

NEWS RELEASE

Advances being made in combining physical and nutritional therapy to mitigate age-related sarcopenia

- *Protein supplementation strengthens muscle function – but not all proteins are equal*
- *New Study shows whey offers superior advantages than other protein sources to counter muscle loss as adults age*
- *Resistance exercise and specialised nutrition improves muscle strength even among frail*

Vevey, Switzerland, – November 2012. At a Nestlé Nutrition Institute satellite symposium held at the European Union Geriatric Medicine Society (EUGMS) congress, in Brussels on 27 September 2012, leading experts examined the evidence showing the synergistic relationship between resistance exercise and supplemental nutrition in the elderly. In particular, speakers explored the impact that this combined approach can have in supporting muscle strength and physical function to mitigate of age-related sarcopenia.

Sarcopenia and Muscle Status: Whey protein naturally from milk offers special benefits for anabolic response in older persons

Professor Stuart Phillips, Ph.D, Department of Kinesiology, McMaster University, Canada, began by highlighting the issue of sarcopenia, from a human and health economic perspective. The summation of Tseng and Booth (1995) continues to inspire research into prevention and therapeutic options: 'Sarcopenia is a progressive neuromuscular syndrome that will lower the quality of life in the elderly by: decreasing the ability to lift loads, progressing to difficulty arising from a chair; and decreasing endurance, leading to an inability to perform the activities of daily living, which increases health care costs'.

"Older people require higher intakes of protein to stimulate a rise in muscle protein synthesis after exercise, which can improve skeletal muscle function", explained Professor Phillips. The amount of protein consumed is important to achieve an anabolic response. Recent studies have shown that 20g of protein stimulates *maximal* muscle protein synthesis after resistance exercise in young men¹, while older men require 40g of protein². Professor Phillips added, "Even in frail older persons, it has now been shown that protein supplementation can improve skeletal muscle function when no physical resistance exercise is being taken".

The type of protein required to achieve optimal muscle protein synthesis is also very important. The latest research also now demonstrates that the whey protein naturally found in milk is superior to that of soy or casein in promoting an anabolic response. He added, "Whey protein is rapidly digested and has a high leucine content, a dietary amino-acid that is key for triggering muscle protein synthesis. Older people can counter sarcopenia and get stronger by undertaking resistance exercise, such as weightlifting, in conjunction with whey protein supplementation".

Personalised exercise prescription – a powerful therapy, yet the challenge for the future

Francesco Landi, MD,PhD, Associate Professor of Internal Medicine at the Catholic University of Sacred Heart, Rome, Italy focused upon research into the practical application of physical exercise interventions. He began by putting the scale of the challenge in perspective, noting that more than 60% of adults are not regularly physically active. This is despite the widespread evidence of its health benefits established over the decades. A sedentary lifestyle increases the risk of chronic conditions and incident disability. In evidence of this, the World Health Organisation estimates that lifestyle factors will be responsible for 70% of all illnesses in 2020.

Professor Landi then commented upon guidelines for older adults – based upon Grade A evidence – that they should participate in a minimum of 30 minutes of moderate intensity activity (such as walking) on most days of the week. He noted that more activity (higher intensity, longer duration) is likely to be more beneficial. Inactivity in older adults results in less muscle protein synthesis, and a loss of muscle mass³. Within 10 days of inactivity, muscle protein synthesis typically falls by 30% in older adults. Professor Landi highlighted that the essence of maintaining muscle mass and function in advanced age is having a combination of regular exercise and a protein-enriched diet⁴; whereas in contrast inactivity, selective malnutrition and illness/injury contribute to accelerated muscle loss as adults age.

Amongst a large body of research into appropriate exercise options for the elderly, Professor Landi drew attention to the clinical trial design of the recent University of Florida LIFE study⁵. This study showed the value of warm-up/cool down, endurance exercises, flexibility exercises and resistance training being included as components of the exercise prescribed, as long as participants had been screened for potential risks.

Progressing the argument, he commented, “In healthy older adults, the beneficial physiological effects of specific physical activity programmes have been finally demonstrated. Regular exercise increases aerobic capacity, muscle strength and endurance, since it emphasizes aerobic conditioning and/or strength training.”

However, on a cautionary note and supporting the calls for additional research, he added, “Despite these findings, it remains unclear whether the positive effects of physical activity interventions can be sustained for an adequate duration of time and maintained at sufficient intensity to prevent incident disabilities. It also is important to underline that the response of muscle cells to specific and different exercises is also under the control of specific genes and nutritional factors. Thus, genetic background and nutrition should not be overlooked when analyzing the impact of physical activity on frailty.”

Research on understanding and promoting physical activity is at an early stage. A therapeutic approach to the loss of skeletal muscle mass and strength in older persons depends on the correct classification. The term sarcopenia should be reserved for age-related decline in muscle mass that is not attributable to the presence of pro-inflammatory cytokines. David Thomas, Professor of Internal Medicine, St Louis University Hospital, USA who chaired the symposium summarized, “Advances in the understanding of sarcopenia suggests that resistance exercise training and nutritional supplementation can improve both muscle strength and muscle mass”.

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