TITLE: SUSTAINED VISCERAL AND TOTAL BODY FAT LOSS FOLLOWING 2 WEEKS OF EXCLUSIVE ORALLY-INGESTED ISOCALORIC PALATABLE ELEMENTAL DIET

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Abstract Body: Elemental diets (EDs) are complete meal replacements containing the required daily allowance. While EDs have established use in treatment of several diseases including inflammatory bowel disorders, small bowel bacterial overgrowth (SIBO), and intestinal methanogenic overgrowth (IMO), their use is limited due to poor taste. Despite improving nutrient deficiencies, prior studies have observed a modest weight loss with exclusive ED. We aimed to assess the effect of a two-week course of a novel palatable ED on the body composition.

Methods: Adult subjects with SIBO and IMO were included. All subjects consumed 2 weeks of exclusive isocaloric oral palatable ED (mBiota Elemental, USA, NCT05978973) and were followed for 2 weeks upon reintroduction of regular diet. Morning body composition assessment via bioelectrical impedance (InBody970, Cerritos, CA) were performed at baseline, weeks 2 (at the time of ED completion) and 4 (2 weeks after ED completion). Paired t-test was used to compare the values before and after ED.

Results: 30 subjects were included. Nineteen (63.3%) were female with a mean age±SD of 45.9±14.5 years. Compared to the mean±SD baseline weight of 155.3±44.0 pounds, the weights at week 2 and 4 were 147.6±42.4 (p<0.001), and 149.3±43.6 (p<0.001) pounds, respectively (**Table1**). The mean percentages of weight loss at weeks 2 and 4 were 5.0±2.1%, and 4.0±2.4%, respectively. Compared to the baseline of mean fat percentage of 28.0±10.5%, the fat percentages at week 2 and 4 were 27.4±10.7% (p<0.001), and 26.5±10.6% (p<0.001), respectively. The mean percentages of visceral fat loss at week 2 and 4 were 9.6±11.0 % (p<0.001), and 11.2±12.8 % (p<0.001), respectively. Minimal but statistically significant reduction in dry lean weight was observed from the baseline with the mean of 29.4±7.1 at baseline, 28.2±7.0 (p=0.0002) at week 2, and 28.7±7.1 (p=0.0001) pounds at week 4, respectively. No serious or severe adverse events were reported.

Conclusion: Exclusive ED leads to a significant reduction in body fat percentage and visceral fat area with a minimal drop in dry lean weight. Interestingly, fat loss continued for 2 weeks after reintroduction of regular food. Future studies should assess the mechanistic pathways of non-sarcopenic fat loss with isocaloric ED.

Table 1 Body composition metrics at baseline, week 2 (immediate after elemental diet completion), and week 4 (2 weeks after elemental diet)

	Baseline	**Changes at Week 2 (%)**	**p-value**	**Changes at Week 4 (%)**	**p-value**
Body mass index (kg/m^2), n (%) <25 25-29.9 ≥30	 18 (60%) 7 (23%) 5 (17%)	 24 (80%) 4 (13%) 2 (7%)		 23 (77%) 5 (16%) 2 (7%)	
Total body weight (pounds)	155.3 ±44.0	-5.0 ±2.1	<0.001	-4.0 ±2.4	<0.001
Total body fat (pounds)	45.1 ±30.0	-3.2 ±2.7	<0.001	-4.0 ±2.6	<0.001
Fat percentages (%)	28.0 ±10.5	-3.2 ±5.9	<0.001	-6.8 ±6.5	<0.001
Visceral fat area (cm^2)	94.4 ±57.0	-9.6 ±11.0	<0.001	-11.2 ±12.8	<0.001
Dry lean weight (pounds)	29.4 ±7.1	-4.2 ±2.1	0.0002	-2.0 ±2.4	0.0001