Satellite Symposium

Nutrient Needs of the Older Adult

Chairman: Prof. Cornel Sieber
Chief of Geriatric Medicine
Klinikum Nürnberg, Germany

Presented during the 32nd ESPEN Congress
Nice Congress Centre, Room Apollon
Nice (France)
Monday, September 6, 2010
17:45 - 19:15

Nestlé Nutrition Institute

ESPEN 2010 – Nice, France

Nestlé Nutrition Institute Satellite Symposium
Agenda

Nutrient Needs of the Older Adult

Date : **Monday, September 6, 2010**
Room: **Apollon**
Time: **17:45 – 19:15**

Chairman: **Prof. Cornel C. Sieber**
(Nürnberg, Germany)

Nutrient Needs of the Older Adult:
Are they really different?
Prof. Dorothee Volkert (Nürnberg, Germany)

Vitamin D in the Older Adult: What is needed,
What is safe and where do I get it?
Prof. Kevin D. Cashman (Dublin, Ireland)

Hip Fractures in the Older Adult
Prof. René Rizzoli (Geneva, Switzerland)

Questions & Answers

Chairman Biography

Prof. Dr. med. Cornel C. Sieber

Prof. Cornel Sieber holds the chair for Internal Medicine-Geriatrics at the Friedrich-Alexander-University Erlangen-Nürnberg in Germany and is Director of the Institute of Biomedicine of Ageing (IBA) at the same University. He is also the chief of the Department of Geriatrics (acute care, day hospital, rehabilitation unit) at the Nürnberg-Hospital and the Nürnberg-Stift.

At the present time, he is President of the European Academy for Medicine of Ageing (EAMA) and President of the German Society of Nutritional Medicine (DGEM). In addition, he is the Past-President of the German Society of Geriatrics (DGG).

His main research interest encompasses the field of malnutrition/sarcopenia and its relationship to the frailty syndrome. He serves on the editorial Boards of different local and international journals. In addition, he is a regular referee to different German and international governmental and private foundations for different fields of Geriatric Medicine.

Key Messages

Nutrition Needs of the Older Adult

Prof. Dr. med. Cornel C. Sieber
Friedrich-Alexander-University Erlangen-Nürnberg, Germany

As the population ages, almost all healthcare professionals are interacting each day with more and more older adults making it essential they understand how the physiologic changes of ageing impact nutritional needs. It is well known that aging alters protein synthesis, and the need for antioxidants due to chronic low grade inflammation and oxidative stress. It is also known that nutrient deficiencies may aggravate functional decline and contribute to further deterioration of health. In this symposium, Prof. Dorothee Volkert will address the overall changes in nutrient requirements, while Prof. Kevin Cashman will focus on the highly prevalent vitamin D deficiency, which has been shown to significantly impact the incidence of falls and fractures in the elderly population. Prof. René Rizzoli will then discuss the importance of macro- and micronutrients on hip fracture risk and how nutrition can play an important role in both prevention and management of this growing problem impacting both the older population and healthcare costs.

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Speaker Biography

Prof. Dr. rer. nat. Dorothee Volkert

Education and occupation

since 4/2009	Theo and Friedl Schöller Foundation Professorship of Clinical Nutrition in the Elderly, Institute for Biomedicine of Aging, Friedrich-Alexander-Universität Erlangen-Nürnberg
2005 – 2009	Head of the department for scientific information, Pfrimmer Nutricia, Erlangen Assistant lecturer at the University of Bonn
2001 - 2005	Associate professor at the Department of Nutrition Science, University of Bonn, Germany
2001	Postdoctoral lecture qualification – Professorial dissertation University of Bonn *„Nutritional situation of elderly people in Germany – Epidemiology and intervention“*
1996 - 2001	Scientific assistant at the Department of Nutrition Science, University of Bonn
1991 - 1996	Scientific assistant at the Geriatric Hospital Bethanien, University of Heidelberg
1991	Doctoral exam
1987 - 1990	Doctoral thesis at the Geriatric Hospital Bethanien, University of Heidelberg and University of Hohenheim, Stuttgart *"Nutritional status of geriatric patients: Prevalence, causes and consequences of malnutrition."*
1981 - 1987	Study of Nutrition Science, University of Hohenheim, Stuttgart

Fields of interest

- Nutrition and nutritional problems of the elderly
- Clinical nutrition, nutritional therapy
- Nutritional status and body composition, methods of nutritional assessment
- Nutritional epidemiology

Projects and publications

- Numerous research projects about the nutritional situation of the elderly in Germany
- Numerous lectures and publications about nutrition in the elderly, malnutrition and nutritional therapy (26 original publications, 38 reviews, 4 books, 18 book chapters, 65 published abstracts and posters or short presentations at scientific meetings, 135 invited lectures)
- First author of the ESPEN Guidelines on Enteral Nutrition: Geriatrics
- Co-author of various standards and guidelines for quality management of nutrition in the elderly in Germany.

Key Messages

Nutrient Needs of the Older Adult: Are they really different?

Prof. Dr. rer. nat. Dorothee Volkert
Nürnberg, Germany

An adequate intake of all essential nutrients is of paramount importance for health and well-being – especially for older people, where nutrient deficiencies may aggravate functional decline and contribute to further deterioration of health.

Current recommendations for nutrient intake of elderly persons do not differ substantially from those for younger adults, except for vitamin D, which is advised in markedly higher amounts compared to younger adults. However, our knowledge concerning nutrient needs of old and very old people is still limited. There is an ongoing discussion, if higher amounts of specific nutrients, e.g. protein or those with antioxidant or anti-inflammatory properties, may be necessary to reduce the risk of chronic age-related diseases, improve immune function or slow down the progression of physical or cognitive functional decline. In this context, the optimal amount, kind and timing of protein intake for preservation of muscle mass and prevention of sarcopenia is of particular interest, and current recommendations for protein intake are assumed to be insufficient to cover the needs of all elderly. Actually, nutrient needs may vary with health, functional and nutritional status, physical activity and lifestyle, and may be higher in frail and ill elderly. Very little is presently known about nutritional requirements of this growing subgroup of elderly people.

Generally, older adults consume less energy than younger persons, accompanied by a decline in most nutrient intakes. Consequently, nutrient intakes often do not reach the recommendation. In the recent German nationwide nutrition survey (NVS II) in healthy community-living elderly, median intake of fibre, calcium, vitamin D and folic acid was below the recommended amount. Low food intake in older adults has also been associated with low intakes of B vitamins and vitamin E. In frail elderly, dietary intake may be further reduced due to various reasons. Thus, in nursing home residents, mean intakes of most of the micronutrients are often reported to be lower than recommended. In addition, in case of gastrointestinal disease or as a consequence of multimorbidity and multiple medication use, bioavailability of nutrients may be reduced in older adults, resulting in deficiency conditions despite adequate intake. For instance, great proportions of elderly people are affected by atrophic gastritis with consequently reduced secretion of hydrochloric acid and impaired absorption of vitamin B_{12}, calcium and iron. Suboptimal serum levels of vitamins and minerals are reported in up to 50% of elderly populations.

Until more evidence is available, currently recommended intake levels should be ensured in all elderly, particularly in those at risk of malnutrition, e.g. frail and multimorbid persons. Increasing heterogeneity among individuals above the age of 70 years makes it necessary to look individually at existing nutritional problems. Low dietary intake should be recognized early, underlying causes need to be identified and corrected subsequently. Elderly people with poor appetite should select foods that are rich in protein, essential fatty acids, vitamins, and minerals. If natural sources of essential nutrients can not be consumed in adequate amounts, supplemental intake is indicated.

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Speaker Biography

Prof. Kevin D. Cashman

Kevin Cashman is Professor of Food and Health, a joint position between the School of Food and Nutritional Sciences and Department of Medicine at University College Cork, Ireland. His research interests are in the areas of diet and bone health; vitamin D in health and disease. Professor Cashman has published widely in the areas of nutrition and calcium/bone metabolism.

Key Messages

Vitamin D in the Older Adult: What is needed, What is safe and where do I get it?

Prof. Kevin D. Cashman
School of Food and Nutritional Sciences, and Department of Medicine, University College Cork, Ireland.

Without doubt, vitamin D is the nutrient that has captured the minds and imaginations of the scientific community, authoritative agencies, regulatory bodies, industry and the public alike in the first decade of the new millennium. This is not surprising in light of the increasing evidence-base during the last decade that potentially links vitamin D to non-skeletal disease (such as cardiovascular disease, diabetes, certain types of cancer, infectious disease, other autoimmune and inflammatory disease; which add greatly to the global burden of disease and total chronic disease deaths) as well as to its more accepted role in metabolic bone disease risk (rickets, osteomalacia, osteoporosis). There is little doubt that vitamin D deficiency across all age-groups in Europe is a problem but particularly in the elderly, the magnitude of which ranges from significant to pandemic depending on which biochemical definition one uses (i.e. what level of serum 25-hydroxyvitamin D [25(OH)D; the nutritional status measure for vitamin D] is used as the cut-off to define deficiency). Low vitamin D status arises due to limited, if any, dermal synthesis during the winter months at latitudes above 40^{o}N, putting increased importance on dietary supply of the vitamin. However, dietary intakes by most populations are low due to the limited supply of vitamin D-rich foods in the food chain. Even during summertime when the capacity for dermal synthesis is high, the skin of older people has four-fold lower efficiency in biosynthesis of vitamin D compared to that of younger adults exposed to the same level of sunshine. Thus strategies which effectively address this public health issue are urgently required. It has been emphasized and re-emphasized that there are only a limited number of public health strategies available to correct low dietary vitamin D intake: 1) improving intake of naturally-occurring vitamin D-rich foods, 2) vitamin D fortification (mandatory or voluntarily) of food, 3) vitamin D supplementation. Recent evidence suggests that the levels of vitamin D added to food would need to be high so as to ensure dietary requirements are met and health outcomes optimised. The concept of addition of vitamin D to foods or supplements to prevent deficiency relies on providing sufficient levels to enhance status while ensuring safety.

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Speaker Biography

René Rizzoli, M.D.

Prof. René Rizzoli is an internist and endocrinologist, with a subspecialty focus on metabolic bone diseases, osteoporosis and disorders of mineral metabolism. He is presently professor of medicine at the University Hospital of Geneva (Switzerland) and head of the service of bone diseases of the department of rehabilitation and geriatrics. He is also the chairman of this department. Prof. Rizzoli used to be the chairman of the Committee of Scientific Advisors for two mandates and is presently member of the Executive Committee of the International Osteoporosis Foundation. He is a former president of the Swiss Association against Osteoporosis. He chaired the scientific program committee of three consecutive IOF World Congresses on Osteoporosis. He is now the chairman of the Scientific Advisory Board of the European Society for Clinical and Economical Aspects of Osteoporosis and Osteoarthritis. He is involved in both basic and clinical research projects investigating hormone action, regulation of bone growth, regulation of mineral homeostasis, pathophysiology of osteoporosis and the role of nutrition, calcium, vitamin D, bisphosphonates, selective estrogen modulators, denosumab and strontium ranelate in the prevention and treatment of osteoporosis.

Prof. Rizzoli is author of more than 550 scientific articles. He is editor of *Bone* and associate editor of *Osteoporosis International*.

Key Messages

Hip Fracture in the Older Adult: Prevalence, Causes, Treatment and the Role of Nutrition

René Rizzoli M.D.
Division of Bone Diseases, Department of Rehabilitation and Geriatrics
Geneva University Hospitals and Faculty of Medicine, Geneva, Switzerland

Low energy fracture is the main complication of osteoporosis. Fracture incidence displays an exponential increase with age. At the age of 50, the lifetime risk for any fracture of osteoporotic origin is more than 50% and 20% for women and men, respectively. The corresponding number for hip fracture is 22% and 7%. There is a more than 2-fold increase in mortality rate after hip fracture in both genders, reaching 25% by one year after the fracture. In the survivors, long-term disability is frequent, with close to 20% requiring still hospital care by 1 year. Over the next half of the century, the elderly population is expected to increase worldwide, particularly in Asia and Latin America. This will have a major impact on the burden of osteoporosis, especially by the dramatic projected rise of hip fracture. Estimates indicate that the number of hip fractures occurring in the world each year will rise from 1.7 million in 1990 to 6.3 million in 2050. Thus, there is an urgent need for efficacious preventive strategies. A state of undernutrition, particularly protein deficiency, is consistently documented at admission in elderly patients with hip fracture. Protein undernutrition can favor the occurrence of hip fracture by increasing the propensity to fall as a result of muscle weakness and of impairment in movement coordination and by affecting protective mechanisms, such as reaction time, muscle strength, and/or by decreasing bone mass. Protein intake explains about 4% of the bone mineral density variance. Furthermore, a reduction in the protective layer of soft tissue padding decreases the force required to fracture an osteoporotic hip. An inadequate food intake during hospital stay can adversely influence the clinical outcome. Intervention studies using supplementary feeding by nasogastric tube or parenteral nutrition, or even a simple oral dietary preparation that normalizes protein intake can improve the clinical outcome after hip fracture. A significant difference in the clinical course in the rehabilitation hospitals can be observed, with the supplemented patients doing better. Total length of stay in the orthopedic wards and rehabilitation hospitals is significantly shorter in supplemented patients than in controls. Normalization of protein intake, independently of that of energy, calcium and vitamin D, is responsible for the more favorable outcome. This normalization of protein intake increases IGF-I, which influences both bone and muscle metabolism, as well as possibly the immune system. Thus, nutrition plays a major role in both the pathogenesis and the outcome of hip fracture.

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