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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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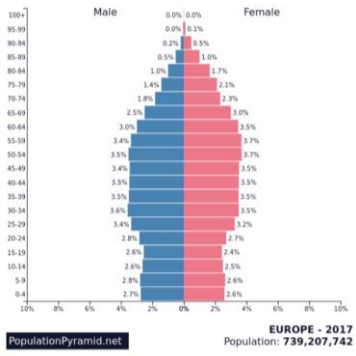
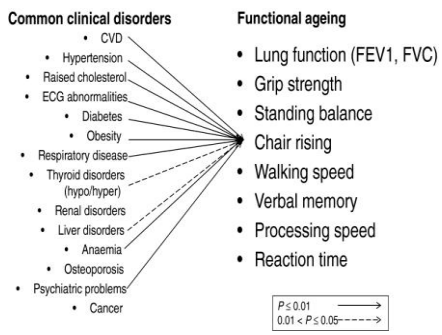
Key drivers of our research





Kuh et al. (2014)

- ❑ **Ageing population**
- ❑ **Sarcopenia and its implications on health span**

EWGSOP2 (2018) and Mayhew et al. (2018)

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- Increase in **protein intake** for managing sarcopenia (*Janssen et al. 2004a; Clark et al. 2010; Lang et al. 2010; Lieffers et al. 2012*). Evidence supports1.0-1.6 $g \cdot kg^{-1} \cdot d^{-1}$ (*Bauer et al. 2013; Deutz et al. 2014; Loenneke et al. 2016; Traylor 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*).

Examples of what ~ 30 g protein looks like……




- Consumption of **at least 0.4 $g \cdot kg^{-1} \cdot BM$** of high quality protein per meal (*Moore et al. 2014; Phillips 2015; Lancha Jr et al. 2016*) is also recommended.
- High essential amino acid (**EAA**) content optimises muscle protein synthesis (*Breen et al. 2011; Churchward-Venne et al. 2014; Paddon-Jones et al. 2014; Xu et al. 2015; Murphy et al. 2016; Phillips 2016; Hamarsland et al. 2017*).

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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.

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Ispoglou et al. Nutrition Journal (2017) 16:75
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Nutrition Journal

RESEARCH Open Access

Novel essential amino acid supplements enriched with L-leucine facilitate increased protein and energy intakes in older women: a randomised controlled trial

Theocharis Ispoglou[1,2*], Kevin Deighton[1], Roderick FGJ King[1], Helen White[2] and Matthew Lees[1]

Ispoglou et al. (2017)

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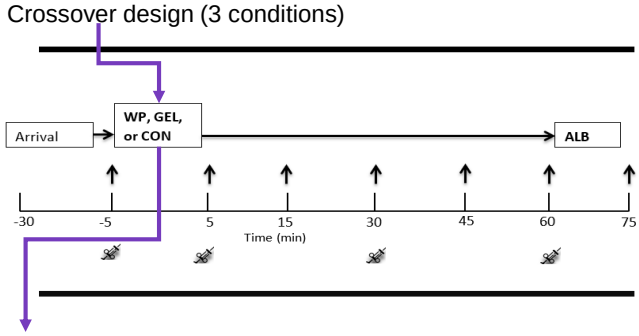
Methods

Crossover design (3 conditions)



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

N=10

69.2 ± 2.7 years of age

Body mass of **60.8 ± 7.1**

Height of **163.1 ± 3.0 cm**

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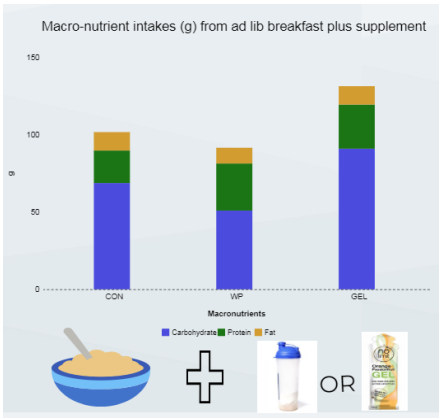
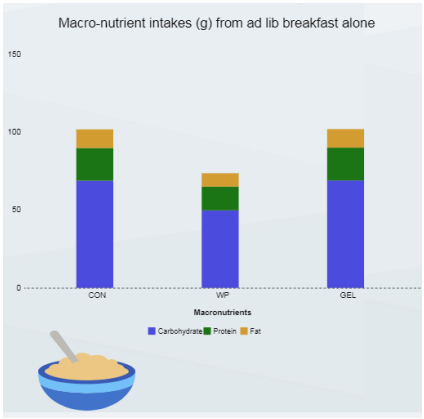
Results





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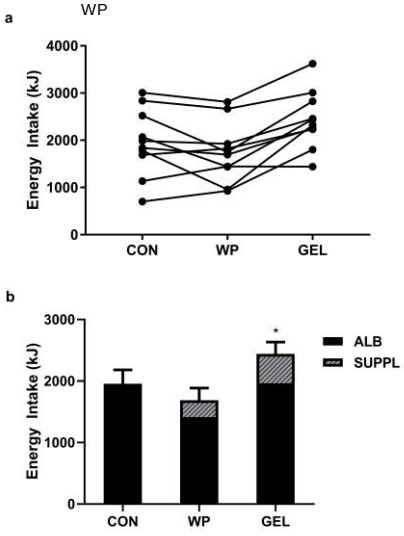
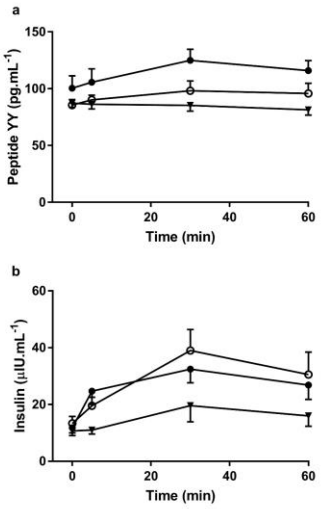
An asterisk sign (*) denotes significantly different from CON and WP



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).*

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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 **EAAs** supplementation intake for addressing age-related sarcopenia.*

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