

EDITORIAL

NUTRITION AND THE BIOLOGY OF HUMAN AGEING: PROCEEDINGS OF THE NINTH NESTLE INTERNATIONAL NUTRITION SYMPOSIUM

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This 9th Nestle Nutrition Symposium on “Nutrition and the Biology of Human Ageing” is presented at a time of unprecedented demographic change worldwide. The UN population division forecasts that the number of people living over age 65 will rise to almost 1 billion (12% percent of the world’s population) by 2030 representing an increase from 265 million in 1980. This demographic wave will be felt even more profoundly in developing countries as 8 of 10 older persons will live in less developed regions by 2050. The over 80 group is projected, importantly to be the fastest growing subset in this trend.

Advances in science have increased both lifespan and health span, the quality of that lifespan, but at the same time age-related diseases such as diabetes, cardio- and cerebrovascular disease, and dementia, are increasing as the population ages. No country, developing or developed, can afford to ignore the stark implications of this global demographic wave with its effects on quality of life and cost of health care. It is therefore imperative to face and understand not only the epidemiology but also the biology of this phenomenon so as to institute approaches, which can mitigate the effects of unhealthy ageing and promote a healthier and more independent elderly population.

Important among the lifestyle changes which will be required are those in the arena of diet and nutrition — thus the importance and timeliness of this Symposium, which ranges broadly over topics from ageing in the Human Population to Molecular Mechanisms underlying Ageing to Nutritional and applied aspects of ageing including cognitive decline and the changing Regulation of Food Intake with age.

This Symposium publication joins the global reach of the Nestlé Company in food, nutrition, and health and the strong impact of the Journal of Nutrition Health and Ageing in this field. The goal is to disseminate this timely discussion by renowned experts so that its impact can be as far-reaching as possible.

Even though the JNHA and other scientific publications have explored the relationship of nutrition and ageing, there is much still to be learned so that scientific insight can be translated into programs which may prevent or mitigate functional declines and disabilities associated with ageing.

What is known about the nexus of nutritional and ageing

biology argues for a bidirectional relationship in which better nutrition may affect the trajectory and biology of ageing, while the ageing process at molecular, cellular, and organismic levels may have profound influences on nutritional biology ranging from food intake to nutrient utilization and requirements. Some examples of the latter effect are the age-related decline in muscle mass (Sarcopenia), which affects not only strength and mobility but also caloric consumption and appetite. Another example emphasizes the age-associated decline in efficiency of the ultra-violet light catalyzed conversion of 7-dehydro-cholesterol to Vitamin D in skin thereby increasing the dietary requirement for this essential micronutrient.

Conceptually and even practically, the potential impact of better nutrition on age-related disability might be defined with the goal of modifying the trajectory of functional decline, affecting multiple organ systems so as to delay entry into a zone of disability with impact on health span and even lifespan. Figure 1 is a schematic of the potential for nutritional or lifestyle interventions to improve the slope and trajectory of functional decline (sensory, cognitive, motor, vascular) so as to delay entry into a zone of disability and loss of independence. The positive impact of this “investment” in better nutrition throughout the life cycle could be dramatic in cost of healthcare and quality of life.

Figure 1

Hypothetical Trajectory of Ageing and Functional Decline

