

## Summary Report

### Mini-Symposium on

### Sarcopenia and Frailty – Assessment, Prevalence and Prevention

December 6, 2016, Biopolis, Singapore

Sarcopenia is commonly used to describe the loss of muscle mass accompanying aging. Frailty is a broader term which represents a geriatric syndrome defined by a number of different classification criteria, including sarcopenia, decreased physiological reserve and homeostatic dysregulation. The increasing prevalence of sarcopenia and frailty in Singapore is due to the rise in aging population. Poor dietary intake and nutrition status, especially inadequate intake of good quality protein, among the aging population are making them more prone to frailty and sarcopenia. Dietary protein is essential for healthy aging and to address the risks of sarcopenia and frailty.

With this in mind, ILSI SEA Region organized a Mini Symposium on Sarcopenia and Frailty – Assessment, Prevalence and Prevention to discuss the assessment, prevalence, biological and clinical factors issues surrounding sarcopenia and frailty in Singapore; and importance of adequate intake and proper daily distribution of good quality dietary protein for healthy aging and prevention of sarcopenia and frailty.

**Ms. Pauline Chan**, Director of Scientific Programs of ILSI SEA Region, Singapore, gave the welcome and opening remarks for the symposium. Ms. Chan then proceeded to chair the symposium.

**Dr. Rahul Malhotra**, Duke-NUS Medical School, Singapore, gave the first presentation. He presented the *Normative Values of Hand Grip Strength (HGS) for Singaporean Elderly, and Preliminary Results on SAFE (Singapore Assessment for Frailty in Elderly)*. Dr. Malhotra explained that HGS was used for assessing both sarcopenia and frailty, where low HGS would predict adverse health events among the elderly. The aim of the study was to develop age-specific normative values for HGS, utilizing data from a nationally representative sample of community-dwelling elderly Singaporeans. Age, gender and hand-specific graphs for normative values of HGS are presented at the 5th, 20th and 50th percentiles. Dr. Malhotra shared that the results showed a decline of HGS with age, with HGS significantly higher for men, and for the dominant hand. These data will facilitate interpretation of HGS measurements among the elderly in clinical and research settings in Singapore. Dr. Malhotra also presented the preliminary findings on the Singapore Assessment for Frailty in Elderly (SAFE). The existing frailty measures have a disproportionate focus on physical frailty, neglecting psychological and social frailty, and pertain to non-Asians. Hence, the study aimed to develop a comprehensive frailty measure (SAFE-PPS, encompassing physical, psychological and social frailty) utilizing data from 3 waves of a nationally representative longitudinal survey of elderly Singaporeans. He added that the next steps for SAFE would include a better operationalization of the frailty variables used in the assessment, as well as obtaining complete information on healthcare utilization (hospitalization and emergency room attendance) through electronic medical records for a more composite outcome.

**Prof. Tze Pin Ng**, National University of Singapore, Singapore, presented next on *Frailty and Sarcopenia in Singaporeans: Prevalence, Biological and Clinical Factors, and Interventions*. He explained that frailty is a syndrome of decreased physiological reserve and homeostatic dysregulation, and defined it with the presence of weight loss, slowness, weakness, exhaustion and physical inactivity, represented predominantly by sarcopenia. Sarcopenia is characterised by progressive and generalised loss of skeletal muscle mass and strength. The prevalence of pre-frailty and frailty in the Singapore Longitudinal Ageing Studies (SLAS) was 44% and 5% respectively, and 70% of them were sarcopenic. The impact of frailty included a higher prevalence of depressive symptoms, cognitive impairment, increased incidence of hospitalization, and dependency in activities of daily living. Prof. Ng then shared that socio-demographic, lifestyle and clinical factors were associated with frailty. Results from SLAS also indicated that sarcopenia is associated with neuro-endocrine and metabolic deficiencies, in particular low testosterone and fasting insulin level. He went on to explain that frailty could be treated or prevented. The Singapore Frailty Intervention Trial (SFIT) has demonstrated that physical frailty is reversible through nutritional, physical and cognitive training. He added that a combination of these trainings needs to be sustained even after the intervention to be more effective and have a longer impact.

The final presentation, *Role of Dietary Protein in the Sarcopenia of Aging*, was presented by **Dr. Douglas Paddon-Jones**, University of Texas Medical Branch, USA. He explained that moderately increasing daily protein intake beyond the RDA of  $0.8 \text{ gkg}^{-1}\text{d}^{-1}$  might enhance muscle protein anabolism and provide a means of reducing the progressive loss of muscle mass with age. As the human body is unable to store excess protein for later anabolism, it would be more effective to optimize protein intake at each meal, and there was evidence of a synergistic effect of protein intake and exercise. He also shared that studies have shown that physical inactivity, such as hospitalization, accelerates the muscle loss. Dr. Paddon-Jones then explained that leucine supplements could partially protect muscle mass but only as a temporary measure. He recommended that individuals should establish a dietary framework which includes moderate amount of high quality protein at every meal. He emphasized the importance of even distribution of good quality dietary protein intake throughout the day, combined with physical activity in the prevention of sarcopenia.