

## Twelve weeks of protein supplementations improves muscle mass in middle-aged and older Korean adults

Yoo Kyoung Park<sup>1</sup>, Namhee Kim<sup>1</sup>, Yeji Kang<sup>1</sup>, Yoon-Sok Chung<sup>2</sup>, Yong Jun Choi<sup>2</sup>, Yunhwan Lee<sup>3</sup> and Jihye Yun<sup>3</sup>

<sup>1</sup>Dept. of Medical Nutrition, Kyung Hee University, Korea

<sup>2</sup>Dept of Endocrinology and Metabolism, Ajou Univesity Korea

<sup>3</sup>Dept. of Preventive Medicine and Public Health, Ajou University, Korea



### Abstract

**Statement of the Problem:** Muscle mass declines with age, starting in the 40s and picking up speed after about age 50. Protein supplementation (PS) is a positive strategy to prevent sarcopenia. Although early prevention is important, most studies have focused on people over 65. Therefore, this study investigated the effect of PS including leucine on muscle condition in both middle-aged and older adults. **Methodology & Theoretical Orientation:** A 12-week randomized, double- blinded, placebo-controlled clinical trial was done on the subjects of 120 community-dwelling healthy adults in their 50s

-80s. They were assigned to either an intervention group (n = 60) or control group (n = 60). Protein supplement [Leucine(3g) enriched protein mixture (whey 40%+casein 50%+soy 10%) 20g, VitD 800IU, Ca 300mg, carbohydrate 2.5g] and isocaloric supplement [protein 0g, carbohydrate 25g] were offered to intervention group and control group respectively, twice a day. Physical Activities were assessed but subjects were advised to maintain their usual activity. Appendicular skeletal muscle mass index (ASMI) and lean body mass were measured by dual-energy X-ray absorptiometry. **Findings:** Thirty-three men and 87 women started and 111 subjects finished the study with a drop-out rate of 9.2%. From the Per Protocol analysis the lean body mass normalized by body weight (LBM/Wt) was significantly increased ( $p < 0.001$  only in the intervention group (0wk:  $633.9 \pm 8.5$  vs. 12wk  $636.9 \pm 8.4$  in the intervention group, 0wk:  $638.6 \pm 8.3$  vs. 12wk  $632.9 \pm 8.1$  in the control group) after Mixed Effect Model Repeat Measurement (MMRM) Analysis. No significant changes were observed in the ASMI values. **Conclusion & Significance:** Nutrition is an essential piece of the puzzle in supporting adequate nutritional needs at different stages of life. From this study, we conclude that PS may exert beneficial effects to prevent muscle loss not only in the elderly, but also in the pre-elderly subjects.



### Biography:

Yoo Kyoung Park has her expertise in evaluation in improving the health and wellbeing in view of nutrition. She has been conducting numerous clinical studies on the effects on health and antioxidant indices.

### Speaker Publications:

1. KA Lee, J-C Park, YK Park. (2019) Nutrient intakes and medication use in elderly individuals with and without dry mouths. *Nutrition Research and Practice*. 13:e46
2. S-Y Ju, YK Park. (2019) Low fruit and vegetable intake is associated with depression among Korean adults in data from the 2014 Korea National Health and Nutrition Examination Survey. *Journal of Health, Population and Nutrition*. 38-39
3. H-R Choi, J Kim, H Lim, YK Park. (2018) Two-Week Exclusive Supplementation of Modified Ketogenic Nutrition Drink Reserves Lean Body Mass and Improves Blood Lipid. *Nutrients*. Dec 3;10(12).
4. MH Um, ES Lyu, SM Lee, YK Park. (2018) International hospital accreditation and clinical nutrition service in acute care hospitals in South Korea: results of a nationwide cross-sectional survey. *Asia Pac J Clin Nutr*. 27(1):158-166
5. HJ Kim, S-Y Ju, YK Park. (2017) Kimchi intake and atopic dermatitis in Korean aged 19-49 years: The Korea National Health and Nutrition Examination Survey 2010-2012. *Asia Pac J Clin Nutr*.26(5):914-922.