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Acute Effects of Essential Amino Acid Gel-based and Whey Protein Supplements on Appetite and Energy Intake in Older Women

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Key drivers of our research

- Ageing population
- Sarcopenia and its implications on health span

Common clinical disorders:
- CVD
- Hypertension
- Raised cholesterol
- ECG abnormalities
- Diabetes
- Obesity
- Respiratory disease
- Thyroid disorders (hyper/ hypothyroid)
- Renal disorders
- Liver disorders
- Anaemia
- Osteoporosis
- Psychiatric problems
- Cancer

Functional ageing:
- Lung function (FEV1, FVC)
- Grip strength
- Standing balance
- Chair rising
- Walking speed
- Verbal memory
- Processing speed
- Reaction time

Kuh et al. (2014)

EWGSOP2 (2018) and Mayhew et al. (2018)
Examples of what ~ 30 g protein looks like……

- Increase in **protein intake** for managing sarcopenia (Janssen et al. 2004a; Clark et al. 2010; Lang et al. 2010; Lieffers et al. 2012).
  - Evidence supports 1.0-1.6 g·kg⁻¹·d⁻¹ (Bauer et al. 2013; Deutz et al. 2014; Loenneke et al. 2016; Traynor et al. 2018).

- **Energy intake** also crucial for maintenance of muscle mass and health (Dahany et al. 2014; Thalacker-Mercer et al. 2014; Baum et al. 2016).

- **Deficiencies in energy and protein intakes** contributing factors to frailty (Beasley et al. 2010; Bauer et al. 2013; Bonnefoy et al. 2015).

  - Consumption of at least **0.4 g·kg⁻¹·BM** of high quality protein per meal (Moore et al. 2014; Phillips 2015; Lancha Jr et al. 2016) is also recommended.


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**Challenge: age-related anorexia and satiating effects of protein.**

**Potential solution: use of protein based nutritional supplements that do not affect appetite.**

- Ispoglou et al. (2017)
Methods

Crossover design (3 conditions)

The WP and GEL provided ~ 7.5 g of EAAs or the equivalent of ~15 g of high quality protein

69.2 ± 2.7 years of age

Body mass of 60.8 ± 7.1

Height of 163.1 ± 3.0 cm

Results

Macro-nutrient intakes (g) from ad lib breakfast plus supplement

Macro-nutrient intakes (g) from ad lib breakfast alone
An asterisk sign (*) denotes significantly different from CON and WP.

Energy intake including energy from supplements and the breakfast.

Time-averaged AUC for PYY was significantly different between trials (P = 0.001), with WP higher than CON (P = 0.009) and GEL (P = 0.012).

Conclusion

A **whey protein** isolate **facilitated** an increase in **protein**, whereas supplementation with an **essential amino acid based gel** increases in **both energy and protein intakes**, when consumed before an ALB.

**Findings**, highlight potential gel-based **EAA** supplementation intake for addressing age-related sarcopenia.
Thank you

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