

MARCH/APRIL 2014

Nutriti^on I-Mag

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RESEARCH AND EDUCATION FOR TOMORROW'S PRACTITIONER

MIND AND MEMORY

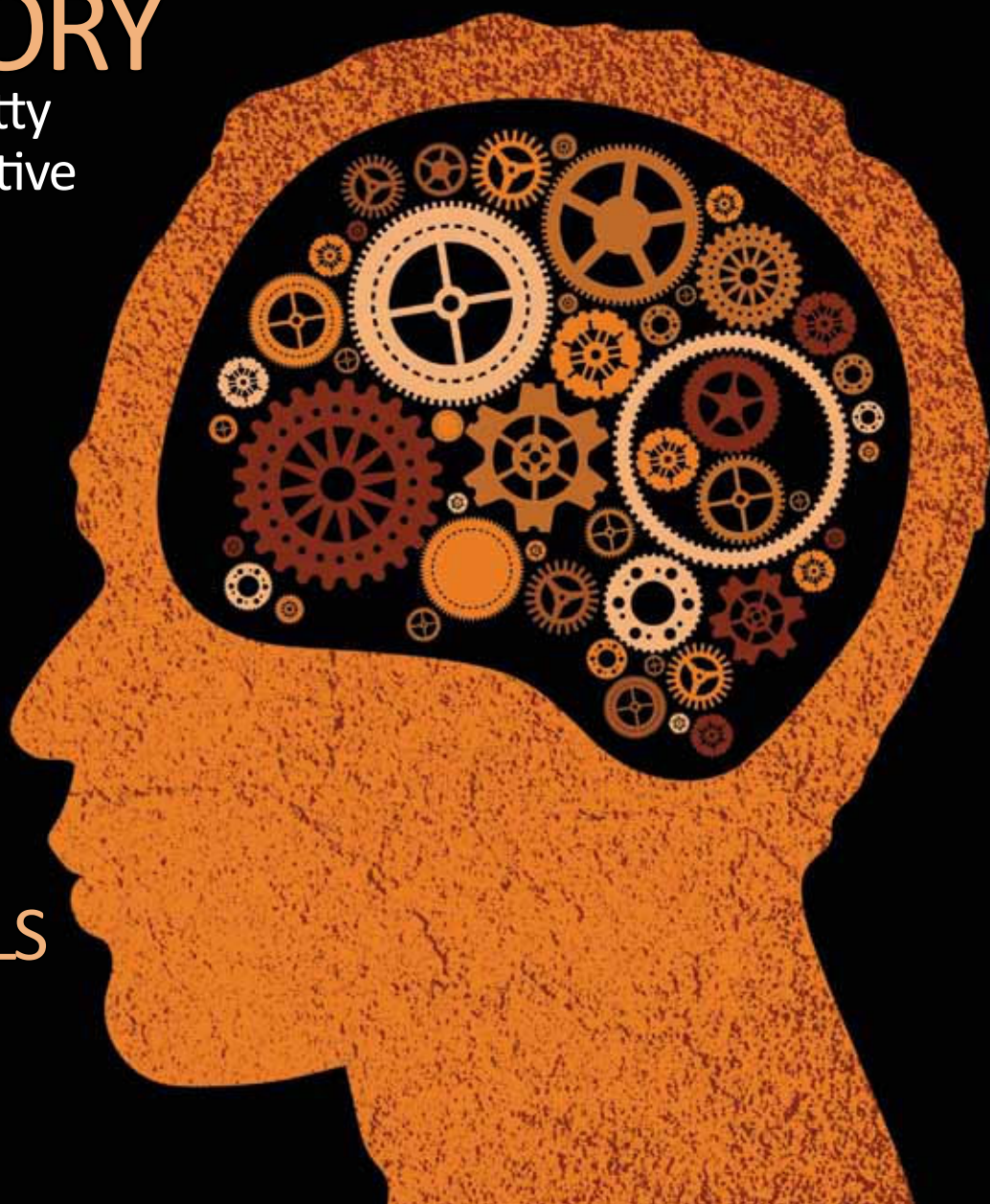
The role of fatty acids in cognitive decline

BOWEL HEALTH

Research update from Probiotics International Ltd

CLINICAL PROTOCOLS

Spotlight on hypothyroidism



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Welcome!



The 2014 Mentoring Scheme is now fully underway, and this issue we have a great article by Satu Henson, a student at CNELM, who has embraced the subject of fatty acids and cognitive decline. Satu helps us understand the mechanisms behind cognitive decline, and highlights the need for Nutritional Therapists to switch to a mindset of cognitive protection before the signs of cognitive decline are apparent, in order to help preserve cognitive function. Do get in touch with your college if you are

interested in being put forward for the Mentoring Scheme.

There is now a wealth of research regarding the many health aspects associated with probiotic supplementation. This issue we are fortunate to have a 'research round-up' from Natalie Lamb, keeping us up-to-date with the latest news in the world of probiotics and gut health.

Although many of our clients visit the clinic looking to address specific health problems, there are some clients who are simply looking to protect and preserve their good looks through better diet and lifestyle choices. Hair loss can be particularly worrying for both men and women, and Sharon Morey, a Nutritionist from Quest Vitamins, explains how various nutrients and botanicals can help to improve hair condition.

We hope you enjoy this issue,

Susie

SUSIE PERRY DEBICE
BSc Hons, Dip ION

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NUTRITION RESEARCH

By Cherry Wills



Bad breath linked to stroke risk



An interesting new paper has proposed a possible link between halitosis and increased risk of stroke. Stroke is acknowledged to be the second most common cause of mortality and a major cause of disability worldwide. The researchers list the major causes of halitosis to

include oral cavity disorders, ear, nose and throat disorders, disorders involving the respiratory system or gastrointestinal tract, metabolic disorders, medication and diet or malignancy. In the paper, each of these categories is discussed with respect to the association between the conditions and stroke. The authors postulate the severity of halitosis may help predict stroke risk, and may in the future facilitate a convenient monitoring tool to potentially instigate early intervention and hence reduce the incidence of stroke.

Tseng WS (2013) Halitosis: Could it be a predictor of stroke? Medical Hypotheses, <http://dx.doi.org/10.1016/j.mehy.2013.12.021>, Available online 14 January 2014.

Thyroid hormone and poor sleep – which comes first?

A new paper, published in *Medical Hypotheses*, has investigated the influence and interactions between the hypothalamic-pituitary-thyroid axis and sleep patterns. The emphasis within the research is particularly on the role of thyroid hormones in Sleep Deprivation (SD), irrespective as to whether this is necessary for survival or as a consequence of lifestyle choices. The authors claim this to be the first discussion on the physiology of SD, rather than a discussion of its consequences. SD is noted as being a stressful condition, resulting in impaired feelings of well-being and higher functioning. It is noted that thyroid hormone activity rises sharply during a period of SD and is a result of elevated levels of Thyroid Stimulating Hormone (TSH) from the pituitary. The authors comment that while previously it has been suggested that elevated TSH levels are secondary to SD, there is little evidence to support this hypothesis. Instead they propose the physiology of the thyroid axis during SD, and the influence of the effector thyroid hormone suggests that the thyroid hormone inhibits sleep as opposed to being a consequence of limited sleep. They conclude further knowledge of these systems could ultimately improve



the understanding and treatment of insomnia and its related health implications.

Pereira JC, Andersen ML (2014) The role of thyroid hormone in sleep deprivation. Medical Hypotheses, Available online 14 January 2013 <http://dx.doi.org/10.1016/j.mehy.2014.01.003>.

Prebiotics study shows brain benefits

A pre-clinical study from Oxford University has provided data to support a potential role for prebiotics in supporting brain health. The research, conducted in rats, found a prebiotic compound was able to modify brain chemistry. The rats were fed either Fructooligosaccharide (FOS) or a second generation Galactooligosaccharide (GOS) prebiotic. Both FOS and GOS prebiotics showed significant changes in the neuronal biochemistry of the rats. A growing body of evidence is showing that the gut microbiota has a direct effect on brain chemistry, with the researchers confident this latest research "will pave the way for further discoveries and potential brain associated health applications for this technology". They are particularly hopeful for utilising prebiotics in future therapies for neuropsychiatric illness, where it is believed they may be more potent than probiotics.

Savignac HM, Corona G, Mills H, Chen L, Spencer JP, Tzortzis G, Burnet PW (2013) Prebiotic feeding elevates central brain derived neurotrophic factor, N-methyl-D-aspartate receptor subunits and D-serine. Neurochemistry International, Dec;63(8):756-64. doi: 10.1016/j.neuint.2013.10.006. Epub 2013 Oct 16.



Mouse study shows promise of dietary interventions for Alzheimer's Disease

An intervention study conducted in mice has shown potential for slowing the progression of Alzheimer's Disease (AD). Previous epidemiological studies have suggested the possible role for Docosahexaenoic Acid (DHA) for reducing the risk of AD. This latest study used female mice with gene mutations linked with familial AD, to investigate whether the efficacy of DHA treatment could be enhanced with additional nutrients. Three experimental diets were tested: DHA only; DHA with plant sterols and DHA with a Fortasyn supplement containing uridine monophosphate, phospholipids, B-vitamins and antioxidants. The results indicated various benefits from each of the three dietary interventions, and suggested such dietary interventions from early onset of the disease process, undertaken over a sufficient length of time, led to significant changes in brain metabolism and improved memory performance in the mice. The researchers comment that it is unlikely that a single cocktail of nutrients will ultimately result in an optimal outcome; however they believe these results warrant further investigations of dietary interventions for AD.

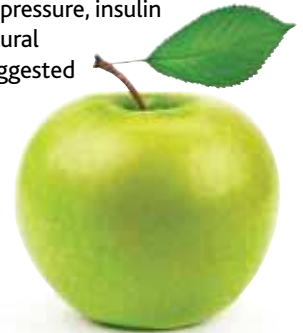
Koivisto H, Grimm MO, Rothhaar TL, Berkecz R, Lütjohann DD, Giniatullina R, Takalo M, Miettinen PO, Lahtinen HM, Giniatullin R, Penke B, Janáky T, Broersen LM, Hartmann T, Tanila H (2014) Special lipid-based diets alleviate cognitive deficits in the APPswe/PS1dE9 transgenic mouse model of Alzheimer's disease independent of brain amyloid deposition. *Journal of Nutritional Biochemistry*, Feb;25(2):157-69. doi: 10.1016/j.jnutbio.2013.09.015. Epub 2013 Nov 6.



Fructose conundrum reviewed

A mini review paper has investigated the key facts for the effects of consuming fructose in the daily diet. In light of the current increased consumption of fructose, both from natural sources and processed food, it has attempted to provide a balanced investigation into both the benefits and dangers of regular fructose intake. Both human and animal studies are introduced to suggest a high fructose intake may be linked to poor cardiovascular health, high blood pressure, insulin resistance and dysglycemia. Positives for consuming natural sources of fructose from apples, dates and honey are suggested to help improve diabetic control and may help improve male fertility, where fructose is an essential component of seminal fluid. The authors concluded that while high fructose intake increases the risk of numerous conditions, small amounts of fructose may have beneficial effects when consumed from natural sources.

Memon MQ, Kumar A (2013) The fructose mystery: how bad or good is it? *Pakistan Journal of Pharmaceutical Sciences*, Nov;26(6):1241-5.



Review investigates effects of bacteria on integrity of intestinal barrier

Researchers in Paris have published a new review article investigating the effects of invasive bacteria on the integrity of the intestinal barrier in the gut. The paper, published in a 'Host-microbe interactions' themed issue of *Current Opinion in Microbiology*, reports on the molecular mechanisms resulting from invasive bacteria. Highlights include the methods by which pathogenic bacteria alter the gut permeability by disassembling tight junctions, and the important consequences of gut barrier dysfunction in human diseases. An overview of the effects of common pathogenic bacteria, such as *H.pylori*, *E.coli*, *Shigella* and *Staphylococcus aureus* is provided within the discussion. The authors further discuss innate immune receptors as key effectors of intestinal barrier dysfunction and the exaggerated immune response towards dietary antigens.



Barreau F, Hugot J (2014) Intestinal barrier dysfunction triggered by invasive bacteria. *Current Opinion in Microbiology*, Jan 14;17C:91-98. doi: 10.1016/j.mib.2013.12.003. [Epub ahead of print].

Updates on vitamin D supplementation review

The Cochrane systematic review investigating vitamin D supplementation for the prevention of mortality in adults has recently been updated with a revised figure of individuals needed to be treated for one life to be saved. The latest review concludes vitamin D3 supplementation may reduce mortality, whereby 150 participants need to be treated over five years for one additional life to be saved. Previously this

figure was stated as 200 individuals. The results were found to be comparable in both women only and women and men studies. Furthermore, vitamin D3 appears to decrease cancer mortality. Adverse effects noted included renal stone formation and elevated blood calcium levels. The review concluded by calling for more randomised, clinical trials on the effects of vitamin D3 on mortality in younger, healthy persons and elderly persons without apparent vitamin D deficiency.

Bjelakovic G, Gluud LL, Nikolova D, Whitfield K, Wetterslev J, Simonetti RG, Bjelakovic M, Gluud C (2014) Vitamin D supplementation for prevention of mortality in adults. *Cochrane Database Syst Rev*. 2014 Jan 10;1:CD007470. [Epub ahead of print]



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NEWS BITES

WHAT'S TRENDING

SPRING ALLERGIES

Spring is a welcome arrival, but around this time of year, with the changing of the seasons, allergies can cause misery for many people. At least one in five people in the UK is thought to suffer from hay fever, also known as allergic rhinitis. Although there is no magical cure for spring allergies, there are a number of natural ingredients that can help to combat them.

Butterbur - Butterbur appears to work as a leukotriene inhibitor, which blocks some of the chemicals that trigger swelling in the nasal passages. Research has shown that an extract of butterbur root can be just as effective at relieving nasal symptoms as antihistamine medication, but has the added advantage of not causing sleepiness, a common side-effect.

Quercetin – This bioflavonoid, found in wine and many fruits and vegetables, works as a mast cell stabiliser, helping to block the release of histamines that cause inflammation, and thereby helping to soothe a runny nose and watery eyes.

Stinging Nettle - Often used as an allergy treatment, the nettle plant contains carotene, vitamin K and quercetin. There's some evidence that using stinging nettle after the first sign of allergic symptoms can help to alleviate them. It contains natural antihistamines and anti-inflammatories that open up constricted bronchial and nasal passages, helping to ease hay fever and sinus allergy symptoms.

Bromelain - A number of human clinical studies have shown that bromelain helps to relieve hay fever or sinusitis by working as a natural antihistamine, anti-inflammatory and decongestant. It reduces nasal swelling and thins mucus, making it easier for sufferers to breathe.

In one study, 85 per cent of people taking bromelain had complete resolution of breathing difficulties and airway inflammation. A more recent study in children with acute sinusitis found that bromelain reduced the duration of symptoms and helped to speed up recovery.

Astragalus - Studies in Europe concluded that six weeks of treatment with this herb significantly relieved the symptoms of seasonal allergic rhinitis. The chief effect was a noticeable decrease in a runny nose among people taking the herb, along with a reduction in symptoms such as sneezing and itching. Astragalus extract is often included in a Chinese herbal combination therapy for allergies, helping to suppress the immune system components involved in the allergic response.

For more info, visit www.c-c-l.com. Check this space next issue to discover more about the latest UK supplement trends from Cambridge Commodities. Remember you heard it here first!



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Innovia Market Insight predicts 2014 food trends – ancient grains, gluten-free flours, superfoods!

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New study reveals 3 significant factors for obesity among pre-school children. Interesting read

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NBC News reports on study that shows women who drank sugary drinks had higher risk of #endometrial cancer

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The British Journal of Cancer says that a test for the 7 types of #breast cancer could be available in 2 years

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Here's the study published in The Lancet Oncology showing that going on a health kick improves longevity!

Revital launch The Wigmore Clinic in London

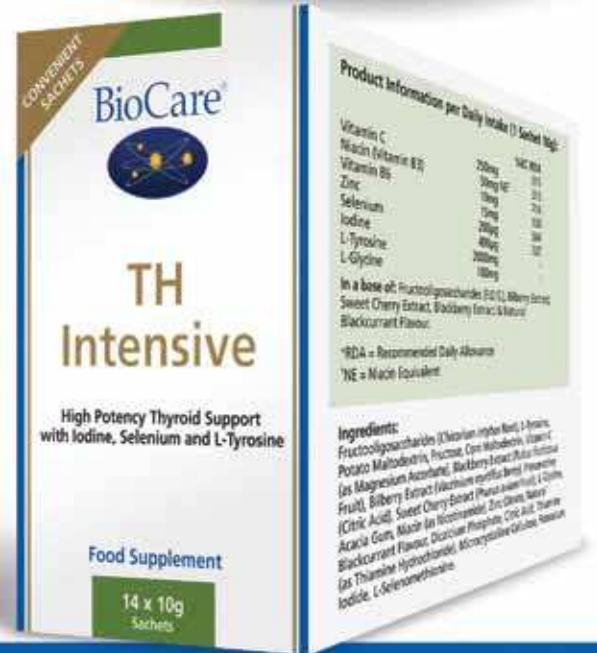
Based in the heart of Mayfair, this new clinic focuses on fitness and weight loss and has achieved outstanding success. The clinic delivers one-to-one precision training and support in diet and motivation to help clients reach their maximum potential. In addition to their fitness experts and Revital's top nutritionists, the clinic is also home to an in-house physiotherapist, osteopath and acupuncturist.



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EXPERT ADVICE



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Q: Helping stay-at-home mothers

Giving too much time to their children and not enough time to themselves can lead mothers down a path to unhappiness. How can we help to rebuild self-confidence and self-esteem in clients who are stay-at-home mothers?

MELANIE FIRTH ADVISES:

A study of more than 60 000 US mothers found that 41 per cent of those not in work experienced symptoms of worry, compared to only 34 per cent of those employed. Of course, all mothers have their own experiences, depending often on the kind of support they have, the kind of children they have and their own life experiences. Through working with mothers in my clinic, I have found that there can be a number of triggers that can lead a mother to feel 'lost'. Many feel guilty that they are not contributing to the financial income of the household, and often feel that their role is not respected by those close to them. They miss the social interaction of the workplace and the feeling of achieving something. Often they have put motherhood on a pedestal, and when they discover that motherhood is not perfect and that it's hard to be the perfect mother, the disappointment can be overwhelming. The reality for many is that motherhood is exhausting, because unlike most other jobs, you are emotionally attached. There are three suggestions that I recommend to clients who are stay-at-home mothers, to help them overcome feeling 'lost' and exhausted.

Firstly, I recommend they take a break, this may involve their child going to a friend, to a nursery/childminder for one day, to a grandparent. This can help mothers feel refreshed and better able to cope, and it allows their children to build their trust in other adults that may look after them, in turn helping their confidence and self-esteem.

Secondly, everyone needs help, so encouraging them to lean on willing family members or do swaps with other mothers they trust are good strategies. Help can come in lots of different forms; it doesn't always mean handing children over to someone else, it may be extra help around the house, or asking a friend to run a couple of errands.

Thirdly, when the time is right I suggest taking on a project, hobby, course or part-time work. Any time spent doing something different, using skills achieved before becoming a parent, helps restore a sense of identity and purpose. Even if they are not 'mumpreneur ready', they may find a mumpreneur who needs help a few hours a week. Good website include www.workingmums.co.uk, www.workformums.co.uk and www.mumpreneuruk.com.



MELANIE is the lead coach at Life Practice Brighton, part of the UK-wide Life Practice UK, run by renowned Life Coach, mentor and Author, Mark Shields. She works with a wide range of clients, but particularly enjoys her work with mums, helping them to overcome

anxiety and depression, confidence issues and low self-esteem. When you feel lost and overwhelmed, the most important thing is to have a plan. Find someone to hold your hand and go on that journey with you, just until you are on the right track. www.lifepracticebrighton.co.uk



RACHEL BARTHOLOMEW, BA (HONS), DIP ION, MBANT, CNHC, is an experienced Nutrition Consultant and Writer, with special interests in children's health and nutrition, functional sports nutrition and an integrative approach to weight loss. Rachel is based at her own busy clinic in Lancashire, is a regular contributor to leading health magazines, has a freelance consultant role for Nutri Advanced and is co-author of *Mindful Eating*, published by Cico Books (January 2014).
www.rachelbartholomew.co.uk



Q: New approaches for fibromyalgia

As the warmer weather starts to roll in, clients tend to turn their focus onto exercise and outdoor activities. But those who suffer from conditions such as fibromyalgia can find just small increases in activity very challenging. Are there any new approaches to dealing with this condition?

RACHEL BARTHOLOMEW ADVISES:

Fibromyalgia (FM) is a debilitating condition characterised by generalised musculoskeletal pain and stiffness, chronic aching, fatigue, and multiple areas of tenderness often referred to as 'tender points'. In addition, clients with fibromyalgia can often present with co-occurring symptoms such as disturbed sleep, headaches, depression, gastrointestinal symptoms and cardiovascular problems too.

There are many similarities between FM and Chronic Fatigue Syndrome (CFS) - it is the presence of 'tender points' that often separates FM from CFS. Unfortunately, conventional treatments are often ineffective and can result in unwanted side-effects. A natural approach that incorporates nutritional support can be very beneficial.

While there is no single known cause, there are a wide range of possible contributing factors. Mitochondrial dysfunction is believed to be a primary factor in the aetiology of the condition; many patients with FM have often been exposed to significant life stress, which suggests that dysregulation of the HPA axis may also be a factor.

Key nutrients to consider as a starting point with fibromyalgia

are those necessary for mitochondrial energy production and nutrients to support a balanced stress response:

High strength magnesium may be the single most important nutrient to consider with FM. Magnesium is intimately involved in energy production, and is used up in high amounts during periods of stress too. Supplementation with high strength magnesium is best in the form of bisglycinate, as this form is well-tolerated by the gastrointestinal system. Powder forms are easily absorbed and may be the most effective method of delivery.

Vitamins such as B1, B2, B3 and B5 are essential for energy production and to support a healthy stress response. Vitamin C is used up in high amounts during stress, is important for energy production and also helps to protect the mitochondria against oxidative damage.

Malic acid is a natural compound found in apples that is essential for the production of ATP.

N-acetyl-carnitine is a key nutrient that helps to transport nutrients into the mitochondria for energy production.

Alpha lipoic acid is a useful antioxidant nutrient that can help to protect the mitochondria from damaging free radicals. ►

EXPERT ADVICE

Q: Valuable test for clients with migraine...

I seem to be seeing more clients who suffer from migraines, and I tend to suggest they avoid the obvious - cheese, chocolate, coffee and red wine - this always delivers some improvement, but recently I have been wondering if suggesting a food intolerance test could be of value. Is there evidence to support this suggestion?

NICKY ESTER ADVISES:

There is growing evidence that food intolerance tests can be of benefit for migraine sufferers. This is exciting given that they may be able to help the six million sufferers in the UK. This means roughly one in seven adults in the UK suffers from migraines, with women being three times more likely to be affected than men.

There are some suspected culprits, and you have already eliminated these from your clients' diets. By including a food intolerance test, you'll gain information on any raised IgG antibodies to food antigens, and this can help you to see further improvements in their symptoms.

The reason for this can be understood from looking at the research. In 2005, a prospective audit was done among migraine patients, the conclusion of which highlighted the possible relationship between food intolerance and migraine and the need for more research to support its findings. In 2007, a study completed in Mexico looked at 108 food allergens and asked participants to avoid those foods which they showed positive IgG antibodies to for a period of

six months. After one to six months following their individual diets, 43 of the 56 patients reported not having had any migraines, four saw improvements and only nine saw no change in symptoms. In 2010 a randomised, double-blind, cross-over study using 266 foods, found a statistically significant reduction occurred in both the number of days as well as the number of migraine attacks experienced by participants.

While the mechanism behind IgG mediated food intolerance is not fully understood, it has been speculated that food antigens activate T helper cells and lymphocytes, which in turn increase the production of IgG and cytokines. This then leads to the inflammatory response thought to play a role in the development of symptoms, migraines or otherwise.

While it is evident that more research needs to be undertaken, the current evidence points towards the benefit of using IgG antibody testing to help give relief of migraines. Hopefully this will go some way towards helping sufferers regain some of the days and months they've lost to what is a very debilitating condition.



NICKY ESTER, MSC, DNMED, RNUTR, has over 10 years of experience in clinical practice, during which she worked for Erica White for three years before setting up her own clinical practice. During this time she also taught as a Clinical Tutor at Premier Training International and joined Cambridge Nutritional Sciences as a Nutritionist in 2012. Nicky enjoys the variety that this new role brings, supporting both customers and practitioners, as well as giving seminars to help improve the existing knowledge on food intolerance.



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Clinical Pearls: Nutritional Applications in Modern Practice

Nutri Advanced are delighted to announce that we are heading to the Republic of Ireland to host a series of interactive seminars near you!

Dublin	Radisson Blu Royal Hotel, Golden Lane, Dublin 8, Ireland	Tuesday 1st April	4pm-7pm	£25	S0614
Cork	Radisson Blu Hotel & Spa, Ditchley House, Little Island Cork, Ireland	Wednesday 2nd April	4pm-7pm	£25	S0714
Galway	Pillo Hotel Galway, Headford Point, Headford Road, Galway, Ireland	Thursday 3rd April	4pm-7pm	£25	S0814

Nutritionist and Behavioural Therapist Jo Gamble and some other members of the Nutri family are visiting Dublin, Cork and Galway where they will be introducing you to the Nutri blockbuster products, as well as highlighting our key services which support your clinic and set us aside from our competitors.

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Jo will present case studies and relevant research around three of the most important and common health concerns of the 21st century.

1) STRESS

Stress remains the top reason for absenteeism, accounting for about 40% of all sick leave. Lifestyles are evolving much quicker than our genetic make up can keep up with and we are often exposed to prolonged or intense periods of stress. Stress is notoriously hard to treat because it affects each individual differently and therefore a 'one-size-fits-all' approach is useless. Jo will teach you how personalizing protocols is the key to the efficacy of treating stress.

2) THYROID MALFUNCTION

Inexplicable weight gain and high blood pressure, depression and susceptibility to disease can all be signs of an under or over-active thyroid.

Often not fully diagnosed from limited medical laboratories, or mistaken for something else, symptoms can worsen and leave patients wondering what they're doing wrong. Jo will explore the use of herbs and nutrients as alternatives to conventional medical treatments in tackling thyroid malfunction.

3) DIGESTIVE COMPLAINTS

Infamous for remaining an 'untreated' area within conventional medicine until it considerably worsens, patients become frustrated and tired of simply trying to 'put up' with these undesirable symptoms. Jo will explore common concerns and how these can be targeted with probiotics, prebiotics and digestive enzymes. As well as the more serious issues within the gut which can range from parasite or yeast infections to side effects from strong pharmaceutical drugs.

Jo will also introduce you to a taste of other Nutri products from our extensive range which boasts supplements designed to tackle everything from brain function, cardiovascular health, liver support to general health and wellbeing.

This seminar is a must for those who are looking to boost their natural therapy clinics, establish themselves within the field, increase their income or just further their knowledge and expertise. To book your place simply call our low-cost number 1890 987 505 (option 1) and speak to one of our friendly customer service team.



HEALTHY HAIR

Finding ways to preserve hair growth, colour and condition are on the minds of many of our clients, especially those with age-related health issues. **Sharon Morey**, from Quest Vitamins, explains natural ways to restore a healthy head of hair...

The hair on our head is literally our crowning glory, a very visible expression of personality presented in an infinite number of styles. Your hair follows a natural hair growth cycle, a set pattern of growth, rest and shedding through life, but this slows

down as we age. The condition of your hair can give an indication of underlying health, and the biggest factors affecting hair are poor nutritional status, hormonal imbalances and stress. Our emotional state of mind can impact the hair and be a cause of stress, and for some people, having a haircut can be almost as nerve-

wracking as going to the dentist.

HAIR LOSS AND ALOPECIA

Probably the main hair-related concern is hair loss; it is more common in men, but women can be equally affected. Hair loss may occur following an illness or as a side-effect of medication, particularly

chemotherapy. Other factors include anaemia, infections, hormonal problems such as hypothyroidism, food allergies or shock and stress.

The most common form of hair loss is androgenic alopecia, or male-pattern baldness (although women can be affected too). The balding process is gradual, usually starting with a receding hairline and/or a thinning of the hair at the crown. Other forms of hair loss are alopecia areata, which involves the sudden and generally temporary loss of patches of hair, mostly affecting teenagers and young adults. When the hair grows back it tends to be fine and white, before eventually regaining its original colour.

Alopecia totalis is when all the hair on the scalp is lost; if all body hair is lost, it is called alopecia universalis. Telogen effluvium is a common type of alopecia, with a widespread thinning of the hair, rather than bald patches. Steroids may help prevent hair loss and promote hair re-growth in alopecia areata, but the condition often returns when the treatment ends. For extensive or total hair loss, immunotherapy and UV light treatment can be used, but can carry serious side-effects.

HORMONAL BALANCE

Signs of thinning hair may indicate an underlying condition caused by a hormonal imbalance, which certainly appears to contribute to hair condition and growth. One of the symptoms of hypothyroidism is hair thinning and loss. Hair loss in women is often linked to hormonal changes; pregnant women may be blessed with a mane of lustrous shiny hair that reverts back once their baby is born, but commonly the menopause can have the biggest impact. Hair does tend to thin with age, and falling levels of oestrogen and progesterone mean that any testosterone women produce has more impact on the hair follicles, causing mild to severe thinning. HRT treatment may be offered to women severely affected, but red clover extract is an option for those who prefer a natural alternative. This provides a source of phytoestrogens, and has shown to be helpful in lessening the effect of falling

hormone levels.

With androgenic alopecia, the balding process is gradual, usually starting with a receding hairline and/or a thinning of the hair at the crown. One cause is believed to be high levels of Dihydrotestosterone (DHT), a potent form of the male hormone testosterone, synthesised by the enzyme 5- α -reductase in the prostate, testes, adrenal glands and hair follicles. In some men the hair follicles are oversensitive to DHT, causing a gradual thinning of the hair shaft and eventual follicle death.¹

In women with Polycystic Ovary Syndrome (PCOS), the ovaries overproduce DHT testosterone causing, among other symptoms, excess facial and body hair, and a bald patch on the top of the scalp.² The herb saw palmetto may help to inhibit 5- α reductase, so less DHT is produced to reduce the impact on the hair follicles. Use of saw palmetto has shown positive results for both sexes.

STRESS

Stress may influence the condition of hair. Poor nutritional status can reduce the body's ability to deal with stress, impacting on its condition and growth. Alopecia areata can be caused by stress or trauma, and results in sudden and generally temporary loss of patches of hair, but can lead to total hair loss. Baldness itself can lead to stress, so the emotional needs of the person are paramount. Recommend relaxation exercises and massage therapy, particularly Indian Head Massage, which may help ease stress levels and have a positive effect on the condition of your hair.

DIET

Ensuring a good intake of key nutrients goes a long way to maintaining good condition of the hair; key nutrients needed for maintaining healthy hair include biotin and the minerals selenium and zinc.³ Copper is involved in the process of hair pigmentation and melanin, the primary component which determines skin colour and is also found in hair, is a derivative of the amino acid, tyrosine. The hair can be affected when there are low levels of other nutrients in the body,

USEFUL SUPPLEMENTS



1. Take a good multivitamin and mineral that provides a full spectrum of nutrients, including the minerals selenium, zinc and copper.
2. If you have low iron levels, take an iron supplement, but make sure it has synergistic nutrients such as vitamin C to help with absorption.
3. If you do not eat fish, then take fish oil capsules daily or flax oil if you are a vegetarian.
4. During stressful periods, take a multi B-complex supplement with added biotin for hair health.
5. Red clover extract may be useful for women of menopausal age.
6. Saw palmetto may be helpful for men with a receding hairline or baldness.

impacting on its condition and growth.

Protein - plenty of high quality protein foods such as eggs, organic milk, lean meats, fish, nuts, seeds and pulses. Protein promotes the production of keratin, the main component that hair is made from.

Essential fatty acids – while it is wise to limit intake of saturated fats, the diet should still contain sources of the unsaturated fats omega-3 and 6, found in oily fish, nuts, seeds and quality vegetable oils. Low levels of these fatty acids have been shown to contribute to both hair and skin problems, including eczema, dandruff, split nails and brittle hair. They are also important for hormonal regulation, which can in turn impact on hair health.

Vegetables and fruit – are packed full of a wide variety of nutrients; colourful foods like berries, sweet peppers and dark green leafy vegetables are rich in antioxidants that help protect body cells from oxidative stress. This includes vitamin C, which helps produce collagen, a form of which is found in the hair and is needed to help iron absorption in the body.

Iron – warrants a mention on its own, as

iron deficiency is one of the most common nutritional causes of hair loss. There are two forms of dietary iron; heme and non-heme. Heme iron is derived from haemoglobin, and is found in animal foods that originally contained haemoglobin, such as red meats, fish, and poultry. Plant foods such as lentils, beans, and spinach contain non-heme iron. Our bodies are less efficient at absorbing non-heme iron, but most dietary iron is ingested in this form. It is also the form of iron added to iron-enriched and iron-fortified foods like cereals. Vegetarians and others who avoid animal products in their diet should ensure they get plenty of iron from their diet or with a supplement.

Wholefoods – cereals, grains, nuts, seeds and pulses are good sources of the B-vitamins, which help the body's resistance to stress; biotin has been shown to help both brittle hair and nail syndrome. Pumpkin seeds are a rich source of zinc, and nuts also contain the mineral selenium, needed for normal hair growth and thyroid function.

MASSAGE

In Indian culture, massage in various forms is mentioned in the earliest Ayurvedic texts; Indian Head Massage (IHM) was developed out of the tradition of hair care where Indian women massaged oils into their long hair to keep it lustrous and in good condition. Male barbers used a more invigorating form of massage on their clients called 'champissage', or 'champi' in Hindi, meaning 'massage of the head'; the word 'shampoo' is derived from this.⁴

The benefits of IHM are believed to be an increased circulation of blood to the scalp, which in turn brings nutrients to the hair follicles and improves the condition of the hair, so it is claimed to slow down hair loss. The oils, such as coconut, help moisturise the hair to prevent it drying out, and give it a glossy shine. Essential oils can be added to fragrance the hair, but they also offer additional benefits; rosemary has a stimulating action, tea tree aids relief for dandruff because of its antifungal properties, and henna is favoured for dark hair, while chamomile is traditionally used to bring out the highlights of blonde hair. The massage process is also extremely relaxing, helping to relieve stress and promote a feeling of well-being for anyone under stress. ●



THE DAMAGING EFFECTS OF HAIR DYES

Colouring hair, if the wrong product or application method is used, can be very damaging, leaving hair coarse, dry and brittle. If hair is weakened with overuse, or as a result of aggressive or high lift products, the hair can become very porous, which makes it weak and susceptible to split ends and can also result in patchy-looking coverage, as the colour is able to leach from the most porous sections of hair. Some chemicals used in hair dyes can also be very aggressive on the scalp, drying the skin and causing irritation such as itching and a 'tight' feeling, while others, in a small proportion of people, can cause allergic reactions, so careful precautions are required before use.

Hair colours are complex products however, so unless you opt for a completely pure henna colour, it is impossible to avoid all chemicals. Ammonia, resorcinol and parabens are not essential in a permanent hair dye, however, and resorcinol can be very irritating to the skin and eyes, while ammonia can dry and damage hair with overuse. All permanent colourants will have to contain PPD (Paraphenylenediamine) or a similar ingredient however, to ensure permanency of the colour

and effective grey coverage. A small number of people can be allergic to this type of ingredient, so they must avoid all permanent and a number of long-term, semi-permanent colourants too, and instead opt for a gentle, non-permanent colourant. Such temporary colour rinses, which you can find in your local health store, will not only be free from PPD, but peroxide too. A skin test should still be carried out 48 hours before use to check for any potential sensitivities, and customers should take extra care in the case of a PPD allergy, as there are a number of derivatives and alternatives to PPD that are used.

For more information, contact Nature's Dream, distributors of Naturtint, the market-leading brand of gentle, permanent hair colourants, free from ammonia, resorcinol and parabens and formulated with active vegetable ingredients.
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SHARON MOREY, is a nutritionist for Quest Vitamins, she has more than 30 years experience working in the Complementary Health Industry.

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THE ROLE OF FATTY ACIDS IN COGNITIVE DECLINE



The subject of cognitive decline has received much attention over the last few years. **Satu Henson**, student at CNELM, explains why fatty acids play such an important role in preserving cognitive health.

Nutrient imbalances are increasingly recognised as a contributing factor to early cognitive decline. Research suggests that among other nutrients, fatty acids and their biosynthesis in the liver play a critical role in the progression of cognitive decline.

It is likely that the pathological progress that leads to cognitive decline starts years, even decades, prior to the diagnosis, but it is not a done deal that we all end up suffering from dementia. Our diet and lifestyle are something that we can influence to maintain our memory and independence for longer.

Pharmaceutical advances to delay the onset of cognitive decline have been slow due to several factors:

- the complex and evolving

pathophysiological understanding of this disease progress

- the lack of reliable biomarkers
- the delays caused by the extensive timeline
- the costs required to develop and approve the drugs.

The drugs that do exist are largely aimed at modifying the pathways leading to Alzheimer's Disease (AD), the most common form of dementia, but the effectiveness of these available drugs is still very limited.

In addition to key pathways leading to AD, cognitive decline can have multiple other causes. Comorbidities such as metabolic syndrome and vascular disease may all lead to cognitive decline, and stroke, high blood pressure, hyperlipidemia, diabetes mellitus, male gender and

smoking are all recognised risk factors of vascular dementia.^{2,3} Additionally, genetic factors such as Apolipoprotein E (ApoE) with the ε4 allele increases the risk of AD but does not cause it.⁴

WHAT IS COGNITIVE DECLINE?
Cognitive decline, more commonly described as dementia, is characterised by a progressive global deterioration of cognitive abilities in multiple domains including memory and in at least one additional area – learning, orientation, language, comprehension, and judgment – severe enough to interfere with daily life.¹

PATHWAYS TO COGNITIVE DECLINE

The characteristic symptoms of AD and related brain atrophy occur as the neocortex suffers neuronal, synaptic and dendritic losses, and amyloid plaques and neurofibrillary tangles proliferate.⁵ While the amyloid and tau pathologies are the hallmarks of Alzheimer's Disease, neuroinflammation and oxidative stress are integral within both pathologies and also in the early stages of cognitive impairment, which does not necessarily lead to AD.

Fats are important during the initial brain development, but beyond this the Essential Fatty Acids (EFA), also known as Polyunsaturated Fatty Acids (PUFA), are involved in the synthesis and function of brain neurotransmitters. Nearly 60 per cent of the human brain is made of fat, and the phospholipid pools within the neuronal membranes are involved in the synthesis of lipid messengers that promote either neuroprotection or neuronal injury.⁶ The inflammatory and oxidative stress pathways are a critical addition when considering the mechanism of action in cognitive decline, particularly due to the high fatty acid content in the brain and the potential they provide for preventive strategies available to the therapists and the individuals.

Amyloid pathology

Generation of amyloid peptides A β 40 and A β 42, and the subsequent amyloid fibrils form the amyloid plaques. Amyloid oligomers are considered the most toxic of all beta amyloids (A β).⁷⁻⁹ Amyloid plaques lead to synaptic failure, causing neuronal cell death, while A β oligomers lead to disruption of a number of cell receptors, dysregulation of which may lead to dysfunction of synaptic mitochondria and excessive formation of Reactive Oxygen Species (ROS) and increase of neuronal calcium levels.^{10,11} Disruption of calcium, zinc and other ion homeostasis within neuronal membrane may further accelerate neurodegeneration, including formation of free radicals and phosphorylation of tau.^{12,13}

Tau pathology

The neurofibrillary tangles are formed of tau proteins that are phosphorylated into abnormally twisted filaments, destroying the scaffolding-type structure in the normally functioning nerve cells.⁵ Toxic A β increase the activity of tau kinases, as does the A β oligomer-induced increase of tau protein.¹⁴ Tau kinases and an increase in tau protein lead to tau phosphorylation.

Inflammation

Inflammatory markers, such as nitric oxide, IL-6, IL-1, and TNF- α , generated either through the deposition of A β within the amyloid pathway or other comorbidities, are linked to neuroinflammation,^{15,16} which in turn leads to an increase in tau phosphorylation and neuronal cell death.

Oxidative stress

Combining unsaturated lipids with high oxygen utilisation, high redox metal ions, and a compromised antioxidant system makes the brain very vulnerable to oxidative damage.¹⁷ Increased ROS is linked to neuronal cell death and is associated with dysfunctional ion transport leading to neurotoxicity, whereas lipid peroxidation may cause degradation of the cell membrane phospholipids.¹⁸ The PUFA oxidation product Malondialdehyde (MDA) has been linked to reduced activity of antioxidant enzyme Superoxidase Dismutase (SOD).¹⁹ Multiple in vitro and in vivo studies have shown the negative impacts on neuronal integrity and function due to lipid peroxidation and protein oxidation.

PUFA TO RESCUE

Multiple studies show how PUFA and particularly Docosahexaenoic Acid (DHA) can positively impact the pathways that result in the accumulation of A β and even directly reduce A β .²⁰⁻²² The reduction in A β and therefore amyloid fibrils reduces the risk of amyloid plaque formation, synaptic failure, and highly toxic A β oligomers, the latter of which have far-reaching consequences resulting in increased tau phosphorylation and ROS and subsequent



oxidative stress and dysfunctional cell membrane integrity. DHA has been also been directly linked to multiple other pathways, including inflammatory and oxidative stress pathways, improving the cell membrane fluidity and ion homeostasis, and reducing the cell permeability.

There is an agreement across the in vitro, in vivo and human studies showing reduced levels of omega-3 and increased levels of omega-6 in the brains of the subjects with Alzheimer's disease and Mild Cognitive Impairment (MCI). Additionally, aged-related cognitive impairment has also been linked to increased levels of omega-6 Arachidonic Acid (AA), and reduced levels of omega-3 DHA and Eicosapentaenoic Acid (EPA).^{23,24} Increased AA contributes to increased inflammation, while the benefits of a PUFA-rich diet has shown direct reduction of neuroinflammation by increasing the levels of DHA and EPA. This gives us yet another reason to consider the dietary intake of essential fatty acids and a healthy omega-6:omega-3 ratio.

In addition to obtaining DHA from dietary sources, humans can synthesise DHA in the liver from shorter chain omega-3 fatty acid precursors, α -linolenic acids and eicosapentaenoic acid, which are available from green plant leaves. There is evidence that even in the absence of overt liver pathology, a subtle molecular liver dysfunction is associated with AD.²⁵ As a result, this lack of available DHA could be caused by a defect in the last step of DHA biosynthesis in the liver, rather than from a nutritional deficiency of DHA.

INTAKE OF OMEGA-3

Consumption of fish high in omega-3 PUFA and daily intake of omega-3 PUFA supplements has been shown to significantly lower the risk of cognitive

impairment and decline; this reduction being particularly significant in those with oxidative stress-related conditions such as hypertension and dyslipidaemia.²⁶⁻³⁰

Interestingly, a Mediterranean diet has shown similar improvements, as the consumption of olive oil, both of which have reduced the occurrence of MCI, reduced the progression from MCI to AD, and delayed the onset of age-related cognitive decline.³¹⁻³³ The Mediterranean diet is characterised by a high intake of fish, vegetables, legumes, fruits, cereals and unsaturated fatty acids (particularly olive oil), and low intake of dairy products, meat and saturated fatty acids, with a regular but moderate intake of alcohol. High adherence to a Mediterranean diet has been found to reduce the risk of MCI by 28 per cent and deliver a 48 per cent risk reduction in progressing from MCI to Alzheimer's disease,³² providing us with a very achievable and sustainable method to reduce risk of memory impairment.

OTHER INTERVENTIONS

Multiple other nutrients, such as antioxidant nutrients, vitamin D and B-vitamins, are key areas of research in relation to cognitive impairment, as are many lifestyle factors. Elevated homocysteine and low levels of folate and vitamin B12 have been associated with AD. The VITACOG study showed benefits in improved cognitive function and decreased cerebral atrophy by combining folic acid, vitamin B12 and vitamin B6.³⁴ The combination of vitamin E and C has been associated with a decrease in prevalence and incidence of AD,³⁵ whereas lower concentrations of 25-hydroxyvitamin D has been associated with cognitive decline,³⁶ but further studies are required to understand if vitamin D could help preventatively. Caloric restriction is also being considered as a therapeutic intervention for those with Alzheimer's disease,³⁷ and only last month the media spread the word about how regular physical activity can increase the size of the prefrontal



cortex and hippocampus, areas that are linked to memory function. This could all lead to improved brain function and a delay in onset of senile dementia. Physical exercise has also previously been found to improve fitness, physical function, cognitive function and positive behaviour in people with dementia,³⁸ improving the quality of life of those suffering from dementia and their caregivers.

WHAT'S THE VERDICT?

Lipid layers with sufficient PUFA content maintain the cell fluidity, integrity and ion transport homeostasis. Combining this functional cell integrity with healthy biosynthesis of DHA in the liver, reduced inflammation and efficient antioxidant defences, the brain is protected from an imbalanced omega-6 to omega-3 ratio, dysfunctional ion transport and increased membrane permeability. If these defences were to break, increases in omega-6 fatty acids and other toxins, such as zinc and calcification of cell membranes, would contribute to neuronal injury. These mechanisms are common in age-related cognitive impairment and in Alzheimer's disease pathology.

A personalised, preventative, pleiotropic intervention and approach is the key to success when aiming to delay the onset of cognitive impairment. The approach should consider the multiple aetiologies, including inflammation, oxidative stress, homocysteine, ion homeostasis and liver function, as well as pleiotropic nutrient and lifestyle interventions that aim for optimal nutrient balance and the correct

omega-6 to omega-3 ratio from early on.

Based on an extensive review of current research, it is evident that omega-3 PUFA, particularly DHA, delays the onset of cognitive decline only if the brain DHA levels and supply were brought to and maintained at sufficient levels in the early stages of cognitive impairment, such as MCI, not when Alzheimer's disease is already diagnosed and more advanced. This places the responsibility on individuals to manage their diet and lifestyle years, even decades before they reach their 60s, after which the early signs of cognitive impairment commonly surface. ●

THE KEY TO LONG-TERM COGNITIVE HEALTH

- Eat oily fish at least twice a week, including wild salmon, trout, sardines, mackerel, herring and anchovies.
- Eat plenty of green leafy vegetables.
- Follow a Mediterranean-style diet.
- Exercise minimum of 150 min/week.
- Keep your brain active socially and intellectually.

SATU HENSON is a practicing Nutritional Therapist at EliteNutri completing her MSc in Personalised Nutrition at CNELM. Satu practices in Harpenden and Hatfield and has a keen interest in cognitive health.



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“ Very interesting and relevant information ”

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“ Thoroughly enjoyed the day and content ”

MARCELLE DUBRUEL, DELEGATE

“ One of the best conferences I've attended ”

ANNE VARCOE, DELEGATE

“ Time-keeping was great, thank you ”

JENNY ADAMSON, DELEGATE

CPD
ACCREDITED

CARDIOVASCULAR HEALTH

Saturday 15 March 2014, 11.30 - 17.15,
Cavendish Conference Centre, London



PAUL CLAYTON

ONLY CONNECT – ‘HOW MUSCLE, BONE, LIVER, AND ADIPOSE TISSUE DRIVE – AND CAN CURE – DIABESITY AND SARCOPENIA.’

The Pasteurian medical paradigm makes it difficult for clinicians to understand or treat disease effectively, and cardiovascular disease is a good example of this. The circulatory system is intimately related to hepatic, pancreatic, adipose and skeleto-muscular physiology, as well as diet and lifestyle factors, and any truly effective treatment must take this nexus into account. Sarcopenia is an integral component and risk factor, acting via insulin resistance, lipaemias, visceral obesity and the AMP-K / MTOR axis to drive CVD and other diseases. Effective and curative new strategies are presented.



PROFESSOR SVEND AAGE MORTENSEN

HOW A NEW, NATURAL TREATMENT MAY RESTORE CARDIOVASCULAR HEALTH

Poor cardiovascular health and especially heart failure have major costs – not only in terms of lost quality of life but also in the way of massive health expenses for surgery and medical treatment. A relatively new, safe, natural, and seemingly effective treatment may, however, turn out to improve cardiovascular therapy in the future. Danish cardiologist Professor Svend Aage Mortensen will present the results of Q-Symbio and other existing studies on essential nutrition for healthy hearts.



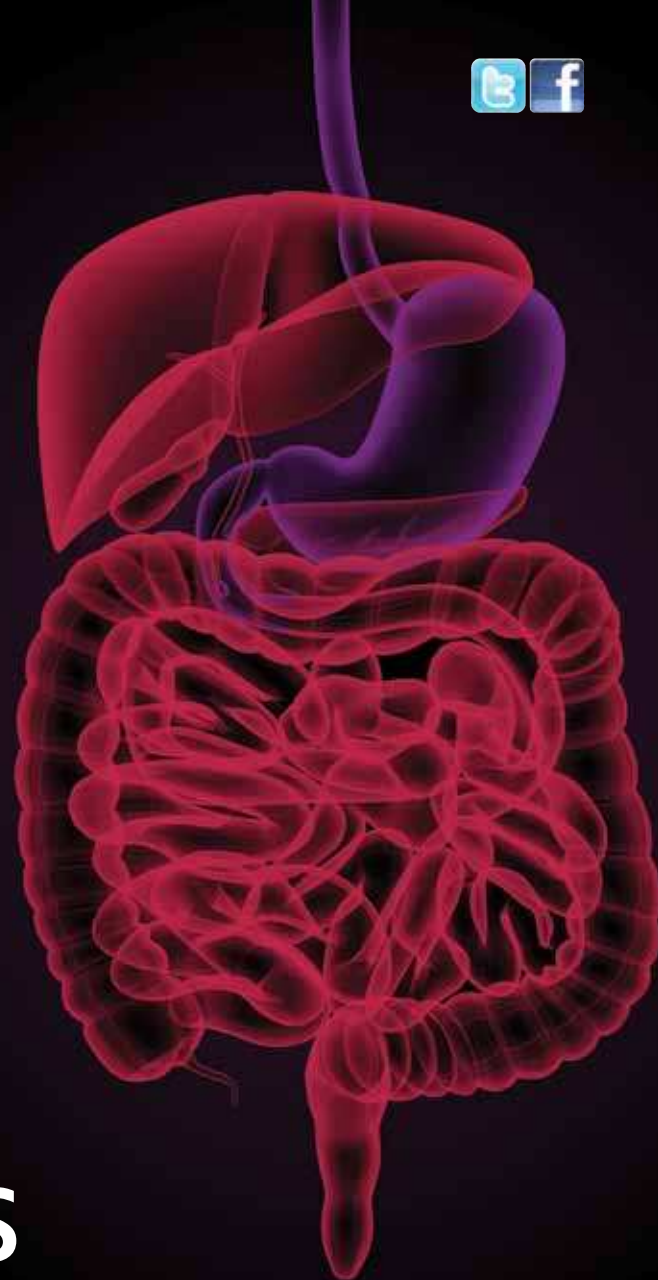
PHILIP RIDLEY

CHOLESTEROL, THE ESSENTIAL STEROL FOR HEART HEALTH

Being supporters of traditional, nutrient dense foods is controversial today, since most of our most nutrient dense foods are those rich in cholesterol and saturated fats. Philip will present evidence that these foods are in fact protective against heart disease, that cholesterol and saturated fats are essential nutrients and that statin drugs may cause rather than prevent heart disease. The hypothesis presented is that heart disease is a modern condition brought on by malnutrition, toxicity and modern processed foods. Philip will also discuss the far reaching implications for public policy.

- BANT AGM - SATURDAY 15 MARCH 2014, 9.00 - 11.30, Cavendish Conference Centre, London
- Anti-ageing - SATURDAY 10 MAY 2014, 9.00 - 17.30, Cavendish Conference Centre, London
- Detoxification - SATURDAY 7 JUNE 2014, 9.00 - 17.30, Cavendish Conference Centre, London
- Auto-immunity - SATURDAY 13 SEPTEMBER 2014, 9.00 - 17.30, Cavendish Conference Centre, London
- Gut/Brain Axis - SATURDAY 8 NOVEMBER 2014, 9.00 - 17.30, Cavendish Conference Centre, London

**FOR MORE INFORMATION,
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The Gut Flora, Bowel Health And Probiotics

The world of probiotic research and development is fast-paced, and new evidence linking these friendly bacteria to various health conditions is constantly emerging.

Natalie Lamb, from Probiotics International Ltd, provides us with a timely update...

Beneficial bacteria play an essential role as our first line of defence in supporting efficient digestive function and gut immunity. More than 2000 years ago, Hippocrates said that "all disease begins in the gut". I feel this is still relevant today, and also believe this to mean that optimal health throughout the whole body must also begin in the gut. Gut flora imbalances could also be indicated in numerous symptoms that may at first not be seen to be related to the gut, such as

fatigue, weight gain, poor concentration, anxiety, low mood and headaches.

A number of factors can compromise an optimal balance of beneficial bacteria throughout the body, including antibiotic therapy, infection, stress, travel or a period of unhealthy nutrition. An effective solution is to supplement the microflora by taking a probiotic to restore the balance. Probiotics have been defined as 'live microorganisms, which when administered in adequate amounts, confer a health benefit on the host'. Traditionally, we consumed fermented

foods such as yoghurt, kefir, sauerkraut and pickles on a daily basis. Nowadays we tend to rely on probiotic supplements offering a standardised dose in an easy-to-consume capsule.

AUTOIMMUNE DISEASES

Autoimmunity occurs when the body's immune system mistakenly attacks and destroys the body's own healthy cells and tissues. Many experts believe that autoimmune disorders begin in the gut¹, especially in people who have genes that make them more likely to get

autoimmune disorders. Earlier theories have focused on infection by bacteria or viruses such as molecular mimicry, the bystander effect and the hygiene hypothesis. But more recent theories consider a wider focus of four interacting factors^{1,2}:

1. Dysbiosis
2. A 'leaky' intestinal mucosal barrier
3. Altered intestinal immune responsiveness
4. A genetic link.

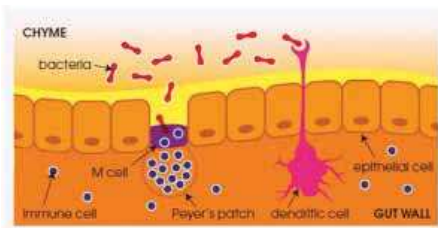


Diagram: Carwright P 2011.

It is known that the gut microflora profoundly influences the function of the gut associated immune system³. Epidemiologic data has shown that children and adults^{4,5} with autoimmune disease have a different intestinal flora from healthy ones. A healthy gut mucosal lining, with its intercellular tight junctions, is our internal barrier against the outside world, but can be damaged in a number of ways, such as by inflammation, toxins, pathogens, food sensitivities, alcohol, medications and stress.

A healthy, balanced gut flora is one mechanism reported to protect against damage. However, if the gut microflora is imbalanced and the final stages of food digestion are not completed, mal-digested proteins appear to then cross a damaged gut lining in genetically susceptible individuals, to which the immune system reacts and antibodies are created. Various mal-digested proteins often look very similar to the body's own proteins, which are the building blocks for every cell. These are then later attacked by the antibodies wherever they are found in the body, causing the long-term damage seen in autoimmune diseases.

This new theory suggests that the autoimmune process in genetically susceptible individuals can be arrested if the interplay between genes and

environmental triggers is prevented. In 2005, Fasano *et al* proposed this could be achieved by re-establishing intestinal barrier function and rebalancing the gut microflora, ultimately leading to correct functioning of the immune system. Since probiotics have been shown to positively influence gut microflora balance, the immune system⁶ and intestinal barrier function⁷, there is theoretical rationale for their use in autoimmune diseases. However, there is a large amount of conflicting data on the preventive/therapeutic effects of probiotics in autoimmune diseases, although there is also fairly promising evidence to recommend them as well⁸⁻¹².

In 2010, 45 adults with rheumatoid arthritis were randomly assigned a *Bacillus coagulans* probiotic at 2 x 10⁹ CFU (2 billion) for 60 days, in addition to their standard anti-arthritic medications. The probiotic group saw statistically significant improvement in pain scale, greater improvement in patient global assessment and self-assessed disability, reduction in CRP (inflammation), as well as the ability to walk two miles, reach, and participate in daily activities.

INTESTINAL VITAMIN PRODUCTION

The gut flora is involved in the production of some vitamins, including B-vitamins, which are essential for energy production in every cell of the body and are used up rapidly during times of stress. B-vitamins are water-soluble, so food sources do not remain in the body for long. The body cannot synthesise these vitamins itself¹³, but nature has provided an effective way to keep levels topped up by the continuous production of B-vitamins by the beneficial gut flora. Back in 1997, Hill¹⁴ demonstrated that the human gut flora can produce vitamins B1 (thiamine), B2 (riboflavin), B3 (nicotinic acid), B5 (pantothenic acid), B6 (pyridoxine), vitamin B12 (cobalamin), folic acid, biotin and vitamin K. In contrast to dietary vitamins, which are adsorbed in the small intestine, the predominant uptake of microbially-produced vitamins

occurs in the colon. Production appears to be restricted to certain species/strains, for example many bifidobacteria (especially *Bifidobacterium bifidum* and *Bifidobacterium longum subsp. infantis*) produce folate but not lactobacilli¹³.

Fatigue, as we know, is a big problem in those with gut disturbances such as IBS, and sufferers are known to have an imbalanced gut flora, which could therefore impair their B-vitamin production and affect overall energy levels. As we know, folic acid plays an important role in DNA replication and neural tube development,¹⁵ and is therefore extremely important in the development of the foetus. Currently, government recommendations are for pregnant mothers to supplement with this vitamin, but perhaps we should also be looking at ensuring the gut flora is well-balanced to support natural production of this vitamin in the pregnant mother.

Fermented milks are reported to contain high levels of B-vitamins (such as folate and riboflavin) produced by lactobacilli and possibly bifidobacteria starter cultures. High-producing vitamin probiotic strains have also been shown to cause increased faecal vitamin levels in both rats and humans¹⁶. Whether supplementation with vitamin-producing probiotic strains has an effect on vitamin absorption into the human body, hopefully by creating a healthy bacterial balance, the enteric bacteria will be able to naturally do this more effectively.

LINKING THE GUT AND THE BRAIN

We know that the brain sends signals to the gut, which is why stress and other emotions can contribute to gut symptoms commonly seen in IBS. New research shows for the first time in humans that the signals also travel the opposite way¹⁷. Many patients report that they never felt depressed or anxious until they started experiencing problems with their gut. This could be due to our 'happy hormone' serotonin being largely produced in the gut. In 2011, Messaoudi

*et al*¹⁸ found *Lactobacillus helveticus* and *Bifidobacterium longum* significantly improved depression and anxiety.

More recently, in 2013 Tillisch *et al* showed a multi-strain probiotic to lower levels of activity in the areas of the human brain associated with emotion and pain, while increasing activity in areas associated with decision-making. While scientists are looking at the potential future use of probiotics to treat conditions such as autism, Parkinson's, Alzheimer's and depression, why not consider optimising a healthy gut flora from birth to prevent the onset of such conditions in the first place?

INFANT COLIC

Particularly in early life, the composition of the gut flora profoundly influences the development of the gut mucosal lining¹⁹ and the corresponding immune system^{20,21}. This is not surprising, as up to 70 per cent of immune cells are located within the gut²². Any imbalance could lead to digestive symptoms such as constipation, diarrhoea, bloating, flatulence and cramping. The gut flora appears to be imbalanced in infants suffering from colic. They often have fewer levels of beneficial *Lactobacillus* that produce much less gas than potential pathogens. Promising probiotic studies are emerging regarding prevention or management, with one study using a *Lactobacillus reuteri* to significantly improve symptoms²³. A more recent study, published in 2014,²⁴ gave a probiotic or a placebo to 589 infants for three months from birth. The probiotic group experienced significantly less crying time, fewer regurgitations per day, and improved regularity of bowel movements. A happy baby means a happy mother!

CHOOSING A GOOD PROBIOTIC

In nature, probiotics are provided in fermented foods such as yoghurt, kefir, tempeh, miso, sauerkraut and pickles. Studies have isolated numerous different strains from these foods, in particular lactobacilli^{25,26}. I would encourage practitioners to experiment

with preparing these traditional foods. However, we need to be aware that not all our clients will have the time or be willing to do the same! Probiotic supplements on the other hand are cultured in a laboratory, so are standardised to ensure quality and a specified dose. This form of probiotic consumption is quicker and easier for the end consumer, so therefore more common in our modern world.

A good probiotic supplement should be stable and able to guarantee the bacterial count until the end of the product's shelf life, not just at the time of manufacture. Encapsulation of live beneficial bacteria cells provides a protective coating from the potentially damaging freeze-drying process and harsh acidic environment of the stomach. Those products that are more stable do not generally need to be kept in the fridge. They should also be able to survive the harsh acidic environment of the stomach to reach the small intestine intact. If in doubt, ask the company of any tests they have performed in this area. Blister packaging offers further protection against damage from fluctuating temperatures and moisture.

In 2009, McFarland²⁷ stated that there is still no consensus on the most effective dose of a probiotic. He highlights that the range of daily doses in clinical trials has ranged from 1×10^7 (10 million) to 1×10^{11} (100 billion) a day, and that a dose that is found to be effective for one probiotic strain may not be effective for another²⁸. We understand that effective dosage will differ between individuals, be dependent on their level of dysbiosis and the condition or imbalance being addressed. While eradicating pathogenic overgrowth from the body, one may experience a side-effect known as 'die off', which could be more severe when commencing probiotic intake with a higher dose. A multi-strain probiotic formula has been shown to be able to exert more positive benefits and reach more areas of the gastrointestinal tract, therefore being able to help a more diverse range of digestive disorders²⁹. ●



NATALIE LAMB, DIP, NT, MBANT, is a qualified Nutritional Therapist and member of BANT. Natalie saw clients in a private clinic in London for two years before joining Probiotics International Ltd (Protexin), manufacturers of Bio-Kult and Lepicol ranges.

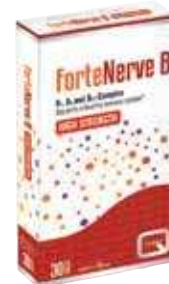


Lorisan Food Intolerance Test



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Convenient finger-prick blood test for Candida



A wide range of conditions are associated with Candidiasis, however, accurate diagnosis cannot be made on the basis of symptoms alone. Tests that can detect the presence of the *Candida albicans* organism remain the only method to diagnose an overgrowth in the

gut. Cambridge Nutritional Sciences (CNS) offers a finger-prick blood test that detects both IgM and IgG antibodies - elevated IgM levels indicate an early-stage infection, and elevated IgG levels indicate an active/on-going infection, or occurrence of a past infection, making it an effective diagnostic and monitoring tool. **For more information, contact CNS on 01353 863279 or visit www.camnutri.com.**

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Already a best-seller, this recent addition to Terranova's exciting range of fresh freeze dried botanical powders is a profoundly active and synergistic formulation for maintaining healthy detoxification processes, alkalising the body and providing a profound boost of live enzymes, vitamins, minerals and many other beneficial compounds. Gentle enough to use every day, this remarkably versatile product features 100% fresh freeze dried ingredients - Dandelion leaf, Watercress, Kale, Parsley, Beetroot juice, Beet greens, Burdock, Nettle, Turmeric, Artichoke leaf, Coriander leaf and Wheatgrass juice. Research shows freeze drying of plants to be superior to other drying methods in terms of activity, biochemical complexity, solubility and stability, as well as retaining plant enzymes.

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PRODUCT SPOTLIGHT

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The prevalence of impaired sexual function in post-menopausal women is believed to be between 68-86.5 per cent; causes vary and may be a result of a hormonal, neurologic, vascular or psychological nature. Three new clinical trials, involving 255 women, show the effectiveness of a new supplement in supporting and improving sexual function in healthy peri-menopausal, menopausal and post-menopausal women. All participants who supplemented with Lady Prelox® from Pharma Nord showed a significant improvement in desire, arousal, lubrication, orgasm and satisfaction, and also recorded less discomfort and pain during intercourse.

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New Spatone® Sport

Spatone® Sport has announced that it is the official supplement of Human Race, the UK's largest and most diverse mass participation sports events company in the UK, who organise more than 55 competitive events each year. Spatone Sport, which contains Spatone, iron-rich water sourced from the Welsh mountains of Snowdonia National Park, can help athletes top-up their iron levels to ensure they are able to keep up with their training plans and turn up on race day feeling good. The iron naturally present in Spatone has been shown to be easily absorbed, with up to 40 per cent bioavailability, compared to 5-20

per cent from food and other iron supplements. The additional vitamin C in a Spatone Sports' pack can increase iron absorption, to help ensure sufficient dietary intake of iron for active people. Vitamin C also contributes to a healthy immune and nervous system while supporting our energy metabolism, thus reducing tiredness and fatigue.



Health Plus Detox Pack

The fast pace of modern life and increased awareness surrounding toxicity issues for our water, food and air quality have led to many of our clients feeling concerned about how their bodies cope with this toxic overload. Many of them also remain confused as to which cleansing products are best suited to their needs. We rather like the fact that Health Plus has an advanced anti-pollutant formula, designed to remove toxins and heavy metals from the body's systems. The 28 day pack contains a daily combination of three tablets delivering antioxidants, L-cysteine and glutathione alongside other key nutrients. One way to help clients feel like they are giving their body a chance to clear unwanted harmful chemicals while they tidy-up their lifestyle!



"The CAM Awards are a fantastic initiative. It's a wonderful feeling to know that my work and endeavours were recognised by the judges. Thank you once again for choosing me"

Gaye Godkin, CAM Awards Outstanding Practice Winner 2013

"I was honoured to win the CAM Award for Outstanding Contribution to the Community and thoroughly recommend practitioners get involved in next year's awards"

Christian Bates, CAM Awards Outstanding Contribution to the Community Winner 2013

"The CAM Awards are a fantastic initiative for students of complementary medicine, I was delighted to win and recommend students get involved"

Justin Lusty, CAM Awards Student of the Year Winner 2013

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GET COOKING!

Spring is nearly here but while you wait for the warmer weather here are some hearty and wholesome meals to keep you well-nourished...

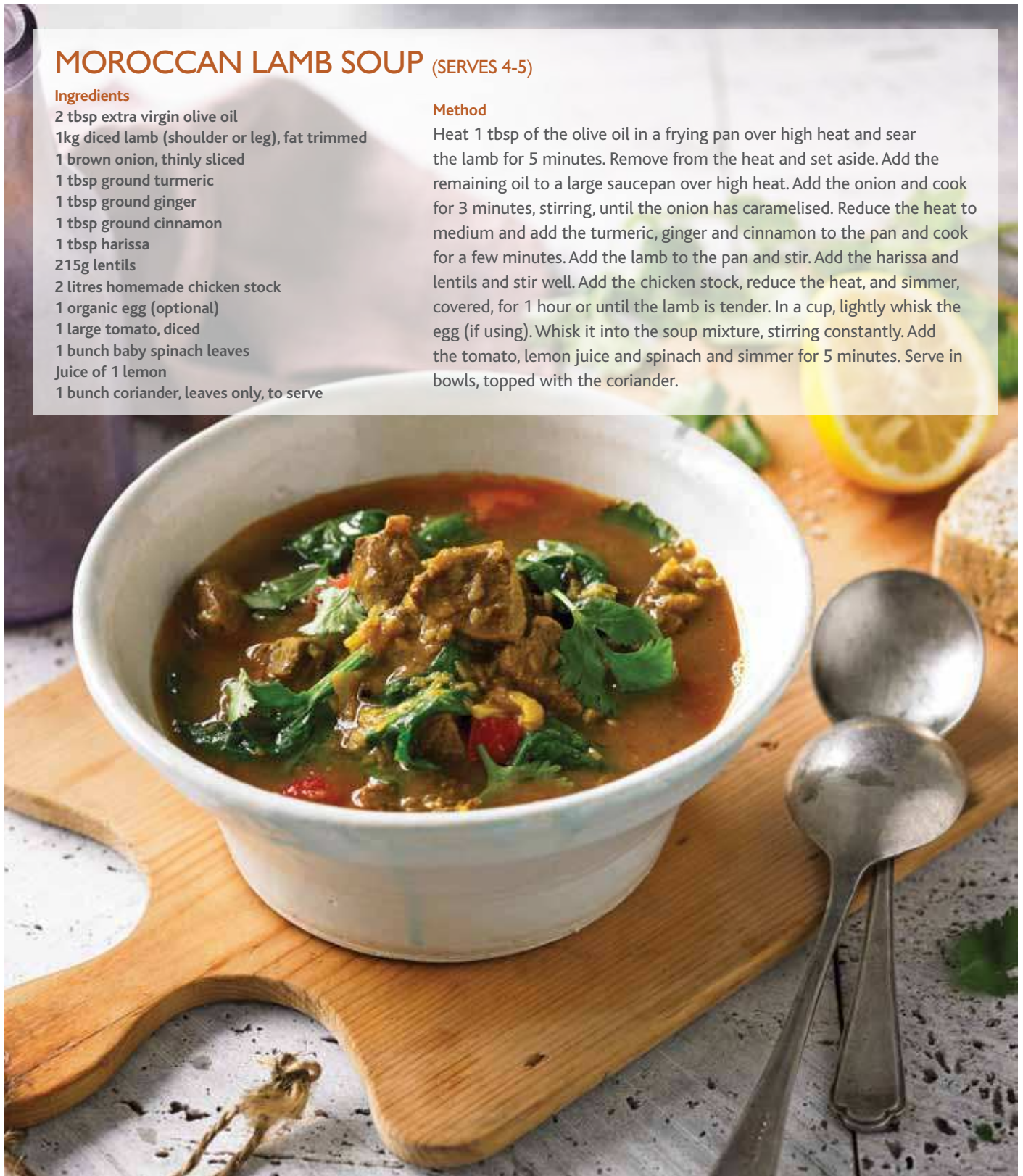
MOROCCAN LAMB SOUP (SERVES 4-5)

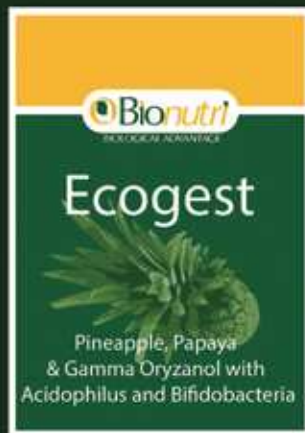
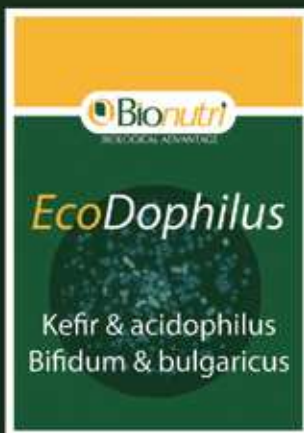
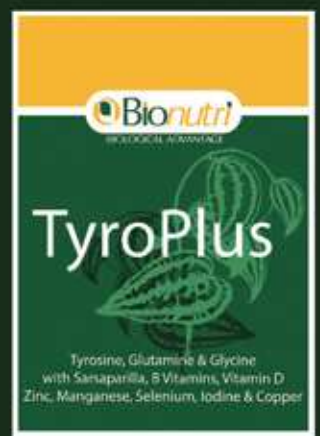
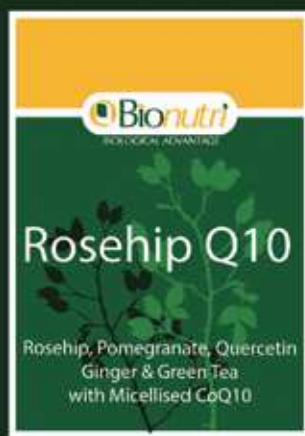
Ingredients

- 2 tbsp extra virgin olive oil
- 1kg diced lamb (shoulder or leg), fat trimmed
- 1 brown onion, thinly sliced
- 1 tbsp ground turmeric
- 1 tbsp ground ginger
- 1 tbsp ground cinnamon
- 1 tbsp harissa
- 215g lentils
- 2 litres homemade chicken stock
- 1 organic egg (optional)
- 1 large tomato, diced
- 1 bunch baby spinach leaves
- Juice of 1 lemon
- 1 bunch coriander, leaves only, to serve

Method

Heat 1 tbsp of the olive oil in a frying pan over high heat and sear the lamb for 5 minutes. Remove from the heat and set aside. Add the remaining oil to a large saucepan over high heat. Add the onion and cook for 3 minutes, stirring, until the onion has caramelised. Reduce the heat to medium and add the turmeric, ginger and cinnamon to the pan and cook for a few minutes. Add the lamb to the pan and stir. Add the harissa and lentils and stir well. Add the chicken stock, reduce the heat, and simmer, covered, for 1 hour or until the lamb is tender. In a cup, lightly whisk the egg (if using). Whisk it into the soup mixture, stirring constantly. Add the tomato, lemon juice and spinach and simmer for 5 minutes. Serve in bowls, topped with the coriander.





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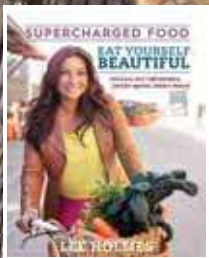
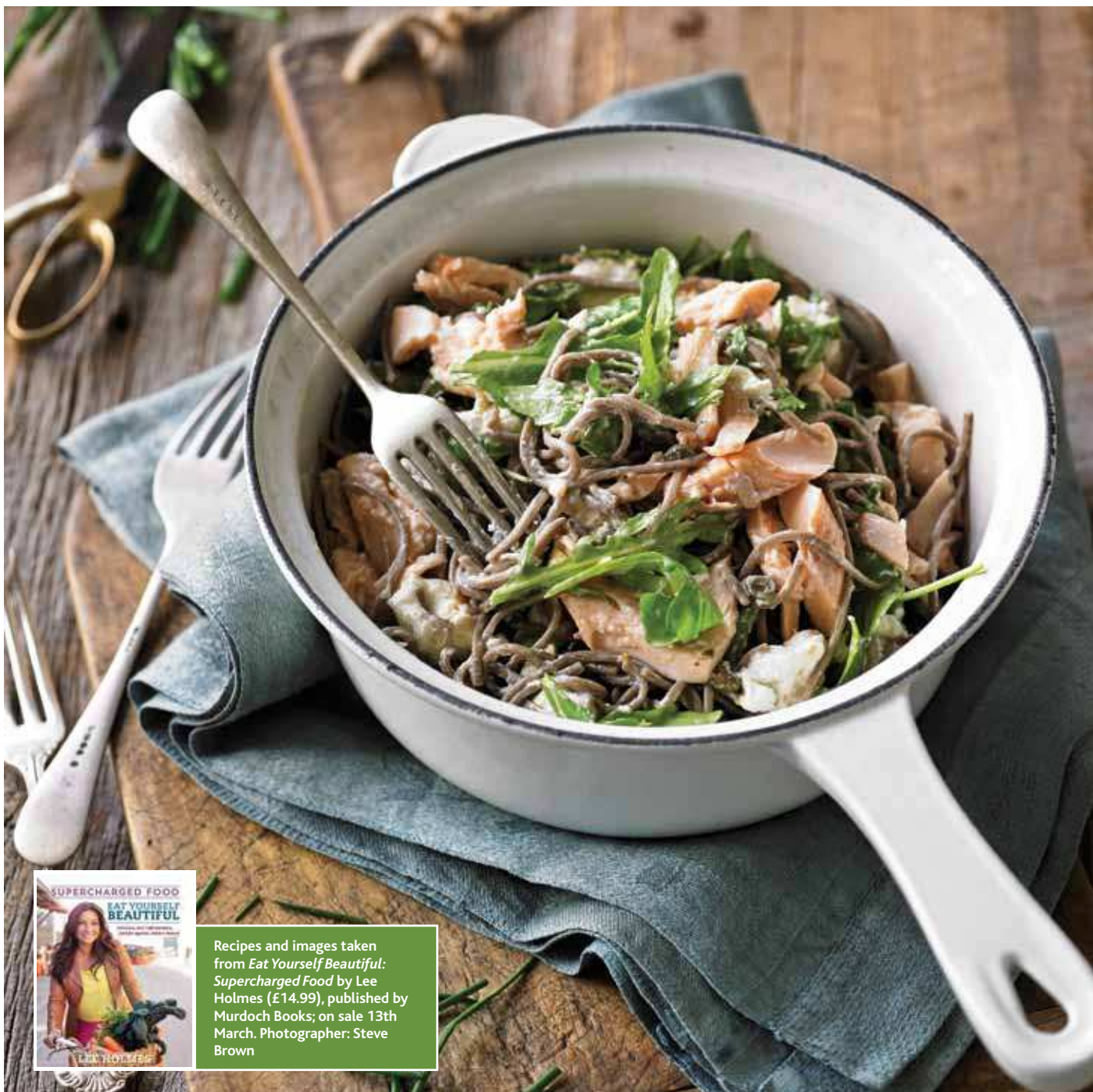
The University of Westminster has added a new route – Nutritional Therapy Practice – to its two-year, part-time MSc Nutritional Therapy programme. This option offers graduates who have studied nutrition as a significant component of their undergraduate programme, but who do not have the skills for nutritional therapy practice, an opportunity to train as practitioners. By taking this module, graduates will integrate their knowledge and understanding of health sciences and nutrition with training in consultation skills. They will then be encouraged to take the Clinical Reasoning module to support their development as practitioners. Graduates who complete the full MSc programme can join the British Association for Nutritional Therapy & Applied Nutrition (BANT) at practitioner entry level (subject to accreditation).

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Visit: <http://www.westminster.ac.uk/courses/subjects/complementary-medicine/postgraduate-courses>

Contact: Jane Nodder, MSc Course Leader
 (j.c.nodder@westminster.ac.uk).



Recipes and images taken from *Eat Yourself Beautiful: Supercharged Food* by Lee Holmes (£14.99), published by Murdoch Books; on sale 13th March. Photographer: Steve Brown

BUCKWHEAT PASTA WITH FLAKED TROUT (SERVES 2)

Ingredients

- 1 generous-sized fresh trout fillet
- 125g uncooked buckwheat pasta
- 2 organic egg yolks
- Zest and juice of 1 lemon
- Celtic sea salt
- Freshly ground black pepper
- 1 1/2 tbsp salted baby capers, rinsed
- 2 tbsp extra virgin olive oil, plus extra, to serve
- 2 large handfuls of baby rocket
- 2 tbsp finely chopped chives
- 90g crumbled goat's cheese

Method

Line a bamboo steamer with baking paper and steam the trout over a saucepan of gently simmering water for 5–6 minutes, or until the fish flakes when gently touched with a fork. Remove from the steamer, flake the flesh apart with a fork, removing any bones, and set aside. Cook the pasta according to the packet instructions and strain using a colander, reserving a little of the cooking water in the saucepan. Return the pasta to the

saucepan and quickly stir through the egg yolks, lemon juice and zest, and a generous pinch of Celtic sea salt and pepper. Gently stir through the flaked trout and capers and add the olive oil. To serve, mix the rocket, chives, goat's cheese and extra olive oil, if desired, through the pasta and pop a wedge of lemon on the side. It's delicious served with a simple green salad.



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Hippocrates

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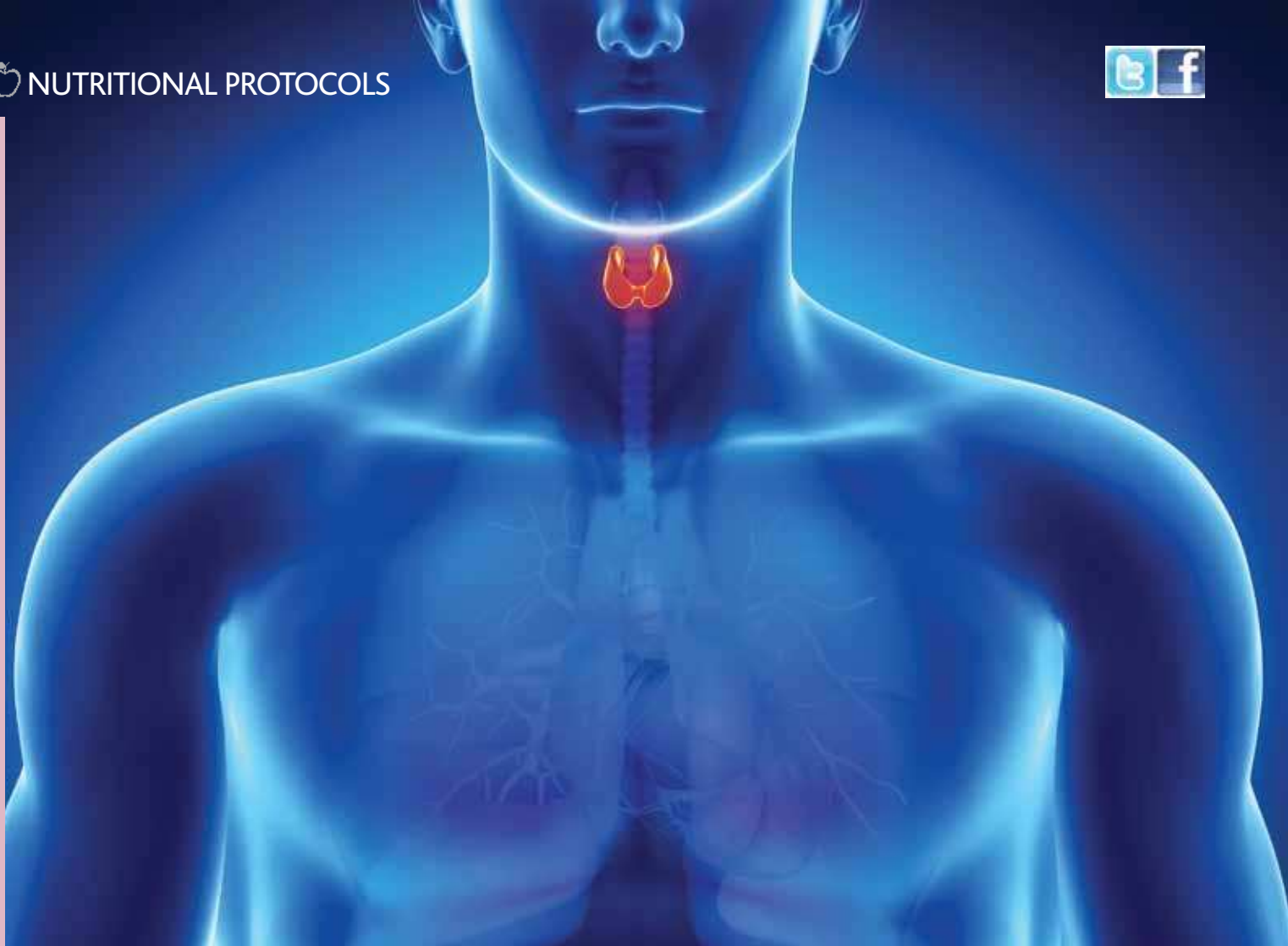
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Hypothyroidism

Spotting symptoms and lifestyle factors for an underactive thyroid is commonplace in a nutritional therapy consultation. **Chris Newbold** highlights effective ways to deal with this endocrine disorder...

Hypothyroidism is one of those endocrine conditions that is at least widely-recognised by the medical community. As a result of their conservative approach to testing, though, sub-optimal hypothyroidism is probably widespread, and can often be part of the disrupted energy and endocrine picture with which clients present.

Hypothyroidism is an increasingly prevalent disease involving the malfunction, resistance or insufficient production of thyroid hormones. The most commonly diagnosed form of non-autoimmune hypothyroidism is primary hypothyroidism,

which involves under-production of T4, resulting in over-stimulation of TSH. There are also autoimmune thyroid conditions such as Hashimoto's thyroiditis, that often result in hypothyroidism, although some sufferers exhibit periods of hyperactive thyroid function.

PATHOPHYSIOLOGY

The thyroid is of central importance in many aspects of physiology and metabolism. Thyroid hormones control how quickly the body metabolises energy at the cellular level, by increasing ATP production in the mitochondria¹. Thyroid activity can alter

basal metabolic rate by as much as 50 per cent in either direction.

The principal thyroid hormones are thyroxine (T4) and triiodothyronine (T3), which are synthesised from tyrosine and iodine molecules. T3 is the most bioactive thyroid hormone and is produced through the metabolism of T4 in the thyroid, other organs and peripheral tissues by deiodinases, which require selenium, zinc and copper as cofactors^{2,3}.

Conversion of T4 to T3 is affected by a number of factors, such as high free radical activity, heavy metal toxicity (especially cadmium, mercury and lead), mineral deficiency (selenium, zinc, iron or copper),

FACTS AND FIGURES

1. It's estimated that 20 per cent of the UK population may be suffering from some degree of hypothyroidism.
2. An under-active thyroid is seven times more common in women than men.
3. Nutrients such as selenium, zinc, copper and tyrosine play an important role in thyroid activity.

low protein and/or excess carbohydrates, excess fatty acids, excess cortisol, diabetes and compromised liver function.

UNDERSTANDING REVERSE T3

Sometimes the body converts T4 to 'Reverse T3' (RT3) to conserve energy. This process is increased by chronic physical or emotional stress, adrenal fatigue, low ferritin levels, acute illness and injury, yo-yo dieting and chronic inflammation, among other factors. RT3 can block thyroxin receptors and cause a type of hypothyroidism, even when thyroxin levels look adequate on testing.

OTHER IMPORTANT INTERACTIONS

There are interactions with adrenal and blood glucose function. Cortisol reduces thyroid activity by reducing stimulation of the thyroid gland through decreased output of TSH from the pituitary⁴. Even changes in cortisol within normal range can cause significant alterations in thyroid hormones⁵. Research has shown that insulin resistance may be a risk factor for thyroid dysfunction⁶. There is also a strong link between gluten intolerance^{7,8} and autoimmune thyroid conditions.

IDENTIFYING SYMPTOMS

The wide range of metabolic activity regulated by thyroid hormones means that the symptom pattern is broad when its activity is disrupted. Tiredness is a major symptom. Also associated with this condition is slowness in body and mind,

headaches, muscle aches and weight gain. Sensitivity to cold and cold hands and feet can result from the increased metabolic rate. There can be constipation, depression, dry skin and thinning hair, high cholesterol, infertility and irregular periods. If untreated, the voice can be affected (low-pitched and hoarse), puffy-looking face with dull facial expressions, and slow heart rate.

MEDICAL MANAGEMENT

Thyroid function tests are often conducted, and look at levels of Thyroid-Stimulating Hormone (TSH) and thyroxine. Sometimes levels of thyroid antibodies are also assessed if autoimmunity is suspected. The reference range for TSH and T4 is very wide, meaning that a patient could have a very low thyroid output along with multiple symptoms, yet still be classified as 'normal'. An underactive thyroid (hypothyroidism) is usually treated by prescription of levothyroxine.

NUTRITIONAL INTERVENTION

As always, we should treat the individual as a whole, and this is even truer for hypothyroidism. Given the interactions between blood sugar, adrenal and cellular energy regulation, a key part of treating hypothyroidism is to stabilise blood sugar and adrenal function. So consider adrenal support, including adaptogens like ginseng⁹ or cortisol-sparing herbs like liquorice¹⁰. As with all hormone systems, antioxidants like vitamins A, C, E, and minerals zinc and selenium protect hormones and receptors from oxidative stress.

Thyroid hormone synthesis can be stimulated using tyrosine - a precursor to thyroid hormones - and a useful support for adaptation to stressful situations¹¹. Iodine is a component of T3 and T4^{12,13} and deficiency is linked to hypothyroidism¹⁴. Three different selenium-dependent iodothyronine deiodinases (types I, II and III) can activate and deactivate thyroid hormone by acting on T3, T4, or other metabolites¹⁵. Selenium deficiency can exacerbate the effects of iodine deficiency and excess. Thyroid hormones affect zinc metabolism, and deficiency affects thyroid hormone levels' function¹⁶. If the hypothyroidism is due to autoimmunity,

iodine can still be beneficial in autoimmune hypothyroidism¹⁷. Optimise selenium levels, as it has been shown to reduce several markers of disease¹⁸. Low levels of vitamin D have been found in patients with autoimmune thyroid diseases¹⁹.

ADJUNCTS

Ensure that exposure to xenobiotics – e.g. washing powders, phthalates, cigarette smoke, fire retardants and UV sunscreens – are under control as they are goitrogenic, or suppress HPA axis or uptake of T4 and T3²⁰. Decrease environmental exposures to halides (fluoride/chloride), as they compete with iodine²¹. Manage stress levels with techniques such as meditation, yoga and mindfulness. Reduce alcohol as it affects thyroid gland function²². Possibly avoid goitrogen-containing foods such as soybeans. And gluten avoidance can help in many cases, especially if there is auto-immune thyroid disease²³.

Recognised and unrecognised thyroid dysfunction is widespread and should be considered when assessing and treating clients. Fortunately there is much that nutritional and other therapies can offer to improve the situation. ●

NUTRITION PROTOCOLS

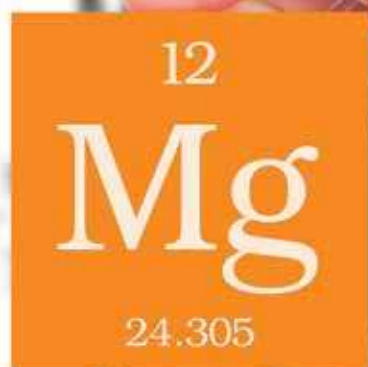


For more specific advice on protocols for your clients, you can call Clinical Nutrition on 0121 433 8702. You can find protocols, research summaries and much more on the BioCare website when logged in as a practitioner.

CHRIS NEWBOLD

Chris worked in the NHS for 12 years before defecting to nutritional therapy. Utilising his wide variety of healthcare experience, he ran a busy practice in Birmingham before working for BioCare as a Technical Advisor. He is Head of Clinical Nutrition at BioCare, overseeing education, the clinical nutrition support line and lecturing widely on a wide range of subjects.





Magnificent Magnesium

Magnesium has a whole host of vital roles in the body, but many of us are deficient. In fact, according to official government statistics, virtually ALL of us are deficient! **Rachel Bartholomew** reviews the facts about magnesium...

When you consider that magnesium is actually the second most abundant

intracellular cation, and fourth most prevalent in terms of concentration in the body, it's a staggering thought that deficiency is so commonplace. Such widespread low levels haven't happened overnight though; it's taken years to get to this point, and will likely take considerable time (and a significant shift in eating habits) to correct en masse.

In theory, it should be possible to achieve optimal amounts of magnesium from dietary sources alone. Magnesium is ubiquitous in whole foods, especially those of plant origin, as it is an essential component of chlorophyll. Magnesium is found in vegetables (especially broccoli, squash and leafy greens), unrefined grains, nuts (especially cashews) and seeds (especially sesame), beans and peas. Water with a high mineral content, or 'hard' water, is also a source

of magnesium, thus intakes can vary greatly depending on where you live. So, if magnesium is naturally present in so many sources, why is deficiency so prevalent today?

ARE REFINED FOODS TO BLAME?

Virtually the entire UK population is not meeting the RDA for magnesium, and many experts believe that even the RDA may be too low³⁻⁵. Magnesium-rich whole foods simply don't feature regularly in the average Western diet⁶⁻⁸. More often, highly-refined foodstuffs which tend to lose minerals like magnesium during processing techniques make up the bulk of the diet. Other Western dietary choices also conspire against magnesium; for example, fizzy drinks contain phosphates, which can bind with magnesium inside the body and render it unavailable. The average consumption of carbonated beverages is estimated to be ten times what it was in 1940.

WHAT ABOUT LIFESTYLE FACTORS?

The typical Western lifestyle is a significant drain on the body's magnesium resources. Large amounts of magnesium are used up when blood sugar levels are out of balance, when lack of sleep is the norm and during the stress response too. The body's (already significant) requirements for magnesium increase even further as a result of a typical 21st century, high-octane lifestyle.

PERHAPS IT'S THE SHORTAGE IN SOILS...

Magnesium shortage in soils has become a common problem globally. Soils can become low in magnesium when we water or irrigate. Magnesium is water-soluble and gets leached to the lower layers of the soil easily. In 2004, the *Journal of the American College of Nutrition* released a study which compared modern-day nutrient content of crops with 1950 levels. Declines were found to be as much as 40 per cent⁹.

CLINICAL APPLICATION AND EVIDENCE

Magnesium plays a critical role in over 300 enzyme functions, and subsequently a large number of vital cellular processes, including oxidative phosphorylation, glycolysis, DNA transcription and protein synthesis². Many of the health symptoms and problems that occur as a result of magnesium deficiency are, at least in part, due to alterations to magnesium-dependent enzyme systems. It will come as no surprise then that the potential clinical applications of magnesium supplementation are widespread. There is an abundance of research backing the benefits of magnesium.

Heart disease

The link between magnesium and cardiovascular health has been extensively studied¹⁰. Most recently, researchers have found dietary magnesium intake to be inversely associated with mortality risk in a Mediterranean population at high risk of cardiovascular disease¹¹.

The 2013 Framingham Heart Study found magnesium to be inversely associated with coronary artery calcification, "which may play a role in magnesium's protective associations in stroke and fatal coronary heart disease"¹². And a 2013 study published in the *Journal of Nutrition and Metabolism* found the Mediterranean diet increased serum magnesium and concluded it to be cardio-protective as a result¹³.

Blood sugar

In a 2007 meta-analysis, involving a total of 286 668 participants, researchers found magnesium intake to be inversely associated with the incidence of type 2 diabetes. The researchers concluded that increased consumption of magnesium-rich foods may reduce the risk of type 2 diabetes¹⁴⁻¹⁵.

Additional studies have found low magnesium to be associated with poor glycaemic control in diabetes¹⁶, disturbances in glucose transport, insufficient formation and secretion of insulin by the pancreas¹⁷, alterations in the insulin-signalling pathway and increased insulin resistance.¹⁸

A 2014 study published in the *Journal*

of Diabetes found low serum levels of magnesium in children and adolescents, with type 1 diabetes to be associated with increased risk for poor glycaemic control, potentially contributing to the early development of cardiovascular complications¹⁹.

Vitamin D

An interesting link is beginning to emerge between reduced risk of vitamin D deficiency and high magnesium intakes²⁰; further work needs to be carried out to establish a definite link.

Eye health

Less well-known is the link between magnesium deficiency and ophthalmic diseases. In a 2013 review, the authors concluded, "magnesium deficiency is a contributing factor in increased oxidative stress and inducible NOS stimulation that can further contribute to the initiation and progression of ocular pathologies such as cataract, glaucoma and diabetic retinopathy."²¹

Other relevant links

Studies have also linked magnesium deficiency with sleep disorders²², migraine headache²³, PMS^{24,25}, autism²⁶, chronic fatigue syndrome²⁷, and possible factors associated with tumour formation²⁸. Research shows supplementation with magnesium can help to improve energy levels and support optimal muscle function. Supplementation with magnesium has been shown to improve exercise training and performance, and reduce muscle cramps and spasms in several studies²⁹⁻⁴⁰.

SUPPLEMENTATION

Global shortages of magnesium in soil make it a challenge to achieve optimal intakes of magnesium through dietary sources alone. Fortunately, magnesium supplementation is relatively inexpensive, very safe and a highly-effective way to improve many symptoms of magnesium deficiency⁴¹. Studies suggest at least 300mg is required to significantly increase plasma levels⁴². Therefore most people would need to increase their daily magnesium intake by at least 300mg in addition to their usual diet⁴³. Typical dosages in clinical studies range from 200-600mg a day⁴⁴.

WHICH FORM?

Magnesium glycinate is a unique form whereby a single magnesium ion is bound by covalent bonds to two molecules of glycine. This is the form that is best tolerated by the gastrointestinal system, and also most easily absorbed through amino acid absorption channels. Salts such as citrate, sulphate and oxide dissociate easily in the gut, leaving free magnesium, which can attract water and cause discomfort and diarrhoea. These forms are also less easily absorbed through competitive mineral absorption channels.⁴⁵ Although side-effects are unlikely, in some people magnesium might cause stomach upset, nausea, vomiting, diarrhoea, and other mild side-effects, some of which may be associated with the lesser tolerated forms of magnesium⁴⁶.

TAKE NOTE...

The kidneys play a large part in maintaining magnesium balance, by regulating its reabsorption. People with kidney problems should therefore avoid magnesium supplementation, as they may have trouble clearing extra magnesium from the body⁴⁶. As with all supplements, magnesium may interact with some prescription medication, therefore it is always important to check for potential interactions, with a GP if necessary, before making any recommendations.

There are many words you could use to describe magnesium, yet magnificent seems to fit best. With increasingly low intake levels, intensive farming practices and typically poor food choices, the current outlook for this essential mineral is fairly bleak. Perhaps we need to work together to bring about a much brighter picture, where magnesium takes centre stage. Food for thought. ●

RACHEL BARTHOLOMEW

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www.rachelbartholomew.co.uk



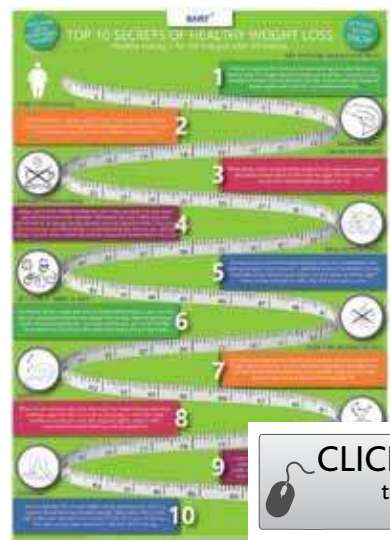
BANT UPDATE

BANT is the most important professional body for Nutritional Therapists, assisting members in attaining the highest standards of integrity, knowledge, competence and professional practice. BANT has its finger on the pulse for any changes or new developments within this dynamic profession. The latest news from BANT...



Download BANT's weight loss infographic

BANT has launched a fantastic tool for Nutritional Therapists to use in their clinics to help bring their advice to life. The Top 10 Secrets of Healthy Weight Loss sets out the crucial steps for weight loss clients to follow as they embark on their journey to a healthier life.



[CLICK HERE to download](#)

Regenerus Laboratories offers bigger discount for BANT members

BANT has negotiated a further five per cent discount on testing with Regenerus Laboratories for its members. The discount will cover all tests offered by Regenerus, apart from Cyrex Laboratory tests, shipping and phlebotomy fees, and is effective immediately.

UNHEALTHY BRITS ARE STILL SHUNNING VEGGIES

Veggie-shy Brits are still not meeting the five-a-day message more than 10 years since the campaign was launched, a survey of more than 2000 people has revealed. Only 10 per cent of those surveyed were tucking into five portions of vegetables or more on an average day, and a shocking six per cent were eating no vegetables at all. The comparison across the regions was even more disturbing, with 11 per cent of those in the North East consuming no vegetables, compared to three per cent in London. The survey also showed that only four per cent of students consumed five or more portions of vegetables a day, compared with 10 per cent of those who work. BANT says that the results of the survey are extremely concerning, as a healthy intake of vegetables should be closer to seven-a-day, with just a couple of portions of fruit.

BANT Chair Miguel Toribio-Mateas, said: "Nutritional Therapists play a key role in getting the message across to the public that eating more vegetables is essential for long-term health. Research has shown a correlation between mortality rates and lower consumption of these types of foods. The idea that fruit and vegetables are interchangeable is no longer supported by current evidence, with vegetables being much more nutrient-dense than fruit, gram per gram. Explaining to people that fruit contains valuable nutrients, but can be high in sugar, is something we need to focus

Regional Survey Result

Region	% Nil Veg	GDHI Position*
London	3.5%	1
South West	3.8%	4
North West	4.6%	7
Yorkshire & Humber	5.5%	10
East of England	5.6%	3
East Midlands	6.0%	6
West Midlands	6.2%	8
Wales	6.4%	9
South East	7.6%	2
Scotland	9.1%	5
North East	10.6%	11

*GDHI – Gross Disposable Household Income. All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 2222 adults. Fieldwork was undertaken between 11 - 13th December 2013. The survey was carried out online. The figures have been weighted and are representative of all GB adults (aged 18+).

on to create the necessary shift from a fruit-heavy five-a-day, to a healthier, vegetable-heavy seven-a-day."

The YouGov survey suggests that the East of England is the 'healthiest' region in the country for getting their five-a-day, though even there only 13 per cent are hitting those levels. Participants in the North East and South West had the poorest intake of vegetables, with just six per cent consuming their five-a-day or more.



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In The Media



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CPD DIRECTORY

If you need to top up on CPD credits then here are all the available courses scheduled for the next three months...

DATE	EVENT	COURSE TITLE	SPEAKERS	VENUE	PRICE	CPD	INFO AND BOOKING
MARCH 2014							
04.03.14	Lamberts	Healthy Ageing	Lorraine Nicolle, Shoela Detsios, Katie Sheen	London	£30	BANT 6 Hours	Tel: 01892 554358 www.lambertshealthcare.co.uk
15.03.14	BioCare	Energise! - Optimising the Energy and Endocrine System for Energy Balance	Alessandro Ferretti	Berkshire	Free	BANT 5 Hours	Email: education@biocare.co.uk Tel: 0121 433 8774
06.03.14	BioCare	Tired All the Time?	Dr Roderick Lane	Manchester	Free	N/A	Email: education@biocare.co.uk Tel: 0121 433 8774
07.03.14	British Society for Ecological Medicine	Electromagnetic Radiation and Health	TBA	London	£150	BANT 6 Hours	Email: info@bsem.org.uk Tel: 07864 637 723
08.03.14	Nutri Healing	Practical Applications for NPL Therapists	Alma Griffith	London	£185	BANT 5 Hours	Tel: 01737 812498
12.03.14	Lamberts	Healthy Ageing	Lorraine Nicolle, Shoela Detsios, Katie Sheen	Newcastle	£30 includes £30 product voucher	BANT 6 Hours	Tel: 01892 554358 www.lambertshealthcare.co.uk
12.03.14	CNELM	Food Reactivity Disorders	Dr Tom O'Bryan	Berkshire	Approx £75	BANT 6 Hours	Email: info@cnelm.co.uk Tel: 01189 9798686
15.03.14	CAM Conferences in collaboration with BANT	BANT AGM / Cardiovascular Health Conference 	Philip Ridley, Prof Svend Aage Mortensen and Paul Clayton	London	£78 inc VAT BANT members 15% disc Students 10% disc	BANT Hours pending 5 Hours FNTF	Email: info@targetpublishing.com Tel: 01279 810080 www.camconferences.com
16.03.14	Nutri-Link	Profitable Practice	Antony Haynes, Mike Ash	London	£185 + VAT	BANT 6 Hours NNA	Contact Clare Tel: 08450 760402
16.03.14	Nutri-Link	Detoxification and Biotransformation	Christine Bailey	London	£80 + VAT		Contact Clare Tel: 08450 760402
19.03.14	Lamberts	Healthy Ageing	Lorraine Nicolle, Shoela Detsios, Katie Sheen	Cheltenham	£30 includes £30 product voucher	BANT 6 Hours	Tel: 01892 554358 www.lambertshealthcare.co.uk
20.03.14	BioCare	Energise! – Optimising the Energy and Endocrine System for Energy Balance.	Alessandro Ferretti	York	Free	BANT 5 Hours	Email: education@biocare.co.uk Tel: 0121 433 8774
20.03.14	Lamberts	Healthy Ageing	Lorraine Nicolle, Shoela Detsios, Katie Sheen	London	£30 includes £30 product voucher	BANT 6 Hours	Tel: 01892 554358 www.lambertshealthcare.co.uk
21.03.14	BioCare	Energise! – Optimising the Energy and Endocrine System for Energy Balance.	Alessandro Ferretti	Edinburgh	Free	BANT 5 Hours	Email: education@biocare.co.uk Tel: 0121 433 8774
23.03.14	Nutri-Link	Gastro-Intestinal Functionality Workshop	David Quig, Mike Ash, Antony Haynes	London	£49 + VAT Practitioners £36.75 + VAT Student	BANT 5.5 Hours NNA 6 Hours	Contact Clare Tel: 08450 760402

27.03.14	Lamberts	Healthy Ageing	Lorraine Nicolle, Shoela Detsios, Katie Sheen	Suffolk	£30 includes £30 product voucher	BANT 6 Hours	Tel: 01892 554358 www.lambertshealthcare.co.uk
28.03.14	BioCare	Sports Nutrition in Practice	Mark Robertson	Birmingham	Free	BANT 2.5 Hours	Email: education@biocare.co.uk Tel: 0121 433 8774
29.03.14	ION	Healing Foods for Digestive Health	Belinda Blake, Nicola Moore	Richmond	£80, Students £60	BANT 4.5 Hours	Email: shoutcourse@ion.ac.uk Tel: 0208 8614 7800
29.03.14	Nutri-Link	Clinical Trinity 1	Michael Ash, Antony Haynes	London	£39 + VAT	BANT 3 Hours	Email: claireg@nutri-linkltd.co.uk Tel: 08450 760 402
29.03.14	Nutri-Link	Clinical Trinity 2	Michael Ash, Antony Haynes	London	£39 + VAT	BANT 3 Hours	Email: claireg@nutri-linkltd.co.uk Tel: 08450 760 402
31.03.14	BioCare	Sustainable Medicine - Whistle Blowing on the Medical Profession	Dr Sarah Myhill	London	£75, Students £60	TBC BANT 5 Hours	Email: education@biocare.co.uk Tel: 0121 433 8774

DATE	EVENT	COURSE TITLE	SPEAKERS	VENUE	PRICE	CPD	INFO AND BOOKING
APRIL 2014							
05.04.14	Nutri-Link	Profitable Practice	Antony Haynes	London	£185	BANT 4.5 Hours	Email: claireg@nutri-linkltd.co.uk Tel: 08450 760 402
25-26.04.14	CNELM	Day 1, 2 and 3 Personalised Sports Nutrition - 9 Day Module	Ian Craig, Adam Carey	Berkshire	£50 per day, Students £40 per day £105 for 3 or more days booked	BANT Listed Training	Email: info@cnelm.co.uk Tel: 01189 9798686

DATE	EVENT	COURSE TITLE	SPEAKERS	VENUE	PRICE	CPD	INFO AND BOOKING
MAY 2014							
09-12.05.14	CNELM	Day 4, 5 and 6 Personalised Sports Nutrition - 9 Day Module	Christine Bailey, Ian Craig	Berkshire	£50 per day, Students £40 per day £105 for 3 or more days booked	BANT Listed Training	Email: info@cnelm.co.uk Tel: 01189 9798686
10.05.14	CAM Conferences in collaboration with BANT	Anti-Ageing 	Tom Fox, Miguel Toribio-Mateas, Dr Robert Marshall, Dr Susan Downs	London	£78 inc VAT, BANT members 15% disc, Students 10% disc	BANT Hours pending	Email: info@targetpublishing.com Tel: 01279 810080 www.camconferences.com
23-25.05.14	CNELM	Day 7, 8 and 9 Personalised Sports Nutrition - 9 Day Module	Tom Fox, Pete Williams, Christine Bailey	Berkshire	£50 per day, Students £40 per day £105 for 3 or more days booked	BANT Listed Training	Email: info@cnelm.co.uk Tel: 01189 9798686
28-30.05.14	Functional Sports Nutrition Academy	Functional Sports Nutrition Academy	Ian Craig, Cain Leatham, Umahro Cadogan	London	£699 inc VAT	BANT and REPs Pending	Email: info@targetpublishing.com Tel: 01279 810080 www.camconferences.com
31.05.14	Sports Nutrition Live!	Sports Nutrition Live!	Ian Craig, Cain Leatham, Pete Williams, Umahro Cadogan	London	£99 inc VAT, £84.14 Prev Attendee and Association Member	BANT and REPs Pending	Email: info@targetpublishing.com Tel: 01279 810080 www.camconferences.com



EDUCATION NEWS

Time for you to book: big five CAM Conferences are filling up

Big-name established speakers and new faces alike are signed up for the 2014 series of CAM Conferences in collaboration with BANT (British Association for Applied Nutrition and Nutritional Therapy) and supported by Platinum sponsors PRL.



Dr Tom O'Bryan, DC, a world authority of gluten and auto-immunity, Louise Carder, BA (Hons), a Nutritional Therapist and independent Practitioner Consultant for the healthcare industry, gut expert Dr Natasha Campbell-McBride, MD, and auto-immune expert Antony Haynes, BA(Hons) DiplON mBANT, are all confirmed for September's conference on Auto-Immunity.

Other speakers include Nutritional Therapist and former intensive therapy Nurse Anne Pemberton, who will be speaking on the role of bile and the gall bladder in detoxification, BANT Chairman Miguel Toribio-Mateas, MSc, Fellow of the American Academy of Anti-Aging Medicine; Dr Robert Verkerk, PhD, Scientific Director of the Alliance for Natural Health, and Dr Robert Marshall, PhD, Founder of Premier Research Labs (PRL) and a world expert on cellular resonance. Dr Marshall is sure to transmit his enthusiasm and excitement about this field; as PRL puts it: "Exciting research over the last 15 years has shown that the outer membrane structure of every cell in your body is a unique, semicrystalline matrix. This means that every one of the trillion plus cells in your body has an ideal resonant frequency, much like a crystal glass that rings its own special note when struck. The consequences of this stunning discovery of resonant frequencies are enormous. It is a secret key that unlocks

the hidden door to why some people can quickly shift to great health – and others can't. This discovery reveals why the ideal resonant frequency of each cell can only be sustained or regained by consuming nutrients that are also at their ideal resonant frequencies. This dynamic interaction between the cell and the nutrient creates a highly beneficial, harmonic resonant effect in which the cell is able to ingest not only the nutritional factors, but can also absorb the higher resonant frequencies embedded in the nutrient."

Presenting at Cardiovascular Health in March are Prof Paul Clayton, Fellow of the Institute of Food, Brain and Behaviour (Oxford), visiting Professor at the University of Pecs (Hungary) and a member of the Board of the Medical Academy of the Russian Federation; Philip Ridley, Director of the Weston A. Price Foundation's annual European conference; and Prof Svend Aage Mortensen from Copenhagen, lead researcher on a recent study that identified CoQ10 as "the first drug to improve heart failure mortality in over a decade".

Joining Miguel and Dr Marshall for the Anti-Ageing focus in May are Heilpraktiker Tom Fox, researcher in the field of exercise and sports and Psychiatrist Dr Susan Downs, MD, MPH, President of the Silicon Valley Health Institute. In June, Anne Pemberton and Robert Verkerk's fellow-presenters are integrated

health and ecological medicine specialist Dr Rajendra Sharma, MB, BS, MFHom and Cell Symbiosis Therapy Practitioner Gillian Crowther, MA (Oxon).

In November, Umahro Cadogan and Charlotte Watts will join the team presenting on the Gut/Brain axis. Umahro has lectured extensively for more than a decade within the functional medicine world on the intricate role that nutrition, biochemistry and genomics play in creating 21st century healthcare. He runs a busy practice in Copenhagen and lectures internationally to both healthcare professionals and patient groups.

Charlotte Watts, DiplON, was our CAM Award winner for Outstanding Practice in 2012. A Nutritional Therapist with more than ten years' experience and a yoga teacher, she is the Author of *The De-Stress Diet* and has lectured for top UK nutritional colleges.

Log on to www.camconferences.com or telephone 01279 810080 to book your place.

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ACG Glutathione[®] Extra Strength

- 95%+ Bioavailability
- Increases GSH levels 10-12%
- Independently tested
- Easy to take
- Tastes great

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Altrient™ High Performance Liposomal Vitamin C

- Contributes to the protection of cells from oxidative stress
- Contributes to the reduction of tiredness and fatigue
- Contributes to the normal function of the immune system
- May support optimal overall health
- Supports Paleo, Zone and Vegan diets

Altrient™ High Performance Liposomal GSH Glutathione

- Provides 98% bioavailability
- Provides 450mg of reduced Glutathione
- May support optimal overall health
- Supports Paleo, Zone and Vegan diets
- Contains no sugar, yeast, starch or glutens

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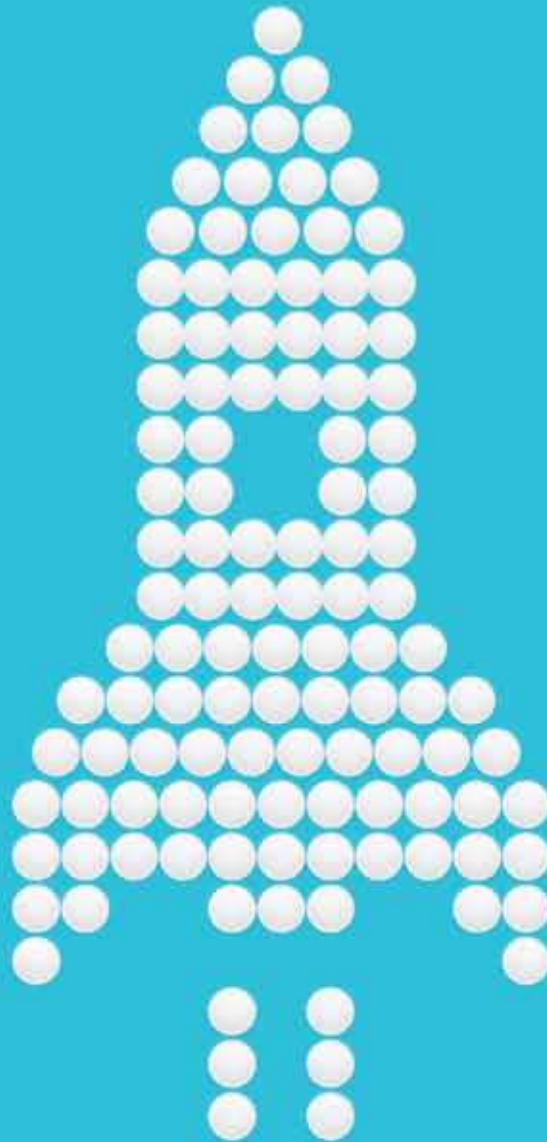
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