

GETTING *SPECIFIC* ABOUT FEEDING YOUR GUT

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Enteral Nutrition Therapy - Overview

Effective treatment for some patients with Crohn's disease

80-100% of calories from nutritionally complete supplements

- Taken orally, feeding pump using nasogastric (NG) tube, or combination

Typically takes 6-12 weeks to induce remission

- May be used as long-term maintenance therapy

Promotes mucosal healing

Unclear mechanism of action

- Few theories being explored

Enteral Nutrition Therapy: Case Study

- ▶ 14 yo female
- ▶ Diagnosis History:
 - ▶ Presented to GI for a perirectal abscess, skin tags, and bloody stools
 - ▶ MRI and EGD/Colonoscopy showed extensive inflammation of the terminal ileum
 - ▶ Labs revealed elevated erythrocyte sedimentation rate and C-reactive protein (markers of inflammation), in addition to iron-deficiency anemia
 - ▶ Diagnosis of Crohn's disease

continued:

- ▶ **GI ROS:** normal bowel movements, blood in stool
- ▶ **Medication/Therapy options:** biologics (Remicade or Humira) or enteral nutrition therapy
 - ▶ Chose to pursue ENT
- ▶ **Vitamin/mineral supplements:** multivitamin, probiotic
- ▶ **Growth parameters - within normal limits:**
 - ▶ Weight: 53 %ile, (Z= 0.06)
 - ▶ Height: 61 %ile (Z= 0.27)
 - ▶ BMI: 68 %ile (Z= 0.46)

Case Study: Induction and Monitoring

Plan: Induction using partial EEN with ~2000 calorie diet

80% of calories
from formula

1600 calories
~4.5-5 cans of
Boost/Ensure Plus

20 % of
calories from
food

400 calories
3-4 snacks or mini
meals

Additional Recommendations

- Discontinued multivitamin supplementation
- Needed additional 39 ounces of water to meet hydration needs

After 8 week induction
period...

- Notable improvement in erythrocyte sedimentation rate and C-Reactive Protein (markers of inflammation)
- Improvement in anemia
- Appropriate weight gain

Differences in Outcomes Over Time With Exclusive Enteral Nutrition Compared With Steroids in Children With Mild to Moderate Crohn's Disease: Results From the GROWTH CD Study

Methods: Prospectively followed newly diagnosed children age 4-17 years, with mild to moderate CD at baseline, for 2 years in the GROWTH CD study. Excluded patients because they did not receive CS or EEN OR because they used combination of therapies.

- ▶ Total of 147 children [mean age 12.9 ± 3.2 years], treated by EEN [$n = 60$] or CS [$n = 87$]
 - ▶ Evaluated at baseline and at 8, 12, 78, and 104 weeks.
 - ▶ Followed remission, relapses, complications [fibrostenotic disease penetrating disease, and active perianal disease] and growth. A propensity score analysis was performed.

CS = corticosteroid
EEN = exclusive enteral
nutrition

Results Summary

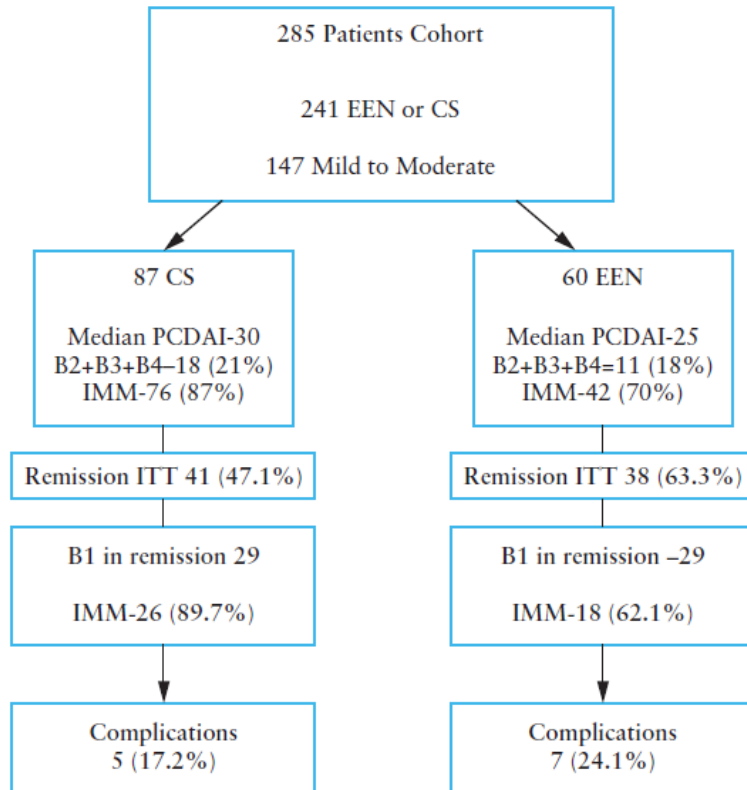


Figure 1. Consort diagram.

- ▶ Remission rates were higher in EEN group than CS group- achieved in 41/87 [47%] in CS and 38/60 [63%] EEN
- ▶ There was not a significant difference between median time to relapse, complication, and surgery rates
- ▶ Mean height Z scores decreased in CS group. Mean height scores remained stable for EEN group

CS = corticosteroid
EEN = exclusive enteral nutrition

Specific Carbohydrate Diet (SCD)

- ▶ Eliminates
 - ▶ Most grains besides nut based flours
 - ▶ All sugars except honey
 - ▶ Most commercially prepared foods with additives
- ▶ Encourages wholesome foods that are easily digested
- ▶ Mechanism: +monosaccharides, restore balance of bacteria in the gut
- ▶ Small studies, non-randomized supporting efficacy - larger clinical trials needed (and are ongoing)
- ▶ Close monitoring by medical team and dietitian



IBD SCD Case Study:

- ▶ 15 year old female
- ▶ Diagnosed Crohn's Disease
- ▶ Diagnosis History:
 - ▶ Initially, primary symptom was abdominal pain and weight loss
 - ▶ EGD/colonoscopy at this time revealed erosions in the stomach, small bowel, and colon with evidence of chronic inflammation and granulomas on histology
 - ▶ Labs demonstrated elevated sedimentation rate, normal Hgb, normal albumin, fecal calprotectin was 1200
 - ▶ Started on Pentasa → Entocort wean → plan for thiopruine + SCD diet for 12 weeks

continued:

- ▶ DXA, Ultrasound (Bowel)
- ▶ GI ROS: normal bowel movements, +appetite, +activity level
- ▶ Medications: Prilosec, Pentasa (decreased over time), (weaned Entocort)
- ▶ Vitamin/mineral supplements: 1000IU Vitamin D3 + 1000mg calcium

Diet History:

Breakfast: scrambled eggs, homemade yogurt with banana + almond butter, 8 ounces water, or homemade smoothies (nut butter, yogurt, banana, almond butter)

Snack: apple slices, 8 ounces water

Lunch: (packing) tuna salad, salad with baked chicken or egg tossed in olive oil and fresh lemon juice, carrot sticks, tomatoes, avocado, 8 ounces water

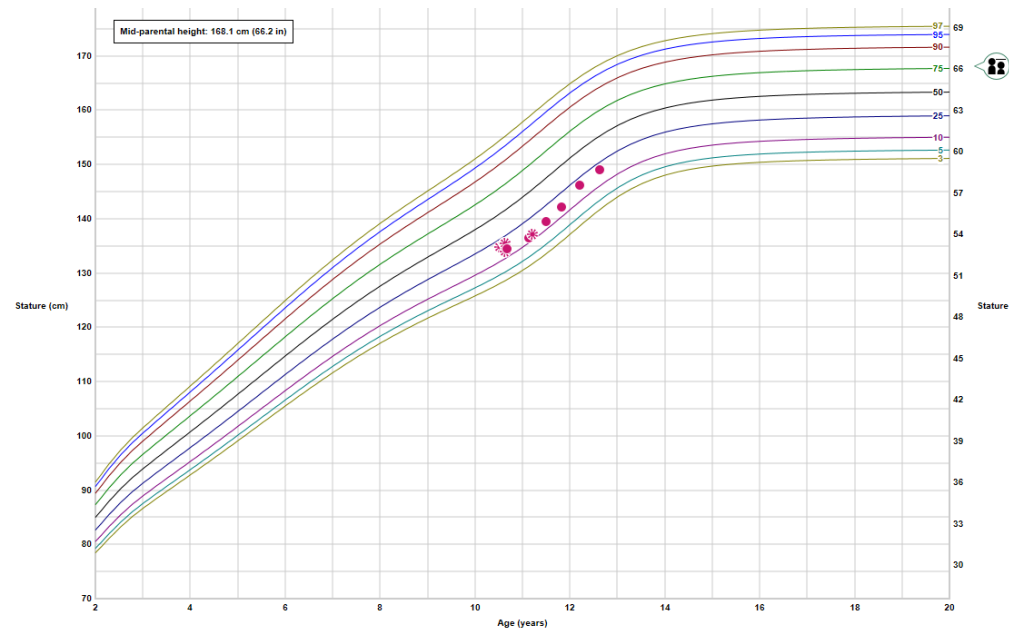
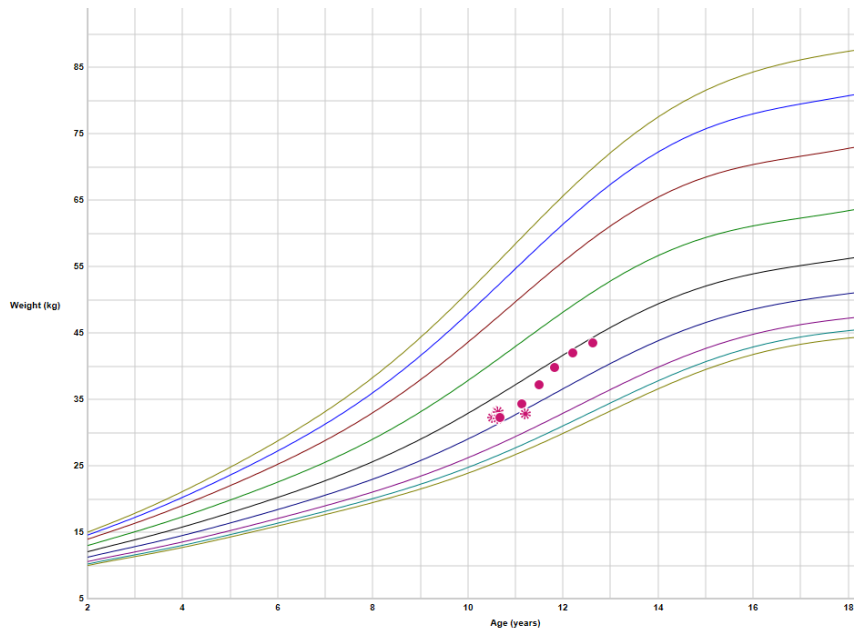
Snack: homemade yogurt or grapes + Parmesan cheese 8 ounces water

Dinner: Halibut, olive oil, salt + pepper, cauliflower rice, 8 ounces water

Dessert: fresh berries

SCD Case Study: Growth Parameters

CDC Girls 2-20: BMI Growth Chart



Findings: Asymptomatic, good weight gain/linear growth, normalization of laboratory abnormalities and fecal calprotectin following 12 weeks of the SCD

Nutritional Adequacy of the Specific Carbohydrate Diet in Pediatric Inflammatory Bowel Disease

Methods: Prospective dietary data for 12 weeks were analyzed for pediatric patients on the SCD. Intake of 20 key nutrients was compared to dietary recommended intake levels and nutrient intake data from similarly aged children from the NHANES

n=9

Participants with CD or UC with mild or moderate disease activity (PCDAI score of 10 to 45 to PUCAI score of 10 to 60), no change in immunosuppressive medications x 1 month or biologics x 2 months

Intervention:

- SCD as sole intervention

- One on One Diet Education

- Complete a 3 Day Food Record

- Clinical follow up completed at weeks 2, 4, 8, and 12

Results

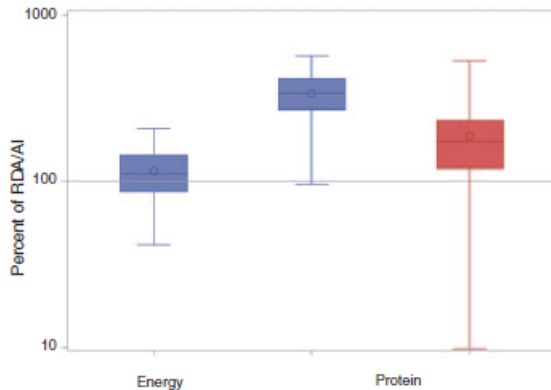


FIGURE 2. Percent of recommended daily allowance (RDA)/Adequate Intake (AI) for energy and protein. Specific carbohydrate diet (SCD) patient data are displayed in blue. National Youth Fitness Survey (NYFS) data are displayed in red. Circles shown on boxplots are means.

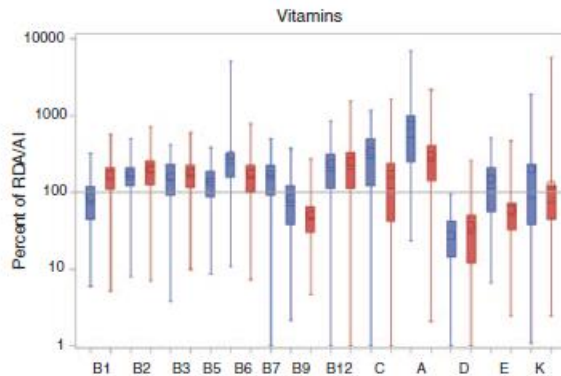


FIGURE 3. Percent of recommended daily allowance (RDA)/Adequate Intake (AI) for vitamins. Specific carbohydrate diet (SCD) patient data are displayed in blue. National Youth Fitness Survey (NYFS) data are displayed in red. Circles shown on boxplots are means.

- By week 12, 7 out of 8 patients achieved clinical remission based on PCDAI/PUCAI scoring, normalization of labs, and clinical assessment. Diet therapy ineffective for 1 patient.
- Energy intake: significantly greater than 100% of RDA/AI for 64% of daily intakes completed for this study
- Mean energy intake ranged from 88-145% of RDA
- Protein intake: significantly higher, 3x the RDA
- 71% of participants daily intakes were below the RDA for thiamine (B1) and 67% for folate (B9)
- 100% low for Vitamin D
- 56% met the RDA for Vitamin K

Discussion Points: Do you have questions about...?

- Western Diet
- Anti-inflammatory Diet
- Fiber
- Label Reading
- Partial Enteral Nutrition Therapy
- Formulas