infection, such as washing hands and cooking meats thoroughly." From a dietary perspective, Makolli suggested: "Eat a balanced diet rich in wholegrains, fruits, and vegetables as nutrients are essential for the body's repair, growth and overcoming a viral infection. Protein is necessary to keep the body strong and support the immune system; sources include poultry, fish, pulses, eggs, nuts and seeds. Try to include as many vegetables and fruits to maximise the body with phytonutrient compounds, which are found in plant foods and can enhance the immune system.

"Hydration is crucial when you are fighting a cold, as a low grade temperature increases the amount of liquid which evaporates from the body. This puts you at a higher risk of dehydration. Adequate fluid intake also helps your body wash away mucus, which accumulates in the throat and nose."

Lamb continued: "I would recommend your clients consume a varied wholefood diet high in fresh winter vegetables supplying a mix of essential nutrients such as zinc, vitamin C, vitamin E and selenium that are well known for supporting the immune system. Fermented foods, such as yogurt, kefir and sauerkraut, could help to balance the gut flora to support the gut immune system. Good quality protein sources, such as meat, eggs and legumes are the building blocks for many immune cells.

"Cooking with culinary herbs, such as sage, rosemary and thyme, are reputed to have additional immune boosting benefits. Include garlic in cooking, used for centuries as a natural antimicrobial to fight infections and cooked lightly should help retain the active ingredient, allicin. Simple sugars and refined carbohydrates (breads, pasta, biscuits, cakes etc) are known to feed unwanted bacteria and yeast in the gut, encouraging their growth over beneficial immune supporting strains. Remembering also the importance of some cholesterol in the body to help with the



absorption of vitamin D, a concern perhaps for our clients on cholesterol lowering medication."

And remember healthy comfort food too.

"Traditionally, when feeling ill, your grandmother may have boiled up some fresh chicken stock considered a delicious nourishing meal to support the immune system, providing hydration, warmth and being easy to swallow and soothing if the throat is sore. This theory may be backed up in a modern study showing chicken soup to support the immune system and reduce symptoms of respiratory tract infections, including the common cold, by having a mild anti-inflammatory effect<sup>2</sup>," Lamb added.

Lifestyle should also be borne in mind as there are various factors that can increase the risk of falling ill.

"It is thought that each bout of exercise causes a transient increase in immune system activity, increasing the numbers of white blood cells and immunoglobulin in the blood. This acts to reduce a person's susceptibility to disease," Logan explained. "It is important to note here, however, that excessive exercise will have the opposite effect. As with all things in life, moderation is the key."<sup>(2)</sup>

Makolli added: "Wash hands often, especially after visiting someone who's sick so as to completely get rid of viruses; it is recommended to scrub hard for 20 seconds or more. If this is not always doable, then an alcohol-based hand sanitiser can help remove cold and flu germs."

Philipps added it is important that clients are encouraged to take control of their own health, explaining: "Quality sleep is essential for immune system health. Going to bed and getting up at the same time each day can create a strong sleep rhythm – aim to be in bed for 10pm and sleep between 10.30pm-6.30am. This is easier in the winter when the evenings get darker, earlier; living with the seasons supports all areas of our health, including immune system."

#### **SUPPLEMENTATION**

Logan described nutritional supplements as added insurance.

"Important nutrients for the immune system are: ■ Vitamin C: The benefits of using vitamin C were originally highlighted by Linus Pauling, who advocated its use for the treatment of colds and 'flu. Linus Pauling was famous for using high doses, consuming up to 12g a day. Whilst we do not often advocate such high doses, it is true that several cells of the immune system can indeed accumulate vitamin C and need the vitamin to perform their task, especially phagocytes and T-cells. Thus, a vitamin C deficiency results in a reduced resistance against certain pathogens, whilst a higher supply enhances several immune system parameters. Vitamin C is a water-soluble nutrient and as such any excess is 'washed out' of the body. Generally, if you take too much vitamin C (doses over 8g per day) you may find it loosens the bowel. It is therefore very safe to use.

■ Zinc: Zinc is another nutrient with much research behind it for supporting immune health. Zinc is crucial for normal development and function of cells mediating innate immunity, neutrophils, and NK cells. Macrophages also are affected by zinc deficiency. Phagocytosis, intracellular killing, and cytokine production all are affected by zinc deficiency. Additionally, zinc deficiency adversely affects the growth and function of T and B cells.<sup>(3)</sup> Zinc may also have an impact on thymus health. The thymus gland reduces in size as we age from the size of a heart in infants to barely detectible in the elderly. This could be related to zinc status; in one study, they found that giving ageing mice zinc supplements led to the regrowth of the thymus gland.<sup>(4)</sup> Zinc is available in many different forms – each with different absorption rates. Zinc picolinate is one of the best tolerated and best absorbed forms of this important nutrient.

■ Vitamin A: Deficiency impairs the first line of defence within the innate immune system as it is vital for the maintenance and regeneration of the mucosal barrier. Vitamin A is also required for adaptive immunity and plays a role in the development of B and T cells.<sup>(5)</sup>

■ **Selenium:** Population studies have shown that individuals with low selenium have a higher risk of developing cancer. Selenium strongly influences inflammation and immune responses, with studies showing that selenium deficiency reduces the number and proliferation of macrophages."<sup>(7)</sup>

Lamb added: A review<sup>3</sup> earlier this year summarised that zinc supplementation may reduce the length and severity of a cold and that taking vitamin C supplements on a regular basis only slightly reduces the length and severity of colds. The author further noted that probiotics were found better than placebo in reducing the number of episodes of acute upper respiratory tract infections, the rate of episodes of acute upper respiratory tract infection and reducing antibiotic use."

Vitamin D is absolutely crucial as a recommendation. Makolli explained: "Studies have shown that taking a vitamin D3 supplement can aid in boosting the immune system and fighting of those winter blues. Research has shown that vitamin D3 supplements play a key role in boosting the immune system, and the Commission Regulation (EU) 2012 has authorised that vitamin D contributes to the normal functioning of the immune system.

"As we all know that during the winter months, we are more likely to be depleted of our vitamin D storage



and therefore require a supplement in the form of vitamin D3. A double blind placebo study showed that a therapeutic dose of vitamin D resulted in a statistically significant (42 per cent) decrease in the incidence of influenza infection (Urashima et al., 2010). Vitamins A and C have also been authorised by the Commission Regulation (EU) 2012 to contribute to the normal functioning of the immune system."

You may also want to introduce clients to beta glucans.

"As well as these other well-known supplements, beta glucans offer another, well researched way to support and strengthen the immune system. Long before beta glucans were identified as potential immunomodulators, mushrooms like reishi and shiitake were being used in Traditional Oriental Medicine to strengthen the immune system," Logan explained.

"It is now known that many of the benefits of these 'medicinal mushrooms' are due to the presence of beta glucans. Over 600 studies investigating the immunomodulating effects of beta glucans have been published. Beta glucans have been found to have the ability to increase production of macrophages, neutrophils and natural killer cells, improving our innate immune response. Studies on beta glucans have shown:

■ Beta glucans could also induce the production of cytokines from macrophages, neutrophils and killer cells, which in turn would stimulate the activation of T cells.<sup>(8)</sup>

 When stressed women took beta glucan for 12 weeks they reported fewer Upper Respiratory Tract Infections (URTI) and better wellbeing when compared to placebo.

■ Taking beta glucans after intense exercise could prevent infection. A study was carried out on marathon runners, giving them either beta glucan or placebo over four weeks post marathon. The number of URTIs in the beta glucan group was eight per cent, whilst that in the placebo group was 24 per cent.<sup>(10)</sup>

■ Taking beta glucans can reduce the risk of repeat infections. A study involved 162 patients of all ages (18-70) who had suffered cold infections at least three times in the previous six months. As well as 25 per cent fewer infections in the beta glucan group, the severity of infections was reduced.<sup>(11)</sup>

■ Research indicates that in order to be effective beta glucans need to be sourced from fungi or yeast and should consist of a (1,3)-beta-linked backbone with small numbers of (1,6)-beta-linked side chains."<sup>(13)</sup>

Melwani agreed, adding: "To strengthen the immune system in advance, I would suggest to increase the beta glucans intake. The innate human function can be enhanced by the use of immuno-primers, among which the lead candidate would be undoubtedly the mushroom swerved 1-3 beta glucans. These molecules have shown to reduce the severity of allergies, as well as strengthen the immune system. This specifically translates into activating the key immune cells, such as the NK cells and neutrophils granulocytes that target infections and viruses."

She pointed towards medicinal mushrooms too.

"Triterpenes present in reishi mushrooms have shown to be effective in priming the immune system against the 'flu virus as these molecules have been shown to increase resistance to bacteria and viruses," she said. "Medicinal mushroom extracts are the most powerful ingredients to protect the immune system as they are working as adaptogens to regulate a compromised immune system. Reishi mushroom specifically has scientifically been shown to potentiate the immune system by increasing macrophage activity, especially against the influenza virus. It also presents a significant anti-histamine effect."

#### **BUG RECOVERY**

If people do fall victim, then there is much they can do to help themselves and to overcome illness quicker.

"Whilst we cannot dodge colds and 'flu, there are a wide range of tips that we can do to help overcome these viral infections but remember these need time to recover. Sleep is essential to help overcome a cold or 'flu as the body is working harder to remove a viral infection, which makes the body more tired," Makolli said. "Hydrate with fluids, drink plenty of water, herbal teas and freshly squeezed orange juice. Try to remove fluids which dehydrate, such as coffee, soda and caffeine containing drinks. Aim to drink more hot liquids as these can help alleviate congestion and soothe inflamed throat and nose.

"As viral infections thrive in dry conditions and cause dry throat and nasal passages, try to get moisture in the body, which can ease cold or 'flu symptoms. Aim to run a steamy shower or breathe over a steaming pot to ease the symptoms. Try to exercise for at least 30 minutes by going for a walk or yoga, as exercise has been shown to boost the immune system and can help it fight off viral infections (Gleeson 2007)."

Philipps added: "Firstly, take time to get better – rest is the most important part of recovery. Pushing on and potentially spreading the viral infection is not good for you or others! Stay in the warm and take gentle exercise like 10-20 minute outdoor walks. Enjoy warming foods and stay hydrated, even if you don't feel like eating anything, keep up drinking warming fluids like herbal teas. A great warming drink to enjoy one to two times daily is grate some fresh turmeric and ginger into mug with lemon juice, warm water, one teaspoon raw honey and pinch caynenne pepper to help stimulate the immune system. If your sinuses are sore, then using a saline solution in a neti pot may help, as will steaming using essential oils like tea tree oil."

# Nutritiôn Product Showcases



Immunity Boost with Bio-Kult The immune system can often need some extra help to fight bugs, and illnesses. Up to 70% of our immune cells

are located in the gut, and supported by a strong microflora. Therefore, one strategy to support the body's natural immunity in order to prevent initial infection and reduce the need for antibiotics is

to consider regular consumption of fermented foods or live bacteria supplements. Bio-Kult is a scientifically developed, advanced multi-strain formula containing 14 live bacterial cultures which are proven to survive the high acidity of the stomach. For more information, visit www.bio-kult.com

# New Adrenal Function Profile from CNS

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# SPOTLIGHT ON

Awareness has grown hugely on the need for vitamin D, yet there remains mixed opinions on how much we need. Here, leading experts clear up the confusion.





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Recognising the importance of vitamin D for good health, official guidance was released recently, recommending that most groups should supplement during the autumn and winter months, when we get less vitamin D.

Whether the guidance went far enough to encourage people to supplement through the year is one issue that remains a discussion point, but what is clear is the general public these days are far more aware of the need for vitamin D and that can only be a good thing.

Andrew Thomas is founder of BetterYou, which has pioneered the use of sublingual vitamin D, and the matter is one of huge interest to the company.

Thomas commented: "NICE has estimated deficiency in the UK to be around 10 million people<sup>1</sup>. The latest Government funded National Diet and Nutrition Survey<sup>2</sup> indicates that most children, adults and the elderly are deficient in vitamin D.

"Recent advice by Public Health England on vitamin D following the Scientific Advisory Committee on Nutrition report<sup>3</sup>, has recommended that everyone in the UK supplement with vitamin D during autumn and winter, due to our increasingly indoor lifestyles and lack of sunshine in the UK. PHE recommends that everyone take a vitamin D supplement."

Manal Chouchane, from the Clinical Nutrition team at BioCare, added: "Recent years have seen increasing awareness of the widespread prevalence of vitamin D insufficiency. The UK population may be particularly prone to deficiency, due to the combination of inadequate levels from the diet and lack of exposure to sunshine. Other factors which contribute towards vitamin D deficiency include old age, pregnancy and breastfeeding, dark or covered skin, sunscreen use, obesity and the intake of certain medication, such as metformin." And Penny Shaw, student Nutritional Therapist at G&G Vitamins, advised: "As a nation, vitamin D deficiency and lack of sun exposure in England is prevalent. Despite bright sunny days in winter months, there is often little UV radiation at appropriate wave length for vitamin D synthesis. To make matters worse is that, as a western society, people are spending less time outdoors. In order to get sufficient sunlight, one has to expose the skin on their face, hands and forearms for 10-15 minutes in the middle of the day when the sun is highest in the sky. This may be sufficient in the warmer months for light-skinned individuals, however, those with darker skin require significantly more. Some go as far as to suggest you need to determine the latitude and longitude of your location at a time when the sun is 50 degrees from the horizon."

"NICE has estimated deficiency in the UK to be around 10 million people1. The latest Government funded National Diet and Nutrition Survey2 indicates that most children, adults and the elderly are deficient in vitamin D."

### **VITAMIN D FUNCTIONS**

This vitamin is crucial for so many areas of good health, and deficiency can cause some very specific problems.

Aimee Benbow, Technical Manager at Viridian Nutrition, explained: "Vitamin D is an essential nutrient, which is derived in small amounts from the diet but primarily via sunlight exposure on our skin. Vitamin D contributes to a huge number of health aspects, such as the maintenance of normal bones, teeth, muscle and immune function. As the main source of vitamin D is via direct sunlight, here in the UK, obtaining sufficient levels are difficult. Due to the tilt of the earth, we are only able to produce vitamin D from sunlight between the months of March and September and, therefore, it is very difficult to manufacture enough vitamin D during these months to carry us through the winter. Additionally, as fears of sun exposure has grown and western societies have become more sedentary, exposure to the sun has dropped dramatically, leading to vitamin D deficiency.

"Sitting in the sun for 20 minutes prior to applying sun cream will allow the sun to have contact directly with the skin and allow the natural production of vitamin D. After this amount of time, sun lotion is advised to prevent skin damage. Alternatively, vitamin D supplements may be taken to top up levels throughout the year, particularly in the winter months."

Shaw added: "Our main source of vitamin D comes from UVB rays of sunlight. When these rays come in to contact with our skin, 7-dehydrocholesterol is activated, cholecalciferol (vitamin D3) is converted into calcitriol via the kidneys and is stored in the liver, fatty tissue and in the blood as calcidol. Vitamin D plays such a vital role within the body, including that of hormone regulation, that it is considered a hormone itself.

"Vitamin D actions are made through nuclear transcription factors known as VDR with the nucleus of the cell. Calcitriol facilitates VDR and RXR (retinoic acid X receptor) to bind sequences of DNA (VDREs) that modulate gene transcription. VDR activation by calcitriol is thought to play a part in the regulation of 1,250 genes. Calcitriol, the active form of vitamin D, increases calcium and phosphorus absorption. It increases bone formation by facilitating calcium. Calcitriol works on a negative feedback loop whereby the parathyroid hormone is secreted in response to a fall in blood calcium levels.

"This increases the synthesis of calcitriol and causes



the release of calcium from the bone. Low levels of phosphate increase circulating calcitriol. Erythropoietin stimulates red blood cell production and is released with the aid of vitamin D."

Chouchane continued: "Vitamin D is vital for the optimum function of many body processes. One of the best-known biological functions of vitamin D is bone support, as it plays an important role in enhancing the absorption of calcium and phosphorus. Other important roles of vitamin D include regulating our insulin production for optimum blood sugar balance, enhancing immunity, supporting cardiovascular health and enhancing our mood."

Thomas added: "Studies have shown that vitamin D is vital for a healthy immune system<sup>4</sup>, bone health<sup>5</sup>, and has also been linked with IBS<sup>6</sup>, depression<sup>7</sup> and migraines<sup>8</sup>. Vitamin D is a known contributor to an effective and robust immune system. Our immune system protects us, not only from coughs and colds but from a host of other diseases known as autoimmune, or co-morbid diseases. These include MS, diabetes and a growing number of internal cancers, including breast cancer."

But why is it that we are now advised to supplement?

"Once we lose the sun's ability to deliver essential UVB rays around September (the rays we need to stimulate the production of vitamin D) then for those living in the Northern Hemisphere supplementation is strongly recommended," Thomas explained. "Ten per cent of vitamin D comes from food. There is little or no vitamin D in UK milk and dairy products. Only infant formula milk and margarine have statutory vitamin D supplementation in the UK. Egg yolk, liver, and wild mushrooms contain only small quantities of vitamin D.

"As a rule of thumb, BetterYou suggests that you should look to intake around 1000iu of vitamin D for

every 25kg of body weight to maintain a healthy level. So, for an adult, we would be looking at 2000-3000iu daily. A serum level of 50nmol/l is known to offer effective resistance to rickets in children and bonerelated disease in adults. However, other auto-immune diseases require a much higher level of vitamin D to resist them<sup>9</sup>. In general, a serum level of 100-150nmol/l is required to offer effective resistance."

### SPECIFIC RECOMMENDATIONS

The Government advice means that everyone is now recommended to take a supplement of vitamin D but there are some more specific at risk groups where the consideration is different.

Thomas advised: "The Government now recommends that everyone take a vitamin D supplement. More specifically, the Department of Health<sup>10</sup> recommends that the following at 'risk groups' take a vitamin D supplement all year round:

- All pregnant and breastfeeding women.
- Infants and young children under five years of age.
- Older people aged 65 years and over.
- People who have low or no exposure to the sun.
- People who have darker skin."

Chouchane added: "We can top up our vitamin D levels via increasing our intake of oily fish and vitamin D fortified foods. Getting enough sunlight exposure is also beneficial for our vitamin D levels, however, the use of sunscreen and sun exposure during winter at latitudes above approximately 33 degrees north or below 33 degrees south is insufficient for production of vitamin D3 in the skin. Therefore, a vitamin D supplement is essentially the best way of ensuring that we are getting our daily dose of vitamin D.

"The UK Department of Health recommends that all pregnant and breastfeeding women supplement



10mcg (400iu) of vitamin D, and that babies and children receive 10mcg (400iu), especially if breastfed or if receiving less than 500ml of suitably fortified formula milk. Adults over 65 years, or those with limited sunlight exposure (such as during winter or if you have a sedentary lifestyle, for example, working in an office) are also advised to supplement 10mcg (400iu) of vitamin D. Where there is a deficiency, individuals will require significantly larger doses of vitamin D of around 2000-4000iu administered for at least three months and levels then retested. Obese individuals, patients with malabsorption syndromes, and patients on glucocorticoids, anti-seizure and AIDS medications may require higher doses of vitamin D than individuals without these conditions (up to two to three times higher – at least 6000-10,000iu/day). It is best to seek professional advice via a healthcare practitioner, such as a Nutritional Therapist for them to recommend an



appropriate dose to suit you."

And Benbow advised: "The Government guidelines in the UK is that adults and children above one year of age should take a supplement providing 400iu of vitamin D per day, particularly in the autumn and winter months. Those at high risk of deficiency, such those with dark skin or who cover their skin, and those with little or no exposure to the sun should take a supplement all year round."

"As vitamin D is a fat-soluble vitamin, it may be an issue for individuals with compromised digestion or who have difficulty digesting fats. Therefore, choosing an emulsified (pre-digested) version of vitamin D will ensure optimal absorption."

Shaw continued: "There are many conditions known to facilitate further deficiency amongst the population. Any history of liver of kidney disease whereby an individual may not be able to store or process vitamin D can contribute to deficiency. As vitamin D is a fat soluble vitamin, anyone who has poor fat absorption (for example coeliac disease) may not be able to fully benefit from supplementation so finding ways to optimise absorption is vital.

"Optimal sun exposure to obtain adequate vitamin D requires many factors such as location, season, weather, time of day, sun cream, skin pigmentation and clothing. In addition to this, there are many inflammatory and autoimmune diseases that are commonly known to have deficiency of vitamin D. A recent trial using vitamin D supplementation on prolonged critical illnesses resulted in significant anti-inflammatory effects by the reduction of Interleukin – 6 and C reactive protein.

"Vitamin D level requirements vary depending on the individual's age, physiology and if there is a disease present. It is always advisable to seek professional advice and test 25-hydroxyvitamin D levels to assess requirements. The University Of Rochester Medical Center indicate a dose up to 1,500 for infants, 3,000 for one- to eight-year-olds and 4,000 for anyone above the age of nine."

"Whilst some conditions and individuals warrant supplementation greater than others, a general maintenance is often thought to be beneficial in the majority. Vitamin D3 is vital for so many processes within the body and is commonly deficient. Common deficiencies can manifest in bone related disorders and so supplementation would be beneficial in conditions such as osteomalacia, a known vitamin D deficiency.

"Those with autoimmune conditions are likely most in need of supplementation. For example, those with systemic lupus erythematosus (SLE) do not metabolise bone correctly and have a high prevalence for vitamin D deficiency. Vitamin D provides protective effects against SLE through nongenomic factors, such as ultraviolet radiation exposure, matrix metalloproteinase, heme oxygenase 1, prostaglandins, cyclooxygenase-2 and oxidative stress."

She continued: "Vitamin D supplementation can be used in the prevention of diseases. Giving breast fed infants orally administered vitamin D appears to increase bone mineral density. One study showed supplementation in pregnant women provided protective effects for their children against type 1 diabetes, reducing the risk of occurrence by as high as 80 per cent, whereas deficiency increased the risk of developing the disease by 300 per cent. Research indicates that those with lower vitamin D levels are at a higher risk of developing type 2 diabetes, this may be because of lack of insulin secretion and activity.

"Similarly to this, those with polycystic ovarian syndrome (linked closely to diabetes due to their relation to insulin) are generally vitamin D deficient. Recent studies indicate that vitamin D3 may play a role in the reduction of insulin resistance and the metabolism of glucose. Breast fed infants are often found to be deficient in vitamin D because their mothers are deficient, not because breast milk itself isn't adequate. The NICE guidelines recommend that pregnant and lactating woman supplement with 400iu per day."

### **CHOOSING A SUPPLEMENT**

There are many vitamin D supplements on the market today, and many in the mainstream market can be of too low a dose, or in the incorrect form.

"The form of vitamin D is important and choosing D3 as the form of vitamin D form may be more effective than vitamin D2, as it is possibly metabolised much quicker. As vitamin D is a fat-soluble vitamin, it may be an issue for individuals with compromised digestion or who have difficulty digesting fats. Therefore, choosing an emulsified (pre-digested) version of vitamin D will ensure optimal absorption," Chouchane said.

Benbow explained: "When choosing a vitamin D supplement, it is important to consider the strength of the supplement and the type of vitamin D it provides. The UK recommended daily intake of vitamin D is 400iu, however, in those who have been confirmed deficient, higher supplemental levels may be needed. Vitamin D is available in supplements as D2 and D3. Recent evidence suggests that vitamin D3 is better utilised and metabolised by the body. Finally, a vegan friendly form of vitamin D3 is available on the market which is derived



from Lichen, otherwise D3 is usually derived from lanolin."

And Shaw pointed out: "Studies show that vitamin D2 is less than a third the potency of vitamin D3 (cholecalciferol). Therefore, supplementation with vitamin D3 as opposed to D2 is advisable. To enhance vitamin D3 absorption, look for products that also contain vitamin K. Some studies suggest that supplementing vitamin D3 with calcium aids in the decrease of bone loss in post-menopausal women. Vitamin D increases assimilation of, and works with vitamin A to control and regulate genes transcription."

There is choice in terms of the type of vitamin D you recommend, and one area emerging of great interest is sublingually, meaning it is taken as a spray.

"The key benefits of an oral spray include convenience and guaranteed absorption which traditional tablets, capsules and drops (which all rely upon an increasingly inefficient digestive system) simply can't. An oral spray doesn't require water or food to take, and is easy to use on the go," Thomas explained.

"Whereas traditional supplements require sufficient hydrochloric acid within the stomach to break down the formulation for digestion, oral sprays deliver the formulation directly into the bloodstream via the buccal membranes. Because of the high permeability of the oral membrane, coupled with the proximity of a rich vascular system, oral drug administration offers a potentially very rapid onset of action; in some cases, close to that of intravenous administration<sup>11</sup>.

"A spray provides the active ingredient in micro-sized droplets. The plume of the spray is designed then to coat the inside of the mouth, in particular, the buccal membrane of the inner cheek, which research shows is the most effective area of absorption. As vitamin D is fat soluble, it is perfectly suited to this delivery method as it relies on the bloodstream for transportation from skin to the liver and kidneys. The faster it can enter the bloodstream, the sooner the body can benefit from it."

Chouchane added: "Sprays and liquids can be good alternative forms of vitamin D delivery. An emulsified (pre-digested) liquid version of vitamin D is very effective as it ensures optimal absorption and we can easily dose up or down depending on our needs. It is also likely to provide more precise doses."

### **RESEARCH FOCUS**

Vitamin D is a heavily researched area, and scientific evidence continues to emerge.

Thomas pointed towards research around oral vitamin D.

"Multiple clinical trials have found that oral vitamin sprays elevate serum vitamin D levels faster than traditional tablets and capsules. A trial published in the *Nutrition Journal* found that vitamin absorption via oral sprays is up to 2.6 times higher compared to soft gelatine capsules,' he said.<sup>12</sup>

"Ulster University found that a high dose vitamin D oral spray can dramatically increase vitamin D levels and resolve deficiency in healthy athletes compared to that of placebo.<sup>13</sup>

"The University of Sheffield found that supplementation of vitamin D via BetterYou DLux oral sprays significantly improved symptoms of IBS sufferers.<sup>14</sup> A trial by research facility Pharma Base found that, over a 12-week clinical study, the uptake of vitamin D was 67 per cent faster using an oral spray than using traditional tablets of the same strength. The absorption increased to 127 per cent greater if the individual had insufficient levels to begin with.<sup>15</sup> Researchers at Cardiff University, when testing BetterYou's DLux vitamin D oral sprays, found that absorption within the mouth was far superior to the more traditional

digestive route of tablets

and capsules.<sup>16</sup> BetterYou is proud to be working in partnership with the University of Sheffield on a three-year clinical trial looking at the effect of vitamin D supplementation on the quality of life of people with Irritable Bowel Syndrome (IBS). This builds on the existing pilot study previously mentioned."<sup>17</sup>

Chouchane highlighted bioavailabiity, commenting: "Both vitamin D2 and D3 are naturally sourced and there is mixed evidence on bioavailability, with one very good quality study showing that D2 is as effective in sustaining levels of calcidiol as D3<sup>i</sup> and increasing levels of calcitriol<sup>ii</sup>. Others suggest that vitamin D3 may be more effective at raising calcidiol than vitamin D2, possibly due to the quicker speed at which D3 is metabolized<sup>iii</sup>. Therefore, what is more essential than the form of vitamin D is to ensure vitamin D is properly absorbed."



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# SUPERFOOD STATUS

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Superfood has become a buzzword in recent years, but is it a worthy product recommendation, or just clever marketing spin? The experts offer their view.

> CLICK HERE FOR REFERENCES



ne of the biggest health trends we have seen emerge in recent years is with regard to superfoods. You can't go a day without seeing it referred to on social media or visit a health store without finding the latest superfood staring back at you.

But given there's no actual accepted definition of a superfood, and that the mainstream market has taken hold of the term and applies it to products that perhaps don't fit with what nutritional professionals would agree is a superfood, it has undoubtedly become a confusing market.

At the most basic levels, a superfood – when looking at the generally accepted term among the market – is actually a beneficial product recommendation to make. But as Nutritional Therapists, it's important to understand where these can be applied and for what issues.

Rose Holmes, Nutritional Therapist and Education Manager at Rio Health, commented: "One of the reasons for the popularity of superfoods is that, as real food, they taste great. The body recognises real food and responds positively to the nutrients provided. Many people today have a diet that is processed foodrich and nutrient depleted. By choosing nutrient-dense foods like superfoods, individuals may be attempting to compensate for these nutrient-depleted processed foods - these 'naughty' foods. Most people today know that they should be consuming a minimum of five vegetables/fruit daily. Many do not even achieve this and don't come anywhere near achieving the higher recommended numbers (of 14-17) set by other Governments. For some people, consuming superfoods may be a compensatory means of ensuring their recommended daily intake of fruit and veg."

And it's a product category Holmes believes is

important to use in clinic.

"As nutritional therapists/nutritionists, we should always be encouraging clients to replace nutrientdepleted foods with nutrient-rich ones. Superfoods have to be included. Superfoods should be 'on the menu' nutritional therapists use when negotiating doable menu plans with their clients. Whether we call them 'superfoods' or not, the value of these individual foods is a fact. Grouping them together reinforces their superior value – superior (in nutrient value) to what many people are consuming."

## "Superfoods have to be included. Superfoods should be 'on the menu' nutritional therapists use when negotiating doable menu plans with their clients. Whether we call them 'superfoods' or not, the value of these individual foods is a fact."

Andrew Hunt, MD and Co-founder of Aduna, which specialises in superfoods, including baobab and moringa, pointed towards the huge growth the sector has seen, commenting: "There has been so much media hype around superfoods that the term itself is in danger of losing its meaning. If we describe something as a superfood at Aduna, we simply mean that it is an exceptionally nutrient-dense wholefood with specific beneficial properties for health and wellbeing, to be used as part of a healthy, varied diet.

"The superfood category has been enjoying steady growth in recent years (CAGR of 33 per cent). Within this, African superfoods have enjoyed particularly high growth. This is down to a number of reasons; Firstly, there has been a macro-level shift in the food sector over the last few years, which has seen an unprecedented number of consumers actively seeking nutritious, natural food choices. In fact, 'naturally healthy foods', including superfoods, is the largest and fastest growing segment of the \$1trillion global health and wellness sector (Euromonitor International 2015).

"There has also been a groundswell in consumer demand for products with positive social and environmental impact (33 per cent of UK consumers 'actively choose' to buy brands doing social good – Unilever 2017) and many superfoods come from developing parts of the worlds and are often produced by ethical companies like Aduna. Thirdly, and this is specific to Aduna's growth rather than the category in general, Africa has emerged as a major new trend within food and drink (Mintel European Consumer Trends 2017 Report). We anticipate that African superfoods like baobab, moringa and cacao will continue to acquire a greater share of the superfood category and that superfoods will increasingly be used as ingredients in new products by food and drink manufacturers."

Jason Linton, from superfood brand, Iswari, believes our social media culture has helped to drive this growth.

"I think there has been a huge increase in the awareness recently, especially with the rise in food related social media and celebrities/lifestyle bloggers demonstrating their healthy food choices in an artistic and creative format. I think it is natural that people are turning to food to gain their nutrition as it is such a natural progression," he commented. "We need to eat and we may as well use that to the advantage of our health. The rise in popularity of health food brands helps this process and feeds back into the exponential

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growth in awareness. As health brands get stronger they can afford to advertise more, and break into the mainstream, and demand increases further."

## **UNDERSTANDING THE TERM**

So, what do the experts believe constitutes a superfood?

"A 'superfood' is a food which naturally contains high amounts of beneficial nutrients. It tends to be plant foods which qualify for this and so would be considered to be foods high in phytochemicals, especially antioxidants. Superfoods should be nutrient-dense and offer benefit to the consumer," Holmes explained.

"Some of these benefits may include helping to counter oxidative stress, reduce inflammation, support the immune system, boost energy and support liver health and detoxification. However, these superfoods will have their best effect as part of a varied diet and lifestyle. Superfoods are, in some ways, the opposite of processed foods, providing nutrient-rich sustenance, instead of nutrient-depleted calories. Superfoods are high in phytonutrients, rich in vitamins, minerals and antioxidants. Superfoods are nutrient-dense and rich in what the body needs to maintain health and can naturally boost micronutrient content of the diet. When these are consumed in preference to processed foods, superfoods can shift the balance favourably toward health benefit."

Hunt added: "Superfoods can be a great way to supplement a healthy, balanced diet with an added boost of essential vitamins and minerals and key macronutrients, such as protein and fibre. They can help support your overall health, as well as addressing any particular deficiency or health need." Over at Iswari, Linton added: "A superfood is any food which naturally contains an abundance of nutrients, antioxidants or beneficial compounds and is not toxic to the body when taken in the correct way. Superfoods can help people to empower themselves by taking control of their own health. As long as someone is well informed (usually a nutritionist can provide the best approach), people can start to use healthier food choices to bring their bodies back into balance."

## **CHLOROPHYLL-RICH**

In terms of the various superfoods, Holmes advocated opting for those that are rich in chlorophyll, which includes spirulina, chlorella, wheat grass and barley grass.

"Chlorophyll-rich foods are nutrient-rich, alkalysing and have deodorising properties," Holmes explained, adding: "Barley grass, which is considered to have a much milder taste than other chlorophyll-rich superfoods, contains over 70 nutrients, including vitamins, minerals, amino acids, essential fatty acids and enzymes. Barley grass contains many enzymes (more than 20). In particular, green barley grass contains the powerful free radical scavenger, Super Oxide Dismutase (SOD), one of our most important endogenous antioxidant enzymes. Enzymes are important for digestion, healthy immunity and to aid detoxification.

"Barley grass also contains a flavonoid 2"-O-Glycosylisovitexin (2"-O-GIV), shown to be a more potent antioxidant than vitamin E. Barley grass has recently been shown to contain P4D1, a strong antiinflammatory substance, which may aid DNA repair<sup>i</sup>. Some say that young green barley leaves are 'the ideal fast food for the human race<sup>ii</sup>'. What a wonderful



replacement for foods most people consider as `fast foods'!"

## **BERRY BOOST**

Fruits also offer much in the way of superfood status, and are easy to incorporate into the everyday diet.

"Dark-skinned berries are very rich in anthocyanidins; blueberries, cranberries, blackcurrants, açaí and camu-camu, which is the richest source of vitamin C of all fruit," Holmes explained. "Camu-camu is the large berry of *Myricaria dubia* from the Amazon Rainforest basin and is exceedingly high in vitamin C, as well as being rich in anthocyanidins, catechins, ellagic acid, and rutin; these phytonutrients work synergistically with vitamin C and optimise absorption. Camu-camu is also rich in carotenoids, including lutein, beta-carotene and zeaxanthin.

"As a food source of vitamin C, the superfood camucamu is gentle on the stomach, highly bioavailable and optimally absorbed. Superfoods, like camu-camu, contain not only vitamins and minerals but also a range of phytonutrients to synergistically enhance



#### bioavailability."

Keep in mind acai too, vitamin-rich, with high levels of anthocyanin, a flavonoid with antioxidant effect, also found in pomegranates and blueberries.

Holmes continued: "The anthocyanidin content and antioxidant properties of these foods may account for their inclusion in healthy ageing protocols. Açaí contain at least five flavonoids, at least one of which has been recently identified as a potent NF-κB inhibitor<sup>iii</sup>; açaí has shown ability to reduce pain,<sup>iv</sup> which may be due to anti-inflammatory properties. Açaí berries also contain phytosterols and healthy fats (omega 3, 6 and 9) and a recent study (2017) shows this superfood may favourably affect HDL metabolism and antioxidant defence so may have beneficial effect regarding atherosclerosis<sup>v</sup>."

## "Foods like maca, spirulina, chia and cacao can help people to not only regain the important nutrients they are missing, but can also help to balance hormone levels, and can even help with anxiety, mood and sleep patterns."

Don't forget that some of our best-loved vegetables are also widely accepted as superfoods.

"Members of the brassica family feature highly on the list of the most beneficial superfoods. These would include broccoli and kale, as well as maca (*Lepidium meyenii*) a well-known energising superfood, which most people do not realise is a member of the brassica family. Maca is also known as Peruvian ginseng and has been used for its adaptogenic properties,"Holmes explained."

## **DRINK UP**

An easy way for clients to incorporate superfoods into their daily routine is through healthy drinks as many teas are considered to boast superfood status.

"Polyphenol-rich foods also make great superfoods. Green tea is a well-known polyphenol-rich superfood. Yerba maté, however, contains more polyphenols than green tea. Antioxidant-rich yerba maté (*llex paraguariensis*) from South America also contains vitamins, minerals, amino acids, plant sterols and saponins. Yerba maté is also a source of caffeine and this superfood, by virtue of its nutrient-rich profile with added caffeine, makes an excellent tonic for those with busy lifestyles," Holmes explained.

## **ANTIOXIDANT ACTION**

You also want to recommend superfoods that contain high levels of antioxidants, and here, Hunt recommended baobab and moringa.

"Baobab has already been named by Mintel as 'the next big thing in gluten free baking' and moringa is seeing similar search volumes as quinoa did 10 years ago," he explained.

"Baobab powder, made from the nutrient-rich African superfruit, is rich in vitamin C, high in fibre and has more antioxidants than any fruit. Moringa powder, the naturally dried leaf of the Moringa tree, one of the most nutrient-dense plants on the planet, is a rich source of protein, iron, vitamin A and vitamin K. It is also 31 per cent fibre and a source of vitamin E, calcium and magnesium."

Linton added: "Foods like maca, spirulina, chia and cacao can help people to not only regain the important nutrients they are missing, but can also help to balance hormone levels, and can even help with anxiety, mood and sleep patterns."

# **EVERY DAY INTAKE**

The good news is superfoods are very versatile and can be found in many different forms.

"It is easy to incorporate superfoods in the diet by swapping nutrient-depleted foods with nutrient-rich superfoods. Many of these can be added to smoothies or make drinks in their own right (for example, green barley grass shots, yerba maté tea). Superfood fruits can be added to smoothies, fruit bowls, porridge oats and yoghurt. Maca is great added to homemade raw breakfast bars," Holmes commented.

Linton explained: "Superfoods are easy to use in smoothies, breakfasts and treats and so can be easily put into a protocol. They can help clients to continue to satisfy cravings for sweeter foods, but in a healthier way. They are easily accessible and can limit the need for supplementation. Use them in smoothies, sweet treats, breakfasts or even salads."

Hunt continued: "It's easy to add superfoods into your everyday diet. The easiest way is not to change your routine, but rather to add them into the food and drinks you usually make. A superfood boost to your 'go-to' breakfast or dinner, for instance, blending into smoothies and juices or sprinkling on porridge, cereals or soups. Alternatively, you can stock up on superfood snacks to keep you going while you are out and about."

And keep in mind quality when making product recommendations; given how mainstream the market has become, there are a lot of 'me too' products that don't boast the necessary quality.

Holmes explained: "Choose barley grass that is organic and produced in a way that protects the enzymes from damage (by heat or acidity) and look for the high-quality extraction and spray dry process. Important considerations for the quality of green barley grass include how quickly from the point the
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"Most of the superfoods in the market come from rural parts of the developing world. As such, health and hygiene standards can be a real issue, particularly around contamination and micro-bacteria. It's crucial to buy from a brand you can trust to take the necessary precautions."

grass is cut until they are cleaned and prepared, look for removal of fibre, look for a process that doesn't destroy the nutrients by heat or acidity, look for an extraction and spray dry process, look for analysis of nutrient content indicating enzymes, for a product grown on fertile soil and organic.

"Regarding maca, look for the colour; yellow, red, purple and black, and choose a product with more than one as each will have a slightly different phytonutrient mix. Look for a product which uses a gelatinization process as maca is naturally difficult to digest raw. Some of the enzymes in raw maca are slightly toxic and inhibit digestion and assimilation. Scientifically, bioavailability can be addressed through gelatinization, an extrusion process of heating under pressure for a few seconds. Regarding açaí, look for a product which has a minimum 10 per cent polyphenols."

And Hunt also pointed out: "Most of the superfoods in the market come from rural parts of the developing world. As such, health and hygiene standards can be a real issue, particularly around contamination and micro-bacteria. It's crucial to buy from a brand you can trust to take the necessary precautions – even if it costs a little bit extra."

Linton warned: "Follow the instructions on the packet, always start small and increase the dose as your body adjusts to avoid a detox reaction or crisis."

# Nutrition Product Showcases

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# FORGET ABOUT DRYNESS

Understand why the health of our mucous membranes matters.

ne of the main causes of many menopausal symptoms is the drop in oestrogen levels, which start during the perimenopause.

Many women will be familiar with hot flushes, a constant sense of tiredness and mood swings but loss of oestrogen also brings on a series of symptoms associated with dryness of mucous membranes in general. Mucous membranes work in the background, covering the lining of the respiratory, digestive and urogenital tract, as well as the inner surface of the eyes and mouth. Together with the skin, they act as a formidable line of defence against germs, allergens and toxins, preventing them from entering the body.

### DRYNESS: THE PROBLEM

One of the signs of dryness is the skin losing its plump, youthful appearance, which can contribute to making many women feel old before their time. Low oestrogen levels can also lead to intimate dryness, which affects around 50 per cent of all menopausal women.

Intimate dryness consists of the thinning and shrinking of the tissues in and around the vagina and inevitably leads to painful sex, which can have a detrimental effect on relationships and a woman's confidence and sexual

response. Women who have undergone induced menopause and/or breast cancer treatment also experience severe vaginal atrophy.

"Mucous membranes work in the background, covering the lining of the respiratory, digestive and urogenital tract, as well as the inner surface of the eyes and mouth. Together with the skin, they act as a formidable line of defence against germs, allergens and toxins."

Dryness is a problem which can affect both men and women of all ages. We have certainly seen a rapid increase in the number of young people suffering from dry eyes (normally a condition associated with older people) and this is due to the widespread use of air conditioning, as well as the regular use of handheld devices, such as smart phones, tablets or PCs.

## **A NATURAL SOLUTION**

What many people who suffer from the condition do not realise is that a common symptom is streaming, watery eyes. Although it is important to visit your optometrist or optician to assess the condition, eye drops are typically recommended with various degrees of success.

An increasing number of eye health professional are becoming more and more aware of a natural product, which is achieving great results in addressing dry eye symptoms. Omega 7 SBA24 contains a combination of fatty acids derived from the sea buckthorn berry and it shows remarkable success in dealing with symptoms related to dryness in the body. This is great news for all menopausal women as just one product can effectively address intimate dryness, dry eyes and dry skin.

# THE SCIENCE BIT

The SBA24 formulation has been used in all clinical trials, with particular focus on dry eyes and intimate dryness. One of them was a placebo-controlled, double-blind clinical study with 100 people suffering from dry eyes and associated symptoms such as soreness, dryness, grittiness, burning, redness, watery eyes or blurred vision. The people in the omega 7 SBA24 group found that their symptoms significantly improved or disappeared altogether. Contact lens wearers also commented that they were able to better tolerate their lenses. More opticians are now recommending omega 7 SBA24 to their patients as a practical solution for dry eyes.

In 2015, an empirical trial with 55 menopausal women looked at the impact of omega 7 SBA24 on vaginal dryness over a period of three months. The results were very encouraging with 86 per cent of participants finding their symptoms improved and over two thirds feeling the difference after only two weeks.

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# EXPERTADVICE

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

What are the obvious nutritional and lifestyle patterns to look for when women present with recurrent UTIs in clinic and what is the best protocol to follow?

**ISABELLE NUNN EXPLAINED:** Urinary tract infection rates are alarming, being responsible for more than eight million doctor visits each year. Regular courses of prescribed antibiotics and analgesics may actually make matters worse. Disturbing the bacterial internal flora, and promoting antibiotic resistant strains of bacteria, 80-90 per cent of UTIs are caused by *E.coli*, a bacterium normally found in the intestines. Bacteria entering the urinary tract would normally rapidly be removed by the body without causing any symptoms. However, when the body's natural defences are not strong enough, the bacteria overcomes this and will cause an infection. One of the common mistakes is the consumption of commercially available cranberry juice, which contains relatively little pure cranberry juice (less than 30 per cent) and have high fructose corn syrup or other sweeteners added.

Nutritional and lifestyle patterns that may contribute to UTIs include women forgetting to keep genital and anal areas clean and dry and forgetting the habit of wiping from the front to back after emptying the bladder/bowels, those favouring nylon underwear instead of cotton, and consuming high amounts of alcohol, caffeine, carbonated beverages, refined and processed foods and simple sugars. Chemicals in food, drugs and impure water can have an adverse effect on the bladder. The onset of bladder infections can also be caused by pregnancy, sexual intercourse, the use of a diaphragm and systemic disorders, such as diabetes.

The best protocol to follow would include strengthening the immune system. Cranberry is one of the best herbal remedies for bladder infections. Dandelion tea or herbal extract acts as a diuretic and liver cleanser and aids in relieving bladder discomfort. Make sure to get extracts and not tinctures, as these are free of alcohol, as well as being higher in potency.

Fresh blueberries are effective

antioxidants. The blue pigment from their anthocyanidins maybe as useful as cranberries in preventing UTIs.

REFERENCES

Consume probiotics in the form of fermented foods, such as sauerkraut and kimchi, plenty of fibre in the diet to support healthy gut microflora, and include natural antibiotics, such as garlic, in the diet.

Research shows that a course of D-Mannose and cranberry may be more effective for recurrent UTIs. D-mannose acts as a 'decoy', attracting microbes away from the bladder wall, while cranberry decreases the microbe's ability to adhere to the bladder wall and urinary tract lining. Together, they work synergistically to support urinary tract health.

Oral probiotics may provide support as well, while focusing on strains, such as *L.rheuteri* and *L.fermentum*.

Lifestyle wise, make sure to not delay emptying the bladder, and that urination occurs every two to three waking hours. Avoid taking excess zinc and iron supplements until healed, as taking more than 100mg of zinc daily could depress our immune system; bacteria needs iron for further growth. If a bacterial infection is present, the body stores iron



in the liver, spleen and bone marrow in order to prevent further growth of the bacteria. Avoid using feminine hygiene spays, packaged douches, bubble baths, tampons, sanitary pads or toilet paper with any form of fragrances. These chemical products can be potentially irritating. Lastly, try to avoid citrus fruits, as these tend to produce alkaline urine that can encourage the growth of bacteria.

#### **CLICK FOR MORE QUESTIONS**



# THE EXPERT



ISABELLE NUNN, MPHARM (Hons) Dip NT is a qualified Nutritional Therapist and pharmacist, providing expert advice at leading natural

products distributor, Kinetic Enterprises as Technical and Commercial Nutritionist. Passionate about nutrition, health and disease prevention, Isabelle believes in using a holistic approach to improve your overall wellbeing. I have many clients asking me how to increase their protein intake, but there is so much choice, and very differing quality – what are the best recommendations I can make?

#### MARTINA DELLA VEDOVA RECOMMENDED:

Lean sources of protein are easy to increase in the diet. Eggs or yogurt for breakfast, a snack of nuts and seeds and lean fish and meats should be included. Beans and pluses should also be included as they are also high in fibre. For those people who struggle to eat a balanced healthy diet, a protein supplement that can be mixed into a shake or smoothie can be a quick and easy option.

In terms of supplements, whey protein was once the gold standard protein supplement of choice. However, with the increasing trend for vegan diets and many people choosing to avoid or reduce dairy, plant-based protein supplements are becoming increasingly popular.

Let's review some of the available options.

Sunflower protein is a complete protein because it provides all of the essential amino acids. Its most noteworthy feature is its high concentration of branched-chain amino acids (BCAAs valine, leucine and isoleucine), which are well known for their ability to promote muscle growth and strength. It has a mildly nutty flavour and is an ideal pre or post workout shake.

Pumpkin protein from the seeds of a pumpkin is renowned for its ability to promote health in both men and women. Research also points to potential benefits in other areas such as healthy inflammation control.

Almonds are one of the healthiest foods on earth. So, it's not surprising that almond protein is regarded as a superior source of highly absorbable protein, with many unique benefits. Almond protein is associated with cardiovascular function, and supports the strength, growth and recovery of muscles.

Pea protein has become a primary choice for dieters.

It is a good option as it helps you to feel fuller for longer and helps you resist the urge to eat too much and snack between your meals.

Flax protein is a good source of omega 3 and fibre and is associated with digestive function health. It's a versatile protein as it is fairly neutral tasting so can be a good option for use in cooking. It can also be used as an egg substitute in vegan cakes.

# THE EXPERT



MARTINA DELLA VEDOVA MSc graduated in Functional Genomics in Italy and she obtained a Master Degree in Genetics in Paris. She then developed a passion towards nutrition and in London, she

qualified as a Nutritional Therapist. She is a member of BANT, is CNHC registered and is a Nutrition Advisor at Nature's Plus.

CLICK FOR MORE QUESTIONS





O ASK THE EXPERTS

Detox is a phrase I hear regularly from clients – but does everyone need to detox?

**ROSE HOLMES EXPLAINED:** Most people probably need to detox. Our bodies are bombarded by toxins daily through the foods we eat, the beverages we consume, the air we breathe and the products we place on our bodies. These add to the burden our 'detoxifying' organs (liver, kidneys, intestines, respiratory tract, blood, lymph system and skin) need to cope with just from normal metabolic processes. Many of us may also have exposure to toxins and heavy metals via smoking, dental amalgams, cooking methods, cosmetics/personal hygiene products, cleaning products, fabrics and paints, as well as through work environments (especially automotive and construction industries, hair dressing/nail salons). This is in addition to dealing with alcohol, non-filtered water and pesticides from non-organic foods, not to mention prescription medications.

Just read the list of ingredients in processed foods and cosmetic/beauty products to get an idea of the synthetic compounds our bodies must process. When it is busy dealing with all these foreign substances, it has less time to deal with the metabolic processes that help us maintain optimal function of body systems.

Natural elements (for example, metals) can also act as toxins in our body. Common heavy metal exposures include to mercury (dental amalgams, vaccines, large fish), lead (paints, petrol), aluminum (cookware, coffee pots, deodorants) and cadmium (smoke exposure, paints, batteries). The wellknown toxin, arsenic, is also prevalent (pesticides, herbicides, insecticides), as is the less well-known antimony (tobacco, textile fireproofing). Nickel (cigarettes, diesel exhaust, batteries, jewellery) is well-known for hypersensitising the immune system and causing hyperallergenic responses. These all have potential to challenge detoxification capacity and disrupt body function.

Signs that detoxification channels are overloaded include fatigue and low energy. These are common complaints and indicate that toxin load may be exceeding the body's ability to detoxify. Another common complaint, constipation, is an indication that one of the primary excretion routes is blocked. Two to three softly-formed and effortlessly-eliminated bowel movements are a daily requirement for ensuring good detoxification. Ensuring adequate hydration is also necessary. Exercise aids function of other elimination channels, skin (via sweat), lungs and lymph.

Providing a nutrient-rich food with high chlorophyll content is an excellent way to boost detoxification, and simultaneously alkalyse and deodorise (for example, bad breath). Highchlorophyll foods include chlorella, spirulina, wheat grass and barley grass. Cilantro, parsley and the South American herb, *Desmodium molliculum*, are three excellent herbs, which can aid detoxification of toxins and heavy metals.

Glutathione, selenium and curcumin, which support the liver, may also aid detoxification. Detoxing with something such as barley grass juice extract is an excellent way to start any health supportive protocol as it helps prepare the body for absorbing nutrients.



# THE EXPERT



ROSE HOLMES, BSc (Hons), Dip.ION, PGCE is a Nutritional Therapist with special interests in chronic illness, circadian rhythm disruption and healthy ageing. She is the Education and Training Manager at Rio Health.

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Rosalie Zieck, a student of Pharmacology, details the considerations for supporting a healthy macula.

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acular degeneration is one of the main causes of vision impairment related to ageing. Pigments in the eye play an important role in maintaining the macular function and the resilience to harmful influences. These substances are taken from the diet, but supplements can be a useful addition.

A renewed research-based combination of antioxidants and pigments offers positive perspectives and is able to assist in delaying the progression of macular degeneration.

## **YELLOW SPOT**

On the retina, on the inside of the eye, are millions of sensory cells responding to the incidence of light. These cells then send a signal to the brain, where an image is formed. On the retina is the yellow spot (macula lutea or macula). The macula is nicknamed yellow spot because this point on the retina is more yellow in colour due to the high concentration of pigments. The macula mainly contains sensory cells in the shape of cones, enabling to see sharply and discern small details.

### **MACULAR DEGENERATION**

In age-related macular degeneration (AMD), damage is caused to the macula, reducing its function and making the vision less clear. Several factors form the basis for the development of AMD. The main factor is age.

Certain genes can also give an increased risk of developing this disorder. In addition, smoking is an important, genetically independent factor that increases the risk of AMD<sup>[1]</sup>.

Macular degeneration occurs in about 11 per cent of the population with a European background and is also the main cause of vision impairment in people aged 55 and above. Macular degeneration has a dry and a wet form<sup>[2]</sup>.

In the dry form, yellowish accumulations (druses) develop in the macula. These can increase over time and affect the macular pigmentation. This often coincides with a reduced visual capability. The final stage of dry macular degeneration is visible as pale spots on the retina (geographical atrophy)<sup>[3]</sup>.

In the wet form of macular degeneration, new blood vessels develop under the macula, from which blood or moisture is leaking. The light-sensitive cells are thereby impaired, resulting in a rapid deterioration of the vision.

The dry and wet forms of AMD are equally represented and, therefore, are often referred to under the term AMD, although the wet form is the most unfavourable due to the late commencement and rapid progression of the disorder<sup>[2]</sup>.

## **OXIDATIVE STRESS**

Free oxygen radicals (Reactive Oxygen Species, ROS) are known to play a major role in causing damage to cells and ageing, in general. ROS also occur frequently in the retina due to its high metabolic activity and the high level of blood circulation. Also, light falling on the macula – mainly (bright) sunlight – causes the creation of free oxygen radicals. Normally, these are captured by antioxidants.

The development of free radicals causes the macula to suffer from wear, which can be permanent in the case of an insufficiently strong antioxidant system. For a long time, exposure to (bright) sunlight has been associated with retinal damage and an increased risk of AMD<sup>[1][4].</sup>

A healthy macula cell has several mechanisms to minimise the ROS concentrations and the resulting damage. For this, one factor is crucial; the Nuclear factor erythroid-2 related factor 2 (Nrf2).

Nrf2 regulates the gene transcription of factors that maintain the cellular oxidation balance and protect the cell from oxidative damage<sup>[5]</sup>. The expression of Nrf2 decreases with age and can be adversely affected by smoking and diseases<sup>[1]</sup>.

Molecules that are damaged by free oxygen radicals can be found in AMD patients in all layers of the macula. Protecting the cells from oxidative stress through an adequately functioning antioxidant system is a method that can delay the development of AMD.

# **PIGMENTS AND ANTIOXIDANTS**

As mentioned earlier, the macula's colour is due to the pigments that occur here in a higher concentration. These pigments are lutein, zeaxanthin and meso-zeaxanthin, all carotenoids. The proportion of these carotenoids in the macula is almost 100 per cent of all the carotenoids in the eye. The body cannot produce these pigments and their availability for the macula completely depends on dietary absorption.

Meso-zeaxanthin is the exception. According to the latest insights, this form is created locally in the retina<sup>[6].</sup>

# THE SUPPLY OF COLOUR FROM OUR NUTRITION

Several major population studies (the *Blue Mountains Eye Study*<sup>[7]</sup> and the *Rotterdam study*<sup>[8]</sup>) have shown that a higher daily intake of lutein and zeaxanthin from nutrition reduced the risk of developing age-related macular degeneration.

Also other antioxidants, including vitamin C, vitamin E and omega 3 fatty acids reduce the risk of AMD. To date, these nutrients are the only substances of which is known that they can be used preventively in age-related macular degeneration.

In the Age-Related Eye Degeneration Study (AREDS) – a population study with 4,757 participants who were followed for six years – the combination of vitamin C, vitamin E, beta-carotene, zinc and copper was found to reduce the risk of advanced AMD by 25 per cent<sup>[9]</sup>.

### **NEW RESEARCH, NEW NUTRIENTS**

The above research was continued as the AREDS2 study. Participants with a high risk of progression to wet AMD, people with large druses in both eyes (dry AMD), or with a combination of both, were included.

In the AREDS2 study, the composition of the supplement was slightly modified. A lower dose of zinc was used (25mg zinc oxide instead of 80mg, previously) and omega 3 fatty acids were added (1000mg; 350mg DHA and 650mg EPA). The 500mg of vitamin C,



400IU of vitamin E and 2mg copper were maintained.

In the AREDS2 supplement, beta-carotene was replaced by lutein and zeaxanthin (10mg and 2mg, respectively)<sup>[10]</sup>, not only due to a potentially increased risk of lung cancer in smokers, who take higher quantities of beta-carotene, but also because lutein and zeaxanthin reduce the risk of AMD<sup>[11][12]</sup>. This has been demonstrated extensively in previous clinical research.

Part of a large-scale *Carotenoids in Age-Related Eye Disease* (CARED) study revealed a protective effect of a lutein- and zeaxanthin-rich diet against age-related macular degeneration in 1,323 women under the age of 75. The risk of AMD decreased by 48 per cent<sup>[12]</sup>.

Also, it is not beta-carotene, but lutein and zeaxanthin that are present in the macula.

In a partial study with 1,698 women of the CARED study, results showed that the pigment density of the macula (MPOD) is directly related to the intake of lutein and zeaxanthin, and especially to their serum concentrations<sup>[13]</sup>. The MPOD (macular pigment optical density) determines the visual acuity.

The results of the AREDS2 study showed that the renewed composition is as effective in reducing the risk of late (wet) AMD as its predecessor<sup>[10]</sup>. Also in AREDS2, the risk of late AMD was reduced by 26 per cent. Lutein and zeaxanthin had similar effect as beta-carotene and thus proved to be an effective replacement. In addition, the risk reduction was equally high at a lower dose of zinc.

This corresponds with the finding in the *Blue Mountains Eye Study*, where a decrease of the risk of AMD was observed at an average dose of 15mg zinc<sup>[7]</sup>.

The addition of omega 3 fatty acids did not cause a further reduction in the risk of late AMD compared to the original AREDS formula<sup>[10]</sup>.

By the logic of the AREDS2 study (no placebo for the addition of omega 3 fatty acids and the continued use of the AREDS1 formula), it is possible that the effect of omega 3 fatty acids did not seem to have added value.

From randomised studies, including the *Nutritional AMD Treatment* (NAT2) study, high concentrations of fatty acids appear to have a protective effect against AMD<sup>[14]</sup>.

The quantities of nutrients used in the AREDS2 formula cannot or can hardly be obtained from the diet, especially, when it is not possible to eat enough vegetables rich in lutein and zeaxanthin, the benefit of such a supplement is significant. A supplement with the AREDS2 formula can be used in addition to a regular multivitamin.

## THE POWER OF LUTEIN AND ZEAXANTHIN

Research shows that the bioavailability of the free form is 17 per cent higher than the lutein ester, thus favouring the supplementation of free lutein<sup>[15]</sup>. Zeaxanthin can be obtained from plants, including the *Tagetes erecta* (also called African marigold). The zeaxanthin from this source is identical to the form that naturally occurs in the eye lens.

The addition of pure, natural zeaxanthin is therefore preferred in a supplement for the prevention of macular degeneration.

# **GOOD PERSPECTIVES**

The progression of AMD to late, wet AMD is the most common cause of vision impairment in the elderly and, unfortunately, for many, an everyday issue. Supplementation with a tested combination of antioxidants and pigments can delay the progression of this disorder.

The combination of vitamin C, vitamin E, zinc, copper and the natural pigments lutein and zeaxanthin has been scientifically proven and offers perspectives for the longer preservation of a good vision.



ROSALIE ZIECK is studying for her Master's degree in Pharmacy at the University of Utrecht, The Netherlands. For Springfield, she writes scientific articles and conducts literature studies to support new product development.



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





# **BETTERYOU DLUX3000**

Associated with strong bones, healthy teeth and a robust immune system, it is easy to see why we all need vitamin D. BetterYou DLux3000 is a convenient and simple oral vitamin D spray which has been scientifically proven to deliver this vital vitamin straight into your bloodstream - with guaranteed superior absorption than tablets or capsules.

**Ö I-Win: We have five DLux3000** Vitamin D Oral Sprays to give away.

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BioCare Nutrisorb Liquid **BioMulsion D** delivers 1000i.u of this must have vitamin in one single, delicious lemon flavoured drop. The pure and simple liquid format can be taken directly under the tongue, and is handy for on-the-go. The unique BioMulsion technology increases the absorption of the vitamin D. for maximum effect. Vitamin D supports blood levels of

calcium and phosphorus in the body, assists the immune system and helps maintain healthy brain function and mood. **O I-Win: We have 10 packs to give away.** 

# NUROCYTE



# NUROCYTE

Nurocyte is a unique 100 per cent vegan food supplement containing 500mg hop alpha acids per capsule, derived from the female cone of the hop plant Humulus lupulus L. Hop alpha acids have excellent antioxidant properties supporting the natural inhibition of NF kappaB, and work synergistically with other herbs and nutrients. Clinical trials have concluded hop alpha acids are safe and efficacious.

**O I-Win:** We have five packs of 30 capsules of Nurocyte, worth £23.09 each, to give away.

# **HIFAS DA TERRA BIO-VITAL**

Bio-Vital is a superfood made from medicinal mushrooms from certified organic production helping us to increase the feel good factor every day. It is an effective daily superfood with a blend

of mushrooms including reishi, shiitake and oyster mushroom powder. Containing organic compounds, Bio-Vital works synergistically on cases of lack of vitality, irritability or tiredness. **Č** I-Win: We have five packs of 60 capsules to give away (worth £27.80 each).



# **G&G NIGHT AID**

G&G's Night Aid supplement provides high strength natural 5-HTP, combined

- with magnesium and vitamin B6 for optimum
- absorption. G&G has also included its unique Night

Blend, a mix of six natural ingredients that can be taken before bed. The Night Aid supplement is suitable

for vegetarians and vegans. It is also approved kosher and does not contain any allergens. **O I-Win:** We have five packs to give away.



# **Protexin for** practitioners

With big investment in research, NPD and its practitioner business, **Protexin** and its Bio-Kult and Lepicol brands are fast becoming the most popular in the sector.



f there was one product sector that has exploded in recent years, it is without question the probiotics category. Of course, the market is now flooded with many probiotic products, in many different forms, some more specialist, others much more mainstream.

But within the practitioner market, the story is different, with quality, research and innovation remaining at the forefront. One company proving to be a leading light in this respect is Protexin, which boasts the popular Bio-Kult and Lepicol ranges in its portfolio.

The company, which specialises in digestive health products, places huge importance in investing in research, and NPD that is backed by science, and in supporting its practitioner customer base.

Brand Manager, Hayley Milne, explained: "Practitioners have always been and always will be incredibly important to us – they're the people who have the ability to spread the word, and to educate the end consumer, and their recommendation has a lot of weight behind it. We have fantastic relationships with all the practitioners we work with and our team of practitioners in-house are always on hand to chat through our products or latest research with any practitioner who is keen to learn more.

"We believe that good probiotic marketing should be based on science, clinical results and word of mouth. And because we put this into practice, practitioners have faith in us and our products. We have no plans to change this behaviour and see our relationship with practitioners continuing successfully long into the future."

And it seems this approach is bearing fruit, as both Bio-Kult and Lepicol continue to go from strength to strength, with more and more practitioners, and in turn, their clients discovering the products.

She added: "We're strongly aligned with practitioners, and there is a strong synergy with the sector. We support practitioners in a variety of ways. These include a 33 per cent discount on orders over six units, promotional material that they may feel beneficial, including our client leaflets and posters, as well as brochures detailing our research results and thoroughly researched articles supporting their field. We also encourage practitioners to look and join in with our thriving online and social media community as well. This is another way we find is very popular for us all to keep in touch. Find us on Facebook @Biokultprobiotics and @Lepicol or follow us on Twitter @Bio\_Kult and @Lepicol\_UK. We've also just joined Instagram too @BioKult\_UK and @Lepicol. And if that wasn't enough, we've recently launched our new look website for Bio-Kult and we encourage practitioners to take a look online for quick access to our research."

### PRACTITIONER INNOVATION

One of the most exciting developments of the last couple of years has been with regard to product innovation, which saw Protexin unveil the popular Lepicol sachet pack, with the same formula found in the Lepicol 180g, and 350g, but now in an easy to carry compact box



#### containing 14 5g sachets.

"We genuinely believe in listening to our customers and Lepicol that was easier to take whilst on the go and/or travelling was something that was high in demand," Hayley explained, adding: "Practitioners were also calling out for a product that supports healthy weight loss for their clients. With a market full of products offering quick fixes with no long-term benefits, we felt there was a gap in the market."

And the result? Lepicol Lighter, a scientifically developed, natural food supplement designed to assist weight loss.

The rationale behind the product, Hayley explained, was to help practitioners educate customers about healthy weight loss.

"Most clients aren't aware that extra pounds aren't always down to over consumption and lack of exercise. Our aim is to help practitioners educate clients that the bacteria in our guts can have a huge influence on what we crave and how much weight we gain," she pointed out. "As well as containing seven strains of live bacteria to help keep the gut healthy, beneficial when losing weight, Lepicol Lighter also contains glucomannan, which in the context of an energy restricted diet contributes to weight loss. Lepicol Lighter also contains chromium to help maintain blood glucose, great to help those clients who struggle to resist the 3 o'clock sugar slump."

Both the Lepicol and Bio-Kult ranges aren't huge, and that is because the company has to be sure there is enough evidence and a demonstrated need for a product before it will launch.

"While our Lepicol range has expanded this year, Bio-Kult's existing range has remained at four products but demonstrates continuous growth and popularity both here in the UK and worldwide," Hayley commented.

"The line includes Bio-Kult Infantis with omega 3 and vitamin  $D_3$  for infants and children, Bio-Kult Candéa with garlic and grapefruit extract to protect against candida overgrowth, and Bio-Kult Pro-Cyan with cranberry extract for urinary tract support. The original and most popular product within the Bio-Kult range continues to be our original Bio-Kult Advanced for digestive and immune

system support – aiding a variety of gut issues, from hay fever to antibiotic associated diarrhoea, Bio-Kult Advanced is a go to product for many practitioners."

When we look at the formulation of products, the process is a detailed one, and as such, it can take the brands time to launch any new innovations. For Bio-Kult, it is the multi-strain approach that the company believes is the best.

Hayley explained: "Each human being hosts hundreds of different bacteria strains in their gut. Each strain has unique properties and health benefits, so a multi-strain probiotic should, therefore, exert more positive benefits on a wider range of gastrointestinal complaints. All our strains have shown in vitro that they are able to work synergistically together."

She continued: "A review by Chapman *et al* concluded that 'multistrain probiotics appear to show greater efficacy than single strains, including strains that are components of the mixtures themselves'. We, therefore, believe that it is the greater number of strains in a product that are more important than the dosage. Studies are showing some benefit with doses as low as 1 × 108 (100 million) CFU a day. In all of our products across both ranges, you'll find more than one strain in the product, with as many as 14 in our Bio-Kult Advanced product."

### **RESEARCH INVESTMENT**

Without question, Protexin puts its money where its mouth is when it comes to recognising the importance of robust, scientific evidence when developing new products.

Hayley agreed, explaining: "Our investment in research is significant, both in terms of finances but also time; it is a long process, from setting up the study design, then working with the clinical research organisations, then going through ethics and then the actual study. It is a long and detailed process, it's a big commitment for us but we believe it is important to put a lot of resources into clinical trials.

"The research behind a product and its benefits is something that both practitioners and consumers are demanding more



of. And whilst it can take a long time to get to the results of a clinical research study, we believe it's the best way forward. New research is emerging all the time so watch this space for our latest developments in this field."

## **THE PROTEXIN DIFFERENCE**

As already highlighted, there are a great many digestive health brands in the overall market, but there is no doubt that Protexin sets itself apart from the crowd.

"In terms of what makes us different, practitioners can easily see the brands' value and recommend our products to their clients because we produce quality products and the research we conduct is really robust," Hayley pointed out. "Being cGMP accredited also means we adhere to pharmaceutical high standards. What we say on the pack is actually in the product to the end of the shelf life, and that is important to us, our practitioners and their clients.

"We also support practitioners all the way through their career lifecycle, from supporting them as students with our popular Student Bursary, as well as supporting the colleges they attend with lectures and information. We don't forget about them once qualified though, we are always at practitioner events, always advising of the latest research out there and always enjoy meeting 016 Student Bursary

Winner – Victoria Sims



up with faces we have seen grow up within the practitioner community."

As a business, there is vast expertise across the team; for example, Head of Research, Peter Cartwright, has a wealth of microbiota knowledge. With more than 20 years' experience of working for patient and self-help associations, including National Association for Colitis and Crohn's Disease, Peter also hosts lectures for doctors all over the world on the benefits of probiotics.

In addition, Dr Ashton Harper, Head of Medical Affairs, is a fully registered doctor, who worked in the NHS for five years, during which time he discovered his passion for the management of gastrointestinal diseases.

"Among his responsibilities, Dr Harper writes medical articles and contributes to research and development projects," Hayley commented, adding: "Dr Harper is supported by two Medical Science Liaisons, who have recently joined the Protexin team, Dr Malwina Naghibi and Dr Davinder Garcha. Dr Naghibi is a trained Nutritionist with Ph.D. in Nutrition in Respiratory Medicine. She has been actively involved in medical research for over 10 years, focusing on human nutrition and the relationship between nutritional status and human health. Dr Garcha has authored and co-authored a number of publications in the field of respiratory medicine. In addition to his academic research, Dr Garcha also has more than two years of experience in the pharmaceutical industry, focused primarily in the medical affairs arena, providing nonpromotional advice to healthcare professionals."

Adding further expertise to the team is Janine Barlow, Head of Product Development, who leads the Technical Team consisting of Technical Advisors and trained Nutritional Therapists, Natalie Lamb, Claire Barnes and Hannah Braye, all of whom have joined the company following studies at CNM.

There is also a large team of expert Nutritional Therapists, visiting both health store retailers and practitioners.

Because of the growth the brands have seen, Protexin has invested in the people who work for the company.

"We want to ensure we have the very best team of experts on hand to support our practitioners and their clients. We have lots to talk about so having the right people in the business to talk to our practitioners is really important to us and why we've seen the Protexin team grow by over 10 per cent in under a year," Hayley commented.

And that's before we discuss the prestigious second Queen's Award for Enterprise in International Trade, as well as having been awarded a Best Company for the third time, the second with a two star accreditation.

Hayley added: "We continue to demonstrate ourselves as the expert leaders in the UK probiotic market."

Looking to the future to continue setting itself apart, Hayley added that the brands will take their time to launch anything new.

"It is a complex process to launch a new product – it has to be efficacious, well researched and something that has a demonstrated need. This might come from feedback from our Nutritional Therapists or there might be some research published to show good results for a particular condition. We'll then look at the market to ensure there is a demand for such a product, before carrying out further research into what the product should contain," she explained.

"It then goes through a detailed process of sourcing raw materials, before undergoing rigorous stability trials, where we look at the shelf life of the finished product. We have new products under development and we're always working on something. It might be a product could launch next year or in 10 years as we believe in taking the time to get it just right, so that science and nature truly are in balance.



Bryony and Theresa talking to Nutritional Therapists at an IHCAN conference

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# **CPD DIRECTORY**

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

**Stress and anxiety** Nutri Advanced September 11 – online

CPD hours: BANT one hour Speakers: Jo Gamble, Nutritional Therapist and Behavioural Therapist Cost: £20 (students receive 20 per cent discount) Website: www.nutri.co.uk

#### Personalised Nutrition For Musculoskeletal Health Lamberts

September 14 – Manchester September 19 – London September 26 – Suffolk

#### CPD hours: BANT six hours

Speakers: Lorraine Nicolle BA (Hons), Dip.BCNH, MBANT, MCIM, MS, Shoela Detsios BSc (Can), ND (Aus), Justine Bold BA (Hons), Dip.BCNH, MBANT, Katie Sheen FdSc, DipION, MBANT, NTC, CNHC Cost: £44.95 (delegates receive a £30 product voucher after attendance at the seminar) Website: www.lambertshealthcare.co.uk Nutrigenomics in practice – Detoxification Lifecode GX September 23 – London

**CPD hours:** BANT 5.5 hours **Speakers:** Karen Harrison BSc Hons, mBANT, rCNHC **Cost:** £110 full price **Website:** www.eventbrite.co.uk/e/nutrigenomics-inpractice-detoxification-tickets-35479770950

# Children's Health And Nutrition (three days)

## Institute for Optimum Nutrition

September 26 – Richmond

CPD hours: BANT 15.50 hours Speakers: Lucinda Miller MH MRNI MGNI, Jules Cattell BA Hons Dip ION mBANT NTCC CNHC, Rachel Nicoll PhD, MSc, Dip ION, Jayne Doneghan MBBS DRCOG DCH DFFP MRCGP MFHom, Belinda Blake DipION, NTC, mBANT, CNHC Cost: £600 (£450 student rate, student ID must be

provided)

Website: www.ion.ac.uk/events/practitioner-cpd/

# **Forthcoming webinars**

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

# A Natural Approach to Menopause

# Cleanmarine<sup>®</sup> Krill Oil

Presented by Pharmacist Mike Wakeman Tuesday, September 5, 6.30pm-7.30pm

A hundred years ago, the menopause did not pose the same problems for women that it does today. Then, women typically lived to about age 50 and the typical age of menopause was 51. Today, it is still 51, but life expectancy is closer to 80 years, so women now spend much more time in menopause and post-menopause phase of life.

During this webinar, Mike Wakeman will share his expert knowledge of nutrition, giving an overview of the most commonly used natural ingredients that can have a significant impact on hormonal changes, helping women while they approach the peri-menopause and travel through the menopause itself.

Mike will review the effectiveness of these ingredients with supporting trial and peer reviewed study results. As well as exploring different kinds of phytoestrogens, such as isoflavones, and the properties of rosemary extract, Mike will also discuss the role that omega 3 fatty acids play in combating menopausal symptoms and explain the unique properties of krill oil.



Organised by the IHCAN Conference Team

# Forthcoming webinars...

# Product innovations: Maximising bioavailability without potentially harmful excipents



### Presented by Managing Director, Clinical Research and Development, Dr Michael Jurgelewicz DC DACBN DCBCN CNS Tuesday, October 3, 6.30pm-7.30pm

Learn about Designs for Health's highly bioavailable formulas using the Evail emulsification nutrient delivery technology.

There are several natural products that offer a wide range of health benefits and protective properties, however, some of their challenges are poor solubility, low intestinal absorption, rapid metabolism, or rapid systemic elimination. It is necessary to improve bioavailability before these nutrients can be used in many clinical applications.

This educational webinar is designed to enlighten the clinician with:

■ The Evail Process: An all-natural process that improves absorption and delivery of botanicals and fat soluble nutrients.

Designs for health formulations using the Evail technology.

Review of clinical studies on ubiquinone and curcumin.

■ Applications with Q-Evail, Curcum-Evail, and DIM-Evail. Conferences webinars

Irritable Bowel Syndrome (IBS) - A complex modern syndrome?

# Protexin<sup>®</sup> health care •••

Presented by Karen Harrison BSc (Hons) Dip CNM mBANT rCNHC and Dr Ashton Harper MBBS BSc MRCS Tuesday, October 17, 6.30pm-7.30pm

We have many different microorganisms residing in our gut, evolving in ever-complex communities.

The microbiota is made up from archaea, fungi, viruses and many different bacteria so obtaining healthy digestive function is a fine balance. Our clients' modern lifestyles includes stress, travel, infection, antibiotic therapy, unfavourable food choices, diseases and emotional wellbeing imbalances and these have links to Irritable Bowel Syndrome (IBS).

Can probiotics help with this modern syndrome?

In this webinar, we will investigate: What is IBS?

■ The gut flora's role in IBS.

• How our modern lifestyle has influenced this syndrome.

The latest research behind the use of probiotics for IBS.

# **Upcoming IHCAN Conferences**



Ageing November 18, 2017 Cavendish Conference Centre, London 4.5CPD hours (pending)



Once again, we welcome practioners from all over the country to the Cavendish Conference Centre, in London. This IHCAN conference will focus on 'Ageing', where we will be joined by Dr Craig Willcox and Leo Pruimboom. Dr Willcox is a much sought after speaker and consultant,

currently focusing upon nutritional, epidemiological and epigenetic approaches to successful ageing. He holds Professorships in Gerontology and Geriatric Medicine at Okinawa International University and University of Hawaii.

On the day, Dr Willcox will present 'Secrets of Living Longer (and Healthier) From Those That Have Lived Longest.' Based upon his three decades of research on the world's longest lived people, he will talk about the relative importance of genes vs. environment (including newly discovered longevity genes), the most effective 'anti-ageing' strategies, and risk factor modelling that can predict ones healthy ageing trajectory.

Τf

# COOKING THE DANISH WAY

Take tips from Caroline Fleming and cook healthy, Danish-inspired dishes.



Baked chestnuts or fragrant beetroot (beets) with whipped salted butter



Bean and potato casserole



FOR THE WHIPPED SALTED BUTTER:

• 1tsp pink Himalayan salt or sea salt

• 200g (7oz/scant 1 cup/1<sup>3</sup>/<sub>4</sub> sticks) salted butter

Baked chestnuts or fragrant beetroot (beets) with whipped salted butter (Bagte Kastanjer eller Rødbeder med Rørt Smør) (Serves 6-8)



Nat King Cole's Christmas song *Chestnuts Roasting on an Open Fire* brings back decades of memories, through so many generations and to this day. I have made these delicious chestnuts with my beloved grandmother, with my parents, and continue to make them today with my children. The fragrant beetroot (beets) has always – and will always be – one of my favourite dishes. The hot beetroot (beets) meets the cold butter, the sweet meets the salt in an insanely delicious, nutty combination. Both these dishes make excellent starters.

#### INGREDIENTS:

- FOR THE BAKED CHESTNUTS:
- 600g (1lb 5oz) chestnuts
- 1kg (2¼ lb/4 cups) salt

#### FOR THE FRAGRANT BEETROOT (BEETS):

- 8 regular or 16 small beetroot (beets)
- 2tsp salt

#### METHOD:

1 To make the whipped butter, put the butter in a bowl and leave to soften a little. Then, using a hand whisk, start whisking the butter gently. The softer the butter, the quicker you can stir, and soon you will see the colour change from yellow to a paler yellow and eventually almost white colour – this can take a good 10 minutes. 2 When the butter is nearly white, add the salt, stir again, then transfer to a dish and put in the fridge to chill. 3 For the chestnuts, preheat the oven to 200°C/400°F/gas mark 6. Make criss-cross cuts in the top of each chestnut. Put the salt in an ovenproof dish and sit the chestnuts in the salt with the criss-cross cut top facing upwards.

4 Place the chestnuts in the oven for about 45 minutes. The chestnut skin will curl outwards slightly, and this is a good sign that the chestnuts are cooked. Serve immediately with the whipped butter.

5 For the beetroot (beets), thoroughly wash the beetroot (beets), then put them in a large saucepan, add the salt and cover with water. Bring to the boil, then simmer for 45 minutes (for small) to one hour (for regular).
6 When the beetroot (beets) are cooked, drain, rinse under cold water, remove the skins and serve immediately with the whipped butter.

Bean and potato casserole





# Bean and potato casserole (Kartoffelfad med Bønner) (Serves 6)

I think I can safely say that a very large proportion of the Danish population eat their main hot meal of the day with potatoes of some variation on the side – boiled, smashed, mashed, baked, fried or gratinated. Casseroles have always had a great presence in Denmark, especially in the winter months, and this vegetarian version is so good. I find it utterly satisfying, even for a meat-loving person, but you can always add chicken or another meat if you really want to.

#### **INGREDIENTS:**

FOR THE BEANS:

- 50g (1¾ oz/¼ cup) dried kidney beans
- 50g (¾ oz/¼ cup) dried butter (lima) beans
- 50g (¾ oz/¼ cup) dried black-eyed beans

#### FOR THE CASSEROLE:

- 4tbsp olive oil
- 1 large onion, chopped
- 1 large clove of garlic, sliced
- 1 leek, thinly sliced
- 1tbsp tomato purée (paste)
- 300ml (10fl oz/1¼ cups) tomato passata or 300g (10½ oz) skinless chopped tomatoes
- 300ml (10fl oz/1¼ cups) vegetable stock
- 250g (9oz) new potatoes, cut into chunks
- 200g (7oz) carrots, cut into chunks
- 2 bay leaves
- 130g (4½ oz) grilled (broiled) artichokes, chopped
- 16 pitted green olives, thinly sliced
- 1⁄2 tsp pink Himalayan salt or sea salt
- 100g (31/2 oz/1 cup) freshly grated
- Parmesan cheese

# Cherry rye bread crumble

### METHOD:

1 Put the three types of dried beans in a bowl, cover with water and leave to soak for eight hours. Drain the beans, place in a saucepan with fresh water to cover, then bring to the boil and boil for 45 minutes. Drain and set aside.

2 Preheat the oven to 180°C/350°F/gas mark 4.

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3 In a large saucepan, heat the olive oil and add the onion, garlic and leek. Fry for a couple of minutes, then add the tomato purée (paste) and cook for a few more minutes, then add the tomato passata. Simmer for 10 minutes.

4 Add the stock, new potatoes, carrots, bay leaves, artichokes, green olives, cooked beans and salt and simmer for another 20 minutes, then transfer to a medium-sized ovenproof dish.

5 Bake in the oven for 25 minutes, then remove from the oven and sprinkle the Parmesan over the top. Return to the oven and bake for a further five minutes.

6 It is also great fun to cook this for a beach barbecue. Simply simmer the casserole in a large saucepan over a hot fire until cooked, then serve sprinkled with the Parmesan.



Baked chestnuts or fragrant beetroot (beets) with whipped salted butter



Happy



Cook Yourself Happy: The Danish Way by Caroline Fleming. Published by Jacqui Small, £25. Follow Caroline on her Instagram @carolineflemingofficial. Photography by Lisa Linder

# Cherry rye bread crumble (Kirsebær Crumble) (Serves 6-8)

Cherries are wondrous berries. The deeper the colour of fruits and vegetables, the richer they are in goodness. An experiment with some of our most consumed Danish ingredients became a favourite after the first time we made this cherry crumble at home. If you love cherries, and we really do – this is fantastic. When I was little, from the age of about four, I used to love climbing trees. It was a daily activity for me and occasionally got me into big trouble. We had an enormous and very rich cherry tree in our garden, I would climb up high and sit there for hours eating cherries till my tummy ached. There was a time when I climbed so high I couldn't get back down again, and the fire brigade was called to help... or so the story goes.

#### INGREDIENTS:

ίn<sup>γ</sup>

- FOR THE CHERRY FILLING:
- 400g (14oz/3 cups) cherries, pitted
- 4tbsp raspberry jam (jelly)
- 25g (1oz/<sup>1</sup>/<sub>8</sub> cup) raw cane sugar
- 1tbsp vanilla sugar
- 100ml (3fl oz/scant . cup) water
- 1tbsp cornflour (cornstarch)
- 1tbsp lemon juice

#### FOR THE CRUMBLE:

- 100g (3oz/scant . cup/scant 1 stick) butter
- 100g (3oz/scant.cup) coconut oil
- 200g (7oz) rye bread, crumbled
- 100g (3oz/generous 1 cup) oats
- 50g (1oz/generous . cup) desiccated coconut
- 160g (5oz/. cup) raw cane sugar
- 2tbsp vanilla essence

#### TO SERVE:

Whipped cream or vanilla ice cream

#### METHOD:

1 In a saucepan over a medium heat, bring the cherries, raspberry jam (jelly), sugar, vanilla sugar and water to the boil, then turn down the heat and simmer for 10 minutes. Add the cornflour (cornstarch) and lemon juice, stir well and set aside.

2 Preheat the oven to 180°C/350°F/gas mark 4.

3 In a saucepan, melt the butter and coconut oil. Put the crumbled rye bread, oats, desiccated coconut, sugar and vanilla essence in a mixing bowl, then pour over the melted butter and coconut oil and mix well.

4 Fill the bottom of an ovenproof pie dish with the cherry mixture, then carefully add the rye bread crumble mixture on top. Bake for 45 minutes, then remove from the oven and serve hot with cream or ice cream.

**Baked chestnuts or** fragrant beetroot (beets) with whipped salted butter





Bean and potato casserole

# Potency counts



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