

Role of Diet in the Management of IBD

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Education and Trainig (DIET) Program

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Relevant Disclosures

Crohn's & Colitis Foundation -- Board Member

Ajinomoto Cambrooke – Speaker (relationship has ended)

Takeda – Consultant

Learning Objectives

At the conclusion of this lecture, learners should be able to:

- Apply practical diet and nutrition strategies in practice
- Summarize evidence-based nutrition therapy recommendations for people with IBD
- Discuss nutrition needs for surgery

All Patients Should Meet with an RD

- High prevalence of **malnutrition and sarcopenia** in IBD
- High degree of **food/dietary restriction** in IBD
- Well-nourished patients have **better outcomes**

ESPEN guidelines recommend that all patients with IBD receive counseling from a registered dietitian¹

The Perfect Diet for People with IBD?

- Diet can affect:
 - Microbiota, metabolome, immune response, mucus layer
- Evidence suggests a Westernized lifestyle (high meat, fat, food additives/emulsifiers; low fiber) increases risk for IBD onset¹⁻³
- Diet should be individualized
 - Nutrition Status, IBD Type, Disease Activity, Surgery, Socioeconomic Status, Culturally Sensitive
- Restrictive diets not recommended for those with eating disorders/disordered eating, can increase risk for malnutrition, decrease QoL



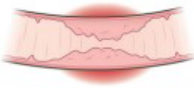



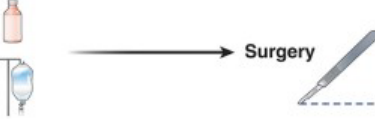
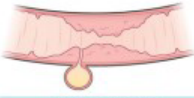
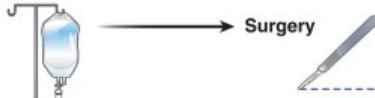



State of IBD	Optimal nutritional approach
 <p data-bbox="803 208 842 224">IBD</p>	<p data-bbox="967 104 1141 121">Mediterranean diet*</p>  <p data-bbox="967 205 1392 221">*UC: decrease in red and processed meat may reduce flares</p>
 <p data-bbox="765 361 871 377">Stricture IBD</p>	<div style="display: flex; justify-content: space-between;"> <div data-bbox="958 246 1161 372"> <p data-bbox="958 246 987 306">✓</p> <ul style="list-style-type: none"> • Soluble fiber • Cooked/steamed • Peeled • Mashed/blended vegetables • Chew well </div> <div data-bbox="1209 246 1450 372"> <p data-bbox="1209 246 1238 306">✗</p> <ul style="list-style-type: none"> • Roughage (indigestible fiber) • Unpeeled apples • Broccoli • Lettuce • Corn </div> </div>
 <p data-bbox="765 500 871 516">Inflamed CD</p>	<div style="display: flex; justify-content: space-between;"> <div data-bbox="958 394 1180 508"> <p data-bbox="958 394 987 432">✓ EEN (oral or tube feeds)</p> <p data-bbox="1035 432 1054 448">or</p> <p data-bbox="958 459 1141 497">✓ CEED: PEN + modified oral diet</p> </div> <div data-bbox="1161 394 1248 508">  </div> <div data-bbox="1267 394 1450 492"> <p data-bbox="1267 394 1450 421">✓ Clinical remission</p> <p data-bbox="1267 448 1450 487">✓ Endoscopic remission</p> </div> </div>
 <p data-bbox="716 618 919 656">Pre-op + malnourished (unable to tolerate regular diet)</p>	<div style="display: flex; justify-content: space-between;"> <div data-bbox="958 530 1054 650"> <p data-bbox="958 530 987 568">✓ EEN</p> <p data-bbox="996 574 1016 590">or</p> <p data-bbox="958 607 987 645">✓ PN</p> </div> <div data-bbox="1035 530 1412 650">  <p data-bbox="1277 574 1354 590">Surgery</p> </div> </div>
 <p data-bbox="765 770 871 787">Abscess CD</p>	<div style="display: flex; justify-content: space-between;"> <div data-bbox="958 672 1035 716"> <p data-bbox="958 672 987 710">✓ NPO PN</p> </div> <div data-bbox="1035 672 1412 770">  <p data-bbox="1277 689 1354 705">Surgery</p> </div> </div>
<p data-bbox="736 809 938 923">↑ Output fistula Prolonged ileus Short bowel syndrome Severe malnutrition Inability to tolerate PO/EN</p>	<p data-bbox="958 809 987 847">✓ PN</p> 
 <p data-bbox="697 1054 948 1071">Short bowel syndrome + IBD</p>	<p data-bbox="958 956 1151 1043">✓ PN IVF PO when possible +/- GLP-2 agonists</p> 

Figure 1. Optimal nutritional approach by clinical state of IBD.

Reasonable Nutritional Approach: Mediterranean Diet

Lack of evidence to recommend a low fiber diet in IBD^{1,2}

- In those with strictures and obstructive symptoms, an altered texture (soft) diet +/- nutritious fluids may be recommended¹

AGA Clinical Practice Update 2024 (Hashash): all patients with IBD should be advised to follow a Mediterranean diet

- Encourage: Fresh fruits, vegetables, monounsaturated fats, complex carbohydrates, lean proteins
- Discourage: ultraprocessed foods, added sugar, salt

1. Bischoff SC, Bager P, Escher J, Forbes A, Hébuterne X, Hvas CL, et al. ESPEN guideline on Clinical Nutrition in inflammatory bowel disease. Clin Nutr. 2023 Mar;42(3):352-379. doi: 10.1016/j.clnu.2022.12.004. Epub 2023 Jan 13. PMID: 36739756.

2. ASPEN Core Curriculum, 3rd Ed

Fiber – Type and Texture Matter

Instead of recommending “low fiber”, consider Fiber *Type (Solubility, Viscosity, Fermentability), Texture*

- ***Soluble and viscous*** fiber can help those with ***diarrhea***
 - Beans, oats, peas, avocado, sweet potato, pears, turnips, psyllium
- ***Insoluble*** fiber can help those with ***constipation***
 - Whole wheat flour, wheat bran, cauliflower, green beans
- ***Fermentable*** fibers can worsen symptoms those with ***gas/bloating***
 - Beans, inulin, wheat dextrin, oligosaccharides
- ***Soluble, nonfermentable, viscous*** fibers (psyllium) can help those with ***diarrhea, constipation, fecal incontinence***

Fiber Texture -- From Flares to Remission

Flare, Strictureing Disease + Obstructive Symptoms

- Pureed Foods
 - Creamy nut/seed butters
 - Fruit/Vegetable purees
 - Meat patés, tofu
 - Cream of wheat/rice
 - Refried beans, hummus
 - Mashed potatoes
 - Souflés
- Nutritious liquids

Transitioning Out of a Flare

- Fork tender, soft foods
 - Jarred or canned fruits, vegetables
 - Canned tuna
 - Frozen or steamed fruits, vegetables, meats
 - Peeled fresh fruits
 - Soups with cooked vegetables, meats

Remission

- Whole foods, minimally processed
 - Whole grains (breads, pastas)
 - Fresh fruits and vegetables with peels
 - Whole nuts, seeds
 - Legumes, beans
 - Dried fruits, vegetables, meats

Diet Therapy to Decrease Inflammation

Established Evidence:

- **Exclusive Enteral Nutrition (EEN):**
 - Decrease inflammatory cytokines in Crohn's disease¹
 - Promotes fistula closure^{2,3}
 - Bridge to safer elective surgery⁴
- **Partial Enteral Nutrition (PEN):**
 - Lower relapse rates⁵
 - 2-fold increase in odds of achieving remission⁶



1. (Yamamoto et al. Inflamm Bowel Dis 2005;11:580–588)
2. Yang Q. Scand J Gastroenterol 2017; 52: pp. 995–1001
3. Yan D. Eur J Clin Nutr 2014; 68: pp. 959-963
4. Heerasing. 2017. AP&T
5. Takagi et al. 2006
6. DL Nguyen, et al Ther Adv Gastroenterol 2015

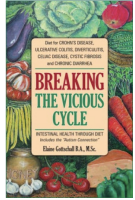
Table 1. Complete Nutrition Formulas Commonly used for EEN

Formula Name	Formula Type	Serving Size (mL)	Kcals	Protein (g)	Protein Source	Carbohydrate (g)	Fat (g)	mOsm/kg H ₂ O	Volume to meet DRI for micronutrients (mL), excluding electrolytes	Flavors	Contains Statement:	Other
Ensure Original®	Polymeric	237	251	9	Milk protein concentrate, soy protein isolate	32	6	430	n/a	Milk chocolate, coffee latte, butter pecan, vanilla, strawberry, dark chocolate, banana nut	Milk, soy	Lactose free, gluten free, Kosher, Halal
Boost Original®	Polymeric	237	240	10	Milk protein, soy protein	41	4	625	1185	Vanilla, chocolate, strawberry, chocolate latte	Milk, soy	Lactose free, gluten free, Kosher
Fortisip®	Polymeric	200	300	12	Milk protein	37	12	455	n/a	Vanilla	Milk, soy	Halal, Kosher, Vegetarian
Modulen®	Polymeric	50 g powder, 210 mL water (standard dilution)	247	9	Casein (milk protein)			340	1500		Milk, soy	Gluten free
Kate Farms Standard 1.0®	Polymeric	325	325	16	Pea protein	38	12	450	1300	Vanilla, chocolate, plain	Free of top 8 allergens	Organic, vegan, Lactose free, gluten free, Kosher
Kate Farms Peptide 1.0®	Peptide-based	325	325	16	Hydrolyzed pea protein	37	13	290	1300	Vanilla, plain	Free of top 8 allergens	Organic, vegan, Lactose free, gluten free, Kosher
Peptamen 1.0 with Prebio®	Peptide-based	250	250	10	Hydrolyzed whey protein	32	10	310	1500	Vanilla	Milk, soy	Kosher, gluten free, lactose free
Vital Peptide 1.5 Cal®	Peptide-based	237	355	16	Hydrolyzed whey dominant protein	44	13	610	1800	Vanilla	Milk	Lactose free, gluten free, Kosher, Halal

Diet Therapy to Decrease Inflammation

Emerging Evidence:

- **Crohn's Disease Exclusion Diet:** >EEN, equally effective in inducing steroid free remission at 6 weeks⁵
- **Specific Carbohydrate Diet** decreases symptoms¹, inflammatory biomarkers without negatively affecting growth², clinical, mucosal improvements in Crohn's disease³
- **Mediterranean Diet:** reduces symptoms in mild-moderate CD; associated with decreased fecal calprotectin in patients with UC after pouch surgery
- **Low Fat High Fiber Diet:** may help with UC remission maintenance
- **IBD-Anti-inflammatory Diet:** symptom improvement⁴



1. Lane. 2017. Gastroenterol Clin N Am
1. Suskind. J Pediatr Gastroenterol Nutr, 2014
1. Cohen. J Pediatr Gastroenterol Nutr 2014
2. Olendzki et al.. Nutr J. 2014 Jan 16;13:5. doi: 10.1186/1475-2891-13-5.
3. Levine A et al. Gastro 2019;157:440-450

IBD and Surgery

- Risk of surgery has declined over time
- 5-year cumulative risk of surgery¹:
 - 18% in CD
 - 7% in UC
- High rates of malnutrition and sarcopenia = negative impact on clinical course, rate of post-op complications, mortality

IBD = inflammatory bowel disease; CD = Crohn's disease; UC = ulcerative colitis

1. Tsai L, et al. *Clin Gastroenterol Hepatol*. 2021 Oct;19(10):2031-2045.e11.

Stoner PL, et al. *Gastroenterol Res Pract*. 2018:7890161.

Andersen J, Kehlet H. Fast track open ileo-colic resections for Crohn's disease. *Colorectal Dis*. 2005;7(04):394–397

Haering D, et al. Su1939, DDW ASGE 2019.

Gastrointest Endosc. 2019;89(6)Supp:1-718.

Enhanced Recovery After Surgery (ERAS) Protocols

- Set of standardized perioperative procedures and practices designed to improve outcomes for patients undergoing elective surgery
- ERAS protocols associated with lower morbidity and shorter hospital stay after elective colorectal surgery.¹

IBD and ERAS (Enhanced Recovery After Surgery)

- Limited Data on impact of ERAS in IBD
 - IBD: early post op nutrition associated with reduced length of stay¹⁻², low morbidity and readmission rates¹
- Patients who receive pre-operative nutrition support have been shown to have better outcomes post-operatively.³⁻⁴
 - ONS (oral nutrition supplement) x7-10 days pre-op in malnourished patients reduces rate of infection and leaks
 - Rate of post-op complications in those on nutrition support (EN/PN) was 20% compared to 60%⁵

1. Colorectal Dis 2005; 7: pp. 394-397

2. Haering D, et al. Su1939. DDW; May 18-21, 2019; San Diego.

3. Wagner et al. Surgical Clinics of North America, 91, (2011), pp. 787-803

4. Jacobson et al. Scandinavian Journal of Gastroenterology, 47, (2012), pp. 170-177

5. Brennan et al. 2018. European Journal of Gastroenterology & Hepatology. 30(9):997-1002

Key Elements of ERAS



Preoperative counseling about expectations for the procedure and hospitalization for patients and their families



Optimizing pre-op (“Prehabilitation”) and post-op nutrition



Minimizing the use of narcotic pain management and promoting a culture of early mobility after surgery

Minimize NPO!

Immunonutrition

- ESPEN: use in malnourished patients undergoing colorectal cancer surgery

Carbohydrate loading

- RCTs show clear liquids can be given up to 2 hours pre-op
- Attenuates catabolic response induced by overnight fasting and surgery
- Improves well-being, reduces post-op insulin resistance, decreases protein breakdown, and maintains LBM and muscle strength
- *Avoid in gastroparesis, motility disorders, emergency surgery*

ASCRS/SAGES Guidelines for Enhanced Surgical Recovery

Pre-op

- Screen (anemia, malnutrition)
- Ileostomy education, dehydration avoidance
- Carbohydrate loading
- Clear liquids up to 2 hours before surgery

Post-Op

- Early mobilization
- Regular diet ASAP
- Oral Nutrition Supplement (ONS) may be needed
- D/c IVF, encourage clear liquids



Cedars-Sinai Perioperative Nutrition Protocol

- **1. Screen all patients:**

- Malnutrition, Sarcopenia

- MUST (Malnutrition Universal Screening Tool), Dynamometer, CT, InBody

- Anemia (CCF Anemia Care Pathway): Hemoglobin, ferritin, %saturation

- **2. Diet Education**

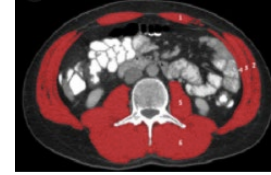
- High kcal/protein diet +/- texture modification

- Add ONS, EEN, nutrition support if needed

- **3. Minimize NPO**

- Perioperative Nutrition Shakes:

- Rapid diet advancement after surgery



Summary and Action Items

All patients with IBD should meet with an IBD-RD

Evidence-based diet therapies exist for IBD

In all surgical patients – nutritional optimization

Action Items:

- Find/collaborate with an IBD-RD
- Ask your representative to sponsor the Medical Nutrition Therapy and Medical Nutrition Equity Acts!

Resources

- UOAA: United Ostomy Association of America
- Oley Foundation
- Crohn's & Colitis Foundation
 - Anemia Care Pathway
 - Educational Resources for Patients and Providers; Webinars; gutfriendlyrecipes.org; Dietitian Directory
- AGA
 - Dietitian Directory
 - Patient Education Handouts

Thank You!

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