

# Invited Speaker Abstract

Official Language: English

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## Title of Presentation

Even or peak distribution; a feasibility study to increase protein intake among community-dwelling older adults

### 1. Abstract.

**Introduction:** Lower protein intake in older adults is associated with malnutrition and physical function decline. Dietary strategies to increase protein intake may focus on an even distribution of protein over the day or a peak distribution, i.e. one meal containing at least 35 grams of protein.

**Objective:** To investigate whether an even or peak protein distribution over the day was more feasible in older adults to increase protein intake.

**Methodology:** Community-dwelling older adults aged  $\geq 65$  years ( $n=60$ ) were randomised into one of three groups; two intervention groups ('even' or 'peak' strategy) and one control group. Over the course of four weeks, participants of both intervention groups received personalised dietary advice and protein-enriched food products to increase their daily protein intake to 1.2 g/kg adjusted body weight (aBW), or by 0.3 g/kg aBW/day when current intake was between 0.9 and 1.2 g/kg aBW/day. The 'even' group was advised to consume a similar amount of protein during each meal and snack while the 'peak' group was advised to consume at least one daily meal with 35-45 g of protein. Outcome measures were increase in protein intake assessed by three 24 hour recalls and appreciation of the advice.

**Results:** Mean increase in protein intake after four weeks was significantly higher in the 'even' ( $28.9 \pm 22.9$  g/day) and the 'peak' ( $21.8 \pm 21.4$  g/day) group compared to the control group ( $5.7 \pm 13.0$  g/day). The difference between both intervention groups was not significant. Both intervention groups considered the advice with regard to increasing protein as clear (64% vs. 56% for the 'even' and 'peak' strategy, respectively).

**Conclusion:** The 'even' and 'peak' strategies were both effective in increasing protein intake after four weeks, with neither strategy being superior or more appreciated.

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### 2. key references

Wall BT, Gorissen SH, Pennings B, Koopman R, Groen BB, Verdijk LB, van Loon LJ. Aging Is Accompanied by a Blunted Muscle Protein Synthetic Response to Protein Ingestion. *PLoS One*. 2015;10:e0140903.

Moore DR, Churchward-Venne TA, Witard O, Breen L, Burd NA, Tipton KD, Phillips SM. Protein ingestion to stimulate myofibrillar protein synthesis requires greater relative protein intake in health older versus younger men. *J Gerontol A Biol Sci Med Sci*. 2015;70:57-62.

Ten Haaf DSM, Nuijten MAH, Maessen MFH, Horstman AMH, Eijsvogels TMH, Hopman MTE. Effects of protein supplementation on lean body mass, muscle strength, and physical performance in nonfrail

community-dwelling older adults: a systematic review and meta-analysis. Am J Clin Nutr. 2018;108(5):1043-1059.

**3. key messages**

- 'Even' and 'peak' protein distribution were equally effective dietary strategies in increasing protein intake in community-dwelling older adults over 4 weeks.
- Both strategies were equally appreciated by respondents and did not result in negative dietary side effects.
- Both strategies seem feasible and safe to increase protein intake in community-dwelling older adults.