Plant Based Feeds
What is the evidence?

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Why Plant Based Clinical Nutrition?

- Reduce reliance on animal derived ingredients
  - Animal welfare
  - Cultural
  - Religious
  - Lifestyle choice
- Sustainability
- Perceived health benefits of plant-based diet
- Allergies / intolerances to animal based ingredients
- CHOICE

Current challenges

- UK practice = less options at present
- Majority of ETF products – cow's milk, fish oils, vitamin D
- Low allergen feeds / soy with micronutrients derived from animals
- Recent introduction of plant based ONS & modular protein products
- Evidence base lacking, transfer from oral / ONS to ETF

frontiers | Frontiers in Nutrition

TYPE Original Research
PUBLISHED 10 November 2023
DOI 10.3389/fnut.2023.1297624

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OPEN ACCESS

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A multi-center prospective study of plant-based nutritional support in adult community-based patients at risk of disease-related malnutrition

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28-day single-arm prospective trial

Patient Group

- 24 patients at risk of malnutrition
- 59yr (SD18)
- 6 male: 18 female
- Diagnoses: UGI cancer; Ca lung; CVD; COPD; Heart Failure

Intervention

- Ready to drink ONS
- Protein: Pea & Soy Protein isolate PDCAAS = 1
- 300kcal, 12g protein, 200ml, vitamins, minerals
- Mean prescription 413kcal 17g protein 275ml

Plant based ONS - acceptability & adherence

Acceptability Question	% Strongly agree/agree
Easy to drink	83
Adequate volume	88
Convenience	92
Fits in with my current diet	83
Well tolerated	79
Easy to open	83
Good quality/durable (the bottle)	100
Quick for me to drink	75
Adequate consistency	67
Pleasant to smell	67
Appealing to look at (the liquid)	71
Enjoyable to taste	67
Pleasant aftertaste	70
Likeable overall	70

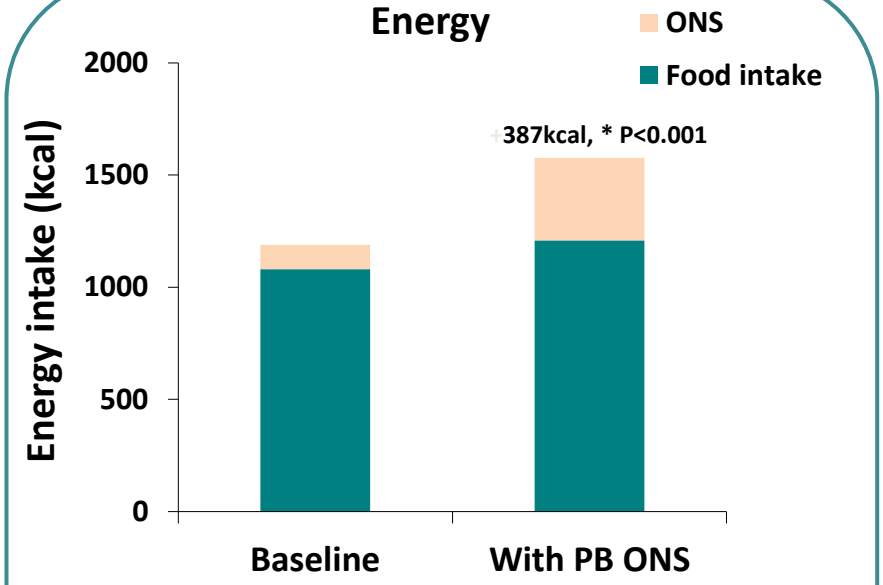
Compliance
(% of prescription consumed)

94%
(SD 16)

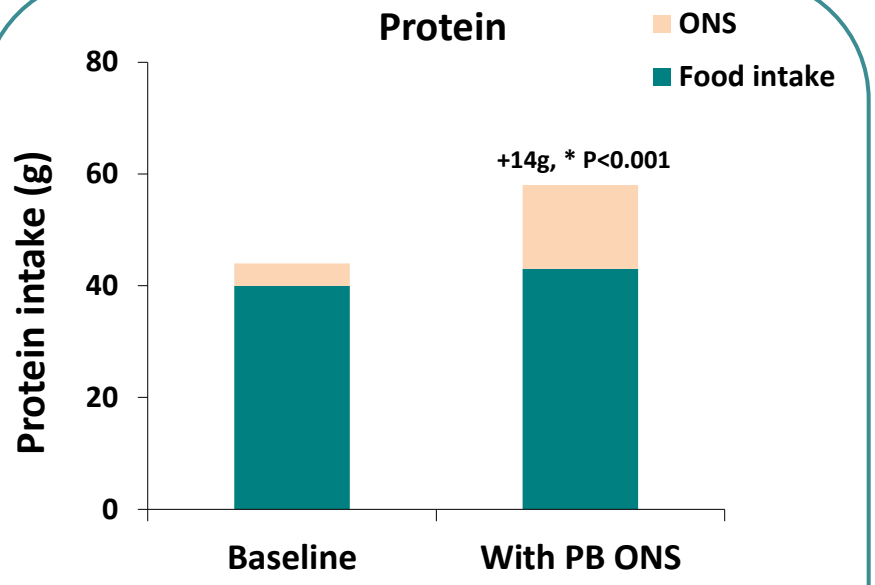
Delsoglio, Griffen, Syed et al 2023

Plant based ONS

Significant improvements in total energy and protein intakes with a ready to drink plant based (ONS)



From 80% to 111% of est. energy requirements



From 76% to 106% of est. protein requirements

No suppression of food intake and appetite scores maintained

Delsoglio, Griffen, Syed et al 2023

Plant based tube feed

Prospective single-arm trial in home enterally tube fed patients, 28 days, 6 month follow up

Patient group:

41 home enterally tube fed patients (28-days)
17 home enterally tube fed patients (6-months)

age 51y (SD 23), 22 male, 19 female
Tube feeding: 4.6y (range 1-22y)
Continuous pump feeding: n=34
Bolus tube feeding: n=7

Diagnoses: head & neck cancer, gastroparesis, stroke, Duchenne muscular dystrophy, Ehlers-Danlos syndrome, malabsorption, complex learning difficulties, COPD

Intervention: Tube feed

Ready to use HE, HP plant based enteral tube feed

Protein sources: pea & soy protein isolate. PDCAAS = 1

2.0kcal/ml, 10g protein/100ml
+/- 1.5g fibre/100ml
nutritionally complete in micronutrients / 750ml

Mean prescription: 1322kcal (SD 200)
66g (SD 14) protein, 674ml

Griffen, Wyer, Martin et al 2023a,b

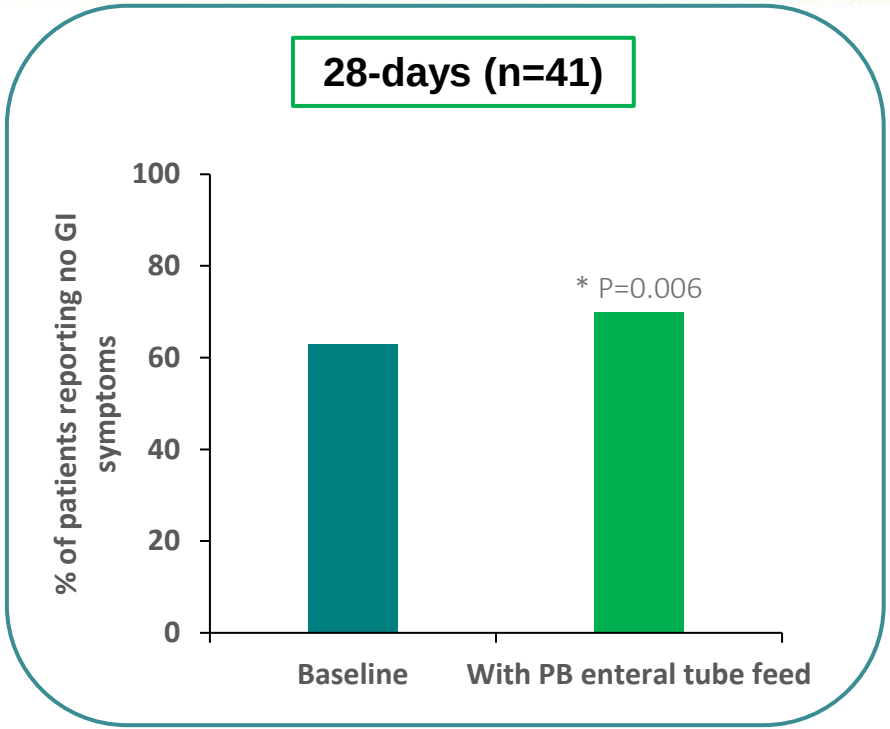
Plant based tube feed

- ↓
  - Gastrointestinal symptoms ($p<0.05$)
- ↑
  - Protein intake ($p<0.05$)
  - Total daily volume ($p<0.05$)
- ↑
  - 30SCST ($p=002$)

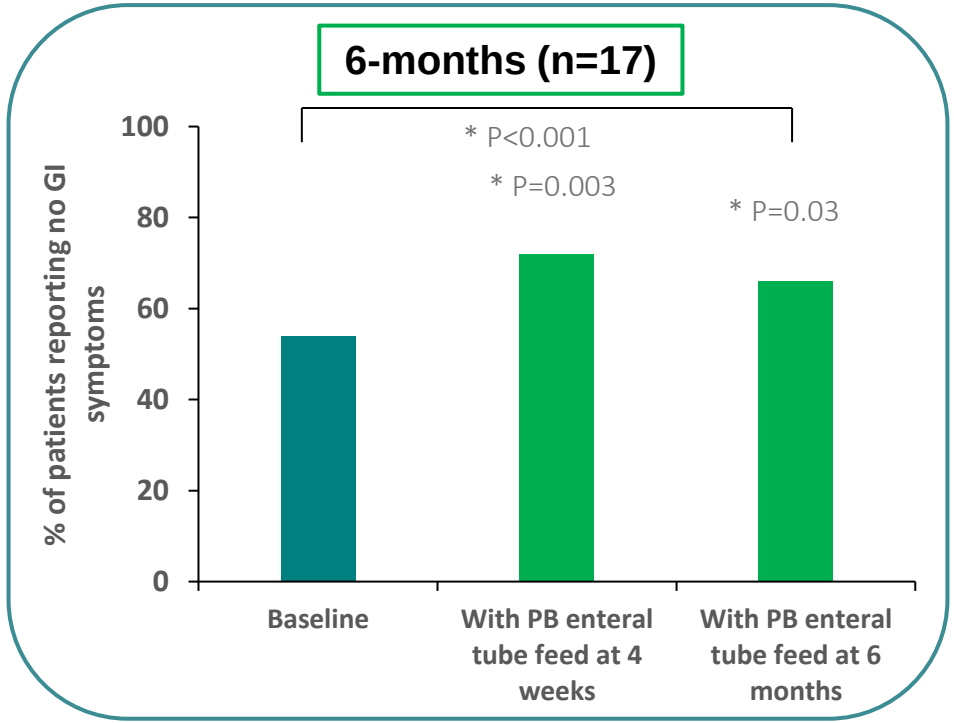
Acceptability score ≥64% strongly agreeing/agreeing with all acceptability outcomes

Griffen, Wyer, Martin et al 2023a,b

Plant based tube feed



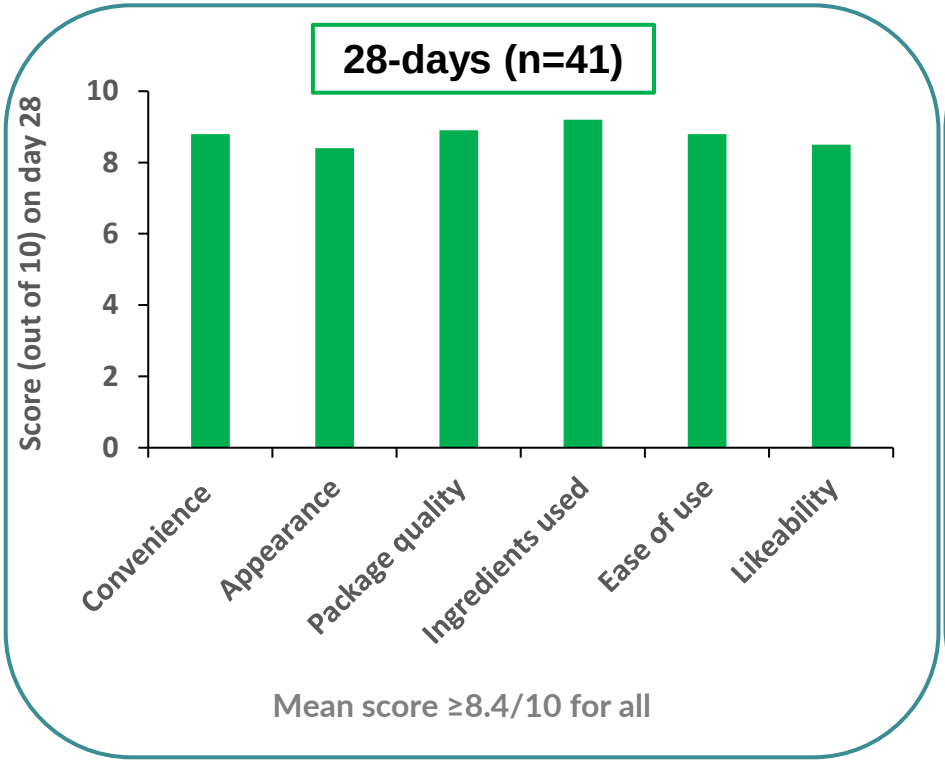
From 63% to 70% of patients

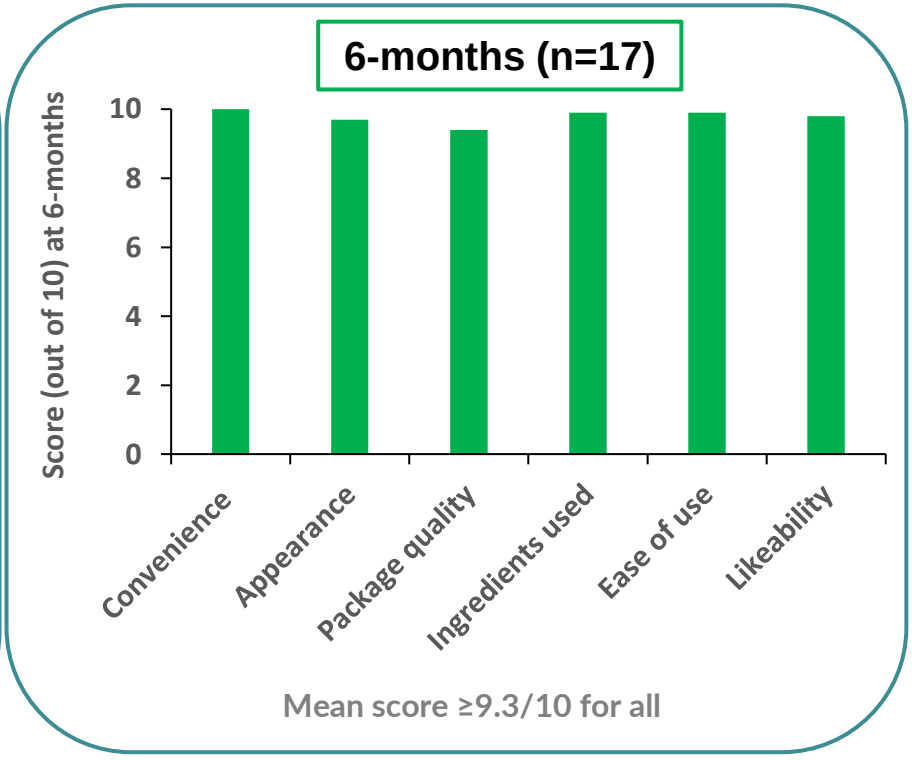


From 59% to 74% and 66% of patients

Griffen, Wyer, Martin et al 2023a,b

Plant based ETF - acceptability

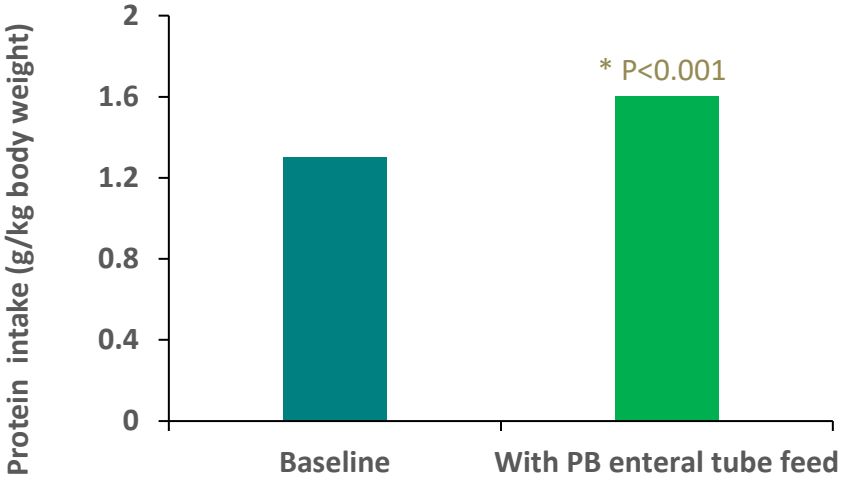




Griffen, Wyer, Martin et al 2023a,b

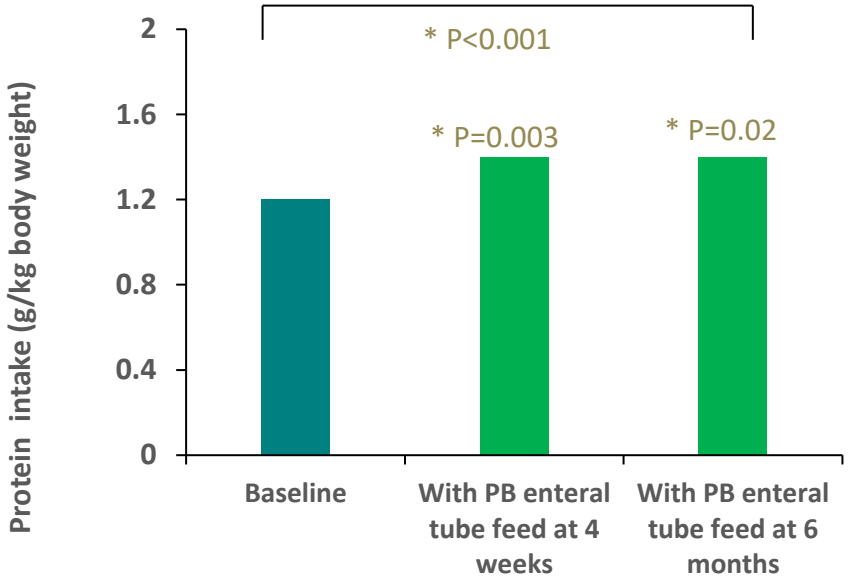
Plant based ETF – protein intake

28-days (n=41)



From 1.3g/kg/day to 1.6g/kg/day

6-months (n=17)



From 1.2g/kg/day to 1.4g/kg/day at 4-weeks and 6-months

Griffen, Wyer, Martin et al 2023

Questions

- Do plant based enteral nutrition formulas have improved clinical outcomes in acute settings?
- Can plant based formulas improve the gut microbiota
- How big an impact can they have on sustainability? Other parts of the production and supply chain to consider too

Conclusions

- Need for effective interventions for disease related malnutrition that:
  - Address clinical & nutritional needs
  - Meet patient dietary needs & preferences
- Emerging evidence – much more research needed – larger trials, acute & community, different patient groups
- Evidence, to date, for plant-based feeds show good acceptability, tolerance and compliance
- Plant based feeds in practice
  - Increase variety to meet a range of clinical indications

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