



Clinical Research Supporting Blenderized Diets for Enteral Patients

STUDY	LOCATION	SOURCE	STUDY OBJECTIVE	PATIENTS IN STUDY	STUDY HIGHLIGHTS
Pureed by Gastrostomy Tube Diet Improves Gagging and Retching in Children With Fundoplication	Cincinnati Children's Hospital	Journal of Parenteral and Enteral Nutrition, May 2011, Penttiuk, S. et al.	Children with feeding disorders requiring Nissen fundoplication continue to exhibit gagging and retching following gastrostomy feedings. This study used a "pureed by gastrostomy tube" (PBG) diet in an attempt to treat these symptoms and provide adequate nutrition and hydration.	Children post-fundoplication surgery with symptoms of gagging and retching with gastrostomy feedings. Average age 2.85 years old, n=34.	52% of participants had a 76%-100% reduction in gagging and retching. Twenty-four children (73%) were reported to have a ≥ 50% decrease in symptoms. No child had worsened symptoms. 57% of children were reported to have an increase in oral intake. The higher viscosity of the feedings may be one reason why gagging and retching decreased.
Blenderized Tube Feeding Use in Adult Home Enteral Nutrition Patients: A Cross Sectional Study	Mayo Clinic	Nutrition in Clinical Practice, July 2015, Hurt, R. et al.	There are limited resources available for patients interested in BTF, and studies evaluating safety and effectiveness are limited. The purpose of the present cross-sectional study was to determine the BTF prevalence and frequency of use in adults receiving HEN.	Adult enteral patients over the age of 18 and prescribed commercial tube feeding. n=54.	55.5% of patients used Blenderized Tube Feeding (BTF) in addition to enteral prescription and approximately 80% expressed a desire to use BTF despite being prescribed commercial enteral formula. Of those that used BTF, 80% of patients were able to maintain goal body weight on blenderized enteral with improved tolerance as evidenced by significantly less nausea, vomiting, bloating, diarrhea, and constipation compared with commercial formula.
Blenderized Enteral Nutrition Diet Study: Feasibility, Clinical, and Microbiome Outcomes of Providing Blenderized Feeds Through a Gastric Tube in a Medically Complex Pediatric Population	The Hospital for Sick Children	Journal of Parenteral and Enteral Nutrition, January 2018, Gallagher, K. et al.	To evaluate the feasibility of using BTFs in a medically complex pediatric population and assess their impact on clinical outcomes, as well as the microbiota.	G-tube patients with an average age of 3.4 years. More than 75% of calories from enteral feedings. 45% of patients on elemental or semi-elemental formulas prior to being transitioned to a blenderized enteral diet. n=22.	Prevalence of vomiting decreased from 76% to 53% when transitioned to blenderized enteral feeding. Gagging and retching decreased from 82% to 47% and use of acid-suppressive agents significantly decreased when transitioned to Blenderized Tube Feeding (BTF). Caregivers unanimously indicated they would recommend BTF. All patients on elemental or semi-elemental diet tolerated BTF. Microbiome samples for those using BTF showed improved bacterial diversity and richness in stool samples.
The Effect of a Natural Food Based Tube Feeding in Minimizing Diarrhea in Critically Ill Neurological Patients	Institute for Neurorehabilitation Research	Clinical Nutrition, January 2018, Schmidt, S., et al.	To study the effect of tube feeding with natural foods in reducing the number of fluid stool evacuations and diarrhea in critically ill neurological patients.	Patients who had suffered ischemic stroke, intracerebral hemorrhage, traumatic brain injury, or hypoxic brain damage and required enteral nutrition. n= 118.	Tube feeding with natural based food was effective in reducing the number of watery defecations and diarrhea in long term tube-fed critically ill neurological patients when compared to those fed with standard tube feeding.
Blenderized Gastrostomy Feeding (BGF) Enhances Enteral Tolerance in Children With Short Bowel Syndrome (SBS)	The Children's Hospital at Montefiore	Poster presentation, October 2019, Thompson, J., et al.	To determine if a complex diet would enhance enteral tolerance by several potential mechanisms, including increased transit time, alterations in microbiome, and enhanced intestinal adaptation.	Children ages 4 months-6 years who were transitioned from elemental amino acid formula to blenderized gastrostomy feed. n=17.	The researchers hypothesized that a [whole food] diet would enhance enteral tolerance. Blenderized Gastrostomy Feeding (BGF) was well tolerated by children with short bowel syndrome (SBS). Stool frequency and stool consistency all improved both at 1 month and 6-8 months after BGF was started. BGF appears to enhance enteral tolerance and new food acceptance in SBS patients. At the start of the study, 8/17 children were exclusively G-tube fed and at 6-8 months after starting BGF, all 8 were taking oral feeds. After starting BGF, patients using parenteral nutrition (PN) were also able to decrease their calories needed through PN.



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These studies used Real Food Blends with their subjects as a commercial blenderized diet product.

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Health Outcomes and Quality of Life Indices of Children Receiving Blenderized Feeds via Enteral Tube	Boston Children's Hospital	The Journal of Pediatrics, October 2018, Hron, B., et al.	To determine whether clinical and patient-reported outcomes differ in children receiving blenderized diets compared with conventional formula.	Children aged 1-18 years receiving blenderized diets vs conventional formula via feeding tube. n=70.	Rates of total visits to the emergency department (ED), total admissions, and respiratory-related admissions per year were significantly lower in participants receiving blenderized diets. Visits to the ED decreased by 43%, hospital admissions decreased by 53%, and there was a 67% reduction in respiratory related admissions. Researchers theorized that increased viscosity, improved nutrient profile, and increased dietary diversity led to these results.
Use of Commercial Blenderized Tube Feeding in Pediatric Dialysis Patients	Children's Hospital of Los Angeles	Poster presentation, October 2019, Ellen McCloy, MS, RD, CNSC	The objective of this ongoing study is to provide a novel, meal-based BTF product (Real Food Blends) to children requiring dialysis.	Pediatric enteral patients with kidney disease who were failing their current tube feeding regimen and/or their parents had a preference for blenderized feeds. n=5.	Five pediatric patients (1 peritoneal and 4 hemodialysis) were put on a combination of RFB and traditional renal formula for at least 6 months. One patient was able to discontinue Zofran and ranitidine. One patient was able to discontinue formula treatment with Kayexalate. One patient reported improved blood sugar control with reduction in need for insulin. Parents reported strong preference for giving their child BTF rather than formula alone. Most reported improvement in gastrointestinal symptoms.
Efficacy and Tolerance of Blended Diets in Children Receiving Gastrostomy Feeds	Johns Hopkins Hospital	Nutrition in Clinical Practice, September 2019, Batsis, I., et al.	To determine the prevalence of gastrointestinal (GI) symptoms in children receiving a blended diet via a gastrostomy tube.	Children ages 1-18 years, with 35% on whole cow milk formulas, 30% on hydrolysate formulas, and 35% on amino acid-based formulas. n=23.	For the study, 65% received homemade blended diets, 17.5% received commercial blended diets, and 17.5% received a combination of both. 95% of patients who were previously experiencing upper GI symptoms improved within the first 3 months. Prior to the study, several patients had been switched to an amino-acid based formula due to GER or vomiting despite testing negative for a milk protein allergy. These patients were introduced to dairy with blended diets and had good tolerance. The researchers hypothesized that this was likely due to improved motility on the blended diet and that these patients did not have true difficulties with protein intolerance.