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PhD in Gerontological Sciences
2019-2020

INVITATION to the Public defence of

Keliane LIBERMAN

To obtain the academic degree of '**DOCTOR OF GERONTOLOGICAL SCIENCES**'

Nutritional and exercise interventions to counter chronic low-grade inflammation in older adults

Tuesday, 17 September 2019 at 6 p.m.

In Auditorium **Piet Brouwer**

Faculty of Medicine and Pharmacy, Laarbeeklaan 103, B-1090 Brussels

How to reach the campus Jette:

<http://www.vub.ac.be/english/infoabout/campuses>

Summary of the dissertation

Ageing is characterized by decrease in muscle strength and muscle mass (sarcopenia) and by increased levels of circulating pro-inflammatory cytokines defined as a chronic low-grade inflammatory profile (CLIP), both leading to negative health outcomes. Therefore, it is of high importance to identify how preventive and/or treatment strategies can counter CLIP in order to promote active and healthy ageing in older adults.

From our systematic literature search, it seems that CLIP is not elaborately investigated, especially in frail older adults or adults with a specific condition or disease. Strength training and muscle strength appear to be the most investigated intervention and outcome, respectively. Generally, exercise interventions lead to beneficial effects on CLIP, muscle strength, body composition and physical functioning. Additionally, safety and feasibility of exercise interventions in older adults was confirmed. In our exercise intervention study, women (> 65 years) were randomized to 3months, 3x/week at either intensive strength (IST: 3x10 repetitions at 80% 1RM), strength endurance (SET: 2x30 repetitions at 40% 1RM), or flexibility (control) training. Both IST and SET, although affecting different inflammation-related pathways in peripheral blood mononuclear cells, showed beneficial effects on CLIP-related genes.

Lastly, in the nutritional supplementation study, older adults were randomized into an active group (supplementation of proteins + vitamin D) or an iso-caloric control group. We found that 13 weeks of nutritional supplementation with vitamin D and leucine-enriched whey protein may attenuate the progression of CLIP in older sarcopenic persons with mobility limitations.

Curriculum Vitae

Keliane Liberman was born in Antwerp (Wilrijk), Belgium on the 4th of November 1992. She finished secondary school (Tachkemoni) in 2010 and immediately started her studies in Biomedical Sciences at the Vrije Universiteit Brussel until 2015 and obtained her Master of Science in Biomedical Sciences. After graduation, she immediately incorporated the Gerontology department with the Frailty in Ageing (FRIA) Research team, led by Prof. Dr. Ivan Bautmans. Her work was focused on the Senior Project INTensive Training (SPRINT) project where she coordinated the study in which the effects of 3 to 6 months of progressive strength training in older adults on the immune system are investigated. Keliane also worked on 2 other projects: the PROVIDE study, where a nutritional supplement is administered to sarcopenic older adults and the MID-FRAIL study, where quality of life of older adults with type 2 diabetes is investigated. This work resulted in 1 systematic review as first author, 1 research article as first author and 2 as co-author on the SPRINT study as well as 1 research article as first author on the PROVIDE study. Besides her work at the FRIA team, Keliane has been a PhD representative in the UMCOR and faculty board and is also member of PhD United where together with other PhD students, she organizes events and seminars for other PhD students of the faculty.