

The Role of the Therapeutic Exercise in the Treatment of Sarcopenia

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ABSTRACT

Ageing, even in healthy persons, is accompanied by slightly elevated concentrations of circulating pro-inflammatory mediators (such as Interleukin[IL]-6 and Tumor Necrosis Factor- α), corresponding to a chronic low-grade inflammatory profile (CLIP). Older persons presenting pronounced CLIP show lower muscle mass and muscle strength; and are more likely to become frail. Elderly possess an important residual, but latent, physical potential, which can be mobilized by training, even at very high age. Physical exercise has also favorable effects on CLIP. Besides providing anabolic stimuli intensive physical training provokes an inflammatory reaction and complex changes in the cellular components of the immune system. In this context, IL-6 is thought to be mainly released from the contracting muscles and would act as a "myokine", exerting a different function from that seen during infection. Recently, it has been shown that older persons, similar to young adults, are able to respond to physical stress by a significant exercise-induced increase of circulating IL-6. In fact, the exposure to (repetitive) mild stress has been shown to improve survival and longevity both at the cellular and organism level; as well improved wound healing by physical training has recently been described in old mice and in older humans. Physical exercise would thus reduce sarcopenia as well as CLIP and the acute inflammatory response upon infection in the aged; thus enlarging considerably the scope of geriatric rehabilitation professionals in designing health-enhancing exercise programs. In this lecture the latest evidence regarding optimal dosage of exercise to obtain most beneficial effects will be presented.

Short CV

Ivan Bautmans (ORCID: 0000-0002-6820-9586, Research ID: C-3435-2014) is full-time appointed as tenured professor at the Vrije Universiteit Brussel (VUB) where he is head of the Gerontology (www.vub.ac.be/GERO) and Frailty in Ageing research (www.vub.ac.be/FRIA) departments. Ivan Bautmans (PhD Medical Sciences, MSc Physiotherapy, MSc Manual Therapy) is an expert in Bio-Gerontological research: physical training of older persons, sarcopenia and inflammation.