Conference Report

Brain health and the means of influencing it with nutraceuticals were some of the central topics at the 8th Annual Conference of the European Nutraceutical Association (ENA). The Klinikum rechts der Isar in Munich (Medical School of the Technical University Munich), Germany provided a modern and comfortable atmosphere for a keenly interested audience, senior scientists from various European and international universities and young scientists with posters who came together for a demanding programme.

The subject of brain health was accorded special relevance because, according to experts’ estimates, neurological diseases and cognitive disorders could develop into the world’s number two illnesses after cardiovascular disease until 2020.

The outstanding importance of nutrition was illuminated from several angles.

**Prof Michael Crawford**, from Imperial College in London and one of the pioneers of neurological omega 3 research, focused on the relationship between maternal nutrition during pregnancy and lactation. While an infant’s skull is virtually the same size as an adult’s, the development of a child’s brain cannot be made good in later life. In the event of poor nutrition before and during pregnancy, the consequences for mental disorders, cognitive, learning and behavioural deficits and dementia in old age are pre-programmed, especially for premature babies. For instance, nutrition for preterm babies must be critically re-examined. There are clear indications that it does not satisfy the actual requirements (it should be based on the placental nutrition mix). These connections must be taken particularly seriously in view of the continuously growing incidence of mental disorders and brain diseases.

**Prof David Coghill**, from the University of Dundee, United Kingdom, devoted his talk to the question of the extent to which ADHS can be impacted by nutraceutical intervention. He focused here on intervention using long-chain polyunsaturated fatty acids (PUFAs). The biological rationale for the use of these fatty acids has been soundly proven in animal models; there are also data on file from human intervention studies. In addition to some of these individual studies, Coghill primarily presented reviews on this topic. These demonstrate a clearly positive effect of omega 3 combinations, whereby eicosapentaenoic acid (EPA) apparently plays a special role. The effects can, on the whole, be considered slight to moderate, so although not suitable for monotherapy, they most certainly are suitable as add-on treatment or when tapering other medication.

**Prof Theoharis Theocharides**, from Tufts University in Boston, USA, reported on the influence of specific flavonoids on the pathophysiological mechanisms of Alzheimer’s and autism. Theocharides is researching the connection between inflammatory processes and allergic disposition and the brain dis-
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eases mentioned. A stabilisation of mast cells by the flavonoids luteolin and quercetin as well as their anti-inflammatory effects apparently enable a protective or therapeutic effect to be achieved. Although animal models and initial clinical data point in this direction, the data on file are not yet so robust that the desired effect can be considered certain.

Prof Jeremy P.E. Spencer, from the University of Reading, UK, confirmed the cited protective effects of flavonoids on brain health in his lecture. His team conducts basic research in this field using flavonoid-rich nutrients, such as dark berries, citrus fruits, cocoa products etc., as well as suitable concentrates and extracts. The research has been able to distinguish between acute cognitive effects (within a few hours) and longer-term effects (improved circulation, anti-inflammatory and gene expression). Besides underpinning the message to eat a diet rich in fruit and vegetables, this also raises the question as to what extent such substances, when given in a concentrated form, could develop a neuroprotective effect.

The first part of the conference was concluded by the talk by Prof Maria-Cristina Polidori, from Ruhr University Bochum, on the role of individual micronutrients in cognitive impairment (with and without dementia). She reported on interim results of the so-called “OVID study” (Oxidative stress, Vascular comorbidities and their Impact on Dementia in the elderly), which have indicated the protective effect of carotenoids, tocopherols and retinol. However, she also pointed out the considerable importance of various lifestyle factors besides diet, for this multifactorial process that presents as dementia.

The speakers for the second session of the conference examined the different nutrients that currently play important roles in nutraceutical research. These include antioxidants, vitamin D, fruit and vegetable concentrates, probiotics and omega 3 fatty acids.

In line with these explanations, Prof Cyril WC Kendall, from the Department of Nutritional Sciences, University of Toronto, Canada, presented a review of studies with fruit and vegetable juice concentrates, in which many functional biomarkers have already been investigated. The background to his investigations is the search for alternatives, or for support, which would help the population move closer to following the recommendation that they should eat at least five portions of fruit and vegetables (according to US American figures from 2010, over 80% of the population does not eat enough fruit, and 95%
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consume too few vegetables). Ultimately, 21 studies that satisfied the inclusion criteria were included in the review. Nineteen of these were interventional with encapsulated powdered products, and two with liquid products. In his conclusion, Prof Kendall stated that these products increase several key micronutrients, such as carotenoids, the vitamins C and E and folic acid, which can reduce oxidative damage to proteins, lipids and DNA, and exert positive effects on inflammatory markers, immune function and cardiovascular markers (such as the FMD described above). His review was published in the Journal of the American College of Nutrition in 2011.

In his talk on probiotics, Prof Dirk Haller, from the Technical University of Munich, examined three questions: first, why the probiotic concept can work; second, the suitable target groups for the use of probiotics; and third, the required bacteria specificity. He presented the possible positive effects of adjuvant probiotic use in diabetes, autoimmune diseases and chronic inflammatory conditions. The target groups were described as individuals with antibiotic-associated diarrhoea, traveller’s diarrhoea, infectious diarrhoea, Clostridium difficile-associated diseases, necrotising enterocolitis, irritable bowel syndrome and others, who might profit from probiotics intervention. Prof Haller also explained the possibilities of using probiotics in weight management, atopic dermatitis or in the prevention of acute airway infections. However, the use of probiotics as functional food is handicapped by the absence of any recognition by the European Food Safety Authority (EFSA). This, according to Prof Haller, is because there are no valid surrogate parameters to demonstrate the effect of probiotics as functional food in the field of prevention. Towards the end of his lecture, Prof Haller presented lactocepin, an extracellular surface protein bound to the cell wall of L. paracasei and L. lactis, which has positive effects on the immune system of the intestinal wall and might be used as a surrogate marker for the integrity of the intestinal wall.

Omega 3 fatty acids represent a further subject of intensive research, and Prof Philip Calder, from Southampton, UK, presented the current situation. A number of aspects have already been intensively re-searched, including the known low intake by the majority of the European population, the direct dependence of the tissue EPA and DHA status on the dose and duration of intake (both from the normal diet and from supplements), the healthy physiological
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effects that require a daily intake of at least 500 mg and the very limited conversion rate of the vegetable omega 3 fatty acids alpha linolenic acid and stearidonic acid to EPA (but none at all is converted to DHA). Other aspects require further research, such as the question of different physiological effects of EPA and DHA (with the resulting recommendations for daily intake), the question of the effectiveness of different chemical forms of the fatty acids (triglycerides and phospholipids) and finally, the question of a variable responder rate in the case of genotypic differences (nutrigenomics). However, irrespective of these unanswered questions, it can be clearly stated that an adequate intake of omega 3 fatty acids is an important aim of health promotion, whereby supplements may also be used.

The **poster prize** awarded at the annual conference has already become a firm tradition; but this year three poster prizes were awarded for the first time ever. The scientific committee selected the best five submissions from all the poster abstracts sent in. These were then shown as brief presentations during the plenary session. Three posters on probiotics (Marie Christine Simon from the German Diabetes Centre, Heinrich-Heine University Düsseldorf, Saskia van Hemert from Winclove in Holland and Manfred Lamprecht from Graz Medical University, Austria, who took part without competing), a poster on fruit and vegetable juice concentrates (Georg Obermayer from Graz Medical University), and a poster explaining the relationship between oxidative status and osteoporosis (Rachele DeGuiseppe from the University of Milan) successfully reached this selection stage.

Georg Obermayer’s poster was distinguished as the best research project because it concerned a state-of-the-art interventional study on humans; this type of research deserves special support because there is a dearth of these in the field of nutraceuticals.

Second place was awarded to Marie Christine Simon and third place to Saskia van Hemert, who had submitted and presented a very innovative project which, regrettably, was only a pilot study with an open-label design.

We congratulate the young scientists and wish them continuing motivation and success for their contributions to future nutraceutical research.
In high-performance sport an optimal diet and nutritional interventions can make the difference between victory and defeat. In recent years, sport nutrition research has increased. This publication provides scientifically-based information with regard to the bioefficacy of trendy sport supplements and dietary approaches off the mainstream. International experts in the specific fields inform and clarify under which circumstances the application of certain supplements and nutritional interventions would be beneficial, either for the performance or health of the athletes. A broad spectrum of recent topics in sport nutrition is provided: selected sport supplements off the mainstream, nutritional interventions and athlete’s health, hydration and fluid balance and current aspects of exercise and exercise recovery. Finally, the publication concludes with recent information about the risk of supplementation and inadvertent doping.

The book will be of benefit to sport physicians and scientists, nutritionists, coaches and athletes, as well as to the sport nutrition trade and related industries.

Preface: Lamprecht, M.


Nutritional Interventions and Athlete’s Health: Exercise, Intestinal Barrier Dysfunction and Probiotic Supplementation: Lamprecht, M.; Frauwaller, A. Pleuran (β-Glucan from Pleurotus ostreatus): An Effective Nutritional Supplement against Upper Respiratory Tract Infections?: Majtan, J. Bovine Colostrum and Immune Function after Exercise: Davison, G. Supplementation with Mixed Fruit and Vegetable Concentrates in Relation to Athlete’s Health and Performance: Scientific Insight and Practical Relevance: Lamprecht, M.


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* Biogena iron intervention study, 2012.
** Comparative study GANZIMMUN Diagnostics AG, 2009.
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**Editor**
European Nutraceutical Association (ENA)
Centralbahnstr. 7, CH-4010 Basel, Switzerland
Phone +41 (61) 302 04 90, Fax +41 (61) 302 04 91
E-Mail: info@enaonline.org | www.enaonline.org

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**About the ENA**

The European Nutraceutical Association (ENA) is a specialist association devoted to promoting scientific discussion on *Nutraceuticals* to provide a scientific-criteria-based evaluation of this product group. The central concerns of the ENA include the organisation of conferences and continuing education courses for nutrition experts in the field of prevention and health promotion, the initiation and support of research projects and the award of a research prizes at our Annual Conferences. Our official scientific organ is the renowned nutrition science journal, *Annals of Nutrition & Metabolism*. The online access to this journal is included in the membership fee.

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