

Multi-ingredient targeted nutritional intervention in sarcopenic older adults: A double-blind randomized controlled trial

Nasrin Nasimi



ABSTRACT

Statement of the Problem: Sarcopenia, age-related loss of skeletal muscle mass, strength and performance, is growing considerably among elderly population and becomes a major public health concern. Nutritional intervention is considered as an effective approach to manage sarcopenia and prevent its related disability. This study aimed to evaluate the efficacy of multi-ingredient targeted yogurt fortification without exercise training on muscle mass and functionality in older adults with sarcopenia.

Methodology & Theoretical Orientation: After screening 500 community-dwelling older adults, 66 eligible sarcopenic elderly (low muscle mass, handgrip strength and/or gait speed) were randomly assigned into two groups: Intervention group who received daily beta-Hydroxy beta-Methyl Butyrate and vitamin D-fortified yogurt (3g HMB, 1000IU D3) and control group who received daily plain yogurt for 12 weeks. Body composition was measured by Dual-energy X-ray Absorptiometry (DXA). Muscle strength and physical performance were evaluated by hydraulic handgrip dynamometer and 4-m gait speed. Nutritional status, physical activity and health-related quality of life were also assessed using validated questionnaire.

Findings: Increases in handgrip strength and gait speed were observed in the intervention group, with a significantly greater improvement compared to the control group ($P < 0.0001$). Appendicular Lean body Mass (ALM) increased about 220g in the intervention group over the time, however the differences between two groups were not statistically significant. Final values of physical aspects of quality of life notably increased in the intervention group ($P = 0.035$ vs. control).

Conclusion & Significance: Consumption of HMB and vitamin D in the form of a fortified yogurt might enhance muscle strength, physical performance and quality of life among sarcopenic older adults. This study reveals that specific nutritional intervention alone might be beneficial especially for those who are unable to exercise.

BIOGRAPHY

Nasrin Nasimi has completed her Master from Shiraz University of Medical Sciences (SUMS- School of Nutrition and Food Sciences) and she is currently working in the community nutrition department of SUMS as an instructor for master students. As a young researcher, she mainly worked on sarcopenia, muscle wasting and nutrition in older adults and Chronic Obstructive Pulmonary Disease (COPD) patients. She has some publications in the aforementioned research areas and some submitted articles in this regard. She also has 7 international presentations. As a young researcher, she focuses on nutrition in different life stages and public health.

PUBLICATIONS

- Cruz-Jentoft AJ, Bahat G, Bauer J, Boirie Y, Bruyère O, Cederholm T, et al. Sarcopenia: revised European consensus on definition and diagnosis. *Age and ageing*. 2018;48(1):16-31.
- Robinson SM, Reginster J-Y, Rizzoli R, Shaw S, Kanis JA, Bautmans I, et al. Does nutrition play a role in the prevention and management of sarcopenia? *Clinical Nutrition*. 2018;37(4):1121-32.
- Holelek M. Beta-hydroxy-beta-methylbutyrate supplementation and skeletal muscle in healthy and muscle-wasting conditions. *Journal of cachexia, sarcopenia and muscle*. 2017;8(4):529-41.
- Fuller JC, Baier S, Flakoll P, Nissen SL, Abumrad NN, Rathmacher JA. Vitamin D status affects strength gains in older adults supplemented with a combination of D-Hydroxy-D-Methylbutyrate, Arginine, and Lysine A Cohort Study. *Journal of Parenteral and Enteral Nutrition*. 2011;35(6):757-62.
- Oliveira G, Oliveira C, Doña E, Palenque FJ, Porras N, Dorado A, et al. Oral supplement enriched in HMB combined with pulmonary rehabilitation improves body composition and health related quality of life in patients with bronchiectasis (Prospective, Randomised Study). *Clinical nutrition*. 2016;35(5):1015-22.

4th Global Summit on Food science and Healthcare Nutrition, Zurich | March 11-12, 2020

Shiraz University of Medical Sciences, Iran

Abstract Citation: Nasrin Nasimi, Multi-ingredient targeted nutritional intervention in sarcopenic older adults: A double-blind randomized controlled trial, *Food science 2020, 4th Global Summit on Food science and Healthcare Nutrition, Zurich, March 11-12, 2020, pp.10*