

## 4<sup>th</sup> International Conference and Exhibition on **Nutrition**

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### **A comprehensive approach to nutritional intervention: Maximizing muscle strength and bone health to reduce the risk of falls and fractures**

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Falls are associated with significant morbidity, mortality and health costs. Internationally, falls are a major public health issue and the incidence of falls is growing with aging populations. Therefore, falls prevention strategies are high priority for many countries. A multi-factorial approach to falls and fracture prevention cites inadequate or poor nutrition as a risk factor. But is it simply a matter of consuming a balanced diet? Calcium and especially vitamin D have taken center stage for nutritional strategies in international osteoporosis guidelines. However, what roles do other nutrients play? Muscles support bone function and health, what nutritional support is required to preserve muscle mass, strength and function? These questions will be addressed within a comprehensive approach to nutritional intervention for falls and fracture prevention. The literature suggests that patients 65 years and older may have higher nutrient requirements to maintain muscle mass and reduce the risk for sarcopenia as well as support bone health and reduce the risk for osteoporosis and other bone diseases. Many factors impact nutrient requirements such as hormonal changes, altered metabolism with aging and interactions with medications to control chronic disease. A comprehensive approach to clinical nutrition strategies includes determining an individual's healthy weight and elucidating requirements for protein and fluid intake; vitamins A and K and key minerals such as magnesium and zinc. Finally, the complementary role of nutrition and exercise is not well-articulated in public health education. Participants will be challenged to capitalize upon inter-professional partnerships and create novel approaches to public health education.

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### **The potential role of vitamin K2 in dental caries**

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Dental caries has traditionally been viewed as a tooth de-mineralizing process limited to the oral cavity. New understandings of oral/systemic links propose that dental caries is an uncontrolled inflammatory response controlled by the brain and moderated through the hypothalamus/parotid axis of the endocrine system. The role of reactive oxygen species in the hypothalamus is a signaling factor in establishing tooth vulnerability or resistance. Vitamin K2 appears to have a significant antioxidant role in the brain as well as a key nutrient in the management of calcium in the body including bones and cardiovascular tissues. K2 works in concert with calcium and vitamin D. This systemic paradigm of dental caries places nutrition on the leading edge of prevention because it is focused on the cause of the disease rather than traditional preventive efforts focused on the symptoms. K2 also appears to have a potential salivary buffering role in the exocrine portion of the parotid gland as well as the other salivary glands. In this systemic paradigm, the potential preventive role of nutritionists and public health professionals is elevated to unprecedented levels. Working to broaden current dental recall programs beyond a symptom focus will show benefits but will probably have to be driven by public education programs.

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