When and What Dietary Modifications might help IBD

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Goals of Nutrition Therapy

- Identify and treat nutritional deficiencies
- Provide some relief for GI symptoms (diarrhea, bloating, and abdominal pain)
- No diet to date has been scientifically shown to prevent/cure IBD
- Minimize inflammation and promote healing
IBD and Nutrition

- Malnutrition (including vitamins and minerals)
- Common dietary recommendations and trends
- EEN (exclusive enteral nutrition)
- Other Nutrition Therapies
- Hydration
Malnutrition and IBD

Malnutrition can occur with:

- **Macronutrients**—calories from protein, fats and carbohydrates
- **Micronutrients**—Vitamins, mineral, trace elements

IBD patients are at risk for malnutrition because of:

- **Increased losses**: Diarrhea/Ostomy output (electrolytes), bleeding (iron)
- **Decreased intake**: Poor appetite, limited diet (fruits, vegetables)
- **Malabsorption**: Inflammation, fistulas, loss of surface area (surgical resection)
- **Catabolic state**: Inflammation causes ↑↑ metabolic/protein needs
- **Drug interference**: Steroids block calcium absorption, Methotrexate blocks folate

SKIP THE DIET
just eat
Healthy

When "eating healthy" is *not* choosing the salad
Common Diet Recommendations

**Low Fiber Diet**
- Minimize fresh fruits & vegetables, nuts, seeds
- Helpful for relieving abdominal pain, diarrhea
- Especially important to avoid if you have stricture
- No controlled trials that show low fiber diet leads to symptom improvement or decreased admissions to the hospital

**High Fiber Diet**
- Ulcerative Colitis in remission
- Short Chain Fatty acids (SCFA)-butyrate, acetate, propionate

Common Diet Recommendations

Gluten-free (*low-carb*)
- Protein found in foods processed from wheat, barley or rye
- Gluten intolerance relatively common in Irritable Bowel Syndrome (IBS) (and IBD?)
  - Inflammation?
  - Non-celiac Gluten Sensitivity (NCGS)
  - Culprit (carbs vs protein)?
- Further research is needed.

Lactose Intolerance
- Common among IBD patients
- Poorly digested sugar
- Highly fermentable in colon
- Can be temporary during flare
Common Diet Recommendations

**Low FODMAP diet**
- Short-chain carbs poorly absorbed and thus fermented by bacteria, gas/diarrhea
- Shown in several clinical trials to be effective in irritable bowel syndrome (IBS)
- Some limited evidence for effectiveness in functional symptoms for IBD
- Quite restrictive, lots of resources
- Consider working with registered dietitian familiar w/ low FODMAP diet

**Small Intestinal Bacterial Overgrowth (SIBO) Diet**
- Crohn’s disease in particular
  - Especially Ileoceleal resection, strictures and enteric fistula
  - Also associated w/ antibiotic use, constipation
- Similar to low FODMAP diet
  - No consensus, overlaps with low FODMAP
  - Focus on easily digested food

Specific Carbohydrate Diet (SCD): DINE-CD Study

SCD vs Mediterranean-style Diet to help induce remission in Crohn’s Disease
Turmeric (Curcumin) and IBD

- Anti-inflammatory and antioxidant properties
- Available in pill and powder form
- Small studies show:
  - May help induce remission in mild to moderate UC
  - May be effective and safe for maintaining remission for people with inactive disease.
- Data supports use in UC, no data for a role in Crohn’s

Hiroyuki H, Takayuki I, Ken T. Clinical Gastroenterology and Hepatology. 2006;4:1502-1506
Lang et al. Clinical Gastroenterology and Hepatology. 2015;8:1444-1449e
Probiotics

- Science on probiotics is inconclusive
- Benefit is unclear, could worsen symptoms
- May reduce risk of C.Diff
- Meta-analysis concluded that efficacy on probiotic use in CD remains inconclusive

**Be Careful!!!** Supplements are not regulated by the FDA

- Many brands (e.g. Visbiome, VSL #3, Florastor, Culturelle, Align)
- Many species (e.g. Lactobacillus vs Acidophilus vs Saccharomyces Boulardii)
- Prebiotics (e.g. fiber) promote healthy microbiome
- **Fermented foods just as good?**
  - Kefir or yogurt
  - Kimchi or sauerkraut
  - Kombucha (measurable alcohol)

Fedorak RN, Gastroenterology & Hepatology. 2010;6(11):688-690
Calcium Deficiency

- Risk factors: chronic steroid use, diarrhea, vitamin D deficiency, restricted diet
- Osteoporosis is common in IBD—approximately 18-42%
- Bone Mineral Density Study/DXA scan (high risk)

**Sources of Calcium:**
- Diet: Milk, cheese, yogurt, tofu
- Supplement: Most IBD patients
  - 1000mg in women aged 18-25, men<65
  - 1200mg in women age 25-menopause
  - 1500mg in postmenopausal women, men>65

Bernstein CN, Leslie WD, Leboff MS. Gastroenterology. 2003;124(3):795
Vitamin D Deficiency

- Risk factors: Steroids, restricted diet, decreased sunlight, northern latitudes
- 25% of adults with CD were found to have Vitamin D levels <10 ng/mL
- IBD poses increased risk of vitamin D deficiency and metabolic bone disease

Sources of Vitamin D
- Diet sources: Salmon, tuna, milk, eggs
- Supplement: Most IBD patients 600-2000IU daily
  - If level<20: 50,000 units D2 or D3 weekly for 12 weeks
  - Maintenance dose of 1500-2000 units per day of D3
  - Higher doses of 3000-6000 units per day may be necessary

Vitamin B12

- Risk factors: Ileitis/small bowel surgery, small intestinal bacterial overgrowth, gastritis
- About 20% of patients (adult and pediatric) with Crohn’s disease
- Pernicious anemia, cognitive symptoms, glossitis

Sources of Vitamin B12
- Diet sources: Trout, tuna, beef, milk
- All pts with ileal surgery (>60cm) intramuscular vitamin B12 for life (1000 mcg monthly or every other month)
- Oral: 1000 mcg daily (various options)
- Sublingual – 500-1000 mcg daily

Folate

- Risk Factors: SB resection
- Meds: methotrexate (MTX), sulfasalazine (SSZ)
- Deficiency less common due to fortification in food
- Megaloblastic anemia, smooth sore tongue

Sources of Folate
- Diet: Fortified cereals, spinach, cantaloupe
- 1 mg Folic Acid daily
- All patients on methotrexate and sulfasalazine

Eiden, K. A. Nutrition Issues in Gastroenterology. 2003; Series #5, 33-54.
Iron

- 35-60% of patients with IBD are deficient
- Risk factors: Active inflammation/chronic blood loss, Ulcerative Colitis, SIBO
- Deficiency > Significant negative impact on quality of life
- Difficult to supplement due to side effects

Sources of Iron
- Diet: Meat, Fish, Leafy Greens, Fortified Cereals
- Unique challenge for supplementation
- IV iron if determined best for the patient by the MD
- Vitamin C may help enhance iron absorption
- Cook with cast iron
Zinc

- Risk Factors: ostomies, fistulas, profuse diarrhea
- Symptoms: skin changes-scaly eczematous plaques, taste changes, growth failure

**Sources of Zinc**

- Diet: red meat, dark meat chicken, seafood, fortified cereals
- 50 mg elemental zinc for 10 days
- **Caution:** copper deficiency for those on long term zinc supplementation

EEN (Exclusive Enteral Nutrition)

- For Crohn’s not UC
- Highly effective in newly diagnosed children
- Weaker evidence in adults (compliance and tolerability)
- Goal: Induce mucosal healing
- Elemental diets extremely difficult to follow, taste fatigue
- Duration of treatment is 6-8 weeks
- Exact mechanism of action unknown
  - Immune modulation
  - Intestinal inflammation
  - Microbiome
  - Which is best formula?

Ashton JJ, Gavin J, Beattie RM. Clinical Nutrition. 2018;1-10
Wall et al. World J Gastroenterol 2013 November 21; 19(43): 7652-7660
Parenteral Nutrition (TPN)

- Not primary therapy in IBD (Crohn’s disease)
- What is total parental nutrition (TPN)?
  - **Parenteral (IV) nutrition**, or intravenous feeding, is a method of getting **nutrition** into your body through your veins.
  - Can provide total nutritional support or supplemental
- Who needs TPN?
  - SBS (short bowel syndrome)
  - Persistent SBO (small bowel obstruction)
  - Inability to tolerate table food or Enteral Nutrition (EN)
  - Chronic Enteric fistula
Oral Rehydration Solutions

- Most effective and least expensive way to prevent and treat dehydration from diarrhea
- Less sugar and more electrolytes than sports drinks
- Ingredients are important
  - Water
  - Sugar (dextrose, glucose)
  - Salts
  - Potassium
- WHO ORS
- Oley Foundation: oley.org/
- Commercial brands
  - Drip Drop, Nuun, Pedialyte
Conclusions

INFLAMMATORY BOWEL DISEASE AND NUTRITION

- **Disease** and **Treatment** (both medical and surgical) can affect nutrition
- Nutrition support plays a key role in severe disease
- Important to **identify** and **treat** both **macro** and **micronutrient** deficiencies:
  - know when to check and how to supplement
- Modified **“Diets”** may help alleviate GI symptoms not directly related to inflammation
- Natural remedies may effective (and usually safe) for limited/mild disease
- Exclusive enteral nutrition (EEN) can be an effective therapy and requires support from a dietitian
- A healthy diet is key but may need to be **individualized** based on disease and clinical course