

# Low volume vs standard oral nutrition supplement wastage in hospital: a pilot comparative effectiveness trial

## Background

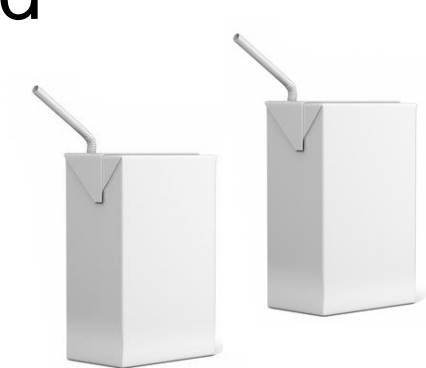
- Oral nutrition supplements (ONS) are a common and effective intervention to combat malnutrition in hospital patients
- RCTs demonstrate ONS is effective in reducing mortality and complications, improving body weight and function, and reducing health care costs<sup>1-3</sup>
- Patient adherence can be a barrier, which may be improved by using lower volume ONS according to a systematic review.<sup>4</sup> However, authors noted the evidence quality was low, with few RCTs formally assessing adherence/wastage of standard vs lower volume ONS in hospitalised patients.<sup>4</sup>

## Method

This pilot trial examines wastage and consumption of low-volume vs standard volume ONS in preparation for a definitive trial. Aims are to pilot the study protocol and obtain data for sample size calculation for the larger trial.

We conducted a pilot comparative effectiveness trial embedded in usual practice at a 750-bed tertiary public hospital in Australia. Patients were recruited from four acute medical and surgical wards and were eligible if they were malnourished or at risk and dietitians planned to prescribe them 2 x ONS / day.

Patients were randomised to receive either:



2 x 200mL standard ONS (1.5kcal/mL) per day (control)  
1263kJ, 12.5g protein per serve

or



2 x 125mL Fortisip Compact Protein (2.4kcal/mL) per day (intervention)  
1263kJ, 18g protein per serve

ONS containers were weighed after patient consumption to calculate grams consumed/wasted and energy/protein intakes from ONS for three days. Patients completed a satisfaction survey about their ONS prior to study completion. Data were analysed using SPSS.

## Results

50 patients were enrolled (consent rate 78%). Their median age was 74 (range 23–88) years and 64% were male. Most (78%) were recruited from the respiratory ward. Median length of stay was 8 (range 1–22) days.

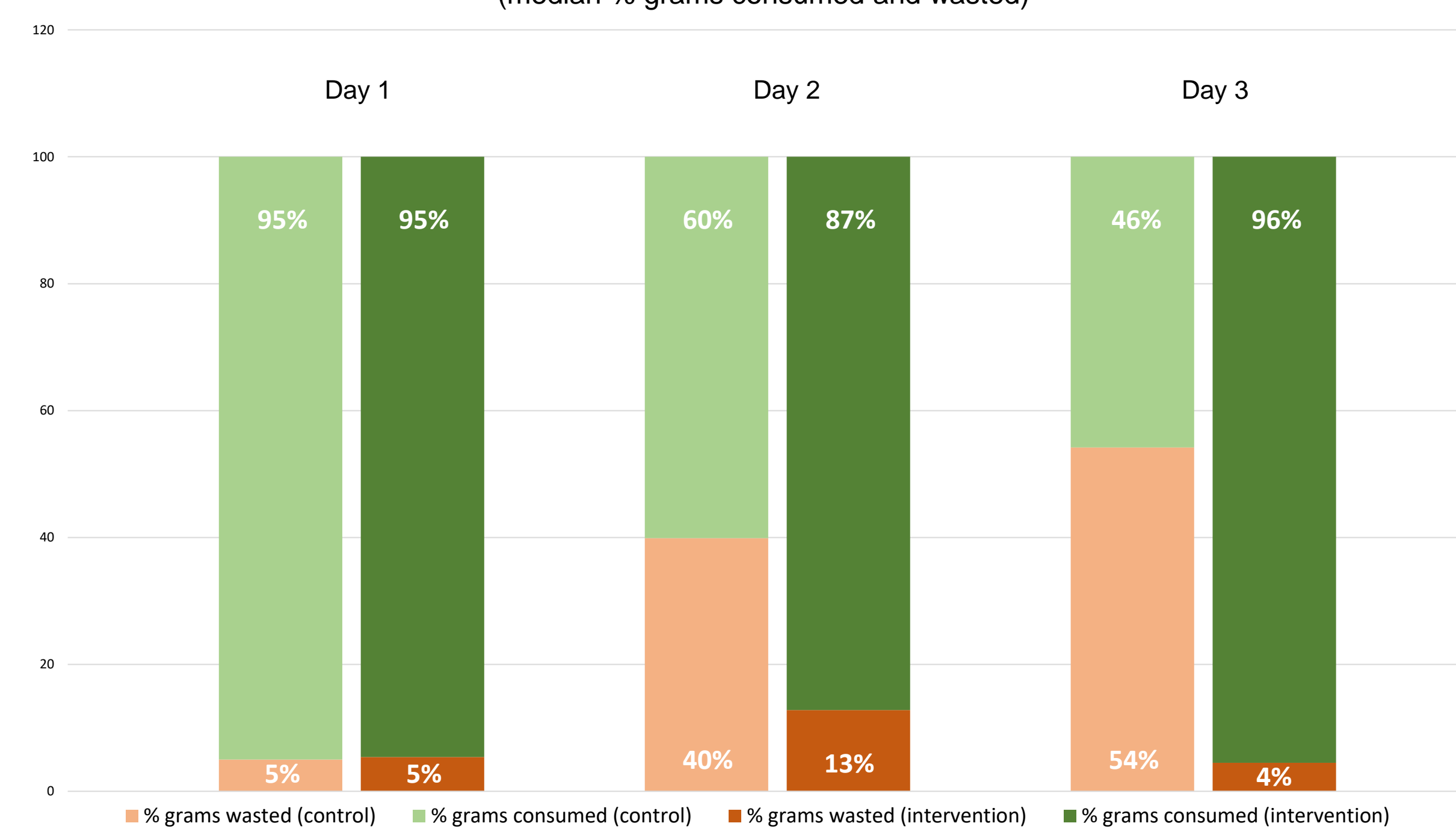
The median % grams wasted remained low in the intervention group but increased over time for the control group (see Figure). Median (interquartile range) daily energy and protein intakes from ONS are displayed in the table below.

Energy and protein intakes were significantly higher in the intervention group compared to the control group on Study Day 3 (note this was a pilot study).

Intake from ONS	Group	Day 1 (n=34)	Day 2 (n=32)	Day 3 (n=19)
Energy (kJ)	Control	1235 (1026–2461)	1244 (810–2420)	1157 (90–2351)
	Intervention	1219 (731–2400)	1534 (458–2391)	2410 (612–2455)*
Protein (grams)	Control	12.4 (10.3–24.6)	12.5 (8.1–24.3)	11.5 (0.9–23.5)
	Intervention	18.0 (10.8–35.0)	22.7 (6.0–35.3)	35.6 (25.0–36.0)*

\*Significantly different from control group (p<0.05)

ONS consumption and wastage between groups<sup>^</sup>  
(median % grams consumed and wasted)



<sup>^</sup>No statistically significant differences between groups (pilot study only)

## Summary

Note: This study was funded by an unrestricted educational grant from Nutricia Danone. The funder had no role in study design, data analysis, or presentation of findings.

The protocol is feasible in the hospital setting. Lower volume ONS may be better tolerated over time, with a trend for better consumption and less wastage than the standard (control) ONS over the three study days. Energy and protein intake from ONS was higher in the intervention group on Day 3. These are pilot data only so must be interpreted with caution. A definitive trial is needed to confirm these trends.

## References

1. Cawood, A.L., M. Elia, and R.J. Stratton, Systematic review and meta-analysis of the effects of high protein oral nutritional supplements. *Ageing Research Reviews*, 2012. 11(2): p. 278-296.
2. Stratton, R.J. and M. Elia, A review of reviews: a new look at the evidence for oral nutritional supplements in clinical practice. *Clinical Nutrition Supplements*, 2007. 2(1): p. 5-23.
3. Elia, M., et al., A systematic review of the cost and cost effectiveness of using standard oral nutritional supplements in community and care home settings. *Clinical Nutrition*, 2016. 35(1): p. 125-137.
4. Krebs, F., et al., Distribution of oral nutritional supplements with medication: Is there a benefit? A systematic review. *Nutrition*, 2022. 96: p. 111569.

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