

Pitch Lisette de Groot/ Renger Witkamp – Nutrition and ageing

The challenge

Nutrition belongs to the modifiable lifestyle factors that are important for successful ageing, which effects start long before the actual effects of ageing become noticeable. Domains relevant to nutrition and ageing include digestion and metabolism, musculoskeletal functioning, the immune system and the central nervous system. At the same time, ageing comes with changes that can have marked effects on a person's nutritional status. These are not only due to changes in physiology, affecting appetite, metabolism etc., but also to social, societal and other environmental factors. While living independently for a longer time, elderly are confronted with a high disease and disability burden, increasing care and often the use of multiple medicines. All these changes and factors have a major impact on nutritional status.

The opportunity

We have a long tradition in the field of epidemiological-, mechanistic-, and human intervention studies on nutrition in the elderly. During the last years, we have mainly focused on two areas: the musculoskeletal system and cognition. Together with colleagues from Maastricht University and others, we have performed studies on the role of nutrition on muscle functioning and related outcome measures such as strength, fitness and mobility. Together with the Radboud Medical Center / Donders Institute and other partners, we study different aspects of nutrition in relation to cognitive functioning and decline with ageing. In particular, we have investigated intakes and effects of dietary patterns, proteins (combined with exercise) and other nutrients, particularly vitamins B12 and D, and n-3 PUFAs in the elderly. Meanwhile, our interest is gradually broadening towards bone health as well as the functioning of joints and tendons. As far as nutrients are concerned, the focus remains on proteins, with an increasing interest in "new" sources and types of proteins, their digestibility, absorption and effects. We anticipate that global shifts in protein availability and their application will also affect the diets of the elderly, whereas almost all knowledge in the field of the significance of proteins has been obtained with animal-derived proteins. Given the age-related physiological functions, also data obtained in younger persons cannot be simply extrapolated here. In the field of the immune system, we have a specific interest in the "trainability" and "memory" of the innate immune response in relation to susceptibility to infections and recovery from disease or trauma. Finally, we study nutrient-nutrient and drug-nutrient interactions in older persons, who are by far the largest users of medicines. Specific medication and polypharmacy are associated with often negative effects on nutritional status, including specific deficiencies. Although there is certainly not always a causal relationship (known), their timely recognition and intervention can be effective to reduce harm.

The offer

As part of the Division of Human Nutrition and Health, we can bring in a great deal of expertise in the field of nutrition. We have gained much expertise in nutritional intervention studies in the elderly and have good facilities to perform such studies, including controlled feeding trials. We can also provide expertise in the fields of dietary assessment and sensory science from the level of receptor to eating behaviour. Together with other groups within and outside Wageningen, we can perform fundamental and translational studies on muscle

physiology, immunology and metabolism. We would also have an interest to collaborate more in the field of metabolomics