



Nutrition I-Mag

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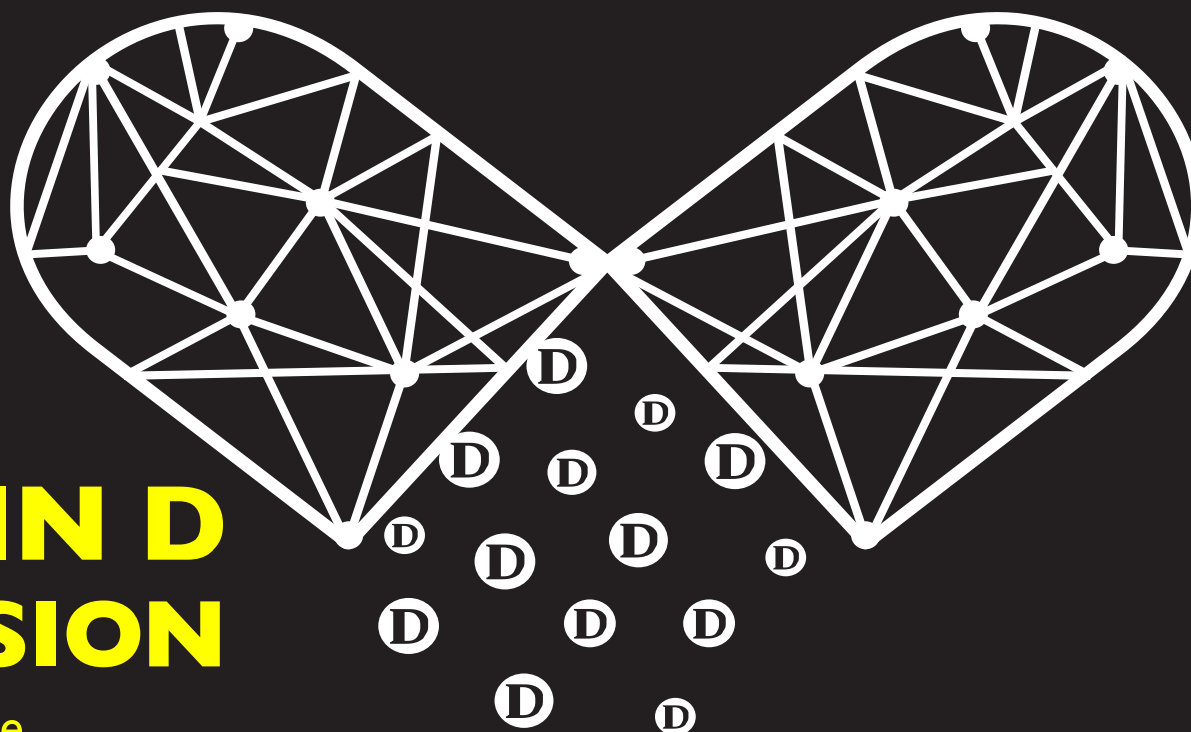
SEPTEMBER/OCTOBER
2020

Focus on eye health

An in-depth look at
the role of nutrition in
ocular health

VITAMIN D DISCUSSION

Expert advice on the
responsible approach
around vitamin D



Building immunity

The nutritional foundations to
supporting a strong immune system



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Welcome



So much seems to happen so fast in this Covid-19 world, and that picture is certainly true since the last issue of *Nutrition I-Mag*. In that period of time, we have seen a greater number of therapies allowed to resume under Government guidelines, face masks have become mandatory in many public places, such as shops, and the UK has now officially entered into the expected recession.

What the effect of the latter will have on your business remains to be seen, but one impact we absolutely know has affected all practitioners since the Coronavirus lockdown is the struggle to obtain the education you need to continue your studies and practise.

As a well-established and respected provider of quality CPD accredited

educational events, it's been a tough few months having to cancel all of our physical IHCAN Conference events for 2020. But behind the scenes, the conference team has been working hard to bridge that gap to continue delivering the education we know you love, but without being able to in person.

We are really excited to be hosting our first virtual IHCAN Conference, utilising some impressive technology, which takes place on September 12.

Called 'Building Immunity and Resilience: key learnings for the post-pandemic practitioner your clients need you to be', the event features world leading speakers, including Dr Dale Bredesen, MD, as well as hosting a variety of breakout sessions, a virtual exhibition and online networking.

Tickets include access to all virtual seminars and breakout sessions, the virtual exhibition and networking, all recording and presentation downloads from all sessions sent to you after the event so you won't miss a thing and five CPD hours from BANT, the NNA and the ANP (to be confirmed). To book your place, visit www.ihtcanconferences.co.uk/virtualevent

RACHEL SYMONDS, EDITOR

Rachel

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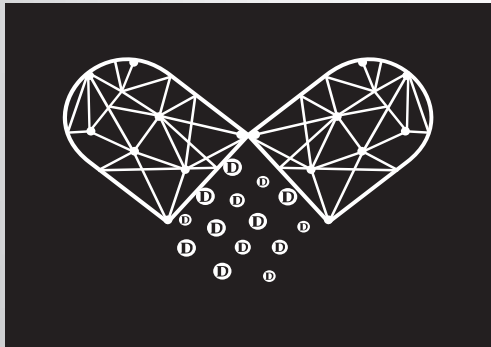
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CONTENTS



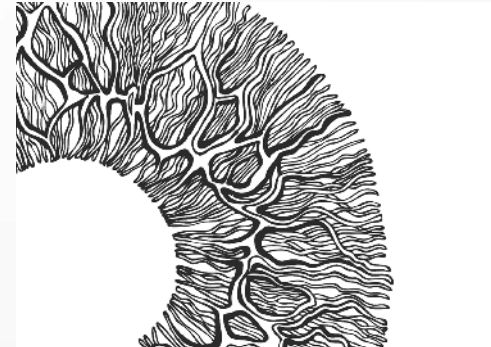
VITAMIN D

A detailed guide on the current advice around this important vitamin



IMMUNE FOCUS

Immunity has never been more in the spotlight, making it important you are up to date with the right recommendations



EYE HEALTH

The role of nutrition in maintaining healthy vision



COMPANY PROFILE

What makes MakeWell different in a busy marketplace?



RECIPES

Tips to create a health breakfast



EDUCATION

Details of the first virtual IHCAN Conference

NEWS

The latest developments in the world of nutrition

RESEARCH

We bring you up to date with the scientific developments

PRODUCT WATCH

What's new to market

BANT

All the news from the leading professional body

ASK THE EXPERTS

Nutritional experts answer your questions

INGREDIENT FOCUS

An in-depth guide to CBD and the safety issues behind it

CPD DIRECTORY

Seminar, conference and webinar dates for your diary

NUTRITION I-MAG GIVEAWAYS

OUR CONTRIBUTORS

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



Gemma Khoo

Gemma Khoo BSc (Hons), MSc is Nutritionist and Regulatory Affairs Manager at Nutri Advanced. Gemma came to Nutri Advanced after completing a Masters degree in Nutrition at King's College London and has been a key member of the busy nutrition department for over 10 years, bringing extensive product and technical knowledge to the team. Gemma manages the regulatory affairs for Nutri Advanced, as well as the company's product development pipeline.



Patrick Holford

Patrick Holford is a Nutritionist, author and leading commentator on natural health. He founded the Institute of Optimum Nutrition in 1984, and is the author of over 37 books, translated into over 20 languages, including *The Optimum Nutrition Bible*.



Kim Plaza

Kim Plaza is a qualified Nutritional Therapist, having graduated at Masters level from the University of Worcester in 2013. She holds a BSc (Hons) in Health, Nutrition and Fitness, and is registered with the British Association for Nutrition and Lifestyle Medicine, as well as listed on the Complementary and Natural Health Care Council (CNHC)'s approved accredited register. She worked as a Nutritional Advisor at ADM Protexin for four years, before moving on as a Technical Advisor.



Joanna Dziedzic

Joanna Dziedzic is a qualified Nutritional Therapist with experience in high-end consultancy, training other healthcare professionals and clinical practice. She has a passion and interest in natural approaches to supporting complex health issues and improving vitality and wellbeing. Joanna is a Business Development Manager for Pure Encapsulations UK, a leading nutritional health science company.



Susie Debye

Susie Debye BSc HONS, DIP ION is a Food Scientist and Nutritional Therapist with 25 years' experience in the health and wellbeing industry as a consultant and expert spokesperson for UK brands, including Abundance and Health, suppliers of Liposomal Altrient C.



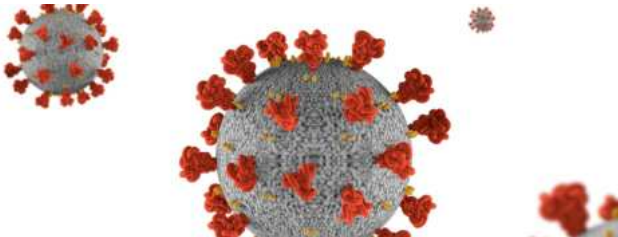
Karen Devine

Karen Devine CNHC Registered Nutritional Therapist, mBANT is a Registered Nutritional Therapist and Colonic Hydrotherapist, combining naturopathic principles with functional nutrition and bioregulatory medicine. She has been in practice for 22 years. Her keen interest and where most of her work focuses is detoxification and bowel health. She has worked for Nutri-Link in Technical Support for 14 years and more recently for Nutrigold.

News Bites

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

Imperial study reveals six per cent of England has had Covid-19



New findings from Imperial College London has suggested that six per cent of the population has been infected with Covid-19.

In what the Government describes as the largest home antibody testing programme for Covid-19, the findings from Imperial College London revealed that this equates to around 3.4m people in England having been infected.

The study saw more than 100,000 volunteers testing themselves at home using a finger prick test between June 20 and July 13 to check if they have antibodies against the virus which causes Covid-19. The results indicate that six per cent of the population had already been infected by Covid-19 by July 13, 2020, with variations across the country. People living in London were most likely to have been infected, as were those working in care homes and health care, and people from Black, Asian and other minority ethnic groups and people living in larger households.

Almost everyone with a confirmed case of Covid was found to have antibodies (96 per cent). Those aged 18-34 were most likely to

have antibodies (eight per cent), with the lowest prevalence in those over 65 (three per cent). People living in the most deprived areas had higher antibody levels than those in the wealthiest areas (seven per cent compared with five per cent). Furthermore, 32 per cent of people reported no symptoms, and this was more common in people over 65 (49 per cent).

Health Minister, Edward Argar, explained: "Large scale antibody surveillance studies are crucial to helping us understand how the virus has spread across the country and whether there are specific groups who are more vulnerable, as we continue our work to drive down the spread of the disease. We don't yet know that antibodies provide immunity to Coronavirus, but the more information we can gather on this virus, and the easier we can make it for people to participate in these studies, the better equipped we will be to respond."

Professor Graham Cooke, NIHR Research Professor of Infectious Diseases and research lead at Imperial, added: "There are still many unknowns with this new virus, including the extent to which the presence of antibodies offers protection against future infections. Using the finger-prick tests suitable for large scale home testing has given us clearest insight yet into the spread of the virus in the country and who has been at greatest risk. These data will have important implications as decisions to ease lockdown restrictions in England."

The surveillance study will be repeated in the autumn and will test a further 200,000 people for antibodies.

HFMA announces launch of major consumer campaign

A new direct to consumer campaign has been announced by the Health Food Manufacturers' Association (HFMA) to raise awareness of natural health.

The HFMA has launched HealthyDoesIt in a new collaboration with the National Association of Health Stores (NAHS) and the Health Food Institute (HFI) in a bid to encourage the public to access the expertise and high-quality natural products available from their local high street health store.

Central to the campaign is www.healthydoesit.org, an extensive resource full of information where consumers can learn more about natural health management, including access to experts to help them tap into a more natural approach to their wellbeing. A key feature of the website includes a local search tool so consumers can easily and quickly locate the advice they need at their nearest local natural food store.

A PR and social media marketing campaign funded by the HFMA will launch in September.

A co-marketing toolkit will also be made available in mid-August, while individual member companies of the HFMA and other stakeholders are being encouraged to get involved and help promote HealthyDoesIt via their own social and digital channels.

Graham Keen, Executive Director at the HFMA, commented: "This is the first time in my recollection that the industry has come together in such a collaborative way with one clear, shared objective. The health food industry has seen a significant rise in sales over the lockdown period. We are determined to ensure this latent demand continues to grow, and the HFMA is doing everything it can to ensure the industry capitalises on its frontline role in helping our nation to be healthier."

"We hope that as many of our members and stakeholders join us in making this effort a huge success."



Irish association raises concern at new EU guidance for VMS levels

The Irish Health Trade Association (IHTA) has raised concern that new guidance around safe levels of VMS supplements is unnecessarily restrictive.

The guidance has been issued by the Food Safety Authority of Ireland (FSAI) for food businesses in what it says will safeguard consumer health from potentially harmful levels of vitamins and minerals in food supplements. It says *Guidance for Food Businesses: The Safety of Vitamins and Minerals in Food Supplements* will act as a resource for food businesses and it provides clarity on the upper intake level and maximum safe level for vitamins and minerals in food supplements for population groups in Ireland.

The seven nutrients which the guidance provides maximum safe levels for are vitamin A, vitamin B6, vitamin C, vitamin D, beta carotene, folic acid, and magnesium.

The guidance highlighted that maximum safe levels vary depending on the sub-group of the population and their dietary intake, as the likelihood of adverse effects at high intakes may differ with life stage (for example, children, teens, adults, pregnancy, menopause and older

people).

Dr Pamela Byrne, CEO at FSAI, explained: "The guidance will support food businesses to manufacture products so that the levels of nutrients in them are safe for consumers. The guidance also details the scientific examination food supplements undergo to assess whether they pose a risk to human health. It provides clarity around what is expected of food businesses to ensure consumers are protected from potentially harmful doses of vitamin and mineral food supplements.

"This new guidance comes at a time when we are seeing a continuously increasing number of food supplements coming onto the Irish market. The FSAI recommends a well-balanced diet with plenty of fruit and vegetables and plenty of exercise in our healthy eating guide. When it comes to vitamins and minerals, our message to consumers is that 'more is not always better' and to be aware of what you are eating.

"The only food supplements that the FSAI recommends are 400µg folic acid per day for women who are sexually active and a 5µg vitamin D3 supplement every day for breastfed infants from birth to

12 months and for those infants taking less than 300ml or 10 fluid ounces of infant formula a day from birth to 12 months."

However, Phil Costigan, General Secretary at the IHTA, commented: "The Irish health products industry has sold millions of food supplements to hundreds of thousands of Irish consumers for several decades on the basis of industry self-regulatory practices. These self-regulatory practices include limiting the maximum levels of vitamins and minerals to scientifically assessed safety levels.

"Over the years, the rarity of any adverse incidences associated with the consumption of vitamins and minerals clearly demonstrates that consumption at this level is safe for the overall population. The IHTA position has always been that there was no need to change the levels adopted by industry.

"While the levels proposed by the FSAI Guidance are broadly consistent with existing industry and consumer practice, the general approach adopted in the guidance is not logical and some levels are unnecessarily restrictive."

Gut health brand strengthens team



A new EU Sales and Marketing Director has joined Clasado. Clasado Biosciences, a global company

in the development of prebiotic ingredient and product solutions for the human gut microbiome, has appointed Gareth Clark to the role.

Responsible for developing and driving the company's sales strategy across Europe, the appointment serves as the next significant commercial team investment for Clasado.

Per Rehné, CEO at Clasado, commented: "The business has made real strides in recent months as our patented prebiotic Bimuno finds new applications in supplements and functional foods. With almost 20 years in the food and nutrition sector and expertise in turning raw data and insight into commercial value, Gareth is perfectly positioned to help us achieve this, and a great match for the team. Gareth will be responsible for helping to shape, guide and execute our ambitious sales strategy across Europe."





BNF calls for further work to address complex reasons for obesity

The British Nutrition Foundation has called for action to go further after the Government announced details of its new obesity strategy.

Professor Judith Buttriss, Director General at the British Nutrition Foundation (BNF), responded after details of Public Health England's obesity strategy and Better Health campaign were unveiled.

While welcoming the move, she pointed out that Covid-19 has shown us that we need to do more now to tackle adult obesity, alongside initiatives targeted at promoting a healthy lifestyle in children.

"Research on Covid-19 and obesity is at an early stage but obesity appears to be associated with worse Coronavirus outcomes. There is also strong evidence that obesity increases the risk of developing type 2 diabetes, cardiovascular disease and some cancers," she commented.

"Support for people who want to lose weight and improve their health, from the new NHS England and PHE initiatives, is a step in the right direction. However, given the scale of the problem, it is likely that further action across many different areas will be needed in order to have a significant impact on obesity levels. The progressive rise in obesity we have seen in recent decades is related to major changes in our

environment and the way we live, where energy dense foods are readily available and it's very easy to be inactive. Therefore, tackling obesity requires many changes to make it easier for us to act on our intentions to improve our health, to eat healthily and be active, and this is not something that is quick or easy to fix."

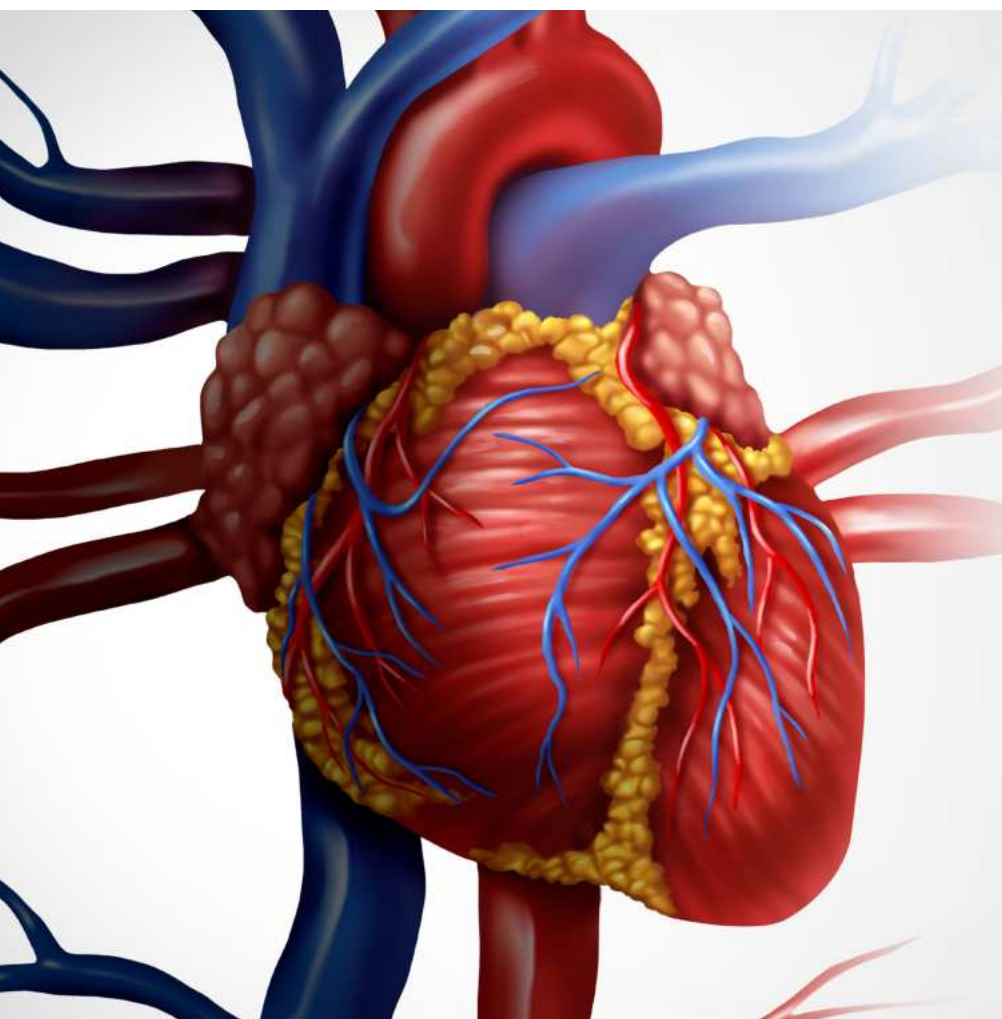
Professor Buttriss added that further work needs to be done to address the reasons for obesity.

She advised: "To tackle obesity effectively, we also need to address the socioeconomic inequalities that we know are associated with risk of obesity, especially in light of the serious economic effects of the Covid-19 outbreak that are expected to be with us for some time. It is important that any measures to encourage weight loss do not make the stigma associated with obesity worse – this makes it even harder for people to lose weight and may discourage some from seeking medical support.

"The reasons why people develop obesity are complex and are not simply due to lack of willpower or motivation. Losing weight, and especially keeping it off, is very challenging and people need effective support to help them do this, in order to improve our health as a nation long-term."

In Research

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



Vitamin K2 confirmed as marker linked to cardio risk

A new Danish population study has suggested that vitamin K2 plays an important role in reducing risk of vascular calcification.

Published in the journal, *Clinical Biochemistry*, the study examined the link between inactive matrix Gla protein (MGP), a known biomarker for K-vitamins status, and cardiovascular risk, and concluded that high levels of this inactive protein were positively associated with a history of cardiovascular disease (CVD) due to the role vitamin K2 plays in vascular calcification.

The researchers explained that dephosphorylated uncarboxylated matrix Gla-protein (dp-ucMGP) is a biomarker of functional vitamin K status. High plasma dp-ucMGP concentrations reflect a low vitamin K status and have been related to vascular calcification. The purpose of the study was to assess plasma levels of dp-ucMGP and the association between plasma dp-ucMGP, CVD-risk factors, and history of CVD in a general population.

Plasma dp-ucMGP measurements were performed using the IDS-iSYS InaKtif MGP assay in 491 consecutive participants in a Danish general population study, with the researchers concluding: "Increased plasma dp-ucMGP levels were positively associated with cardiovascular risk

factors such as arterial stiffness (as reflected by increased ePWV), hypertension, obesity, and history of CVD events. These findings support that dp-ucMGP is a biomarker of cardiovascular risk and lend support to the hypothesis that vitamin K status plays a role in vascular calcification and risk of CVD.

"Prospective studies could establish the causal direction of these associations and whether increased vitamin K intake represents a preventive measure against vascular calcification and CVD-risk."

Commenting on the results, NattoPharma, which specialises in vitamin K2, said it was encouraged by the findings as they provide another level of evidence that vitamin K2 is an essential cardio-protective nutrient.

Dr Hogne Vik, NattoPharma Chief Medical Officer, commented: "It still remains a common misunderstanding that vitamin K, in general, impacts arterial calcification, when in fact it is vitamin K2 that is available beyond the liver to support bone and cardiovascular health. Our studies with MenaQ7 have shown that K status was more efficiently improved in adults as well as children with supplementation of vitamin K2 as MK-7."

Differences in Covid-19 symptoms against common cold studied

Researchers have pinpointed differences in smell loss in Covid-19 compared with the common cold.

New research from a European group of smell disorder experts and published in the journal, *Rhinology*, has showed how smell loss associated with Covid-19 infection differs from what you typically might experience with a bad cold or 'flu.

The new study is the first to compare how people with Covid-19 smell and taste disorders differ from those with other causes of upper respiratory tract infections.

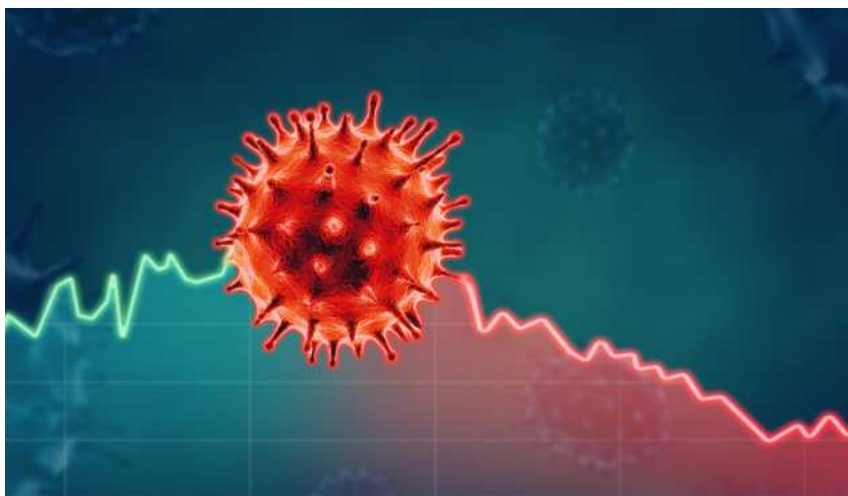
The main differences found are that, although Covid-19 patients also lose their sense of smell, they can breathe freely, do not tend to have a runny or blocked nose, and they cannot detect bitter or sweet tastes.

The research team carried out smell and taste tests on 10 Covid-19 patients, 10 people with bad colds and a control group of 10 healthy people – all matched for age and sex.

The researchers say that these findings lend weight to the theory that Covid-19 infects the brain and central nervous system.

Lead researcher, Professor Carl Philpott, from University of East Anglia's Norwich Medical School, commented: "The loss of smell and taste is a prominent symptom of Covid-19, however, it is also a common symptom of having a bad cold. We wanted to find out exactly what differentiates Covid-19 smell loss with the kind of smell loss you might have with a cold and blocked-up nose. We wanted to see if their smell and taste test scores could help discriminate between Covid-19 patients and those with a heavy cold.

"We know that Covid-19 behaves differently to other respiratory viruses, for example, by causing the body's immune system to over-react, known as a cytokine storm, and by affecting the nervous system. So, we suspected



that patterns of smell loss would differ between the two groups. We found that smell loss was much more profound in the Covid-19 patients. They were less able to identify smells, and they were not able to identify bitter or sweet tastes. In fact, it was this loss of true taste which seemed to be present in the Covid-19 patients compared to those with a cold.

"This is very exciting because it means that smell and taste tests could be used to discriminate between Covid-19 patients and people with a regular cold or 'flu. Although such tests could not replace formal diagnostic tools such as throat swabs, they could provide an alternative when conventional tests are not available or when rapid screening is needed – particularly at the level of primary care, in emergency departments or at airports."

He continued: "It has previously been suggested that the Covid-19 virus affects the central nervous system, based on the neurological signs developed by some patients. There are also similarities with SARS, which has also been reported to enter the brain, possibly via smell receptors in the nose. Our results reflect, at least to some extent, a specific involvement at the level of central nervous system in some Covid-19 patients.

"It is particularly interesting that Covid-19 seems to particularly affect sweet and bitter taste receptors, because these are known to play an important role in innate immunity.

"More research is needed to see whether genetic variation in people's bitter and sweet taste receptors might predispose them to Covid-19, or conversely, whether Covid-19 infection changes how these receptors function, either directly or through a cytokine storm – the over-reaction of the body's immune system."

Pilot study examines Pycnogenol on migraines

The results of a new pilot study have suggested Pycnogenol may ease discomfort caused by migraines.

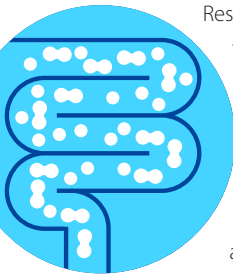
Writing in the journal, *Pain Medicine*, the peer-reviewed study has suggested that daily supplementation with the French maritime pine bark extract may help to significantly decrease the frequency of migraines, reduce frustrating migraine symptoms, and diminish the disruption of daily activities caused by migraines.

This pilot study tested 67 participants who suffered from migraine and moderate headache for eight weeks. Three groups were tested in the study, including a control group following standard management of oral magnesium, riboflavin and lipoic acid, a Pycnogenol test group that supplemented with 150mg of Pycnogenol daily along with standard management, and another test group prescribed with the generic migraine medication, topiramate.

The participants were asked to rank their migraine symptoms, and results showed that the Pycnogenol test group reported greater improvements of their migraine symptoms, including 61 per cent decreased frequency of migraine attacks (vs eight per cent increase in attacks in the control group and 33 per cent decrease in the topiramate group), 39 per cent easing of migraine-induced discomfort (vs 25 per cent in the control group and 37 per cent in the topiramate group), and 41 per cent reduction in affected daily activities score due to migraine attacks (vs 15 per cent in the control group and 33 per cent in the topiramate group).

Participants in the Pycnogenol test group also reported significantly reduced need for supplemental pain management medications and a 17 per cent reduction of underlying oxidative stress.

Probiotics and inflammation examined in new study



Researchers have suggested that probiotics, along with essential fats, could play a role in cutting low grade inflammation.

The scientists have published their findings in the journal, *Nutrients*, and explain that chronic low-grade inflammation negatively impacts health and is associated with ageing and obesity, among other health outcomes. The researchers explained that a large number of immune mediators are present in the digestive tract and interact with gut bacteria to impact immune function. The gut microbiota itself is also an important initiator of inflammation, for example, by releasing compounds such as lipopolysaccharides (LPS) that may influence cytokine production and immune cell function. Certain nutrients (for example, probiotics, ω -3 fatty acids [FA]) may increase gut microbiota diversity and reduce inflammation.

They wrote: "*Lactobacilli* and *Bifidobacteria*, among others, prevent gut hyperpermeability and lower LPS-dependent chronic low-grade inflammation. Furthermore, ω -3 FA generate positive effects on inflammation-related conditions (for example, hypertriglyceridemia, diabetes) by interacting with immune, metabolic, and inflammatory pathways. Ω -3 FA also increase LPS-suppressing bacteria (i.e., *Bifidobacteria*) and decrease LPS-producing bacteria (i.e., *Enterobacteria*).

"Additionally, ω -3 FA appear to promote short-chain FA production. Therefore, combining probiotics with ω -3 FA presents a promising strategy to promote beneficial immune regulation via the gut microbiota, with potential beneficial effects on conditions of inflammatory origin, as commonly experienced by aged and obese individuals, as well as improvements in gut-brain-axis communication."

Study reveals power of plant-based diets on blood pressure

Those following a plant-based diet even with limited meat and dairy consumption have been shown to have lowered blood pressure.

That's according to research from the University of Warwick, which found that the effect was present even if small amounts of meat and dairy are consumed too.

Published online by a team from Warwick Medical School in the *Journal of Hypertension*, the researchers argue that any effort to increase plant-based foods in the diet and limit animal products is likely to benefit blood pressure and reduce risk of heart attacks, strokes and cardiovascular disease.

They conducted a systematic review of previous research from controlled clinical trials to compare seven plant-based diets, several of which included animal products in small amounts, to a standardised control diet and the impact that these had on individuals' blood pressure.

Lead author Joshua Gibbs, a student in the University of Warwick School of Life Sciences, commented: "We reviewed 41 studies involving 8,416 participants, in which the effects of seven different plant-based diets (including DASH, Mediterranean, Vegetarian, Vegan, Nordic, high fibre and high fruit and vegetables) on blood pressure were studied in controlled clinical trials. A systematic review and meta-analysis of these studies showed that most of these diets lowered blood pressure. The DASH diet had the largest

effect reducing blood pressure by 5.53/3.79 mmHg compared to a control diet, and by 8.74/6.05 mmHg when compared to a 'usual' diet.

"A blood pressure reduction of the scale caused by a higher consumption of plant-based diets, even with limited animal products, would result in a 14 per cent reduction in strokes, a nine per cent reduction in heart attacks and a seven per cent reduction in overall mortality. This is a significant finding as it highlights that complete eradication of animal products is not necessary to produce reductions and improvements in blood pressure. Essentially, any shift towards a plant-based diet is a good one."

Senior author, Professor Francesco Cappuccio, of Warwick Medical School, added: "The study shows the efficacy of a plant-based diet on blood pressure. However, the translation of this knowledge into real benefits to people, i.e. its effectiveness depends on a variety of factors related to both individual choices and to governments' policy decisions.

"For example, for an individual, the ability to adopt a plant-based diet would be influenced by socio-economic factors (costs, availability, access), perceived benefits and difficulties, resistance to change, age, health status, low adherence due to palatability and acceptance.

"To overcome these barriers, we ought to formulate strategies to influence beliefs about plant-based diets, plant food availability and costs, multisectoral actions to foster policy changes focusing on environmental sustainability of food production, science gathering and health consequences."



New to market

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

DR.VEGAN DEVELOPS NEW RANGE

DR.VEGAN is the latest brand to launch to the UK supplements market.

Described as a ground-breaking new range of vegan-certified vitamins and supplements, DR.VEGAN has been developed by a distinguished team of nutritionists and dietary scientists, boasting the motto 'Better Me. Better Planet'.

Ethically sourced, and manufactured from naturally-sourced ingredients, DR.VEGAN products are derived only from the world's most sustainable producers and all packaging is biodegradable or recyclable.

The range includes Daily Multi-Vitamin, Vitamin B12, Vitamin D, Magnesium, Gentle Iron with Vitamin C, and Choline.

Nutritionist Shona Wilkinson (RN, mBANT, CNHC), a Nutritionist with 14 years' experience, explained: "They use only the highest quality, ethically sourced ingredients that are bio-available and effective, and they're all in capsules so there are no unnecessary excipients, which are found in tablets."



CBD BRAND EXPANDS WITH VEGAN SUPPLEMENTS

Love Hemp Life has announced the launch of a range of vegan health supplements utilising ancient botanicals.

The eight-strong range is designed to restore natural balance and support better sleep, mood, relaxation, focus and metabolism, alongside joint support, menstrual relief and testosterone maintenance.

The supplements contain a blend of botanicals and all are dairy free, gluten free, soy free, wheat free and contain no artificial flavours, colourings, sugars, sweeteners or preservatives. They are also manufactured in the UK in an ISO 9001 accredited facility.

KIDS MULT ANNOUNCED AS LATEST NPD AT G&G

Kids' Minerals is the latest development from the team at G&G Vitamins.

The supplement is formulated to provide a greater content of minerals for children and contains a high content of calcium and magnesium needed for bone and muscle function, as well as iodine required for normal growth and development of children.

It has been designed in an ideal ratio for children, based on tolerable upper limits for the different age groups. The minerals are also chelated for optimal absorption and utilisation. It is recommended for children aged four and upwards, and is certified vegan by the Vegetarian Society.



VITAMIN D DEVELOPMENTS

BetterYou has expanded its vitamin D range with a 4000 IU oral spray.

The new DLux 4000 Vitamin D Oral Spray boasts a max strength formulation, ideal for those at-risk of vitamin D deficiency, including those with malabsorption disorders and those over 100kg.

Suitable for elevating vitamin D levels, the pill free supplement delivers 4000 IU (100µg) of bioavailable vitamin D3 directly to the bloodstream via the inner cheek, providing a convenient and effective alternative to traditional delivery methods.

The formula is vegetarian-friendly, and palm oil and palm oil derivative free in a natural peppermint flavoured spray. It has the added benefit of being contained in a bottle made from ocean waste plastic, which is 100 per cent recyclable.



BODYBIO

Immunity Essentials

- 1. Liquid Zinc Trace Minerals**
better bioavailability in a liquid form
for maximum absorption
- 2. Vitamin C Crystals**
Pure ascorbic acid from Scotland
- 3. BodyBio PC**
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NATUROPATHIC NUTRITION ASSOCIATION

IH CAN CONFERENCES GO VIRTUAL FOR 2020

The organisers of the IH CAN Conference series announce new virtual events to support practitioner education during 2020.

Although live education is paused for 2020, we have doubled our efforts in organising online education so you can keep up to date during these challenging times.

We know that you've missed our one-day conferences and you're ready for something more in-depth than a quick one-hour webinar. That's why we're delighted to announce a new virtual event, Building Immunity and Resilience, a full day of education in typical IH CAN Conference style – but virtual – taking place on Saturday, September 12, between 9.45am-6pm.

We've got world-class speakers, and, thanks to some bespoke technology, you'll enjoy a virtual expo featuring specialist practitioner suppliers, as well as short break-out sessions and online networking.

CONFERENCE LINE-UP

'Resilience: Where the mind and body converge' will be presented by Alex Manos BSc MSc NASM IFMCP. Alex will be exploring how supporting emotional, mental, and spiritual resilience are effective ways to enhance physical resilience.

Alex aims to connect the dots, and will be bringing together a wide range of topics, ranging from psychoneuroimmunology, NLP, and positive psychology to visualisations, kindness, meditation, and even flow states and psychedelics to help us understand how the mind can influence the body. What's happening during these activities that can explain their healing power?

This talk will include practical and simple techniques that you can use yourself or with clients to complement more traditional nutritional and integrative medicine interventions that can stimulate our innate capacity to heal.

Next up is a presentation called Key Features of the Functional

Immunology Roadmap, by Samuel Yanuck, DC, FACFN, FIAMA.

The first session is a walk through of the core functional immunology landscape and attendees will learn:

- The core navigational elements of functional immunology.
- How to recognise the type of functional immunological imbalance your patient has.
- How to manage complex autoimmune cases.
- How to manage patients who have both autoimmunity and infection.
- How the parts of the picture form a roadmap you can use to navigate any case.

The second lecture focuses on case studies. You'll find out how to use the roadmap as a template for understanding a range of seemingly different cases, and you'll see how you can understand all the cases by applying the parts of the case to the roadmap.

And finally, we have Dr Dale Bredesen, MD, presenting Educated Hacking: Scaling the Prevention and Reversal of Cognitive Decline.

The Covid-19 pandemic has highlighted the importance of comorbidities, such as type 2 diabetes, hypertension, vitamin D deficiency, and others – very similar to what has been observed for Alzheimer's disease, which itself has become a pandemic, one with far more affected individuals and a much higher mortality rate than Covid-19.

Identifying and addressing the underlying contributors to cognitive decline has provided unprecedented success in prevention and reversal, and not surprisingly, earlier intervention has proven to be preferable to later intervention. With the introduction of many quantified self-technologies, such as ketone monitoring, heart rate variability analysis, and oxygen saturation assessment, population-based scaling of the prevention and early reversal of cognitive decline is becoming increasingly feasible.





BOOK YOUR PLACE

For more information, the full schedule and to book your place, visit www.ihcanconferences.co.uk/virtualevent. Tickets cost £10 (including VAT) – they are limited, and sold on a first-come-first-served basis.

INTERACTIVE EDUCATION

Exclusive to *Nutrition I-Mag* readers, you can preview Dr Bredesen's talk at this year's virtual event by watching the first session from his 'in person' keynote session at last year's IH CAN Conferences, titled 'How to Prevent & Reverse Cognitive Decline'.



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BSc, MScIFM
Certified
Practitioner,
IHCAN In Practice
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contributor



'Key Features of the Functional Immunology Roadmap'

SAMUEL YANUCK, DC
Institute for Functional
Medicine Educator,
Specialist in Functional
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'Educated Hacking: Scaling the Prevention and Reversal of Cognitive Decline'

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BANT News

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



BANT supporting its members during the Covid-19 pandemic

Whilst the Covid-19 pandemic crisis didn't take anyone by surprise, the speed of the spread and the establishment of the UK-wide confinement policies did take most people's breath away. BANT worked incredibly hard during and beyond the confinement period to support its members, many of whom were practising online for the first time and a large proportion of which were also trying to juggle other commitments, such as caring for vulnerable family members or home-schooling.

To keep members up-to-date, BANT issued eight BANT Covid-19 bulletins throughout the crisis. These included of-the-moment information on converting to practising online, advice on how to practice safely throughout a public health crisis, providing plain language summaries of the frequently changing Government guidance, and a template for members to use with clients in face-to-face practice, once it was safe to do so. BANT also issued a public-facing release to encourage the general public to continue consulting with its members who were practising within regulatory boundaries, online.

To further support members' practice, the BANT scheduled webinar programme (requires member login) was changed to include new offerings adapted to the times, with webinars giving tips on 'How to run a Practice Online' with Sandra Greenbank and Daniel O'Shaughnessy and 'From Discovery Calls to Long-Term Retention' with Gwen Warren. We thank our guests for being so reactive and helping us pull these together so rapidly.

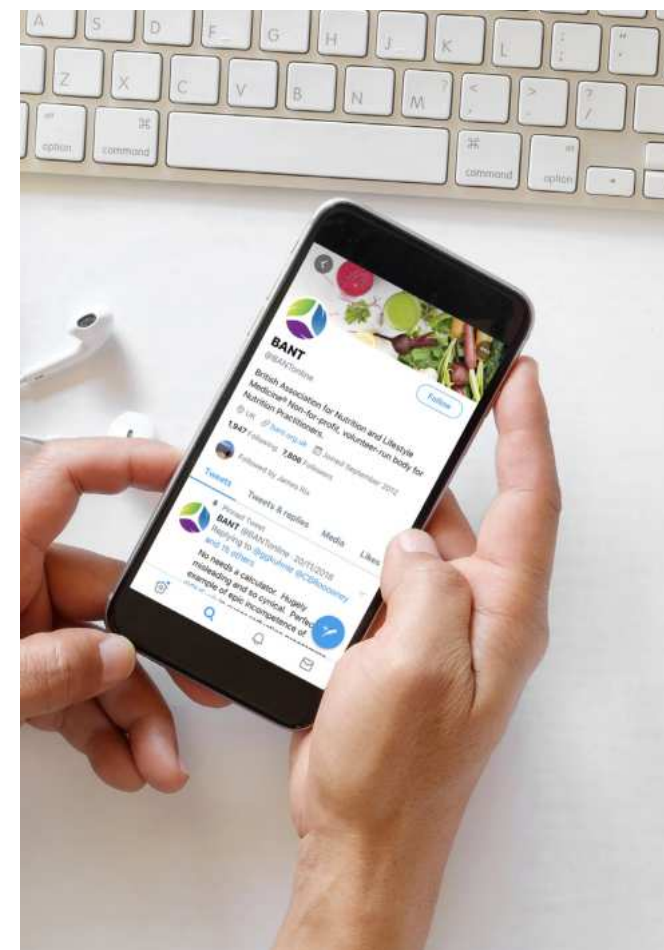
The Nutrition Evidence Database demonstrated its flexibility and

suitability by changing its publishing schedule of enhanced studies and its monthly Alert to focus on studies that were linked to nutrition and immunity so that members had evidence-based studies to reference in support their clients, without stepping out of their scope of practice.

BANT's Local Network Groups were absolutely amazing, and within a fortnight of confinement, all scheduled meetings were organised online, thus opening them up to more members across the country. Meetings for both Local Network Groups and Regional Branch Events going forward are continuing online for the time being.

Whilst things are appearing to be returning to near normality with our members now being able to return to face-to-face practice in England, Wales, Scotland and Northern Ireland, BANT urges all nutrition practitioners to please remember that the Government guidelines still need to be adhered to, and there may be some differences in practice in different countries and areas if localised measures are in place.

While BANT is aware that confinement is, on the whole, over, increasing numbers of cases and localised shutdowns of Manchester and Liverpool have made it clear that extraordinary measures will be with us for some time to come. BANT will continue to update its members on any new guidelines that come into force and will continue to support its members in every possible way. We ask members to continue to monitor their emails for important messages from us or to follow the members only social media forums on Facebook and LinkedIn.



BANT campaigning for a change of thinking in relation to Better Health obesity campaign and the Eat Out, Help Out scheme

In July 2020, the Government launched two schemes, both with laudable objectives to improve the nation's health and to support the economy. Whilst BANT (British Association for Nutrition and Lifestyle Medicine) supports the overall objectives, the organisation has some reservations about the approach, as outlined in two press releases aimed towards Britain's political class.

Further communications, directed towards the general public, will be published in due course as BANT plays its part in initiating a policy change from a one-size-fits-all approach to one of individualised nutrition recommendations.

BANT wholeheartedly supports any Governmental focus on improving the health of the British nation, a goal that BANT has, itself, been campaigning for over the past 20 years.

The Better Health campaign, with its U-turn on policy relating to junk food advertising and its goals to restrict BOGOF (buy one, get one free) deals relating to foods that are ultra-processed, high in salt, fat and sugar and their availability at check-outs, is the first step in the right direction. It will set the background for establishing the changes needed to engender a long-term cultural shift which allows healthy behaviour adaptations to an environment that offers so many opportunities for unhealthy indulgence, either knowingly or in ignorance.

BANT is, however, against the use of calorie counting as it is well established that calorie counting is difficult to manage in supporting people looking to lower their risk of obesity. Calorie counting takes little to no account of the nutritional values of different foods and their relation to health and is problematic for those at risk of eating disorders. Not for the first time, BANT is asking why promote a campaign that leads the population to rely on calorie defined processed foods, rather than simple, wholesome ingredients? BANT is looking forward to the outcome of work done on traffic light labelling system. The current system has some shortcomings, for example, in that a red label can be assigned to a healthy food, for example, an avocado, making it confusing to the public.

The causes of obesity are multifactorial and can include increased stress levels, systemic low-grade inflammation, lack of exercise, and choice of foods and their preparation/cooking methods, amongst

others. There is growing evidence that minimally processed foods like non-starchy vegetables, fruit and healthy protein are more satiating and elicit less of a glycaemic response than ultra-processed foods, so prevalent in typical British diets. Additionally, minimally processed foods are associated with a decreased risk of cardio-metabolic disease.

BANT was pleased to announce its support for the recently announced Governmental obesity campaign, Better Health. The launch of the Government's Eat Out to Help Out scheme, with inclusion of ultra-processed food and drink offerings such as McDonald's, is, however, completely baffling and goes against any progress towards the Government's aim to ease the burden on our over-stretched NHS.

BANT absolutely supports initiatives that boost the economy and thus protect employment, however, including restaurants that serve ultra-processed food and drinks which are at the very heart of the obesogenic environment and which target low-income families, is absolute madness. Stealing from our health to pay our food industry is a knee-jerk solution.

Supporting the nation's farmers and offering monetary incentives to purchase minimally processed foods like non-starchy vegetables, fruit and healthy protein, which are more satiating and elicit less of a glycaemic response than ultra-processed foods, would have resulted in both campaigns being successful.

Whilst the reasons behind obesity are multifactorial, research is very clear that the addictive nature of ultra-processed foods and drinks, socio-economic factors and the ease of availability of these foods within the local environment, play a very large part in the obesity epidemic today. BANT published an article, Nutrition in the Age of Convenience, in 2019, highlighting how the prevalence of highly addictive ultra-processed foods and drinks have massively impacted the nation's

health (<https://bant.org.uk/2019/07/03/bant-cautions-against-dropping-policies-that-support-reduced-consumption-of-ultra-processed-foods/> (a fully referenced, academic paper on this topic is available on request).

BANT continuously cautions that population-wide recommendations highlighted in Eatwell Guide that is not only based on out-dated nutrition science but is also aimed at a 'healthy population' is inappropriate. It is not only putting the health of the British public at risk but is contributing to the current National Health Service crisis. The OECD 2019 obesity rankings classified the UK as the eleventh most obese nation in the world, which, whilst an improvement, is still a truly dubious honour. Obesity and its related conditions are complex issues which require interventions at multiple levels to achieve both effective prevention and successful treatment, and this is putting an unbearable and unwarranted burden on the NHS. A burden that the NHS at this time can ill-afford.

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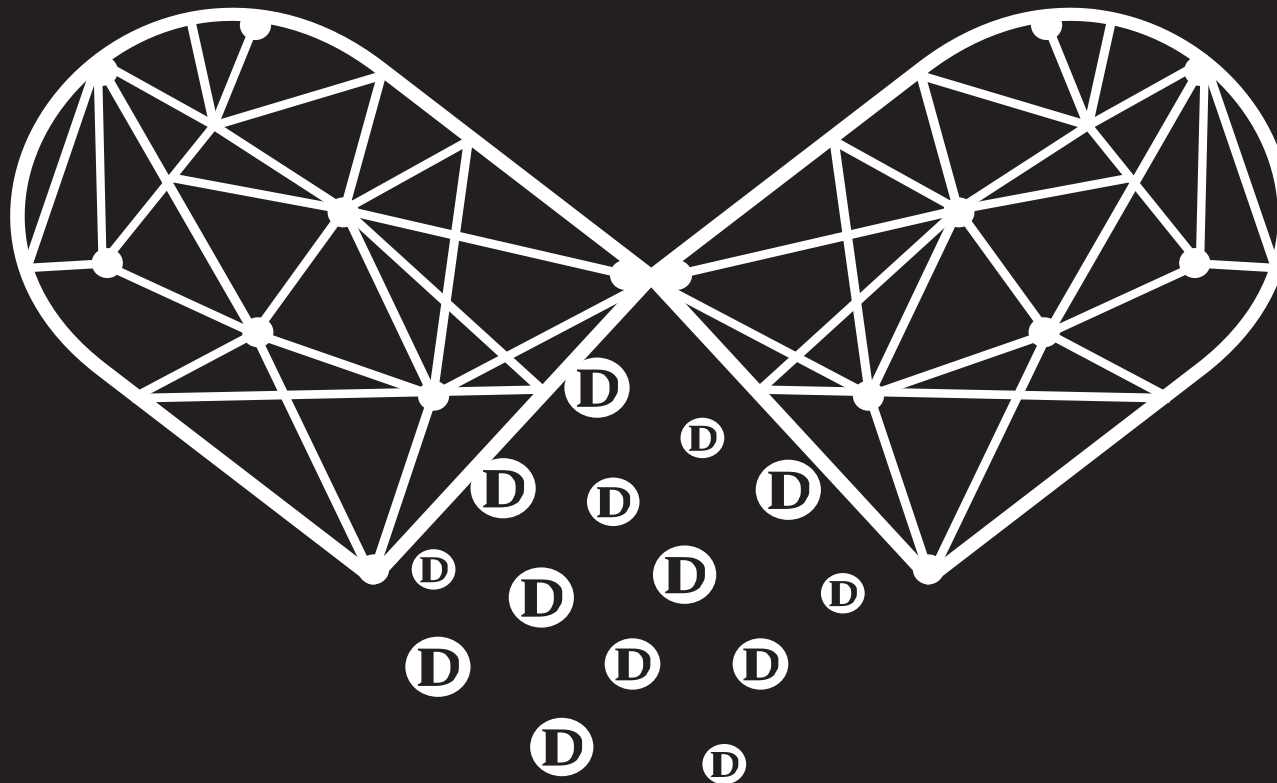
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THE VITAL VITAMIN

Vitamin D has become the most discussed nutrient in recent months surrounding Covid-19. But with its important role extending far beyond respiratory infections, there's much to discuss in terms of our understanding of the sunshine vitamin.



It's well-accepted by the mainstream medical community that vitamin D is critical to good health, and indeed, in 2016, we saw Public Health England recommend that all of us, no matter our age or background, take a vitamin D supplement in the autumn and winter months.

Such acceptance of vitamin D from doctors and Government shows just how important this nutrient is for our health, despite the levels recommended being somewhat lower than experts in the nutrition world would recommend.

Most recently, vitamin D has been brought into the spotlight as links have been made between low levels of vitamin D and increased risk of respiratory infection, leading to the National Institute for Health and Care Excellence (NICE) announcing a rapid review. It ruled, in the end, that there is no evidence to support taking vitamin D supplements to specifically prevent or treat Covid-19. However, NICE said that people should continue to follow UK Government advice on daily vitamin D supplementation to maintain bone and muscle health during the Covid-19 pandemic. And, given we are just at the start of this pandemic in terms of research, more studies are surely to follow in what is being seen as a critical area.

So, where do you as Nutritional Therapists stand in terms of the correct advice to offer your clients? And how can you best assess if your clients are lacking in vitamin D?

Andrew Thomas, Founder and Managing Director at BetterYou, which specialises in sublingual vitamin D supplements, commented:

"The importance of vitamin D levels within our society has never been of greater importance, as now:

- Vitamin D plays an important role in immune response, with a growing number of clinical studies specifically linking a deficiency to a decline in immune response for respiratory viral infections.
- The lockdown has denied vital natural vitamin D production at a time when we would normally be building levels, after an annual vitamin D 'starvation' since October.

"There are now two large-scale clinical trials operating within the international scientific community to investigate the efficacy of vitamin D against Covid-19, with the most recent being announced on April 3. Data from an analysis of 212 people with lab-confirmed Covid-19, and for whom there were serum 25(OH)D levels (how vitamin D is measured within our blood) available, revealed that 96 per cent of patients with only mild symptoms, had optimal levels of vitamin D.

"What's more, researchers from Trinity College Dublin and Technical University Dublin have recently published results that directly link vitamin D levels to enhanced resistance to respiratory infections, or certainly limit the severity of the illness.

"It is unknown whether vitamin D supplementation could be used as an acute treatment to Covid-19, but the key to optimal protection is to ensure our bodies are as robust as possible and can resist and better manage the unpleasant, and in some cases fatal, experience of viral infections."

Lindsay Powers, Nutritional Therapist and Health Coach at Good Health Naturally, continued: "Vitamin D3 appears to have been one of the most widely talked about nutrients during the pandemic. Quite early on in the pandemic, vitamin D3 was highlighted as being one of the nutrients potentially offering most protection in terms of the severity of outcomes. A retrospective analysis carried out in Southern Asian hospitals back in April observed that those with the highest levels of serum vitamin D had the mildest form of Covid-19 infection, whilst those with the lowest levels were found to be in more severe to critical conditions.

"Prior to the pandemic, Nutritional Therapists have long been discussing vitamin D levels with clients for areas such as bone and immune health. Based on what we already know, it seems important to still have this conversation with clients, especially during lockdown, where exposure to sunlight has been limited."

And Karen Devine, a Registered Nutritional Therapist and Colonic Hydrotherapist, who is a Technical Support Advisor for Nutri-Link and Nutrigold, pointed out: "A large body of data, including known Covid-19 immunity pathways, vitamin D physiology and its effects on the immune system, and population-based studies linking vitamin D levels to respiratory infections, suggests that vitamin D deficiency is likely to be a significant factor in Covid-19 transmission and complications.¹ As such, it is hypothesised that a correlation exists between vitamin D levels and susceptibility to Covid-19, and vitamin D supplementation could decrease the risk and severity of Covid-19ⁱⁱⁱ."



THE SCALE OF DEFICIENCY

In recent years, vitamin D has risen up the health agenda as more people realise just how important it is for so many functions. The fact that many people have more indoor lifestyles and so are failing to get enough vitamin D from the sunshine has compounded this, leading to concerning levels of deficiency.

Michela Vagnini, Nutritional Therapist at Nature's Plus, commented: "According to a 2020 review, 50 per cent of the worldwide population has insufficient levels of vitamin D. The British Nutrition Foundation's (BNF) annual lecture calls for greater focus on vitamin D deficiency in younger healthy populations and states that low levels of vitamin D in the UK is 'extremely concerning'."

Hannah Braye is a Nutritional Therapist and Head of Technical Advice at ADM Protexin, manufacturers of the Bio-Kult and Lepicol ranges. She added: "In the UK, low serum vitamin D levels are found in significant numbers of all population groups in the UK. In winter, 30-40 per cent of all age groups in the general population are classed as vitamin D deficient.¹³ Even towards the end of summer, eight per cent of adults and 13 per cent of adolescents remain deficient¹³."

Thomas continued: "Vitamin D deficiency remains a worldwide issue, with around one billion people across the globe experiencing inadequate levels and the National Institute for Health and Care Excellence (NICE) suggests that around 10m people in the UK could be at risk of a vitamin D deficiency. Those that spend a lot of time outside and those that lead a healthy and balanced lifestyle may not think they are susceptible to a lack of vitamin D, however, our bodies cannot rely on sunlight alone to make enough; 80 to 90 per cent of our vitamin D stores are provided by the sun, with few foods providing meaningful quantities of the vital vitamin.

"For people living in the northern hemisphere, the amount of UVB radiation is not sufficient enough to produce adequate amounts of vitamin D and even during the summer months, it is predicted that up to 13 per cent of the population will be deficient. Vitamin D is important for many aspects of our health, so I recommend supplementing year-round. This is especially important for those that fall within the groups of people deemed more 'at-risk' of a vitamin D deficiency, including children under five-years-old, mums-to-be, the elderly and people following a plant-based diet, in addition to teenagers, those with low sun exposure (such as office workers) and people with darker skin."

Thomas particularly turned his attention to the Black, Asian, and Minority Ethnic (BAME) communities, commenting: "It has been repeatedly reported that a disproportionately high number of individuals who are from Black, Asian, and Minority Ethnic communities have died

from Covid-19. Comparing the blood samples of 1,300 adults on the UK Biobank health-monitoring programme (of which 580 tested positive for Covid-19), a new study found that vitamin D levels among white people were around 53 per cent higher than among people of BAME backgrounds.

"Deficiency is more prevalent in people with darker skin due to a natural barrier (known as melanin) towards the UVB rays needed to penetrate the skin. Melanin competes with the vitamin D receptors in the skin, meaning that darker skin types allow less UVB to enter the skin, and consequently produce less vitamin D. These findings may also help to explain disproportionate levels of infection among the BAME community – and can certainly provide relevant information for clients when considering whether they feel they 'need' to supplement."

Devine continued: "The prevalence of patients with vitamin D deficiency is highest in the elderly, obese patients, nursing home residents, and hospitalised patients. The prevalence of vitamin D deficiency was 35 per cent higher in obese subjects irrespective of latitude and age.¹⁴ Specifically, Spain and Italy have high rates of vitamin D deficiency and some of the highest Covid-19 infection and mortality rates worldwide. Conversely, the Nordic countries have higher vitamin D levels as a result of formal food fortification and also lower rates of Covid-19 infection and mortality. However, there are many other confounding factors, and this should be taken into context.

"Vitamin D deficiency may be related to populations who have higher skin melanin content and who use extensive skin coverage, particularly in Middle Eastern countries. Not spending adequate time in the sun in the summer months, as well as vulnerable individuals such as the obese, those who have undergone bariatric surgery, and those with gastrointestinal malabsorption syndromes, can

lead to chronic vitamin D deficiency and may require higher doses of vitamin D to maintain normal serum levels and be healthy."

Olenka Quintrell, Clinical Nutrition Advisor at BioCare, pointed out the role of magnesium in deficiency.

"Magnesium is needed to activate vitamin D, so if you're running low, say from low dietary intake, coupled with high stress levels, this could be impacting your vitamin D status," she explained.

And the impact of this widespread deficiency can be huge over the longer term, with Thomas commenting: "It is important to monitor levels of this vital vitamin as long-term effects of deficiency can include rickets in children and osteomalacia in adults. These are both characterised by softening of the bones and bone pain and can eventually lead to symptoms such as bowlegs, which are typically associated with these diseases."

Powers added: "Vitamin D plays a key role in calcium metabolism and bone health, which has been understood for some time now. We are also beginning to learn more about the role it plays in the modulation of both the innate and adaptive immune responses. Multiple studies have shown that vitamin D deficiency can be detrimental to immune function, and possibly lead to an increased risk of developing respiratory illness, which makes



THE ROLE OF VITAMIN D

even more sense as to why its role in immune health has been of particular interest during this pandemic and the symptoms that can arise from Coronavirus infection.”

Braye continued: “Many patients with vitamin D deficiency are asymptomatic. However, even mild, chronic vitamin D deficiency can lead to chronic hypocalcaemia and hyperparathyroidism, which can contribute to the risk of osteoporosis, falls and fractures, especially in the elderly population.¹⁶ Patients with a prolonged and severe vitamin D deficiency can experience symptoms associated with secondary hyperparathyroidism, including bone pain, arthralgias, myalgias, fatigue, muscle twitching, and weakness.¹⁶

“A large body of evidence has shown that patients with vitamin D deficiency have increased cardiovascular risks and total mortality.¹⁷ Conversely, the presence of comorbidities such as abdominal obesity, insulin resistance, type 2 diabetes and hypertension places patients at an increased risk of vitamin D deficiency¹⁷ (indicating a bi-directional effect). The relationship between vitamin D status and the higher incidence of many types of cancer has suggested that it may play a role in the aetiology.¹⁷ Vitamin D deficiency is also prevalent in multiple autoimmune diseases, e.g. muscular sclerosis, diabetes type 1 and systemic lupus erythematosus, implicating vitamin D status as a risk factor for developing such conditions¹⁸.”

It's important to note the many areas vitamin D is considered crucial for and, if of concern a client has too low levels, to know the best course of action to ascertain that.

“Regulating the intake of calcium, magnesium and phosphorus, which are vital minerals required, among other things, vitamin D is essential for the formation of healthy bones. Also supporting muscle function by enhancing mitochondria, the ‘powerhouses’ of our cells, which are responsible for turning energy from food into energy for those cells,” Thomas reported.

“While vitamin D has long been known to support bones and teeth, it is now becoming well-recognised as an essential vitamin for immune health, too. Activating the body's immune defences, vitamin D is vital for optimal performance of the killer cells within the immune system (the T cells) and without sufficient vitamin D levels, these cells will not be able to react and fight off serious infections within the body.

“Low levels of vitamin D can manifest as low mood, headaches and aches and pains, to name just a few. Unless several symptoms are experienced simultaneously or for prolonged periods of time, many people may not visit their GP and consequently will not have the opportunity to be tested by their doctor.”

And Powers advised: “Low vitamin D levels are associated with a higher risk of poor musculoskeletal health, such as bone pain, muscle aches, pains and weakness. Fatigue may also be experienced, plus low vitamin D levels may also be associated with low mood and depression. In terms of immunity, having low vitamin D levels is highly associated with the risk of autoimmunity, so is widely recommended in terms of protection and prevention of autoimmune disease. Low levels are also associated with an increased risk of illness related to respiratory health in particular. We've seen the reviews of patients with Covid-19, whereby low levels of serum vitamin D are being linked with an increased severity of symptoms.”

Vagnini expanded on vitamin D and its critical role in the immune system.

“It is involved in modulating the inflammatory response and has been shown to inhibit the main cytokines involved in the dreaded cytokine storm, which leads to ARDS and high mortality rates. When immune cells such as neutrophils and macrophages became too active during a hyper inflammatory response, vitamin D3 helps to increase the number of T-reg cells, which regulate the immune response and destroy excessive immune macrophages, reducing inflammatory activity,” she reported.

“Vitamin D3 shifts the Th1/Th2 balance more towards Th2 when required, which is less inflammatory and more regulatory. Th1 will increase the amount of CD8+ cells, which, during an over exaggerated immune response could have very bad consequences for a Covid-19 patient in late stages of the disease process.”

Quintrell continued: “With regards to the immune system, vitamin D can be protective against all types of immune dysregulation, ranging from low immunity and susceptibility to viral and bacterial infections, to autoimmunity and atopy.

Vitamin D deficiency is increasingly common and linked to an increased risk of infection,ⁱ allergy,ⁱⁱ and autoimmunity.ⁱⁱⁱ Given the importance of vitamin D for systemic health, however, a compromised vitamin D status can lead to a wide range of health issues affecting each and every body system, including atrial fibrillation, mental health conditions (for example, schizophrenia, bipolar^{iv}) and female hormone issues such as premenstrual syndrome (PMS).^{vi} Therefore, testing and optimising vitamin D is an important early goal for all clients, given the importance of this sunshine nutrient for the health of every body system.”

In terms of the science and how it works, Braye explained: “Vitamin D is a fat-soluble vitamin and secosteroid hormone. It is synthesised in the skin upon exposure to sunlight and is then metabolised in the liver and kidneys to the metabolically active form 1,25(OH)2D. Through binding to the vitamin D receptor (VDR), vitamin D can regulate the expression of hundreds of genes involved in skeletal and many other biological functions, in particular, in the immune, endocrine, and cardiovascular systems.³

“Vitamin D is critical for calcium homeostasis. Low serum vitamin D cause a decline in calcium absorption, leading to low serum levels of ionized calcium, which in turn trigger the release of parathyroid hormone, promoting skeletal resorption and, eventually, bone loss or osteomalacia.⁴ One role of vitamin D which people are perhaps less aware of is its importance for gut health. The gut is one of the most important target organs of vitamin D, as demonstrated by the local synthesis of enzymes required for vitamin D synthesis and VDR expression in most cell types of the GI tract.⁹

“Research shows that an optimal vitamin D status plays an important role in maintaining gut homeostasis via many regulatory activities such as calcium and phosphate absorption, protection against infection, preservation of the epithelial barrier function, anti-inflammatory action and modulation of the gut microbiota.⁹ Oral vitamin D supplementation has been shown to lead to a reduction in opportunistic pathogens and an increase in bacterial richness in the upper GI tract.¹⁰ Recent studies also demonstrate that live bacteria supplements could in return increase VDR expression and activity, leading to an increase in host vitamin D levels¹⁰.”





OPTIMAL INTAKE

There is quite a gap between the Government's recommended dosage levels of vitamin D (and the times of year this applies to) and what the nutrition community would recommend as being optimum. And we also know requirements vary depending on ethnicity and age, and so there is a risk of confusion as to what people really need.

"A healthy debate exists when it comes to the optimum blood level for vitamin D. The official measurement for insufficient serum levels is under 50nmol/L, and for deficient, it is under 25nmol/L. However, there is no guidance for what would be considered optimal," Thomas reported.

"Garland and Baggerly conducted a review of disease incidence and associated vitamin D levels, which clearly illustrated an optimal serum level would be between 100 to 150nmol/L (40 to 60ng/ml). A level which has been suggested to provide optimum defense against associated autoimmune diseases."

Powers reported a similar scenario, commenting: "The RDA is set at 400iu a day, but we find that many people will need to work on an intake between 1000 IU and 4000 IU a day to reach optimum levels,

or even higher in some cases, but testing would be recommended first. The recommended average daily intake is 10mcg (400 IU) but this may not be enough for everyone, especially where there may already be existing deficiencies.

So, is it the case that experts believe advice needs to be updated in terms of amounts people are recommended?

Thomas commented: "Although awareness around the importance of vitamin D supplementation for our health continues to grow, there remains confusion around who should be supplementing, how much and what levels are optimal. Evidence suggests that a supplementation dosage related to body mass is required, instead of a single dosage level for all. There is no 'one size fits all' solution for vitamin D supplementation and I would therefore welcome a more tailored approach to supplementation guidelines, based upon body mass and ethnicity."

Braye reiterated why testing is so important to show whether higher levels are needed.

"As vitamin D is toxic in excess levels, practitioners should always test client serum 25(OH)D levels before recommending supplementation to assess need and suitable dosage. Doses above the RNI may be required to bring clients into the optimal range, but supplementation over the safe tolerable upper limits (UL) should only ever be done with medical approval and supervision. Testing should be repeated after a few months to assess the effectiveness of supplementation," she advised.

"The health outcome identified as the basis for setting dietary reference values for vitamin D is musculoskeletal health (based on rickets, osteomalacia, falls and muscle strength). Evidence suggests that the risk of poor musculoskeletal health is increased at serum 25(OH)D concentrations below 25 nmol/L. However, this level centres around preventing vitamin D deficiency, and there is an abundance of literature suggesting that higher levels are required to derive full biological activity of vitamin D, which supports many different aspects of human health. In fact, the Endocrine Society recommend defining vitamin D deficiency as

serum 25(OH)D below 50 nmol/L),¹ meaning optimal levels are likely to be even higher.

"In 2017, the first-ever individual participant data (IPD)-level meta-regression² (which is increasingly recognised as best practice over and above population analysis), from seven winter-based RCTs (with 882 participants ranging in age from four-90 years) of the vitamin D intake-dose-response, found that intakes required to maintain 97.5 per cent of the populations 25(OH)D concentrations > 50 nmol/L across the population was 26 µg (1040 IU)/day. This would indicate that vitamin D intake of significantly more than the current RNI may be required to maintain optimal vitamin D status in the majority of the population."

Devine added: "Obtaining adequate amounts of vitamin D from the diet can be difficult so supplementing with vitamin D3 is an important nutraceutical intervention where deficiency is recognised. Whilst we can reasonably assume many of the client's we see are likely to be deficient, the only reliable way is to have a blood test for 25-hydroxy vitamin D. Individuals can ask their GP for a test or take one of the many private Vitamin D3 tests available today. Testing allows us to personalise the dosage depending on the results."

In terms of the best sources, we know that sunshine and supplementation are going to deliver the best results.

Quintrell advised: "Since vitamin D is a fat-soluble nutrient, it is important to supplement with vitamin D in an oil base for superior absorption. To further support absorption, opt for an emulsified vitamin D3, which is basically pre-digested. An emulsified form is especially important for an individual with fat maldigestion and malabsorption (for example, IBD, SIBO, gallbladder issues). Opt for vitamin D3 (cholecalciferol), which has been demonstrated to lead to sustained improvements in serum vitamin D status. For those following a vegan lifestyle, a lichen source of vitamin D3 is thankfully now available."

Thomas added: "Vitamin D is naturally present in the food chain and is available at reasonable levels in foods such as eggs, cheese and milk and is fortified in some foods such as breakfast cereals. However, the only foods which provide vitamin D at a meaningful level are eggs, but only hens that are fed vitamin D, and fatty fish such as mackerel and herring. The importance of vitamin D is often overlooked, and many assume that adequate levels can be obtained from sunlight or through a healthy diet. While it is possible to obtain vitamin D through our diet, it is difficult to obtain adequate levels from natural sources alone, as such alternative strategies such as supplementation are recommended to ensure good health."

IN-CLINIC RECOMMENDATIONS

So, how do the experts think you as Nutritional Therapists should handle the situation with vitamin D in terms of offering client's responsible advice?

Vagnini recommended: "As professionals, Nutritional Therapists should perform or prescribe a vitamin D test to confirm and monitor a possible deficiency. Test can be easily done by a GP or privately at home at a fairly low price. Once you know the results, you can then advise accordingly. It is pivotal to understand why a person might be borderline, low or very low on vitamin D.

"Latitude, cultural dress habits, season, sun avoidance, and sunscreen protection can all limit vitamin D production. Although hypovitaminosis D most commonly results from inadequate intake, gastrointestinal, hepatic, and renal disease may be related to low vitamin D levels. It is worth mentioning that mutations to the VDR gene can affect a person's vitamin D levels. The VDR gene provides instructions for making a protein called vitamin D receptor (VDR), which allows the body to respond to vitamin D. Changes in this gene modify its mechanisms, thus preventing or hindering the activity of vitamin D, even in individuals with normal levels of the vitamin. In certain cases, a person might show all signs of vitamin D deficiency but still have an adequate blood test result. This could be due to the fact that these individuals might struggle to covert vitamin D into the active form."

Thomas continued: "It is a vital time for Nutritional Therapists to provide a source of trustworthy information as they offer much-needed support to clients, so they can make informed decisions for their health. As Nutritional Therapists, you will know that it is incredibly difficult to eat your way out of a vitamin D deficiency, so it is reasonable to summarise that many of us may be existing with sub-optimal levels of this essential vitamin.

"Ultimately, I would recommend clients are advised to test their vitamin D levels, either with their GP or using a simple at home test kit. This will help to determine baseline vitamin D levels and indicate how much supplementation may be required.

"Like all supplementation, the 'one size fits all' message is simply not helpful. Public Health England's recommendation



that everyone living in the UK should supplement vitamin D was welcome, but the blanket 400 IU per day is simply not effective, nor does it stand the test of scientific scrutiny.

"400 IU is certainly required for infants or small children, but thereafter, it requires a more effective calculation. The easiest guidance we have been able to provide and have done throughout the last decade of testing and supplementation that we have carried out at BetterYou, is 25mcg (1000 IU) for every 25kg of body weight. This rather neatly relates to the greater skin surface area exposed to the sun as our bodies grow. This is for maintenance dosages only; to reverse a deficiency, supplementation should be based upon specific blood level status, and a brief period of double or triple this level may be required to obtain optimal levels."

When recommending a supplement, there are some key elements to take into account.

Vagnini advised: "Since the 1930s, manufacturers have voluntarily enriched foods like milk, cereal and some orange juices with vitamin D to help reduce the incidence of nutritional rickets. This manoeuvre was successful in reducing the most severe condition linked to low vitamin D, but subclinical vitamin D remains a pandemic emergency. One of the possible causes could be still the use of vitamin D2 in fortified foods, which has been proved in numerous studies to be less effective than D3. Hence, it is fundamental to check that all your supplements containing vitamin D are actually with vitamin D3 and not D2."

Thomas continued: "The raw materials and ingredients used within supplements is especially crucial for those following a plant-based diet. Many traditional supplementation methods, such as tablets and capsules, often use fillers to bulk out their formulations, so it is important that vegans and vegetarians thoroughly check the ingredients listed on any supplement they intend to use. When looking at vitamin D supplements, the D3 form of the vitamin is far superior to the D2 form, however, the majority of vitamin D3 comes from the lanolin contained in sheep wool. There are vegan-friendly versions available that come from a lichen source, so again, I would recommend that people are vigilant when purchasing health

supplements."

And Braye pointed out: "In light of the synergism between vitamin D and the gut-microbiota, researchers have noted that it may be beneficial to combine supplements with vitamin D and live beneficial micro-organisms and/or prebiotics as alternative disease management options that may affect the outcome of conventional therapies."

Thomas advocates sublingual supplementation.

"Our modern diet, increased stress levels and an ageing population means that our digestive efficiency is worsening with malabsorption issues. As a result, related health issues are on the increase. An alternative route for administration is the intra-oral route (through the mouth). The key benefits of an oral spray include convenience and improved absorption, which traditional tablets, capsules and drops (which all rely upon an increasingly inefficient digestive system) simply cannot. An oral spray does not require water to take, does not need to be taken with food 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 very rapid onset of action. 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."

EXPANDING THE RESEARCH

Experts believe more work needs to be done to truly ascertain if vitamin D could be an important role in reducing risk of Covid-19.

Vagnini discussed the matter, commenting: "More and more studies are coming out every day on Covid-19, and big focus is on finding a vaccine. But, is it really what we need? Or more precisely, isn't it better to focus on prevention and supporting the great ability of our immune system to kill any invading pathogen? If we would start looking at what causes all those risk factors and put more pressure and media coverage on prevention, probably we would not be so scared of Covid-19."

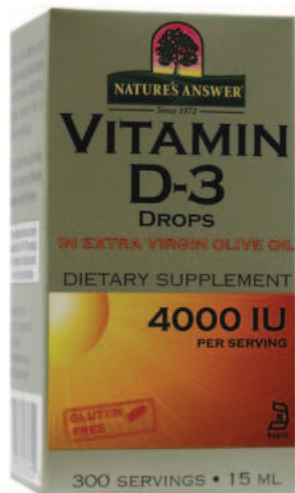
"Yes, it is a whole new disease that we need to study and be aware of and definitely more research needs to be done on the topic. But we also have a solid amount of research proving how the right diet, lifestyle and supplements can prevent and fight viral infections."

And Devine continued: "There is currently no direct evidence that taking any supplement, including vitamin D, reduces the risk of developing Covid-19 as

a result of contracting the SARS-CoV-2 Coronavirus, but there are studies and mechanisms starting to suggest a potential link. One study showed that vitamin D supplementation could possibly improve clinical outcomes of patients infected with Covid-19. The results suggest that an increase in serum 25(OH) D level in the body could either improve clinical outcomes or mitigate worst (severe to critical) outcomes, while a decrease in serum 25(OH)D level in the body could worsen clinical outcomes of COVID-2019 patients.¹

"Ongoing research has identified a correlation between respiratory health and vitamin D status and that a deficiency could be a risk factor for the development of acute respiratory distress syndrome (ARDS). A recent study in the *BMJ* found that patients with, and at risk of ARDS, are highly likely to be deficient, and the severity of vitamin D deficiency relates to increased epithelial damage, the development of ARDS and survival. The paper presents evidence that an easily treatable vitamin deficiency may increase the risk of ARDS in patients at risk."





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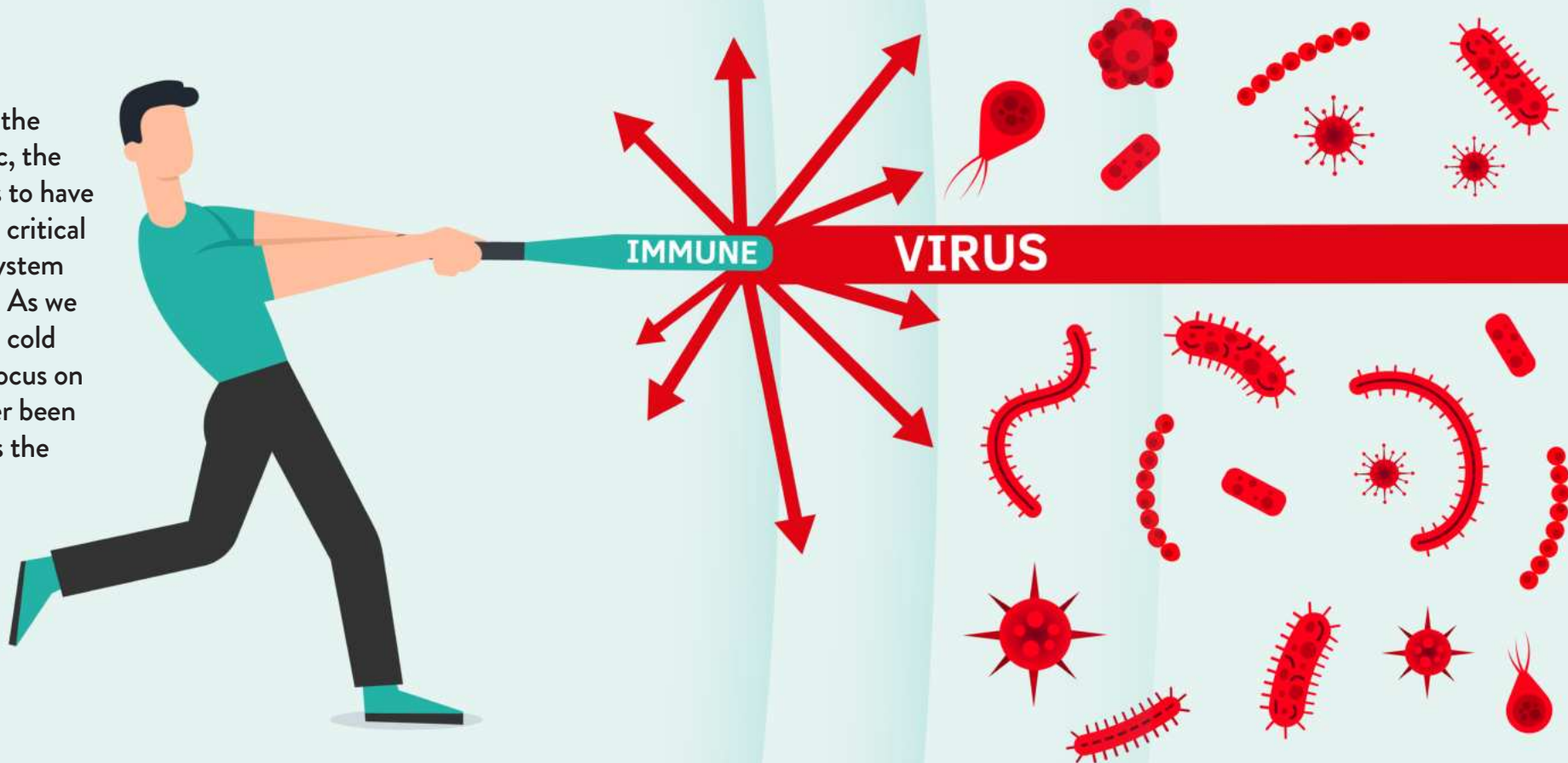
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Immune system effectiveness

With the arrival of the Covid-19 pandemic, the world finally seems to have caught up with the critical role our immune system plays in our health. As we approach the usual cold and 'flu season, a focus on immunity has never been more important, as the experts discuss.





Look at all the data and it confirms that immune health is currently big business. We have the statistic from Research and Markets showing the immune health supplements market is forecast to grow over nine per cent during the period 2019-2025, finding that the global immune health supplements market is expected to witness consistent growth following the outbreak of Covid-19. Meanwhile, *The Grocer* magazine reported in May that there was a 110 per cent rise in sales of vitamin C.

Furthermore, brands within our specialist sector have also reported similar rises in sales of vitamins C and D, herbal supplements and the likes of medicinal mushrooms, all known supporters of immune health.

This demonstrates just how much immune health has fallen into the spotlight due to concerns around Covid-19. And so, as Nutritional Therapists, what is the best and most responsible advice you can offer to your clients in terms of immune support?

Joanna Dziedzic, Nutritional Therapist and Business Development Manager at Pure Encapsulations, commented: "The pandemic has certainly made us revisit the immune topic in depth. Not surprisingly, once again, we witnessed that our immunity is a

large component of our general wellness and in order to protect ourselves from viruses and other infectious diseases, we really need to take our health seriously. In particular, and perhaps overlooked, is the importance of cardiovascular health, which has emerged as an important risk factor for low resistance to infection.

"So, it is important to realise that it is not only about ensuring optimal intake of vitamin C, zinc and other immune supportive nutrients, but also about improving our overall health, which is an important message."

Nutrition expert and author, Patrick Holford, added: "Deficiency in certain vitamins and minerals can lead to decreased immune system function. Vitamins A, E and C, along with zinc, copper, iron, magnesium and selenium, have all been shown to be important for either neutrophil, T cell, or antibody function.

"People with a poorly balanced diet and those with digestive issues causing decreased absorption of nutrients are at risk of lowered immunity. Stress may also reduce the efficiency of the immune system, thereby increasing susceptibility to disease via the reduction of white blood cells that fight disease-causing bacteria."





FACTORS LOWERING IMMUNITY

So many elements can be involved in lowering our immune function.

Kim Plaza, Nutritional Therapist and Technical Advisor at ADM Protexin, which manufactures the Bio-Kult and Lepicol brands, commented: "The role of diet may impact our immune responses. An 'activated' immune system increases the demand for energy during periods of infection, whilst under-nutrition may impair immune function.⁴ The typical Western diet consisting of high sugar, trans and saturated fats, whilst being low in complex carbohydrates and micronutrients, is associated with inflammation, increasing the risk of immune dysregulation.⁴

"Ageing is another determinant upon immunity, where research is highlighting its importance. This is especially relevant when we consider that we live in an ageing population (the estimated proportion of over 65 is predicted to be 20.7 per cent in England by 2028).⁵ There may be a social influence in the association between age and lowered immunity, as poor diet quality is considered common in older populations. This could be due to changed living environments, such as living alone and/or less frequent contact with friends.⁶

"Alterations to the innate and adaptive immune systems, which occur with age, are linked to biological processes known as immunosenescence.¹ Some principle features of immunosenescence include reduced phagocytic capabilities, reduced bactericidal activity, and neutrophil changes (the first line of defence toward invading pathogens).¹ Therefore, there are changes to how the innate immune system initiates the host's response to pathogens and consequently, how the innate immune system informs the adaptive immune system.¹

"Other elements that may play a role with immunity include metabolic syndrome (MetS), lack of physical activity and chronic stress. MetS is a condition characterised by three or more of the following components; central adiposity, elevated blood glucose, plasma triglycerides, high blood pressure and low plasma HDL cholesterol.⁸ MetS is associated with a chronic low-grade inflammation, which may impact the cross-talk between the innate and adaptive immune system.⁸ After an acute

infection is eradicated, inflammatory immune responses should be resolved via homeostasis. Failure to restore homeostasis (because of MetS associated inflammation), may result in a shift in homeostatic set points and prolong an impaired response⁸."

Debbie Cotton ND, from the Clinical Education team at InVivo, added: "There are many contributing factors to a lowered immune function. The most common being the presence of long-term chronic diseases (such as diabetes, HIV, cancer, CFS/ME, COPD and autoimmune diseases), long-term use of immunosuppressant medications such as steroids, lifestyle factors such as long-term exposure to chronic stress and sleep deprivation, whilst our social networks and mental wellbeing can also be protective factors, disruptions in the mucosal barriers, which are our first line of defence due to chronic microbial imbalances in the gut or lungs, the impact of stress on repair of the GIT or genetic disease processes that impair mucous flow and lack of essential nutrients, such as vitamin A, vitamin D3 and zinc."

Susie Debrace BSc Hons, Dip ION, Health and Nutrition Copy Writer, Food Scientist and Nutritional Therapist, who advises Abundance and Health, highlighted stress.

"There are many reasons why the immune system becomes overstretched and overwhelmed but you can't underestimate the impact that stress exerts on the immune system. The adrenal glands utilise vitamin C during the stress response, which provide an insight into ongoing stress," she advised.

We must not forget the role of nutrient deficiency too.

Catherine Gorman, Nutritional Therapist and Health Coach at Good Health Naturally, commented: "A poor diet and an unhealthy lifestyle can certainly contribute to lowered immunity. If you are not getting all the nutrients your body needs on a daily basis, there will inevitably be consequences, including a weakened immune system.

"The two nutrients everyone has been talking about during the Covid-19 pandemic are vitamins D and C. More and more research is showing it plays a crucial role in immunity but there is concern most people are not getting enough in their diet, or from the sun. Supplementing may be the best option. A deficiency in vitamin C can result in impaired immunity and a higher susceptibility to infections. It cannot be stored in the body, so we need to eat it every day."

And what do the experts highlight as being the obvious signs someone will experience if they have lowered immunity?

Debrace explained: "The immune system forms our first line of defence so those with lowered immune function often experience frequent infections

and may find that it takes longer than normal to recover from an infection. Feeling constantly run down or experiencing low energy, low mood and general aches and pains may also be a sign that the immune system has hit a low point."

And Cotton added: "The major signs would be an increased risk of reoccurring infections that most other people can fight off, for example, reoccurring candida infections of the oral or vaginal cavity, as normally our microbial balance and our immunity can keep candida as a healthy commensal.

"It could also be things like chronic and reoccurring lung infections, UTIs, sinus infections or skin infections. Blood counts might show low platelets and white blood cell counts, frequent gastrointestinal infections or symptoms, longer wound healing time and constant fatigue and long recovery times, post illnesses."

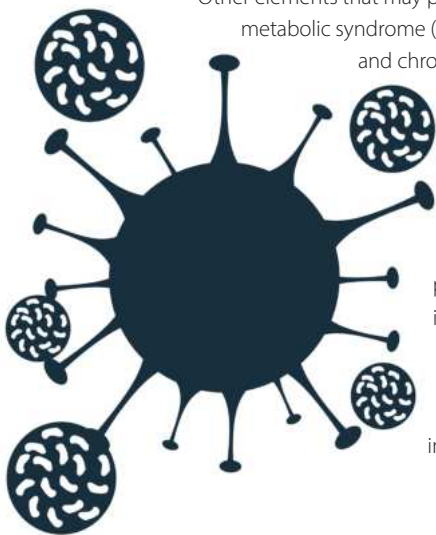
Be aware that, long-term, there can be a knock-on effect.

Plaza commented: "Others may report a consistency with seasonal allergies, as well as eczema and hives. Allergies tend to arise because of a misinterpretation by the immune system to distinguish 'friend from foe'.¹⁸ This tolerance tends to be developed throughout infancy and is noted to be the 'critical window' of immune development.¹⁹

"There are sometimes more serious manifestations of immune dysregulation, and these include autoimmune conditions. This is where the body will lose self-tolerance to its own cells and, therefore, identify own body cells as foreign invaders.¹⁵ There are over 80 different types of auto-immune conditions, including IBD, type 1 diabetes and rheumatoid arthritis²⁰."

Slawek Gromadzki, who works in nutritional support/research and development at HealthAid, continued: "Apart from recurrent infections, complications and long-term health concerns associated with a chronically weakened immune system may include the significantly increased risk of developing various cancers and serious complications or even death from bacterial and especially from viral infections. Weakened and dysfunctional immune cells can even turn against own body and attack various tissues by sending antibodies against them, thus causing inflammation and damage.

"Such an abnormal behaviour of the immune cells is the physiological cause of over a hundred different autoimmune conditions, including type 1 diabetes, multiple sclerosis, Parkinson's disease, inflammatory bowel disease, eczema, overactive and underactive thyroid, psoriasis, vitiligo, and many other conditions."





REMEMBER THE GUT

One of the biggest components of a healthy immune system is the status of the gut.

Plaza commented: "The microbiota is intertwined with our immune system (as well as other body systems), and research suggests it may influence host development and resistance to disease.¹ Those with an imbalance in gut bacteria (known as dysbiosis), may be more prone to inflammation and consequent impaired immune resilience.² This is logical when we consider that 70 per cent of our immune cells are located within the gut.³

"The GI tract provides a physical barrier to potentially infectious pathogens and orchestrates immune cells to maintain this protection. The intestinal lining comprises of many layers, which include various immune cells, for example, the first layer (epithelium) contains enterocytes, goblet cells and Paneth cells.²¹ Enterocytes and Paneth cells produce anti-microbial peptides that manage to keep pathogens under control. Goblet cells secrete mucins that help lubricate the intestinal surface, whilst having a role in presenting pathogens to dendritic cells (these stimulate the immune system to either tolerate or attack).²¹

"In addition to this structure is the existence of the microbiome, where the GI tract is the primary location for approximately 100 trillion bacteria.²¹ Beneficial bacteria aid our immune system through a variety of mechanisms. Firstly, metabolites released from bacteria through fermentation of fibres called short-chain fatty acids (SCFAs) are able to cross the intestinal epithelia and interact with host cells.²¹ SCFAs are also a food source for intestinal cells (enterocytes, goblet and Paneth cells), and, therefore, regarded as beneficial for immunity and possess anti-inflammatory properties.²¹ A healthy microbiome also provides assistance through releasing anti-microbial peptides, competing for attachment sites and nutrients, as well as aiding in the digestion of food that is important for the production of certain vitamins²¹."

Sarah Oboh, Nutritionist at OptiBac Probiotics, continued:

"Our commensal bacteria has the potential to work as an integral part of the whole immune system by rebalancing dysbiosis, displacing pathogens, increasing production of antimicrobial peptides and mucins, helping to strengthen mucosal barriers and modulating cell-mediated immune responses. In fact, so

great is the role of the gut microbiota that it is becoming widely regarded as an 'organ' in its own right and this 'organ' plays a major role in immune function.

"The closely connected nature of our gut health and immune system, (given that 70 per cent of our immune cells are located in our intestinal tract), means that an important factor to consider in an individual with lowered immunity is their gut health. An imbalance between the pathogenic microbes and beneficial microbes which line



the gastrointestinal tract can result in a weakened gut barrier, which then exposes the gut cells and the immune system to potential attack.

Achieving a well-balanced microbiome is, therefore, key to encouraging better immune health."

So, how best to ensure your clients are taking care of their gut, and, in turn, their immune system?

"The composition of our gut microbiome will change over the life course, as well as in response to environmental influences (stress, sleep and diet etc.). Encouraging a healthy microbial balance may help to support immune and inflammatory responses.⁴ Consider including traditionally fermented foods within a protocol, such as sauerkraut, kimchi, kefir, kombucha, miso and live yoghurt. In addition to this, providing prebiotic foods may be useful to selectively stimulate the growth of beneficial bacteria", Plaza commented.

"Beneficial bacteria will ferment fibres that we do not digest and provide SCFAs through this fermentation, whilst possible pathogenic microorganisms such as *Candida albicans* favour refined carbohydrates and high sugar foods. We can, therefore, selectively promote different microorganisms through the diet we consume.

"Maintaining gut barrier integrity to reducing the translocation of toxins crossing the gut lining, sometimes known as 'leaky gut', is also important for controlling inflammation and immune regulation. It is thought that psychological stress may exacerbate leaky gut and, therefore, attempting to reduce stress through behaviour change or meditation may improve gut health.²²

"There is evidence to support the use of live bacteria supplements for upper respiratory tract infections in children. Studies suggest they may decrease the incidence and duration of illness, however, specific strains and dosing is yet to be confirmed.²³ Other research has shown that live bacteria supplementation may reduce the recurrence of urinary tract infections and the *Lactobacilli* genus in particular may reduce the need for antibiotic use.²⁴ Therefore, consideration of beneficial bacteria may be worthwhile for multiple systems and is not limited to the digestive system.

"Choosing a live bacteria supplement might help to support gut barrier systems and overall immunity.² Each bacterial species will possess a range of benefits, such as anti-microbial properties or SCFA production, therefore, a multi-strain may be of consideration."

Oboh emphasised the importance of being specific in recommending any probiotic supplement.

She explained: "The principle underpinning the majority of probiotic research is based on the concept that different strains work in different ways and research suggests that this principle also extends to immune



function. Undoubtedly, one of the most researched probiotic strains for immunity is *Lactobacillus paracasei* CASEI 431, which has been shown to improve immune function by strengthening and improving the integrity of tight junctions on the epithelial lining¹. In further clinical trials, this strain has been shown to reduce the duration of cold or flu symptoms, raise levels of IgG, IgA and IgM antibodies and modulate cytokine secretion to encourage better immune responses to infection.²

"Another probiotic worth considering, especially when it comes to strengthening immunity in the elderly, is *Bifidobacterium lactis* Bi-07. In a clinical trial, daily supplementation with this strain for three weeks was seen to significantly improve phagocytic activity of monocytes and granulocytes in healthy elderly adults³. The research suggests that this specific probiotic strain may provide health benefits to elderly individuals by increasing the activity of phagocytic cells that can help the immune system to resist infections."

She also focused on the early years, commenting: "One way in which we can positively intervene to encourage an appropriate immune response is via the use of probiotic strains specifically targeted to supporting a child's immunity. In a gold standard clinical trial, a combination of three probiotic strains, *Bifidobacterium infantis* Rosell-33, *Lactobacillus acidophilus* Rosell-52 and *Bifidobacterium bifidum* Rosell-71, were found to reduce childhood infections when taken daily and were also shown to help modulate immune activity by encouraging the growth of beneficial bacteria in the child's gut⁴. Another well-researched strain to consider is *Bifidobacterium breve* M-16V, which can be recommended to babies from birth to three years of age. This strain has been extensively trialled in over 4,000 children and has been shown to regulate inflammatory responses and support the immune system⁵."

IMMUNE HEALTHY DIET

When developing any kind of plan for a client, placing emphasis on their diet is hugely important as we know that many factors related to the modern Western diet are having an impact on our immune health.

"Our dietary choices have a direct impact on our immune system. A key thing to consider is the quality of the food we eat as high quality, nutrient dense foods provide nutrients that support a healthy immune system, while poor quality foods may impair immune function," Dziedzic pointed out.

Gormon went on: "Our food choices can have a huge impact on our immunity. Eat a nourishing diet, rich in vegetables, fruit, healthy fats, nuts, seeds, pulses, good quality meat and fish. This will ensure we are getting an adequate supply of vitamins, minerals and antioxidants to support our immune systems. Eating too much processed food, sugary snacks, and starchy carbohydrates not only puts us at risk of nutrient deficiencies, it can also activate the innate immune system and impair adaptive immunity. This leads to chronic inflammation and weak defences against pathogens. Poor sleep, inadequate exercise, obesity and stress can also increase inflammation in the body."

And Debiec suggested: "Fresh is best, particularly when it comes to fruits and vegetables and the plethora of vitamins, minerals,

enzymes and phytonutrients which help to protect cells from oxidative stress. Aiming to achieve anything from five to eight portions of fresh fruit and vegetables is a good strategy for general health and wellbeing. Snacking on nuts and seeds helps provide minerals such as zinc and selenium required by immune cells."

Plaza continued: "Protein is required for the maturation and maintenance of the immune system, where associations are thought to occur between low protein intake and lymphoid tissue atrophy.¹¹ Therefore, it is important to include sufficient, quality protein intake within protocols, such as organic grass-fed meat, wild fish, eggs, legumes, nuts and seeds.

"Consuming a rainbow of brightly coloured fruit and vegetables could be well worth including within protocols. A single nutrient may exert





multiple benefits in relation to immunity, such as the case of vitamin E, with antioxidant activity, as well as interaction with enzymes and transport proteins⁴ Therefore, to encourage a wide range of micronutrients which include vitamin A, C and zinc is worthwhile. Setting clients a '30 a week' rainbow challenge may improve motivation."

She went on: "Garlic is another powerful component that may be easily incorporated into diet. Its compounds have been found to have antioxidative, free radical scavenging properties, as well as regulating cell proliferation, apoptosis and immune responses.¹³ Immuno-modulatory effects have also been observed with the use of green tea, ginger and black cumin.¹⁴ This shows that there are many options to support immunity through diet."

And being aware of portion control is also worthwhile, with Holford advising: "Overeating, especially consuming foods rich in simple carbs such as sugar and too much saturated fat, can negatively affect the ability of your body to fight infections. Overeating and foods high in sugar increases insulin, which can interfere with immune system function. Studies have shown there is a link between persistent and chronic inflammation, immune dysfunction and insulin resistance, with the end result that T cells stop responding and become functionally impaired."

And Cotton added: "The best dietary protocol for overall immunity is one that is rich in the fat-soluble vitamins, zinc, and plant phytonutrients, whilst avoiding any overload of simple sugars or excessive fats that can interfere with hormonal or immune function. A Mediterranean dietary pattern, which is rich in polyphenols, fibres and all these nutrients, is often a good choice for supporting immunity¹, but any dietary philosophy you adhere to can be tweaked to be

immune supportive."

She suggested introducing mushrooms into the diet.

"All mushrooms (yes, even the supermarket button ones) have been shown in research to contain polysaccharides that are immune modulating². Getting fancy with different varieties that have also medicinal use such as reishi, shiitake or porcini is a wonderful thing to do, both for health and for the quality of your cooking," Cotton explained.

Watching out for sugar and other refined foods is also critical.

Gromadzki advised: "Avoid foods with refined sugar as it makes leukocytes behave like drunken soldiers (the higher the consumption of refined sugar, the weaker the immune system). Also, fruit juices, refined rice and white flour products negatively influence immunity because in the body, they are too quickly converted to glucose (sugar) as they are deprived of fibre.

"Instead of sugar and other harmful sweeteners, you can interchangeably use xylitol, erythritol, stevia or organic raw honey in moderation. Dried fruits, bananas and fresh fruits are natural and excellent sweeteners that do not weaken immunity. It was found that the immune system of vegans (who also avoid excessive sugar and other refined foods intake) is much stronger than that of meat and dairy eaters. Avoid refined oils and margarines. Use cold-pressed oils such as olive oil, flax oil, or raw organic coconut oil (antiviral properties). Avoid or significantly reduce consumption of heated animal protein, cheese (including pizza), meat, milk (especially pasteurised), dairy, and sweetened yoghurts. They weaken the immune system and are mucus producing, worsening symptoms of an already infected person."

SUPPLEMENT PROTOCOL

The immune system needs a complex mix of certain nutrients, and while we need to place the focus on sourcing much of these from the diet, supplementation is often to be recommended.

"Nutrients which support normal immune function include folate and vitamins B12, B6, C, A and D and the minerals, iron, zinc and selenium. It may also be worth considering supplementing with vitamin A and B2, which contributes to the maintenance of mucus membranes," Debice recommended.

"Out of all of these nutrients, it's vitamin C that would be a daily recommendation for immune support since this nutrient is unable to be stored in large amounts in the body and due to being water soluble, is easily lost from food during cooking and processing. In terms of supplement forms, it's a liposomal vitamin C that has superior absorption and efficacy."

Holford added: "Vitamin C is unquestionably the master immune-boosting nutrient. It helps immune cells

to mature, improves the performance of antibodies and macrophages and is itself anti-viral and anti-bacterial, as well as being able to destroy toxins produced by bacteria. Antioxidant nutrients, such as vitamin A, C and E, zinc and selenium, disarm free radicals, weakening the invader."

And Dziedzic suggested: "A healthy immune system requires basics such as vitamin D, vitamin C, vitamin A, zinc and selenium. Every stage of immune response is reliant on the presence of these micronutrients so good advice would be to cover the basics before anything else. A professional strength multivitamin, for example, will give you more value than most 'immune' supplements."

In fact, we must place a lot of focus on vitamin D, a crucial nutrient for immune health.

"Recently, researchers investigated and compared data from 25 studies on vitamin D that involved 10,000 people to explore the effect of vitamin D in preventing cold, 'flu, bronchitis and pneumonia. Their conclusion suggests vitamin D supplementation was very beneficial in preventing respiratory tract infections," Gromadzki reported.

Gromadzki also highlighted other minerals for immunity.

"Magnesium plays an important role in maintaining strong immune system and proper conversion and absorption of vitamin D.

Therefore, in cases where large doses of vitamin D don't seem to work, the true problem is magnesium deficiency. Magnesium is necessary to activate all the enzymes that metabolise vitamin D. Magnesium deficiency causes vitamin D to be stored and inactive. Unfortunately, almost all people are now deficient in magnesium due to soil depletion, chronic stress, use of stimulants, refined diet, etc.





"Zinc is required for strong immune system. In zinc deficient bodies, the immune system is not able to overcome viral infections. Zinc inhibits influenza and cold viruses. Taking zinc at the start of a cold or 'flu helps minimise duration and severity of symptoms. In a 2014 meta-analysis of 67 studies, researchers found that zinc is the best supplement for warding off colds and 'flu. According to the 2013 study, 'Zinc (lozenges) administered within 24 hours of onset of symptoms reduces the duration of symptoms'. Selenium (50-200mcg daily) boosts immunity and helps defend viral and bacterial infections, autoimmune diseases and allergies. For instance, in people who already contracted HIV, selenium has been shown to also be able to slow down the progression of the disease into AIDS. It was discovered that 200mcg of selenium per day helps prevent viruses from replicating."

For Cotton, medicinal mushroom in supplement form should also be considered.

"Containing a mix of different types of mushrooms for multiple sources of the beta glucans and polysaccharide components that help to modulate immunity," she advised, adding: "And colostrum, providing immunoglobulins and immune factors that is both supportive the gut microbiome and mucosal immunity."

Gormon pinpointed beta glucans as a strong recommendation, explaining: "Beta glucans are naturally occurring polysaccharides found in the cell walls of pathogens such as fungi, yeasts and moulds. They can stimulate the activity of immunity cells such as macrophages and natural killer cells, which destroy invading pathogens."

Gromadzki suggested garlic in supplement form, commenting: "In one study, participants were given either garlic supplements or a placebo for three months during cold season. Those who supplemented with garlic extract were significantly less likely to get a cold, and if they did, they recovered much faster. The placebo group had a significantly greater likelihood of contracting cold during the period. Allicin, in particular, seems to play a

key role in garlic's anti-viral, anti-bacterial and anti-fungal abilities.

"If you want garlic supplements to have anti-microbial properties, make sure you choose a good quality extract which is standardised for the presence of allicin as regular garlic powders, most garlic oils and products containing processed garlic available on the market do not contain allicin. They may have some other benefits of garlic, but they will not be able to kill pathogens, including viruses."

You could also consider black seed oil.

"Black seed oil (*Nigella sativa*) contains thymol (found also in thyme essential oil), a natural monoterpene which is commonly used as a medical and general-purpose disinfectant to kill various viruses and bacteria, including TB. *Nigella sativa* has been used with surprising results in alternative HIV protocols for years," Gromadzki suggested.

"Astragalus extract is regarded as an excellent energy and immune system booster. It is also an adaptogen herb known to lower excessive cortisol (stress hormone) levels and reduce bad effects of chronic stress. A 2012 study displayed its ability to control T-helper cells 1 and 2, essentially regulating the body's immune responses. As a result of taking astragalus extract, the macrophages and the natural killer cells of the immune system have a markedly enhanced ability to fight intruders, including viruses, five- to six-fold."

Gromadzki continued: "Due to its proven anti-inflammatory, anti-viral and anti-bacterial properties, propolis can help prevent and shorten the duration of common respiratory diseases, such as 'flu or cold. In one study, a regular daily dose of propolis were given to a group of school children during the cold season. As a result, the children treated with propolis had significantly fewer colds with acute or chronic symptoms."

"According to the results of another trial, the group of adults on propolis extract became free of cold symptoms two and half times faster than the control group. It was reported that propolis improves the cellular immune response by increasing mRNA for interferon- γ and activating the production of cytokines."

RESEARCH NEWS

Vast research is being undertaken around Covid-19 in a whole host of areas, and of course, the immune system is a key focus. So, what is the evidence telling us?

"It has been an exciting time to observe how quickly science has responded to the pandemic," Dziedzic commented. "Studies shows that vitamin D supplementation can prevent acute respiratory tract infections, in both very deficient as well suboptimal individuals, and studies in Covid-19 are underway."

"An optimal antioxidant status as a baseline nutrition is a foundation to optimal immunity. Nutrients are essential for defence against infections, for example, n-acetylcysteine (NAC) can reduce a risk of lung infection and quercetin can reduce viral replication resulting in tissue damage and has an anti-inflammatory property. NAC and quercetin are also being considered in research on Covid-19, which is exciting."

Debice added: "Covid-19 has created a spotlight light of interest within the medical community for vitamins C and D and the mineral, zinc. There are now several clinical research studies taking place around the world investigating the merits of including these nutrients into the Covid treatment protocols. The results should start to be reported early next year."

And Oboh went on: "Scientists initially believed that the virus only targeted the respiratory system, causing a cough and 'flu-like symptoms. However, recent research has suggested that Covid-19 affects gut cells and can cause gastrointestinal symptoms. One study involving a Hong Kong cohort found that approximately 20 per cent of individuals with the virus exhibited GI issues⁶. Another study analysed GI symptoms in 95 patients with Covid-19 and found that 58 of these patients (61 per cent) suffered GI issues, particularly diarrhoea and nausea⁷. With such an effect on gut cells, this virus may impact our digestion and absorption of foods, but more research is needed before establishing any definitive conclusions."

And Gormon also highlighted another aspect of the research, commenting: "A paper published in April in the *Journal of Brain Behaviour and Immunity* examined the impact nutrition has on Covid-19 susceptibility and long-term consequences. It pointed out the Western diet, which is high in saturated fats, sugars, and refined carbohydrates, can contribute to obesity and type 2 diabetes, both these conditions may increase the risk of a severe Covid-19 pathology and even mortality."

"Also, the large number of people who recover from Covid-19 may lead to a spike in chronic medical conditions which could be further exacerbated by unhealthy diets. It recommended people switch to foods rich in fibre, whole grains, unsaturated fats, and antioxidants to boost immune function."



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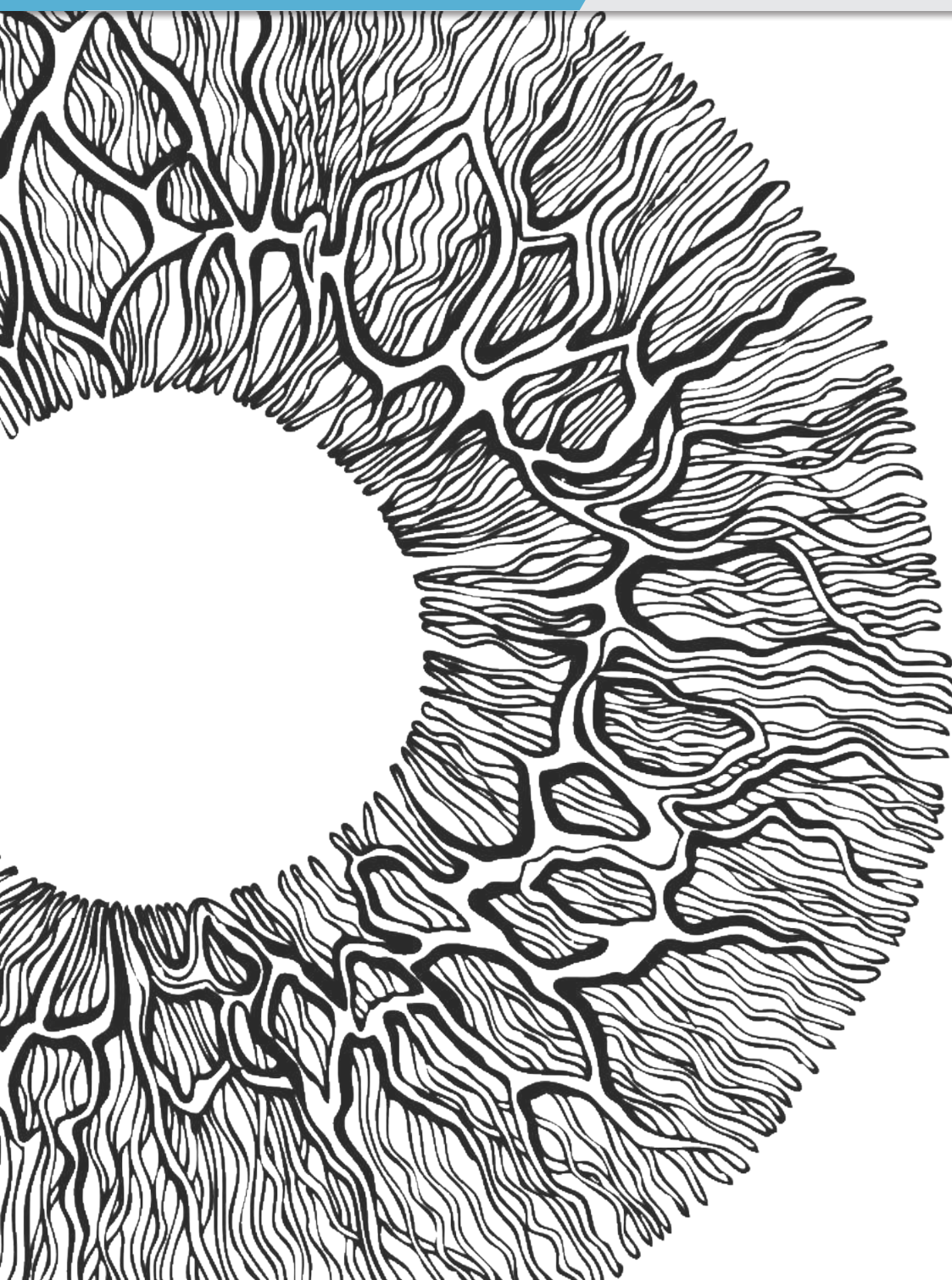
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E AT ING

for the eyes

Healthy eyes are dependent on good nutrition, and without this, it can lead not only to poor eyesight but raised risk of certain chronic health conditions. Here, experts offer their insights.

According to the Royal National Institute for the Blind (RNIB), at least half of sight loss is avoidable, while if detected and treated early, some sight loss due to glaucoma, AMD and diabetic retinopathy could be avoided.

Not only are certain eye conditions hugely common in the UK, but we also know that some health conditions, including diabetes and high blood pressure, can be detected through regular eye tests. But what role does nutrition have in the health of our eyes? And what is the recommended protocol for clients in relation to reducing the risk to our eye health?

EYE-RELATED ISSUES

There are a wide variety of eye conditions people suffer from and we are seeing many issues caused by both poor lifestyle and technology use.

In terms of the key issues, Agnieszka Graczyk, Clinical Support Nutritionist at Pure Encapsulations, reported: "The main eye-related conditions associated with loss of sight in the UK are refractive error, age related macular degeneration, which is by far a leading cause of severe sight loss, glaucoma, cataracts, and diabetic retinopathy. Also, commonly affecting populations of all ages would be conjunctivitis, stye and uveitis.

"It seems everyone is staring at a computer screen, phone or other digital devices these days. And it is causing a problem called digital eye strain or computer eye vision. Working adults are not the only ones affected; kids who stare at tablets or use computers during the day at school can have issues too, especially if the lighting and their posture aren't correct. Symptoms of computer vision syndrome include eye fatigue and discomfort, dry eyes, headaches, blurred vision, neck and shoulder pain, eye twitching and red eyes."

Slawek Gromadzki, who works in the Nutritional Support/Research and Development team at HealthAid, continued: "The following are the most common eye conditions:

- Refractive errors (mostly caused by changed shape of the eye).
- Near-sightedness (myopia) – faraway objects look blurry.
- Far-sightedness (hyperopia) – near objects are not clear.
- Astigmatism – images are stretched out and blurry.
- Presbyopia – an age-related hardening of lens and loss of elasticity leading to long-sightedness (difficulty to clearly see close objects).
- Glaucoma – damaged eye's optic nerve leading to a vision loss and

blindness. It is believed that most cases of glaucoma are caused by an increased pressure in the eye, which gradually damages the nerve fibres that are essential to vision. However, in about 25 per cent of cases, glaucoma develops when eye pressure is normal.

- Cataract – clouding of the lens that often blurs vision. It is the most common age-related eye problem. It is usually treated with surgery.
- Macular degeneration – another age-related eye condition that affects the macula, part of the eye that allows the human eye to see fine detail. It is the leading cause of vision loss in people over 50.
- Dry eyes – this problem occurs when eyes are unable to produce enough tears (complex mixture of water, mucus, and fatty oils). Possible causes may include dehydration, central heating, caffeine, excessive sugar in the blood, hormonal imbalance during menopause, some medications, and especially deficiency of omega 3, omega 7, vitamin D and A."

And looking at wider health concerns, there are some important ones for practitioners to note.

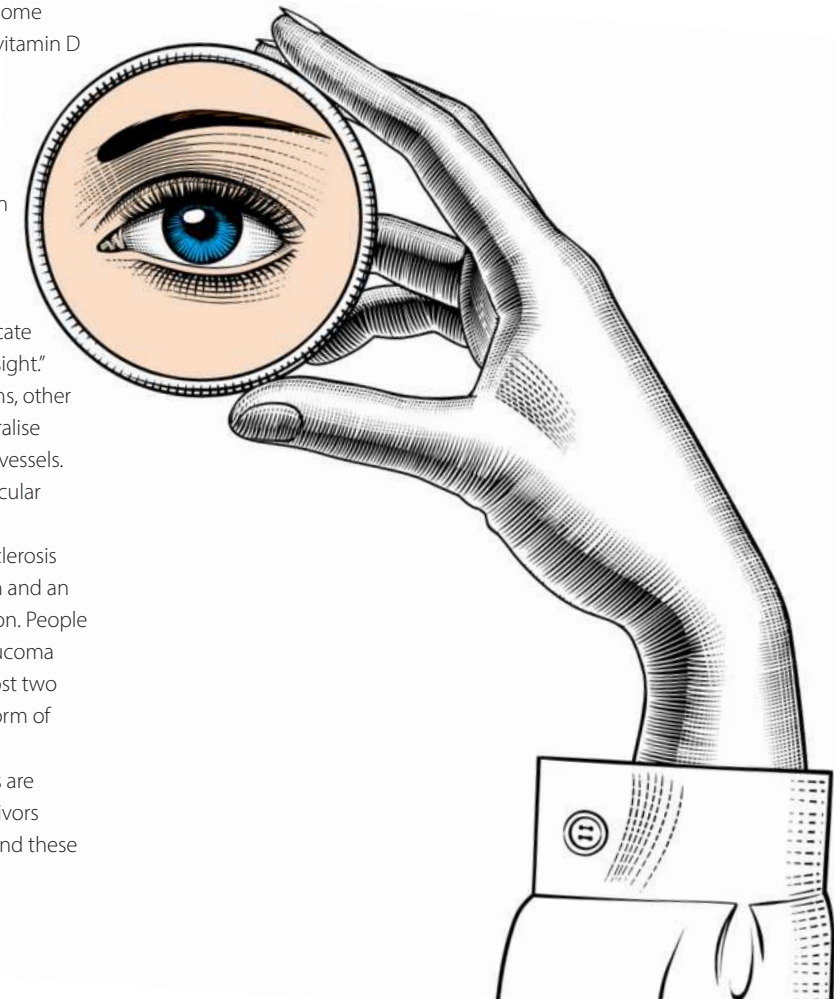
Lindsay Powers, Nutritionist and Health Coach at Good Health Naturally, pointed out: "There is a significant connection between diabetes in particular and eye diseases, such as diabetic retinopathy and macular oedema. In fact, diabetic retinopathy is becoming one of the top eye diseases affecting vision in the USA. High blood pressure can also affect the delicate blood vessels in the eyes, resulting in blurred vision or loss of sight."

Graczyk added: "Poor diet, environmental toxins, medications, other health issues, and stress all decrease the body's ability to neutralise free radicals, maintenance of effective circulation and healthy vessels. This can result in eye degeneration, occurring in cataracts, macular degeneration, and glaucoma.

"Cardiovascular diseases such as hypertension and atherosclerosis can lead to decreased blood flow to the retina. Lack of oxygen and an accumulation of waste products eventually compromises vision. People with diabetes are at increased risk of diabetic retinopathy, glaucoma and cataracts. Nearly all people with diabetes type 1 and almost two thirds of people with diabetes type 2 have developed some form of diabetic retinopathy.

"People who are at higher risk of developing eye conditions are also those who had strokes. Around 60 per cent of stroke survivors experienced some visual problems immediately after stroke, and these problems often stay for three months after.

"Research indicates that more than half a million people with learning disabilities experience refractive error. In the UK, there are more than one million adults with learning disabilities, aged 20 and above, and this target group is 10 times more likely to experience loss of sight than the general population. With children and young people, most common risk factors are prematurity and very low birth weight. There are more than 25,000 blind and partially sighted children in the UK under the age of 16 and around 15,000 aged 17-25."





NUTRITION AND THE EYES

Our nutritional status plays a significant role in how healthy the eyes are, and this should not be underestimated.

"Nutritional interventions and supplementation can have a remarkable influence on symptoms and disease progression. As the eyes are extremely subject to oxidative stress, where free radical damage affects the healthy cells of the eyes, preventing this damage with healthy foods, particularly those containing antioxidants, is possible and may help to slow disease progression," Powers commented.

Gromadzki added: "Many of us think that as we grow older, our eyesight is destined to deteriorate. The truth is, however, that if we are on a healthy, high in fibre, vitamins, minerals and antioxidants diet, exercise on a regular basis improving blood circulation in our eyes, if we are able to control stress, drink plenty of clean water, avoid or minimise harmful radiation, and include the most eye-protective nutritional supplements and natural detoxifying agents, then there is no reason for our vision to severely worsen with age."

In terms of the factors to reduce risk, there is much to recommend.

Gromadzki continued: "Low consumption of dark green leafy vegetables, raw vegetable salads, and fresh fruits containing eye-protective antioxidants such as lutein, zeaxanthin, and beta-carotene. Deficiency vitamins and minerals, especially vitamin D, E and A, magnesium, zinc, and selenium, caused by regular consumption of refined low in nutrients foods, avoiding good quality nutritional supplements, use of stimulants, and chronic stress.

"Other factors that are known to increase the risk of eye problems include sluggish blood circulation in the eye (caused by sedentary lifestyle, high blood cholesterol and dehydration), lack of sleep and rest, smoking, ageing, alcohol, caffeine, stress, toxins such as heavy metals, high blood sugar levels and diabetes, harmful radiation (such as X-rays, overexposure to UV rays, etc.), chronic constipation, poor liver and kidney function, drinking insufficient amounts of water, and regular use of medication, such as antibiotics and antihistamines."

Graczyk added: "When it comes to protecting vision, diet plays an important role. Certain vitamins and minerals found in food may prevent cataracts and age-related macular degeneration. Some studies suggest that eating a diet rich in certain nutrients may help keep the eyes healthy for longer. There is evidence that daily supplementation with antioxidants (beta carotene, vitamin C, vitamin E and zinc) slows down the progression to advanced

age-related macular degeneration and visual acuity loss in people with signs of the disease.

"Most fruits and vegetables, especially leafy greens like broccoli, brussels sprouts, spinach, collard greens, kale, and romaine lettuce, as well as yellow and orange varieties such as nectarines, cantaloupe, mangos, sweet potatoes, carrots, oranges, papayas and squash are all high in beta carotene and other carotenoids. Egg yolks are an even richer source of these nutrients. Other important foods to include in a diet are grapefruits, kiwis, oranges, red peppers and berries. These are high in vitamin C, another important free radical scavenger. Vitamin E is found in cold pressed vegetable oils, nuts, seeds, nut butters, and wheat germ."

Penny Shaw, Nutritional Therapist at G&G Vitamins, continued: "Lifestyle and nutrition plays an important role in the health of our eyes. Genetics may mean that some people are more susceptible to disease than others, but if we give the body the tools it needs, there can be a degree of prevention. Having regular breaks from screens and blue light, for instance, can reduce the damage done to the eyes. If you have a high sugar diet, this can damage the health of the eyes, whereas a food rich in antioxidants and nutrients like zinc and vitamin A can give the eye the tools they need to function, heal and thrive.

"Foods containing omega 3 such as fish, seeds and nuts can help to reverse dry eyes. Citrus foods contain antioxidants vitamin C and E, dark-green leafy veg contain lutein, zeaxanthin and vitamin C and orange pigmented foods such as sweet potato and carrots contain carotenoids, which are one of the best provitamin A nutrients for the eyes. Beef contains zinc, which is linked to better long-term eye health. Zinc is found in large quantities in the retina of the eye."

In terms of the specifics, antioxidants are at the forefront.

Graczyk explained: "A healthy diet rich in antioxidants, in particular, carotenoids such as lutein and zeaxanthin, are associated with a reduced risk of developing age-related macular degeneration. The antioxidant vitamins A, C, and E appear to provide protection to the lens and retina from oxidative damage."

Powers continued: "Including oily fish in the diet for their omega 3 content is also important. Research shows that including omega 3 fatty acids in the diet can resolve dry eye problems, especially from regular use of a computer. Nuts and seeds, as well as offering a vegan or vegetarian source of omega 3s, also contain vitamin E, which is a powerful antioxidant. Eggs are also a good source of lutein and zeaxanthin, which can help support long-term eye health."

And let's not forget the basic principles of a healthy lifestyle are also critical.

Graczyk added: "Maintaining a healthy weight is crucial, as obesity can lead to diabetes, which can cause loss of sight. People with diabetes can prevent the onset of eye conditions by controlling the levels of blood sugar, blood pressure and cholesterol. It is also important to take into consideration the link between smoking and the risk of developing cataracts. Smoking makes diabetes related sight problems worse, and it can double the risk of developing age-related macular degeneration."

NUTRIENTS TO RECOMMEND

The eyes need a vast array of nutrients across both food and often supplements to reduce risk of eye problems.

Lutein and zeaxanthin are the nutrients considered most important for the eyes and will commonly be contained in an eye health supplement.

Gromadzki explained: "Supplements containing antioxidants, lutein and zeaxanthin have been found to protect against glaucoma, macular degeneration and cataracts. Apart from preventing damaging effects of free radicals generated by junk foods and stress, lutein and zeaxanthin help block harmful radiation from reaching the underlying structures in the retina, thereby, reducing the risk of light-induced oxidative damage. It is important to be aware of the fact that studies have found health benefits for lutein at a dose of 10mg per day, while for zeaxanthin at 2mg per day. Unfortunately, on an average, adults get only up to 20 per cent of that amount from their diet each day. For this reason, proper supplementation seems to be a very reasonable idea."

Shaw added: "Carotenoids are generally the most well-known and beneficial nutrients for eyes. They help to protect from light damage and also act as a preventative for eye conditions further down the line, such as macular degeneration. These include vitamin A, astaxanthin, lutein and zeaxanthin. Carotenoids are provitamin A, meaning they convert to vitamin A in the body. Astaxanthin can cross the blood retina barrier and exert its positive antioxidant and restorative properties in the tissue of the eye."

As already highlighted, one of the most important areas of nutrition to consider is essential fats, given its critical role in the health of the eye.

"Omega 3 fatty acids help to keep the membranes of the eyes supple and well lubricated, as well as allowing the proper drainage of intraocular fluid from the eye, decreasing the risk of high eye pressure and glaucoma," Powers suggested.

Graczyk added: "Another important nutrient for eye health is omega 3, due to its cardioprotective properties. Sources of omega 3 fatty acids include cold-water fish such as salmon, mackerel, halibut and herring, and also flaxseeds and walnuts."

There are also plenty more supplements to consider for an effective eye health protocol too.

Gromadzki suggested: "Astaxanthin is produced by the microalgae, *Haematococcus pluvialis*, when its water supply dries up, forcing it to protect itself from UV radiation. Astaxanthin is far more powerful an antioxidant than both lutein and zeaxanthin. Many researchers believe it to be the most powerful antioxidant for eye health. Apart from preventing

and helping reverse eye damage, astaxanthin also helps maintain normal eye pressure levels, and supports your eyes' energy levels and clear vision. Looking for astaxanthin supplements, use only vegan sources (micro algae) and not those that are derived from crustaceans like krill or shrimp as they are created to be natural water filters and are contaminated with heavy metals and toxins.

"Every day before breakfast, take one or two full tablespoons of a mixture high in chlorophyll super greens, including barley grass, wheat grass, moringa, alfalfa, spirulina and especially chlorella as they are powerful detoxifiers and energy boosters."

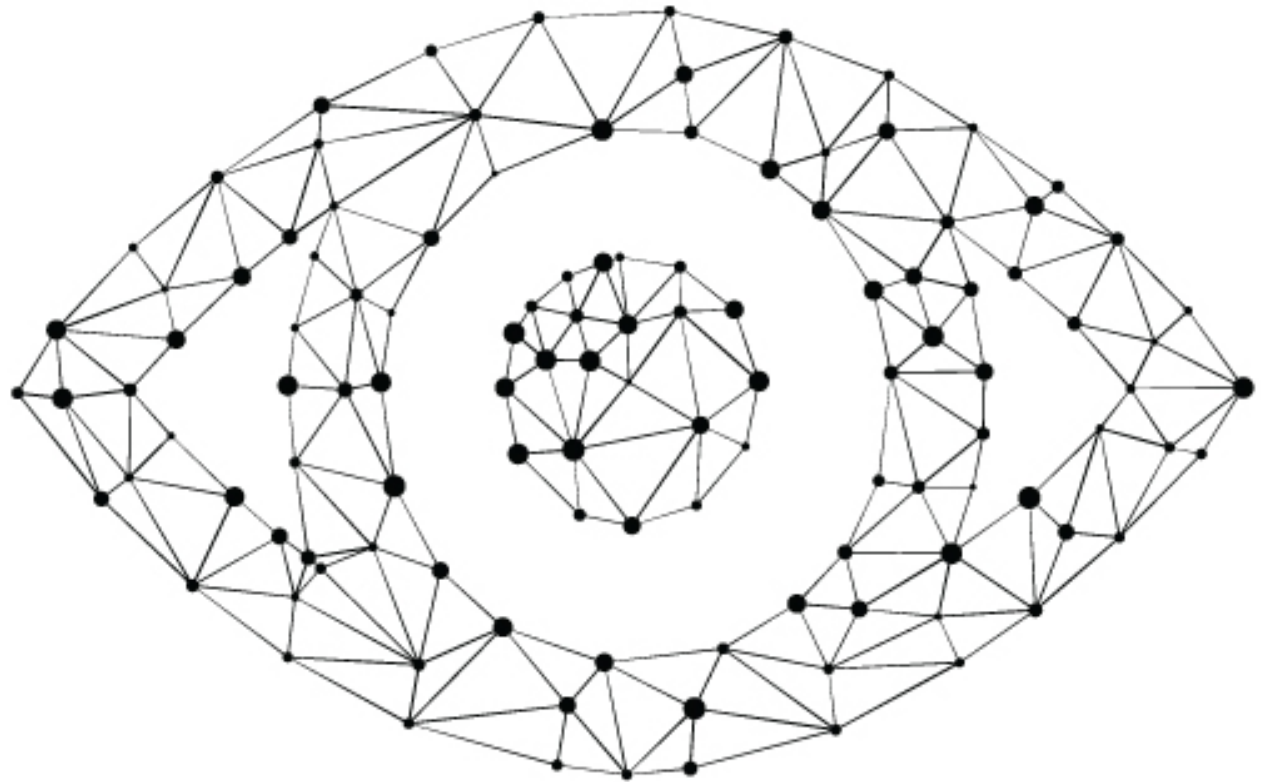
Interestingly, other vitamins and minerals not automatically connected with the eyes can be hugely beneficial.

"Vitamin D, which deficiency is rampant today, has a protective role in the development of dry eyes and deficiency appears to be linked with higher risk of blindness and age-related eye degeneration, as well as with autoimmune conditions that affect eyes. It was shown that lack of this

vitamin also contributes to glaucoma," Gromadzki advised,

"Remember to take vitamin D3 with good magnesium (such as citrate) because in people who are deficient in this mineral, vitamin D proved to be useless as it requires magnesium for its conversion in the kidneys. Besides, eyes affected by glaucoma often contain lower levels of magnesium than eyes without glaucoma. Magnesium supplements have been shown to lower intraocular eye pressure (IOP) in the same way that drugs such as 'channel blockers' do as it blocks the uptake of calcium, which relaxes the arteries.

"Vitamin E is a powerful antioxidant that contributes to the protection of the eye cells from oxidative damage caused by free radicals. It was shown that in some cases of cataract, vitamin E was able to halt the progress or even reverse damage. About 200-400 IU of vitamin E per day is recommended. Many people with eye problems such as glaucoma have low levels of vitamin B12. Since deficiency of this important neuro-protective vitamin is regarded as rampant today, it is recommended to





take 1,000-2,000mcg of sublingual methylcobalamin (most absorbable form of B12) under the tongue after breakfast."

And Powers suggested: "Taurine is another key nutrient found in large amounts in the retina and can be a useful amino acid to protect against degeneration. Other eye-friendly antioxidants include vitamin C, vitamin E, vitamin A and zinc, which can help protect against macular degeneration and cataract formation."

Graczyk also highlighted zinc for its eye health benefits. "Zinc limits oxidant-induced damage. Alongside many other actions, it protects against vitamin E depletion and controls vitamin A release," she explained. "Current evidence suggests that zinc supplementation may help prevent age related macular degeneration in those at moderate risk and delay progression in those suffering the early stages. Good sources of zinc include meat, liver, eggs and shellfish."

She continued: "Speaking of nutrients supporting eye health, one more worth mentioning is bilberry. For centuries, bilberry has proven itself to be beneficial for eye care. Bilberry's antioxidant properties neutralise free radicals and reduce damage to the vessels all over the body, including those in the eye.

Cataracts are caused by free radical damage in the lens of the eye and therefore bilberry can help with that condition.

"Bilberry preparations have been used to improve night vision, myopia, light adaptation and photophobia, and to prevent or delay diabetic retinopathy, macular degeneration and cataracts.

Primarily, the collagen-enhancing and antioxidant activities of bilberry provide a theoretical basis for those indications. High levels of anthocyanins-phytochemicals that have a strong affinity to the tissues in the eyes makes bilberry much more appropriate for therapeutic applications for the eyes. Epidemiological investigations have indicated that moderate consumption of anthocyanin containing herbs like bilberry is associated with an improvement in visual function."

DEALING WITH DIGITAL

We spend a lot of our time looking at some kind of screen, whether our phone, our tablet or work computer, and this modern problem is having a big effect on the health of our eyes.

"For people who spend a lot of time in front of computers, using a few simple methods such as working with proper lighting to minimise the glare, blinking more often to moisten the eyes, as well as taking frequent breaks or invest in a flat monitor with an anti-reflective surface, could be beneficial to prevent from computer vision syndrome," Graczyk advised.

"Even if the vision seems good, regular eye examinations are recommended because some conditions are asymptomatic and affect the eyes very slowly. By the time any changes in vision are noticed, it may be too late to repair the damage. Fortunately, early treatment can stop most of the loss caused by the mentioned conditions."

And Gromadzki also pointed out: "It is believed that chronic exposure to unopposed digital blue light from LED and fluorescents will significantly contribute to an epidemic of blindness in the next decades. LEDs and fluorescents, although energy efficient, are digital lights and not analogue thermal light sources. They have unbalanced wavelengths that are very different from the natural blue and other waves emitted by the sun. They have a predominance of digital blue frequencies that increase production of damaging free radicals, and they also lack the red, infrared and near infrared healing frequencies that stimulate regeneration and repair that are found in thermal light sources like the incandescent bulbs."

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SUSIE DEBICE ADVISED: The adult Nutrient Reference Value (NRV) for vitamin C is just 90mg a day, however, it's good to recognise that this is the estimated amount of vitamin C that is required to help support general health and wellbeing for normal healthy individuals. But what about for the times when people aren't in the best of health?

There are times in everyone's lives when circumstance and unpredicted stressful events, busy demanding schedules, frequent travel, and seasonal changes all impact on stress levels, food choices, alcohol consumption and increased exposure to potential pathogens. These are times when individuals are unlikely to be able to sustain a level of general health and wellbeing and when the NRV for vitamin C is no longer adequate, this is where nutritional therapy comes into play.

The therapeutic levels of vitamin C that may be required depend on the individual circumstances and it also depends on the form of vitamin C being supplemented with. An ascorbic acid, which comes with an uncomfortable bowel tolerance flushing effect at moderate doses, tends to have very poor absorption rate. A better choice for therapeutic levels (5g-10g or more daily) would be a buffered vitamin C, such as a magnesium or sodium ascorbate, which are certainly kinder on the gut since they are non-acidic and better absorbed. However, Dr Levy, an American Cardiologist and advocator of therapeutic levels of vitamin C supplementation, describes in his book, *Primal Panacea*, how supplementing with liposomal vitamin C has been likened to intravenous vitamin C. His book is an insightful read for any Nutritiona Therapist curious about the many attributes of this incredible vitamin.

Liposomal vitamin C contains sodium ascorbate wrapped in specialised nanospheres, which are characterised by a double layered phospholipid



outer membrane. It is the particular size of the liposomes and the phospholipid membrane that are accountable for the exceptional absorption rates and effectiveness of liposomal vitamin C supplements. Since every cell in the body is also wrapped up in a phospholipid membrane, this creates a synergy between the liposomes that allow them to be readily absorbed into the bloodstream and then fuse with cell membranes to effortlessly deliver vitamin C into cells smoothly and efficiently.

Since the body is unable to store vitamin C, a daily source is essential and if stress levels, exposure to pollutants or pathogens increases, then

the NRV could be quickly surpassed. In these situations, a 1g dose of liposomal vitamin C could be a good daily starting point.



ABOUT THE EXPERT

Susie Debice BSc HONS, DIP ION is a Food Scientist and Nutritional Therapist with 25 years' experience in the health and wellbeing industry as a consultant and expert spokesperson for UK brands, including Abundance and Health, suppliers of Liposomal Altrient C.



What are the key factors that will help improve my bone health?

GEMMA KHOO ADVISED: Top of the list when it comes to protecting your bones is exercise and that's because bone is a living tissue, which will react to increases in loads and forces by growing stronger. The best types of exercise to focus on are weight-bearing exercises, such as yoga, brisk walking and hiking, running or racquet sports, combined with some strength or resistance training sessions using free weights, weight machines or your own body weight. Most gyms have instructors that can help to put a programme together to make sure your exercise sessions target healthy bones, as well as improved fitness and the multitude of other benefits you will gain from exercising regularly.

Check your vitamin D (and don't forget vitamin K). Vitamin D is commonly referred to as the sunshine vitamin because our bare skin manufactures it on contact with the sun's rays. More time spent indoors, or if outdoors, covered up or covered in sun cream, mean that our body's natural production of vitamin D is now commonly low. Add to this the fact that vitamin D isn't naturally present in many foods and you'll be starting to understand why many people are deficient in this important nutrient. Vitamin D is important for lots of aspects of health and not least for its role in building healthy bones. Vitamin D is essential for the bone growth and remodelling process carried out by osteoblasts and osteoclasts. It also supports calcium and phosphorus absorption in the intestines. You can easily get your levels checked by your GP. If, like most people, you need to give your levels a boost, make sure you choose a supplement that contains vitamin D3 with added vitamin K2 because these two nutrients work closely together to support bone health, with vitamin K2 helping to draw calcium into the bones where it is needed. Not enough vitamin K is linked to low bone mass and osteoporosis so it's important to ensure adequate intake.

Add soy foods to your diet; research has found that soy foods rich in isoflavones favourably affect bone turnover and spinal bone mineral density in perimenopausal and postmenopausal women. In addition, it has been suggested that soy protein, when substituted for animal protein, may indirectly enhance bone strength and decrease calcium excretion.

Supplement with algae-derived calcium to increase your intake

of calcium, magnesium and essential co-factors. Calcium is a key mineral when it comes to bone health. However, there are other vitamins and minerals, such as magnesium in particular, which also have a key role to play and yet are often forgotten when it comes to bone nourishment. South American algae



(Algas calcareas) is an excellent source of bioavailable calcium and other nutrients essential to bone formation, including magnesium, boron, copper, manganese, silicon, nickel, selenium, strontium, phosphorus, potassium, vanadium, and zinc. Drawing the nutrients from the seawater, Algas calcareas is a natural, wholefood source of calcium and supporting minerals and is highly bioavailable. In terms of calcium supplementation, our recommendation is to choose calcium from an algae source as you will not only be providing your body with calcium but all the other essential nutrients that are often forgotten but that your bones desperately need too.

Address your acid: alkali balance. Much has been written in the press in the last year or so about acid: alkali balance, and how you can change your diet to improve this balance in your body. If this is something that has sparked your interest, then you will be pleased to know that taking steps to support a more alkaline state has benefits for your bone health too.

The major reservoir of alkaline base is the skeleton, in the form of alkaline salts of calcium, which provide the buffer needed to maintain blood pH when it becomes too acidic. If calcium salts are regularly pulled out of bone to balance an overly acidic diet, however, you can quickly see how the negative effects on our bones can occur. Increased consumption of fruits and vegetables and plant-based proteins, such as beans and lentils, are consistently associated with a more alkaline diet and greater bone mineral density.

ABOUT THE EXPERT

Gemma Khoo BSc (Hons), MSc is Nutritionist and Regulatory Affairs Manager at Nutri Advanced. Gemma came to Nutri



Advanced after completing a Masters degree in Nutrition at King's College London and has been a key member of the busy nutrition department for over 10 years, bringing extensive product and technical knowledge to the team. Gemma manages the regulatory affairs for Nutri Advanced as well as the company's product development pipeline.



What is the recommended functional approach to stress and anxiety?

JOANNA DZIEDZIC ADVISED: Anxiety and stress are the new epidemic being left in the wake of Covid and its disruption to our lives. Fortunately, nutritional therapy can support biological resilience to stress, alleviate symptoms and improve people's quality of life. Here, we explore a functional approach to stress and anxiety.

Stress is a general term defined as the non-specific response of the body to any demand for change. A primary effector of the stress response is the hypothalamic-pituitary-adrenal axis (HPA). Dysregulation of HPA axis plays a fundamental role in the development of stress-related pathophysiology.

Prolonged exposure to stress and dysregulation of HPA can lead to anxiety disorders, which is very common and extremely disrupting in everyday functional life. People suffering anxiety are also more likely to develop chronic medical illness. It's particularly important to understand the foundation of anxiety, addressing personal predispositions and individual needs.

From the functional medicine perspective, anxiety is a result of multiple factors: genetic, behavioural (learned responses), psychosocial stressor, neurotransmitter dysregulation, nutrient deficiencies, and food sensitivities or 'cerebral allergies'.

■ **Diet and hypoglycaemia:** Although we are all predisposed to deal with occasional episodes of low blood glucose, the typical anxiety patient that has developed poor eating habits and nutritional deficiency experiences numerous bout of anxiety and/or even panic attacks related to blood glucose fluctuations. A clinical approach would include modifying patients' diet, from lowering carbohydrate intake, increasing healthy proteins including animal sources, high quality fats, to lowering alcohol and caffeine intake, thus reducing further hypoglycaemic triggers. The dietary intervention trial conducted by (Jacka FN et al 2017) confirms greater improvement in depression, with a remission rate of almost 33 per cent compared to only eight per cent in control group.

■ **Inositol:** Interestingly, the symptoms of hypoglycaemia and anxiety shows a lot of similarity, which guides us directly to clinical application of inositol in both disorders. Inositol has anxiolytic and blood sugar regulating mechanism (Pfeifer CC 1975). Studies

demonstrate that inositol significantly lowers anxiety, but also reduces the frequency and severity of panic disorders (Benjamin J et al 1996), as it has been successfully used in managements of obsessive compulsive disorder (OCD), depression and disorders that respond favourably to selective serotonin re-uptake inhibitors (SSRIs) (Fux M 1996).

■ **Ashwagandha:** As an agent to modulate stress and anxiety, ashwagandha has been investigated in several human trials. Ashwagandha was associated with greater reductions in adults presenting with anxiety disorder. Further studies have confirmed ashwagandha's anti-stress and cortisol-lowering effects in adults with self-reported chronic stress (Chandrasekhar K et al 2012) and chronically stressed overweight and obese adults. Furthermore, ashwagandha has been successfully used in management of nervous exhaustion, stress-related eating (Choudhary D et al 2017), memory dysfunction and insomnia, which are often co-existing symptoms in stress and anxiety disorders (Yenisetti et al 2016).



■ **L-theanine:** Among well recognised nutritional therapies for stress and anxiety disorders, L-theanine demonstrates strong anti-anxiety and anti-stress properties. It has been found that L-theanine is also responsible for the relaxing effect of tea. L-theanine works on the alpha waves of the brain, which is thought to be the indicator of relaxation. It has been shown that only 40 minutes after orally taking L-theanine (50-200mg), it increased alpha waves occur in the occipital and parietal areas of the brain and that causes relaxation (Türküzü D et al 2017). Clinically, using pure L-theanine is important as the isomer form of L-theanine, which is D, L-theanine has reduced absorption and, in fact, it exhibits a competitive effect with respect to intestinal and renal absorption.

■ **Lifestyle medicine:** Lifestyle interventions to support stress and anxiety levels are equally important and can help with relaxation and emotional state. Studies have shown that spending time in nature, watching wildlife and incorporating daily walks can reduce stress and improve mood. Science also supports the therapeutic use of meditation and certain types of self-regulated breathing techniques as first-line and supplemental treatments for stress, anxiety, balancing the autonomic nervous system and influencing psychologic and stress-related disorders (Jerath R et al 2015).

ABOUT THE EXPERT



Joanna Dziedzic is a qualified Nutritional Therapist with experience in high-end consultancy, training other healthcare professionals and clinical practice. She has a passion and interest in natural approaches to supporting complex health issues and improving vitality and wellbeing. Joanna is a Business Development Manager for Pure Encapsulations UK, a leading nutritional health science company.

The science behind CBD

Cameron Kennerly, an expert in CBD, examines the various applications of this growing product category in practice, including the complex relationship between anxiety and CBD.

Humanity has never been more anxious – and it's a problem that's only getting worse with time. Take a look around the world, and you'll find that more than 284m people suffer from some form of anxiety, with a prevalence among teens and young adults growing every year.

And though there's a full spectrum of anxiety treatment options, ranging from traditional medication to natural alternatives, these forms of treatment are often either inaccessible (pharmaceuticals and therapy) or difficult to maintain in the long-term (meditation and diet). As a result, our pandemic of anxiety is one that continues to spread unabated.

However, with the broad legalisation of the cannabis-derived substance, cannabidiol (CBD), in many Western countries growing, compelling research is increasingly finding that CBD may present as an incredible alternative.

In this piece, we'll be exploring the complex science behind CBD, and whether the growing adoption of CBD can prove to be a viable support in combating anxiety.





Discovering a new system

The cannabis plant has been grown and used for its medicinal properties for thousands of years. Among the species, there are two primary derivatives – marijuana and hemp. While marijuana is widely known for the psychoactive effects found in its inherent chemical, THC, hemp, on the other hand, carries a non-psychoactive, non-toxic counterpart called CBD.

Strangely enough, CBD, in many ways, acts as a natural counter to the psychoactive effects of THC, producing a general calming effect throughout the mind and body – and here's why.

CBD is known for its expansive pharmacological profile, including interactions with several receptors understood for regulating fear and anxiety-related behaviours, namely the cannabinoid type 1 receptor (CB1R), the serotonin 5-HT1A receptor, and the transient receptor potential (TRP), vanilloid type 1 (TRPV1) receptor. That's a mouthful, but effectively it means the chemical markers of CBD with the natural

chemicals of your brain work in tandem to inhibit the reactions that cause you to feel fear and excessive worry – in a sense, it calms you.

Discovered in the early '90s, scientists found that the body had a biological network designed to intake these chemical markers (endocannabinoids or eCBs). They dubbed this intake system the endocannabinoid system.

The eCB system regulates diverse physiological functions, including caloric energy balance, immune function, and emotional behaviour. In understanding anxiety, it's important to define our terms.

Anxiety is simply an adaptive response essential to coping with threats to survival. In many ways, anxiety is a positive thing, as our fear of adverse potential outcomes has kept us alive for thousands of years. The problem of anxiety comes when that fear becomes either excessive or persistent, leading to maladaptive behaviours, or, in severe cases, disability.

Since the most chronic forms of anxiety (PTSD and OCD) are

rooted in maladaptive and learned behaviour, they can be incredibly difficult to break, given the brain's limited plasticity (ability to think and perceive things differently).

However, research into the physiological interactions of CBD in the body has consistently shown that eCB receptors such as CB1R have been effective in reducing fear expression, ultimately lowering the influence of conditioned fear (anxiety).

An important contributor to anxiety disorders is chronic stress. However, when systemically administered, CBD was shown to reduce acute increases in heart rate and blood pressure induced by stress. In fact, among CBD's most attractive benefits, its lack of significant side effects, inability to overdose, non-toxic, and non-habit-forming properties are particularly noteworthy. Some studies have shown that humans can reasonably tolerate up to 1500mg doses of CBD without any psychomotor impairment, negative mood effects, or vital sign abnormalities.

The origins of anxiety

Anxiety has been understood since antiquity, with ancient philosophers such as Plato and Socrates writing often about its symptoms. However, surprisingly enough, despite the harsher living standards and quality of life for humans living millennia ago, the rate of anxiety across the world is higher than ever – and on the rise.

But why? If you were to take a cross-section of anxiety diagnoses across the world, you'd find that the highest prevalence of those suffering from anxiety is from Western first-world countries. As a result, many psychologists and sociologists have looked at the cultural conditions of Western countries for an answer to rising rates of identified anxiety.

What they found was that in combination with rising wealth among these nations, and a cultural shift in parenting from the 'school of hard knocks' to 'helicopter parenting', that younger generations such as Gen Z and Millennials are simply less resilient than their Gen X and Baby Boomer parents.

Combine these conditions with the advent of social media – a constant arena of social competition – and it's easy to see why teens and young adults are more anxious about themselves and how they're perceived than ever before.

And the logic behind this spike is self-evident. Anxiety-related disorders are commonly associated with a diminished sense of wellbeing, higher unemployment, relationship breakdowns, and increased suicidality.

Although proven treatment options for these disorders, such as cognitive behaviour therapy, are widely available, they aren't always accessible, with many suffering from anxiety showing an unwillingness to even try it.





The role of CBD

In contrast to the higher mental barrier to entry for talk therapy, the popularity of CBD has exploded in recent years as the substance has moved further into mainstream use. Today, CBD is widely available and is expected to grow into a \$20bn dollar industry in the next four years.

With broad legalisation and increasing therapeutic interest, there have been many studies conducted in the last five years aiming to explore the potential health benefits of CBD.

In one chronic study, it was found that... "systemic CBD prevented increased anxiety produced by chronic unpredictable stress", with another acknowledging strong support for the use of CBD "as a treatment for generalised anxiety, panic, social anxiety, OCD, and PTSD when administered acutely".

In a growing movement among youth generations, the appeal of natural and organic products has dramatically shifted the culture of food and drugs. In a 2014 poll by Nielsen, it was found that 40 per cent of Millennials are more open to trying alternative medicines

than previous generations.

Common ingredients in anti-anxiety medications, such as serotonin reuptake inhibitors, benzodiazepines, and tricyclic antidepressant drugs, are well-known for their limited response rates, residual symptoms, and adverse effects, which may limit tolerability and adherence.

And with the heavy – and at times, maligned – chemical make-up of traditional pharmaceuticals, the appeal of a naturally-derived substance such as CBD is now more appealing than ever.

As it stands, current evidence strongly suggests that CBD has a unique potential for supporting those with multiple anxiety disorders. However, further study is necessary to understand the effects of chronic and long-term use.

With the rate of global anxiety continuing to increase in times that are good, and skyrocket in times that are bad, it's become more important now than ever to find and understand new methods of treatment to help those beset with chronic anxiety to attain a calmer and more comfortable mode of being.



Cameron Kennerly is a Health and Wellness Writer and Editor of the *CBDfx Blog*. His writing has appeared in *Forbes*, *LA Weekly*, *Togetherwork*, *Medical Tourism Magazine*, and *The Odyssey*.

CPD DIRECTORY

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

The Art of Digestive Wellness Online Course

Innovative Healing Academy

Online – this is a Companion Course to Dr Liz Lipski's newly revised fifth edition of her acclaimed book, *Digestive Wellness*

CPD hours: BANT 20 hours

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

Cost: \$397

Website: www.innovativehealingacademy.com

Nutritional Genomics Interpretation Programme

My DNA Health

Web-based media (pre-recorded – view anytime)

CPD hours: BANT four hours

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

Cost: £125

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

Methylation Masterclass Lifecode GX

Online

CPD hours: BANT six hours

Speakers: Emma Beswick MBA, Dip CNM, mBANT, rCNHC, Karen Harrison MSc (Genetics) BSc (Hons, Nut Science) Dip CNM mBANT rCNHC

Cost: Full price £129/BANT member price £79

Website: www.lifecodegx.com/events/

The Gastrointestinal System: Digestion, Absorption and Mucosal Integrity Module 2

Functional Medicine University

Online

CPD hours: BANT 35.5 hours

Speakers: Cheryl Burdette, N.D., Court Vreeland D.C., D.A.C.B.N., Jill Carnahan M.D., Ronald Grisanti D.C., D.A.B.C.O., D.A.C.B.N., MS, William Shaw PhD

Cost: \$495 (BANT members have access to the entire programme at a \$500 discount. Individual modules are only on offer to BANT members and to no other organisation or individual)

Website: <http://www.profc.com/SecureCart/SecureCart.aspx?mid=E53817D6-9C5D-4E79-9C4F-45611C015D73&pid=0cb55cc2c71a409e883c2ce6affe024&bn=1>

The Immune System Module 3

Functional Medicine University

Online

CPD hours: BANT 27 hours

Speakers: Lise Alschuler N.D., FABNO, Michelle Corey C.N.W.C., Ronald Grisanti D.C., D.A.B.C.O., D.A.C.B.N., MS, Dr Russell Jaffe M.D.

Cost: \$495 (BANT members have access to the entire programme at a \$500 discount. Individual modules are only on offer to BANT members and to no other organisation or individual)

Website: <http://www.profc.com/SecureCart/SecureCart.aspx?mid=E53817D6-9C5D-4E79-9C4F-45611C015D73&pid=415332ce14054b01a1f5b21cad3b58b1&bn=1>

Personalised Sports Nutrition, CNELM

Online

CPD hours: BANT 54 hours

Speakers: Elizabeth Scott-Moncrieff MSc, BSc, NLP Practitioner, Ian Craig MSc, BSc, INLPTA, SAANT, Alex Manos MSc, BSc, NASM, AFMCP, NLP Practitioner, Tom Fox MSc, Akademiek PNI, Dr Joanne Larkin, Consultant in Sport & Exercise Medicine

Cost: £500 (full module access with assessment £800/without assessment £500, access to one of nine Activity Content Blocks £90, 10 per cent student discount, 10 per cent discount for full module access with/without assessment for BANT professional members.

Website: <http://cnelm.co.uk/courses/cpd/>

Female Ecology Mastercourse In Vivo

Online

CPD hours: BANT nine hours

Speakers: Moira Bradfield, ND

Cost: £249

Website: <https://invivohealthcare.com/products/education/female-ecology-mastercourse/>

Certificate of Integrative Sports Nutrition: Module 3 – Specialised Sports Nutrition The Centre for Integrative Sports Nutrition

September 8-12 – online

CPD hours: BANT 34 hours

Speakers: Ian Craig, Simone do Carmo, Paul Ehren, Charlene Hutsebaut, Henrietta Paxton, Matt Lovell, Graeme Jones, Rick Miller

Cost: See website for pricing options.

Website: www.intsportsnutrition.com

Evidence Based Approaches to Clinical Decision Making Solgar

September 22 – online

CPD hours: BANT one hour

Speakers: Dr Michelle Barrow BSc, MSc, QTLS DProf

Website: https://nbty.zoom.us/join/register/7015911053902/WN_UNTzbaIXSQSvPCWIEAtLA

Certificate of Integrative Sports Nutrition Modules 1 and 2

October 1-December 31 – online

CPD hours: BANT 68 hours

Speakers: Ian Craig, Dr Hannah Moir, Pete Williams, Ryre Cornish, Simone do Carmo, Alessandro Ferretti, Andy Blow

Cost: £2,300

Website: www.intsportsnutrition.com

FORTHCOMING WEBINARS

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

Register at www.ihcanconferences.co.uk/webinar

COVID-19: Beyond the Acute Infection

Nutri Advanced

**Presented by Jo Gamble BA (HONS) DIP CNM AFMCP
FELLOW ICT**

Tuesday, September 8, 6.30pm-7.30pm



With Covid-19 still hitting the headlines, Jo Gamble will take a deep dive into what the science tells us and take you through the facts that will help you to support your clients. She'll look at what the main drivers of infection are and what can worsen the infection response. There are many bigger picture factors that can affect a person's response and therefore recovery so Jo will dig into how sleep, nutrient status, gut function, inflammatory and immune responses will shape your individual response to Covid-19 infection.

Jo will also look at the research around recovery from Covid-19 infection to help explain why for some the symptoms can really linger.

You will learn about:

- The drivers of infection.
- Melatonin, vitamin D deficiency, microbiome balance, NK cell support, T helper cell support and inflammatory mediators.
- Post viral fatigue: Just how significant post viral fatigue has been for clients recovering from Covid-19 and why.
- Which nutrients have significant research behind them to make a difference to client outcomes.

**Nutrition, Mental
Health and Sleep –
new evidence for the
direct link between
food, mood and sleep**



The Natural Health Practice

Presented by Dr Marilyn Glenville Ph.D

Tuesday, September 15, 6.30pm-7.30pm

Mental and physical health is fundamentally connected, and nutrition has the potential to influence the impact of mental wellbeing including anxiety, depression, stress, trauma, sleep and PTSD.

Research suggests that diet is an important modifiable risk factor for mental health.

Oxidative stress, inflammation and changes in the gut microbiome are some of the physical effects of stress which can be reduced by changes in diet.

Also, research has now shown how important sleep is not only to how well people feel the next day in terms of mood and energy but we now know that not having enough sleep increases the risk of Alzheimer's, type 2 diabetes, cancer and obesity.

FORTHCOMING WEBINARS

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

Thinking More About Health After COVID-19: The Road to Recovery and Suggestions for Preventing Poor Immune Status with Therapies

Rio Health

Presented by Rose Holmes,
Registered Nutritionist, mBANT,
BSc, Dip.ION, PGCE

Tuesday, September 29, 6.30pm-7.30pm



Whether your clients have already had the SARS-CoV-2 virus or not, this webinar will present options for consideration on the Covid-19 road to recovery. Whereas the previous webinar (in July, now available online www.riohealthpractitioners.co.uk) looked at mental health effects of Covid-19, this webinar will focus on physiological health effects and suggest prevention strategies for poor immune status and support strategies for improved immune status. We look specifically at the impact of stress on the immune system, including the stress caused by recent infection, as well as 'lockdown stress'.

Public interest in health and natural health options increased during the early months of the pandemic. Practitioners may find new and existing clients more open to protocols that address media-covered Covid-19 risk factors relating to weight regulation, blood sugar regulation, inflammation, heart health and overall immune health. Individuals may be confused by media coverage versus official advice over nutrients like vitamin D, vitamin K, and vitamin C. And clients may be interested to know more about botanical supplements, diet and lifestyle options to support immune health and address infections.

As scientists continue to research and learn about the SARS-CoV-2 virus that causes Covid-19, the body of evidence and clinical experience increase. Although much of that research relates to pharmaceutical options, we will explore some of this research that gives insight into mechanisms of action and potential natural protocol for this specific virus. And this research may have wider application for other immune health conditions.

Curing Respiratory Viral Syndromes: Don't Let Covid-19 Drive You Crazy

Altrient®

Altrient

Presented by Dr Thomas E Levy MD, JD
Tuesday, October 13, 6.30pm-7.30pm

Probably never before in history has anything or any event mixed fact, fiction, fear, and confusion like the Covid-19 pandemic of 2019-2020. There already exist numerous ways to reliably prevent, mitigate, and even cure Covid-19, including in late-stage patients who are already ventilator-dependent. Unfortunately, these inexpensive, non-toxic, and highly effective therapies rarely get utilised clinically.

In this webinar, we will explore several examples of such therapies, categorised as having the ability to prevent, to improve and to cure Covid-19 and other viral syndromes.

- Vitamin C
- Vitamin D
- Zinc
- Magnesium chloride
- Ozone
- Hydrogen peroxide
- Hyperbaric oxygen
- Ultraviolet blood irradiation
- Chlorine dioxide
- Dexamethasone
- Budesonide
- Convalescent plasma
- Chloroquine and hydroxychloroquine
- Radiotherapy

The MakeWell difference

As MakeWell makes its long-awaited launch in the UK, the quality supplement specialist brings with it an exciting and expanding product range and a focus on Nutritional Therapists. Rachel Symonds found out more.

MakeWell came to be a leader in Lyme disease through a mixture of passion, knowledge and coincidence. For Carsten Nicolaus, as a leading doctor, was already a specialist in the field of the disease and formulated a range of products in his native Germany. But then his daughter, Franz, in a strange twist of fate, was diagnosed with the disease and his work took on even more meaning.

Franzi spent some time trying to find the right approach for her that meant she could live with this debilitating disease and ended up taking the range of products developed by her father and today, she is healthy and well. She and her sister, Fritz, both so passionate about the products, ended up joining the business and are now spearheading MakeWell's expansion into other parts of the world, including the UK, while their father is the company's Chief Medical Officer.

Franzi commented: "As sisters running the company together, it is really fulfilling for both of us to help others. The ethos of the business is to help people to become well again – we have been there, and we know that you can feel well and life live fully."

Their father was already a world leading Lyme disease specialist prior to Franz's diagnosis, but clearly, her experience made the situation much closer to home for the whole family.

"It was just a big coincidence that I got the disease that my dad was a specialist in," Franz commented. "It showed just how many people suffer from it and might not even know it."

As the business has evolved, so too has the product portfolio and while Lyme co-infections are still a big part of the range, there are now other products being introduced, after many years of R&D, to cater for a much broader range of health conditions.

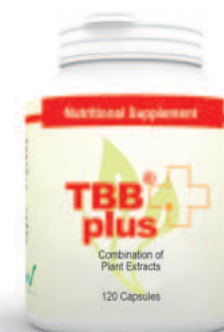
These are all to be launched to the UK market as the company brings its range to practitioners here for the first time.

"We were very much a German company operating in our local market but our products are doing well in other parts of Europe and it makes sense for us to move into the UK as we move to become an international-focused business," Fritz, who is UK-based herself, explained.

"We identified four regions in Europe to expand into, France, Spain, the Netherlands and the UK and we see huge opportunity in the UK."

And practitioners are a key component of the launch here, with Fritz adding: "We are science and education led, and it is important to us to work with like-minded people and that's how we see practitioners – we are working to develop strong relationships and to support them."

The team has a wealth of resources available to practitioners, as well as offering them a range of webinar opportunities.





BUILDING MAKEWELL

The products were first brought to market in 2010 but it wasn't until 2015 that MakeWell as a company was set up and since then, the brand has built a strong reputation in its native Germany.

Fritzi joined in 2018, followed by Franzi, and it is the sisters who are driving the business; with their personal experience, the pair clearly have real purpose in taking the products to a wider market.

"We are so close to the subject matter because I suffered from Lyme disease years ago. I took the products as part of my treatment that we are now producing. They made so much difference to my life; you are sick for so long, it took so long to diagnose me (which is the situation for a lot of Lyme patients), that you forget what it is like to be healthy and to have a normal life, it becomes part of your identity. Even simple things like going for a walk with friends doesn't happen," Franzi explained.

But having had successful treatment, she was left to contend with inflammation caused by the disease and so had to combine a supplement programme with a change in lifestyle and nutrition.

She continued: "I lead a totally normal life now, I can work hard, I can achieve, I can do all the things I want to do."

Franzi explains that it was her sister who suggested she join the business, and for her, it was a no brainer "to help others".

"With all I had gone through and being out the other side, and having taken the products and really believing that they work, and really believing in the whole philosophy of MakeWell, it made sense – and I got to work with my sister", she

commented.

It was their father who was the brains behind the formulations, utilising his extensive knowledge around treating Lyme patients.

Fritzi explained: "He is a specialist around the world and has treated thousands of Lyme patients. He had seen a lot of patients who realised that conventional medicine was not enough to treat Lyme and its co-infections. He searched for something to give his patients and couldn't find what he wanted so he formulated his own. And he also came at it from a personal and professional perspective because of Franzi's experience."

Before MakeWell launched, the bulk of available products for Lyme disease came from America and there was a real need to make products available in Europe, that used high quality ingredients to help Dr Nicolaus' patients.

"The market was getting better but the awareness of tickborne illnesses was, and still is, low," Franzi commented.

Demonstrating the shift in demand for Lyme products, Ivor Cowan, the company's Head of Business Development, highlighted data showing that in 2009, 90 per cent of patients turned to conventional products, five per cent herbal, and five per cent a combination of both. Fast forward to November 2019 and this had shifted to 50 per cent conventional, 35 per cent herbal and 15 per cent a combination.

"We as a company are very well positioned for this new way of thinking," Ivor explained.

THE PRODUCT OFFERING

The brand is very well known in its native Germany, especially for its Lyme disease protocols, and this has been where a lot of focus has been.

The range in the area of Lyme is based on a three step protocol; the Core Protocol, which is the foundation of the plan, then the Extended Protocol, which looks at co-infections such as chlamydia, bartonella and babesia, and then moves to the Support Protocol, which ensures that inflammatory processes are dealt with.

But with the team expanding into the UK, we are also seeing the launch of a host of new products.

"In 2018, we had six products and were focused very much on Lyme disease and a few co-infections. By the end of this year, we will have more than 20 products, with a focus on immunity, on detox, and on energy and fatigue," Ivor revealed. "It takes a long time for us to develop a new product, we have a lead time of 12-18 months as we have to know it works, and that the science backs it up."

In terms of looking at the overall range, all are free from additives and allergens, such as lactose, fructose and gluten. No animal products are used, and the use of artificial colourings and flavours is avoided.

In terms of newer products, there is:

- **NAD+** – this unique product has a focus on energy, with a unique delivery system. It took a long time for MakeWell to develop this product to ensure the expected quality and that it worked.
- **S-acetyl glutathione** – this product has a key focus on immunity and detox and can deliver the same results in capsule form as an IV would.
- **Product packages** – this exciting new development sees the launch of specific packs, targeting different health areas, including energy, detox and immunity.

But what does the team believe makes the range different?

"A very big element is that the products are all complementary with each other and a lot of research goes into making sure they can be used with each other," Fritzi explained.



THE BRAND DIFFERENCE

MakeWell prides itself on not just producing products with a point of difference, but also products that are made with quality materials and to high standards and it is guided by its team of scientists and nutritionists.

All MakeWell supplements are developed and manufactured in Germany, to GMP standards, and only raw materials that have been approved according to the legal regulations of Germany are used. The products are also tested for possible residues, pesticides, environmental toxins and heavy metals before they can be used.

MakeWell is also very active in research and development, with some new research studies currently taking place. In fact, products will only be developed if they are rooted in science and there is an established need for it.

The company in terms of its set-up also sets it apart, with Ivor commenting: "We have a very fluid management structure here and it's focused on the passion and input from the staff. We have a young, dynamic group of people in the business, and we are open-minded to any suggestions."

And Franzi referred back to MakeWell's passion for helping people become well again.

"We really understand our customers and we know what it means to be chronically ill," she explained.

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The best in breakfasts

Breakfast is the most important meal of the day, but it doesn't need to be boring. Here, we bring you a selection of recipes to liven up your mornings.



Zespri SunGold kiwi yogurt
granola breakfast



Chantenay and raisin
breakfast muffins



Isle of Wight Tomato Mixed
Seed and Cream Cheese Bread



Celery boost juice



Zespri SunGold kiwi yogurt granola breakfast

Serves 2

This is quick to whip up and gives a lift to your breakfast fruit and yogurt!

Preparation time: 10 minutes

Ingredients:

- 3 Zespri SunGold kiwis, peeled and diced
- 220g Greek yogurt
- ¼ tsp lime zest
- 1tbsp clear honey
- Granola
- Handful of blueberries

Method:

- In a blender, puree half the diced SunGold kiwi. Set aside.
- In a small bowl, mix the Greek yogurt, lime zest, and honey. Fold the pureed SunGold kiwi into the yogurt mix.
- Layer the yogurt, granola and remaining diced SunGold kiwi and blueberries in small glasses. Serve immediately.

Recipe courtesy of www.zespri.eu



CELERY BOOST JUICE



CHANTENAY AND RAISIN
BREAKFAST MUFFINS



ISLE OF WIGHT TOMATO
MIXED SEED AND CREAM
CHEESE BREAD



Makes 10-12 muffins

Chantenay and raisin breakfast muffins

Get started in the morning with a healthy breakfast muffin crammed full of sweet carrots and raisins.

Preparation time: 10 minutes

Cooking time: 25 minutes


Ingredients:

- 225g self-raising flour
- 1tsp baking powder
- 75g caster sugar
- 25g wheat bran
- ½ tsp mixed spice
- 2 large eggs, beaten
- 75g butter, melted and cooled
- 200ml milk
- 175g Chantenay carrots (preferably large), washed and grated
- 150g raisins

Method:

- Preheat the oven to 200°C/Gas Mark 6. Place 10-12 muffin cases in a muffin tray.
- Put the flour, baking powder, sugar, bran and mixed spice into a large mixing bowl and mix to combine. In a separate bowl, combine the eggs, melted butter and milk, then add to the flour mixture, along with the Chantenay and raisins. Quickly stir with a wooden spoon until everything is just combined – do not over mix.
- Divide the mixture between the muffin cases. Cook the muffins in the preheated oven for 20-25 minutes, until they are well-risen, cooked through and golden brown on top.
- Enjoy these delicious muffins with a hot cup of freshly made coffee

Recipe courtesy of www.chantenay.co.uk



ZESPRI SUNGOLD KIWI
YOGURT
GRANOLA BREAKFAST



ISLE OF WIGHT TOMATO
MIXED SEED AND CREAM
CHEESE BREAD



CELERY BOOST JUICE



Serves 8

Isle of Wight tomato mixed seed and cream cheese bread

Preparation time: 20 minutes
Cooking time: 1 hour 20 minutes

Ingredients:

- 200g Isle of Wight Tomatoes
- 50g oats
- 50g mixed seeds
- 100g plain flour
- 100g wholemeal flour
- 1tsp oregano
- 2tsp baking powder
- ¼ tsp bicarbonate of soda
- 2 eggs
- 80ml sunflower oil or vegetable oil
- 80g plain yoghurt
- 60g grated cheddar cheese
- 60g cream cheese, we used Paysan Breton French garlic and herb cream cheese
- Salt and pepper

Method:

- Chop the tomatoes into bite sized pieces.
- In a large bowl, combine the oats, seeds, flours, oregano, baking powder, bicarbonate of soda and mix to combine. In a separate bowl, whisk together the eggs, oil, yoghurt and grated cheddar.
- Put the tomatoes and the wet ingredients in the bowl with the dry ingredients and mix to combine. Add the cream cheese in small spoonfuls and swirl through gently, aiming to keep the cream cheese intact.
- Pour the mixture into the tin (sprinkle with a few more seeds and a little grated cheese, if you like). Bake for 40 minutes and then cover with foil and bake for a further 40 minutes. Remove from the oven and cool on a wire rack before cutting into thick slices.

ZESPRI SUNGOLD KIWI
YOGURT
GRANOLA BREAKFAST



CHANTENAY AND RAISIN
BREAKFAST MUFFINS



CELERY BOOST JUICE



Serves 2

Celery boost juice

To make this delicious celery and fruit juice, you will need a high-power juicer. If you don't have a juicer, you could use a blender and then put all the blended ingredients through a muslin cloth to strain out the pulp.

Preparation time: 10 minutes

Ingredients:

- 1 bunch of celery
- 2 small Granny Smith apples
- ¼ of a small pineapple
- 1 handful of spinach leaves
- 1 thumb-sized piece of ginger, peeled
- 1 lime, juiced

Method:

- Start by peeling the pineapple and removing the core. Roughly chop the pineapple into large chunks, then set aside.
- Cut the apple into quarters and remove the core.
- Juice the lime and set the juice aside.
- Place all the ingredients (except the lime juice) through the juicer. Start with the ginger, this has less water than the other ingredients, so the rest will push this through when juicing them.
- Once juiced, stir in the lime juice and then pour into glasses and drink within eight hours. It is normal for there to be some natural separation in the juice if left to stand. When ready to drink, just give it a quick stir and enjoy.

Recipe courtesy of www.lovecelery.co.uk

ISLE OF WIGHT TOMATO
MIXED SEED AND CREAM
CHEESE BREAD

ZESPRI SUNGOLD KIWI
YOGURT
GRANOLA BREAKFAST

CHANTENAY AND RAISIN
BREAKFAST MUFFINS



I-Mag giveaways



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



OPTIBAC 'FOR PREGNANCY'

The latest addition to the OptiBac Probiotics range, 'For pregnancy' has been formulated for use from conception to birth and for the six months post birth. 'For pregnancy' is a three-strain formula comprising Lactobacillus rhamnosus HN001, Lactobacillus acidophilus La-14 and Bifidobacterium lactis HN019. These strains have been shown to support a mother's overall health, her gastrointestinal, vaginal and mental health.

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



INVIVO BIO.ME ORAL

A multi-strain probiotic mouth rinse developed to be used as part of a daily oral health routine to promote a healthy oral ecosystem.

The strains have been tested for their ability to inhibit oral pathogens, disrupt oral biofilm (plaque) and modulate the immune system. Oral health has been implicated in systemic health conditions, including neurodegeneration, cardiovascular disease, fertility and Covid-19 complications.

I:Win: We have three 30g packs to give away.



BIO-KULT BOOSTED

Bio-Kult Boosted is an advanced multi-action formulation designed to target both the immune system and digestive tract. Whether it's for you or your client, with four times the concentration of bacteria compared to Bio-Kult Advanced, and added vitamin B12, Bio-Kult Boosted gives you the confidence that you are supporting the normal functioning of the immune system.

I:Win: We have five to give away.



PATRICK HOLFORD FLU FIGHTERS AND IMMUNE SUPPORT PACK

Why do some people get really sick, even die from 'flu, while others don't? Colds and 'flu are viral diseases that a healthy immune system should be able to fight off with natural immunity. But what is a healthy immune system and how can you promote your own immune power with diet and nutrients? In *Flu Fighters*, nutrition expert Patrick Holford provides answers.

I:Win: We have three bundles comprising copy of the book, plus ImmuneC as a tablet and a high strength powder, to give away.



A holistic approach to wellness

Muscle and Joint Cream

White Willow Bark



Caffeine



Menthol



Vegan



Powerful, high-quality products that are an integral part of any health regimen

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