



STRATEGIES FOR PROTEIN INTAKE AND MUSCULAR ACTIVITY TO MAINTAIN MUSCLE MASS IN ELDERLY CITIZENS

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Abstract

Age-related loss of skeletal muscle mass and strength leading to impairment in daily function, increased risk of disability, frailty and development of comorbidities is occurring in even healthy elderly people. As demographic numbers reveal that in the forthcoming decades, the number of elderly citizens will increase, the societal expenses for welfare services for elderly care, nursing, and hospitalizations, ect will also increase. Strategies to improve the average muscle mass, strength and function of the general elderly population are requested. Exercise and nutrition physiology science has during the last decades markedly increased our knowledge on ways to gain muscle mass and strength. This lecture will present the background knowledge supporting potential actions to gain muscle size and function through interventions with protein intake and muscular training. Hereafter, these actions will be presented in the context of the elderly subject, both mechanistically and longitudinally. Finally, some of the latest on-going research projects will be outlined and preliminary data shared. A discussion of the physiological impact of the different strategies and their applicability and feasibility among the elderly citizens would be relevant discussion themes.

Keywords: Protein intake; resistance exercise; muscle protein synthesis; muscle hypertrophy

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Scientific employments

- 07-2013 –: Associate professor at Biomedical Sciences, Faculty of Health and Medical Sciences, University of Copenhagen. Affiliated at Institute of Sports Medicine, Bispebjerg Hospital, Copenhagen, Denmark.
- 01-2013 – 06-2013: Post doc at Institute of Sports Medicine, Copenhagen, Denmark.

- 01-2010 – 12-2012: Post doc at Institute of Sports Medicine, Copenhagen, Denmark. (3-yr post doc stipend from the Danish Council for Independent Research).
- 06-2009 – 12-2009: Researcher at Institute of Sports Medicine, Copenhagen Denmark.
- 06-2008 – 05-2009: Post doctoral associate at Dept. of Chemistry, University of Vermont, Burlington, Vermont.
- 12-2005 – 05-2008: Ph.D.-student at Institute of Sports Medicine, Copenhagen, Denmark. (Stipend from H:S)
- 10-2002 – 11-2005: Scientific assistant at Institute of Sports Medicine, Copenhagen, Denmark. (Funding from Otsuka Pharmaceutocals, Japan.)
- 08-2000 – 10-2002: Research student at Institute of Sports Medicine, Copenhagen, Denmark.

Foreign lab exchanges

- 06-2008 – 05-2009: Post doctoral associate at Prof. Dwight E. Matthews mass spectrometry lab at Dept. of Chemistry, University of Vermont, Burlington, VT, USA, conducting a study as Research associate.
- Apr 2006: Collaborative visit at Prof. M. J. Rennies lab at Division of Clinical Physiology, School of Graduate Entry Medicine and Health, University of Nottingham, Derby, UK.

Scientific education

- 2014-15: University Pedagogy, University of Copenhagen.
- 2013-14: Research Management Course, Copenhagen Business School Executive.
- 2014: Introduction to University Pedagogy (3 ECTS), Dept. of Science Education, Faculty of Science, University of Copenhagen.
- 2012: Laboratory Animal Science Category C (Federation of European Laboratory Animal Science Associations (FELASA) license holder –accreditation No 006/03/610).
- Sept. 2009: Ph.D. from Faculty of Health Sciences, University of Copenhagen.
- Oct. 2002: Master in Human Physiology, Faculty of Natural Sciences, University of Copenhagen, Denmark.
- June 1999: Bachelor in Human Physiology, Faculty of Natural Sciences, University of Copenhagen, Denmark.

Scientific publications and presentations and peer reviewer

46 scientific, peer-reviewed publications of which 10 as first author and 11 as last author.
 20 conference presentations of which 8 were oral. 6 invited scientific presentations and 9 invited public presentations.

Serving as manuscript reviewer for American Journal of Clinical Nutrition, Journal of Physiology, Journal of Applied Physiology, Journal of Clinical Endocrinology and Metabolism, PLoS one, European Journal of Sport Science, Clinical Nutrition, Metabolism, Medicine and Science in Sports and Exercise, Scandinavian Journal of Public Health, and Clinical Physiology and Functional Imaging.