



LEEDS BECKETT UNIVERSITY
CARNEGIE SCHOOL OF SPORT

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

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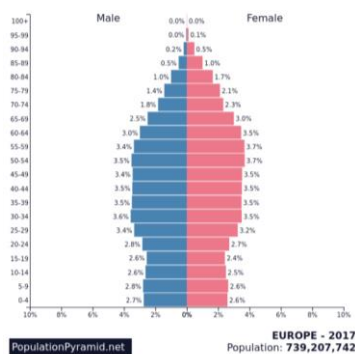
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@Theo_Ispoglou

Key drivers of our research



Common clinical disorders

- CVD
- Hypertension
- Raised cholesterol
- ECG abnormalities
 - Diabetes
 - Obesity
- Respiratory disease
- Thyroid disorders (hypo/hyper)
- 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

$P \leq 0.01$ —————→
 $0.01 < P \leq 0.05$ - - - - ->

Kuh et al. (2014)

Ageing population

Sarcopenia and its implications on health span

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



- 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 $1.0\text{-}1.6\text{ g}\cdot\text{kg}^{-1}\cdot\text{d}^{-1}$ (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 $0.4\text{ g}\cdot\text{kg}^{-1}\cdot\text{BM}$** 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).

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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Nutrition Journal

RESEARCH

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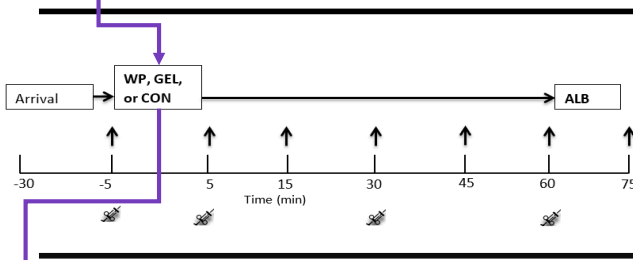
Novel essential amino acid supplements enriched with L-leucine facilitate increased protein and energy intakes in older women: a randomised controlled trial

Theocharis Isopoglou^{1*}, Kevin Deighton¹, Rodenick FGJ King¹, Helen White² and Matthew Lees¹

Isopoglou 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



N=10

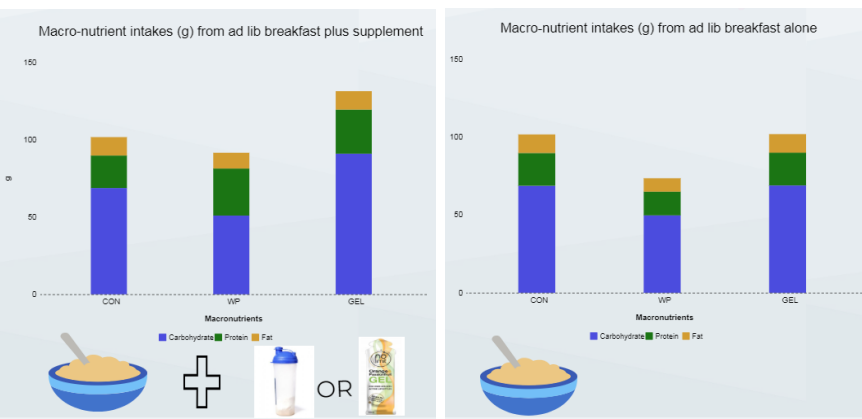
69.2 ± 2.7 years of age

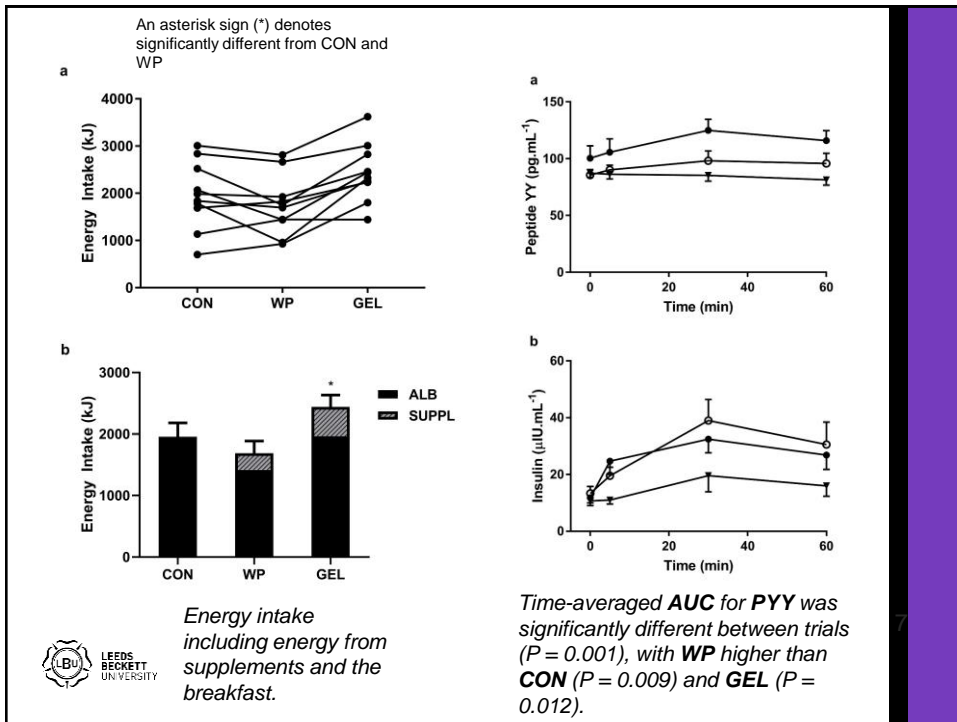
Body mass of 60.8 ± 7.1

Height of 163.1 ± 3.0 cm



Results





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



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