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# A higher protein intake at breakfast does not compromise total daily protein intake in older adults

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## Background

A protein intake of 25-30 gram per meal is suggested to maximally stimulate muscle protein synthesis in older adults in order to prevent sarcopenia. Since protein is known for its satiating effects, **we explored the association between the amount of protein intake at breakfast and total daily protein intake in older adults.**

## Methods

Study sample: 506 community dwelling older adults (age ≥ 55 years) participating in lifestyle interventions in the Amsterdam Nutritional Assessment Center.

Measurement of protein intake: by a 3-day dietary record at baseline. Both total daily protein intake and protein intake per eating moment was calculated.

Statistical analysis: Multiple linear regression analysis

- Main determinant (X): protein intake at breakfast in grams (g)
- Main outcome (Y): total daily protein intake (in g, and g/kg body weight)
- Adjusted for: energy intake (kcal/d), sex, age and BMI
- Interaction tested for: sex, age and BMI but not significant (p>0.80)

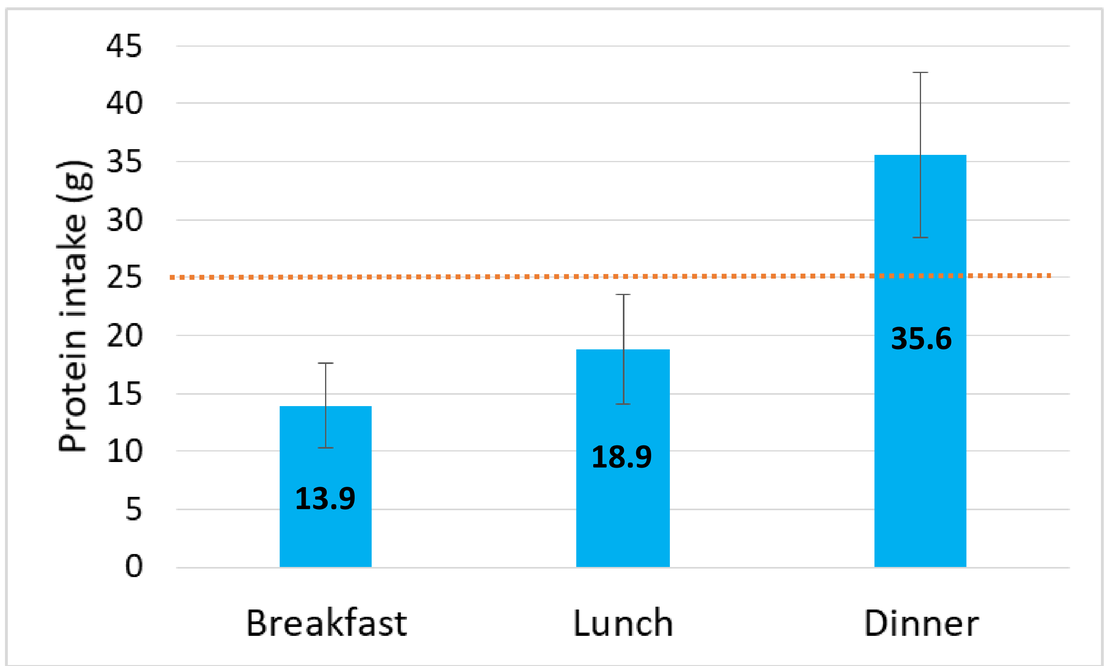


**Figure 1:** Distribution of protein intake. Dashed red line is the amount suggested optimally stimulate muscle protein synthesis.

**Key conclusion**

A higher protein intake at breakfast does not compromise total daily protein intake in community dwelling older adults.

## Results

Baseline characteristics: Mean age was 67.6±(SD)7.3 years, 42% was female, and mean BMI was 30.0±5.6 kg/m$^2$.

Protein intake: Total daily protein intake was 81±24 g which equals 0.96±0.3 g/kg and 17.6±3.7 percent of total energy intake. Protein intake at breakfast was 14±7 g. Distribution of protein intake is displayed in Figure 1.

Regression analysis: A **10 g higher protein** intake at breakfast was associated with a **6.7 g** (SE=1.0; P<0.001) which equals a **0.06 g/kg** (SE=0.01; P<0.001) **higher total daily protein intake** after adjustment for energy intake, sex, age and BMI.

## Discussion

A higher protein intake at breakfast does lead to a significantly higher total daily intake, but a small compensating effect seems to be present: a higher intake at breakfast leads to a small but significant negative effect on the protein intake during the rest of the day.

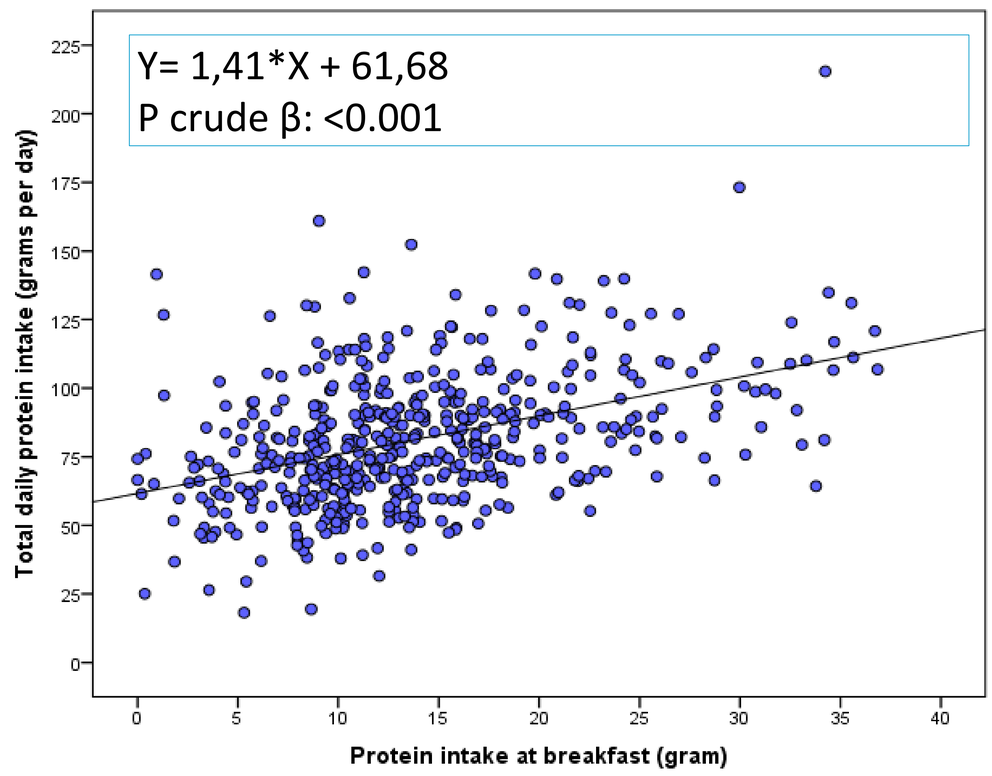


**Figure 2:** Crude association between protein intake at breakfast and total daily protein intake in 506 older adults

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