The effect of energy-dense, low-volume pediatric oral nutritional supplements in children requiring nutritional support

Results of a randomized controlled trial[1]

Aim:

Investigate the effect of a pediatric specific compact-style oral nutritional supplement (ONS) on nutrient intake and growth in pediatric patients requiring nutritional support over 28 days.

Method:

Randomized controlled trial

Design: RCT, parallel

Study group: Children (1-12y) with faltering growth requiring ONS to meet their nutritional requirements (N=51)

Study centers: 11 healthcare centers, UK

Intervention: Energy-dense, low-volume pediatric ONS (2.4 kcal/mL, 125mL)

Control arm: Standard pediatric ONS (1.5 kcal/ml, 200mL)

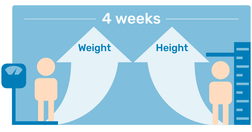
Duration: 28 days

Results:

Demonstrated **strong efficacy among pediatric patients**

1 Catch-up growth in just 4 weeks[1]

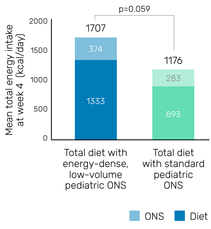
+0.28kg over 4 weeks, (p=0.007)
Associated increase in z-score of +0.07 (p=0.08)



+0.87cm over 4 weeks, (p<0.001)
Associated increase in z-score of +0.10 (p=0.006)

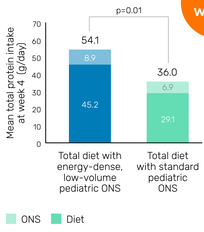
2 Improved intake from ONS & from everyday food in just 4 weeks[1]

45% higher mean total **energy** intake with **energy-dense, low-volume pediatric ONS**[1]

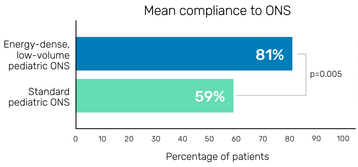


50% higher mean total **protein** intake with **energy-dense, low-volume pediatric ONS**[1]

4 weeks



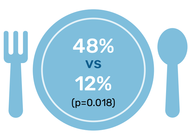
3 Higher patient compliance* vs standard ONS[1]



Compliant (≥75% of prescribed ONS volume consumed)

*Patients consuming ≥ 75% of their prescribed ONS

4 4X greater appetite over time versus standard ONS[1]



5 Well tolerated[1] across a range of diseases*

*Primary diagnosis was faltering growth (n = 21) with underlying conditions including respiratory (n = 11), genetic (n = 7), central nervous system (n = 7), gastro-intestinal (n = 5), cardiac (n = 4), neurodevelopmental (n = 4), prematurity (n = 3), intrauterine growth retardation (n = 2), developmental delay (n = 1), and autoimmune (n = 1) conditions.

Conclusion:

This study shows that use of energy-dense low-volume pediatric ONS (2.4 kcal/ml), among pediatric patients requiring oral nutritional support, leads to:

- **catch-up growth in just 4 weeks**
- **improved nutritional intake & appetite over time** (vs standard pediatric ONS)
- **higher patient compliance** (vs standard pediatric ONS)

	200 ml Standard pediatric ONS	**125 ml** Energy-dense low-volume pediatric ONS
Energy	300kcal	300kcal
Energy density	1.5kcal/ml	2.4kcal/ml
Protein	6.6g	7.1g
Fiber	3g	3g

Reference:
1. Hubbard, G. P., Fry, C., Sorensen, K., Casewell, C., Collins, L., Gunjamalay, A., & Stratton, R. J. (2020). Energy-dense, low-volume paediatric oral nutritional supplements improve total nutrient intake and increase growth in paediatric patients requiring nutritional support: results of a randomised controlled pilot trial. European journal of pediatrics, 1-10.