

Nutrition in Inflammatory Bowel Disease



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Objectives

- Understand importance of diet and nutrition in inflammatory bowel diseases (IBD)
- Review effects of IBD on digestion
- Discuss nutritional deficiencies
- Nutrition support therapy
- Dietary strategies helpful in controlling IBD symptoms and during a flare
- Answer questions

- 45 year old male with a 7 year of Crohn's colitis is interested in nutritional counseling.
- He has been treated in the past with steroids for recurrent flares but is currently feeling well on mesalamine products 4.8gm/day.
- Exam is unremarkable
- Laboratories show low vitamin D level.
- What dietary recommendations are appropriate during flares and when in remission?



Common questions



- “Is the food causing more inflammation since I feel worse when I eat?”
- “What should I eat and what should I avoid?”
- “Should I avoid milk and all dairy products?”
- “Should I go on gluten-free diet?”
- “Will probiotics help prevent flares?”



The Importance of Diet and Nutrition

- Diet and nutrition are important aspects of IBD management.
- Maintaining good nutrition is essential for :
 - Proper growth and sexual development
 - Skeletal health
 - Medications being more effective
 - Normalizing bowel function/minimizing GI symptoms
 - Healing, immunity and energy levels



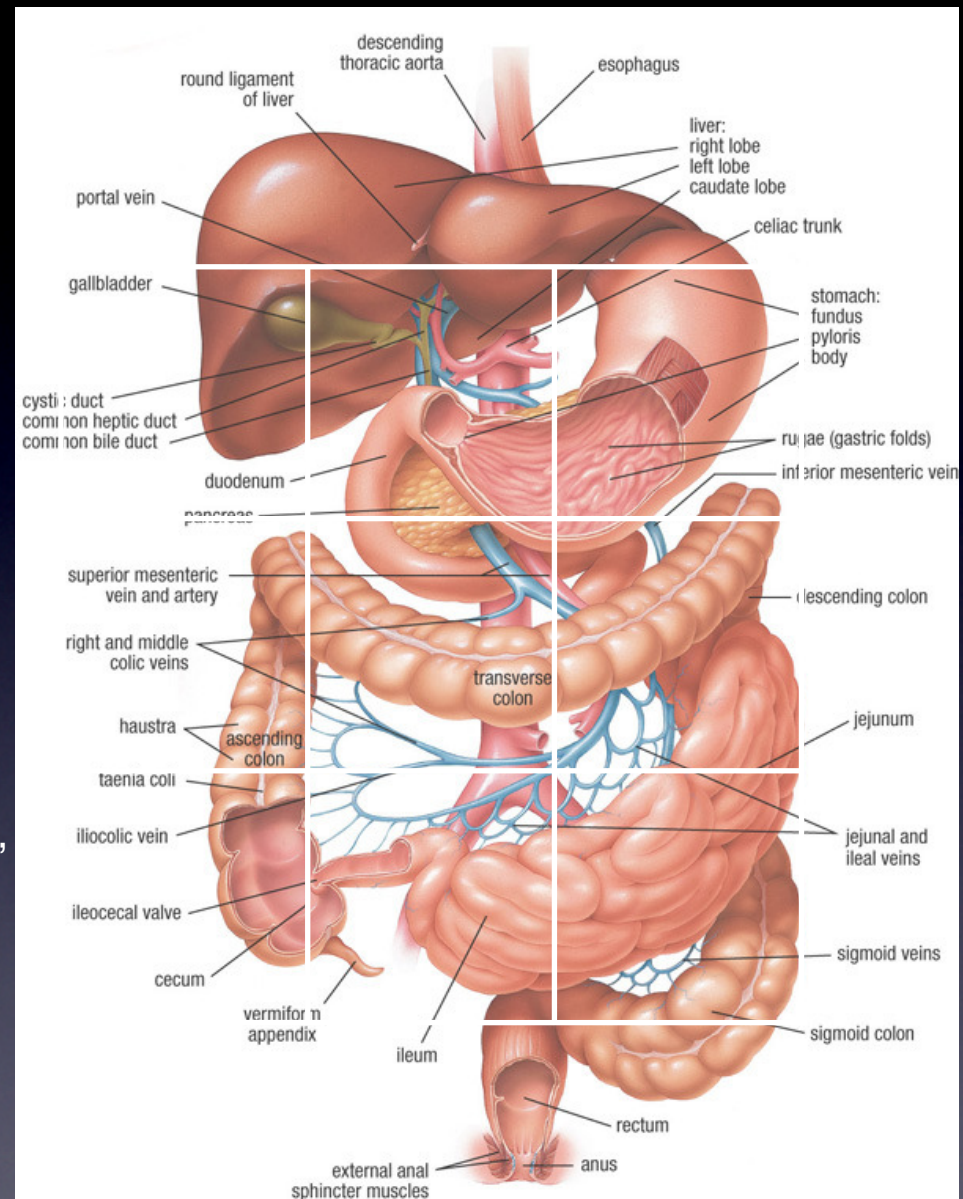
Importance of Diet and Nutrition

- **Diet** is the actual food that is consumed
 - “What you eat”
- **Nutrition** refers to properly absorbing food and staying healthy
 - “How you eat”
 - Knowing what to eat is just as important as how to eat it.

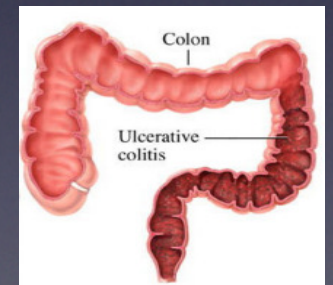
Role of Diet

- Many patients report feeling worse with food intake and assume diet is culprit.
- IBD is not caused by diet.
 - No evidence that anything in diet history causes or contributes to disease.
 - IBD is not related to food *allergy* -celiac disease
 - Symptoms may be worsened by food *intolerance*.
 - *lactose or fructose intolerance*
- IBD cannot be cured by diet.
 - Proper diet and nutrition can help improve symptoms and promote healing.

- Digestion is the process by which food is converted into substances that can be absorbed by the body.
- Most absorption occurs in the small intestine. Digestive juices (bile from liver) and pancreas break down food and nutrients are absorbed and distributed to rest of body.
- Watery food residue and undigested secretions pass into the large intestine where water is reabsorbed. “Recycling” mechanism.
- Solid, undigested food mixed with bacteria in large intestine to form stool/bowel movements.



- Crohn's disease (CD)
 - Inflamed small intestine is less able to digest and absorb nutrients from the food---->malnutrition.
 - Such nutrients escape into large intestine to varying degrees, depending on degree of small intestinal inflammation.
 - Incompletely digested foods travel through colon and interfere with watery conservation and cause diarrhea
- Ulcerative Colitis (UC)
 - Small intestine works well but the inflamed colon does not recycle water properly resulting in diarrhea.



Why are IBD patients prone to becoming malnourished?

- Inadequate Food Intake
 - Nausea, vomiting & abdominal pain
 - Altered taste sensation (Zinc deficiency)
 - Depression
 - Food restriction, often self imposed (patients think food worsens disease)

- Increased caloric/energy needs of the body
 - Inflammation especially during disease flares - fever
 - Infection -sepsis, abscess (steroids, immunosuppressive agents--->weakened immune system)
 - Surgery (fistulae, stricture, resection)
 - Growth (children/adolescents)

- **Poor digestion and nutrient absorption**
 - Reduced surface area (inflammation, intestinal resection) mainly with Crohn's disease
 - Fistulae (enterocolonic-connection between small intestine and colon)
 - Steatorrhea and bile salt malabsorption (from disease or resection of end of small intestine-ileum)
 - Much of what a person eats may truly never get into the body.

- Medication interference

- Steroids- suppress calcium absorption
- Sulfasalazine and methotrexate-reduce folate absorption
- Cholestyramine- fat-soluble vitamin deficiencies

- Increased nutrient losses

- Bleeding (mainly from UC)
- Vomiting (stricture, bowel obstruction, electrolytes)
- Diarrhea (fluid secretion from inflamed small intestine/colon, bile salt malabsorption, steatorrhea, bacterial overgrowth from strictures, fistulae)

Effects of Malnutrition

- Delayed growth in children and teenagers
 - Weight loss in women/girls may affect hormone levels (menstrual changes)
- Impaired immune response/increased risk of infection
- Decline in muscle function
- Impaired wound healing- important post-surgery
- Apathy/depression
- Poor quality of life: inability to maintain age-appropriate activities (school, work, etc)

Nutritional Deficiencies

- Inadequate intake
- Malabsorption
- Increased intestinal losses
- More common in Crohn's disease given majority of micronutrients absorbed in small intestine.

Nutritional Deficiencies

- Folate deficiency reported 20-60% older series.
- Found in enriched cereals, dark leafy vegetables
- Occurs from malabsorption in small bowel (CD).
- Treatment with sulfasalazine (blocks absorption) and methotrexate (MTX)
- Replacement/supplement with 1gm/d of oral folic acid in those treated with sulfasalazine/MTX.
- Supplementation may provide some protective role against colon cancer especially in UC.

- B12 def reported in 20% adult and pediatric patients with Crohn's.
- B12 is absorbed in the end of the small intestine (terminal ileum)
- Deficiency occurs if ileum is diseased or resected. Also from gastritis and bacterial overgrowth.
- Unable to absorb from diet or from oral supplements
- Contributes to anemia and causes nerve damage
- Replacement is 1000 ug monthly shots.

Nutritional Deficiencies

- Iron deficiency common in both CD and UC (20-40%)--->developmental issues in children/adolescents
- More common in patients whose disease is limited to the colon and less common with small intestinal disease
- Usually from blood loss from inflammation and ulceration in the colon
- Also from decreased absorption in small intestine.
- Iron levels are easily measured and replaced with oral iron tablets (turns stool black)
- Side effects (nausea, bloating, stomach upset)

Nutritional Deficiencies

- Zinc deficiency found in up to 65% CD patients.
- Excessive lost in patients with ostomies, fistulas and with profuse diarrhea
- Lost of appetite is one symptom of deficiency
- Dry scaly plaques on face and anogenital area, looks like psoriasis.
- Replace with oral zinc sulfate 220mg twice/day

- Calcium/Vitamin D- essential for bone formation
- Limited dietary intake, avoiding dairy products due to lactose intolerance, malabsorption from intestinal disease or resection
- Steroids slow bone formation, accelerate breakdown of old bone and interferes with calcium absorption.
- Early osteopenia/osteoporosis
- 1500mg/d of calcium, 800 IU/d of Vit D (liquid)
- Screening with bone density scan.

- Milk/yogurt: 1 cup = 300mg
- Cheese: 1 oz = 200mg
- Canned fish: 3oz = 250mg
- Corn tortillas
- Tofu
- Kale, broccoli, chinese cabbage

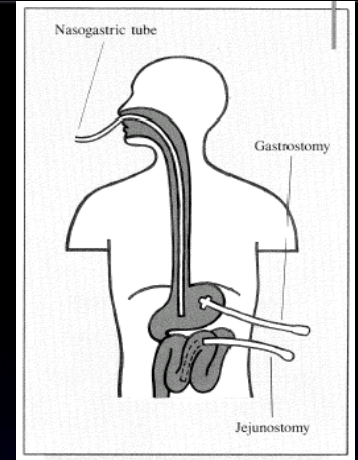
Which special diet will “cure” my IBD?

- Several diets (Specific Carbohydrate diet, Maker’s Diet,) advertised on internet and in “self-help” sections for managing IBD.
- None have not been proven scientifically.
- No proven diet which decreases inflammation or cures disease.
- Diet *can* help prevent symptoms (bloating, cramping, diarrhea) while disease is being treated in other ways.

Diet

- “If a food worsens your symptoms, then avoid it”.
- Create a food journal and eliminate problematic foods.
- Well-balanced, diet based on hydration and adequate nutrient intake (all food groups)
 - Individual experience should guide food selection
- Recommendations should be individualized based on:
 - Which disease you have (CD or UC)
 - Which part of the intestine is affected
 - Disease activity (remission or flare)

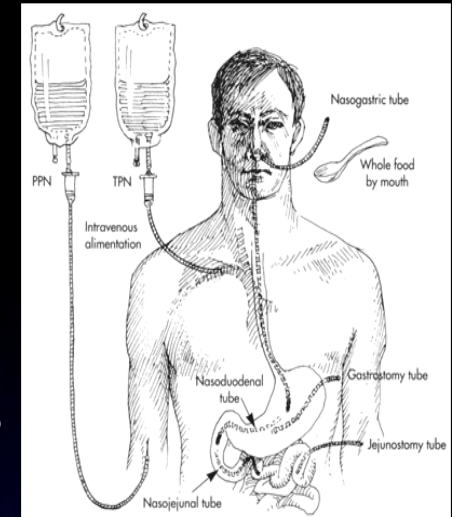
Nutrition Support



- Liquid nutritional supplements
 - Ensure, Pediasure, Boost- Lactose free.
- Enteral nutrition- Delivering liquid nutrition directly into the stomach or small intestine.
- Nasogastric tube (NG)-Tube from nose to stomach. Given when patient is sleeping and removed when going to work, school
- Gastrostomy tube (G tube) or Jejejunostomy (J tube)- Tube goes directly into abdominal wall into stomach/intestine
- Given overnight but also intermittently throughout the day.

Nutrition Support

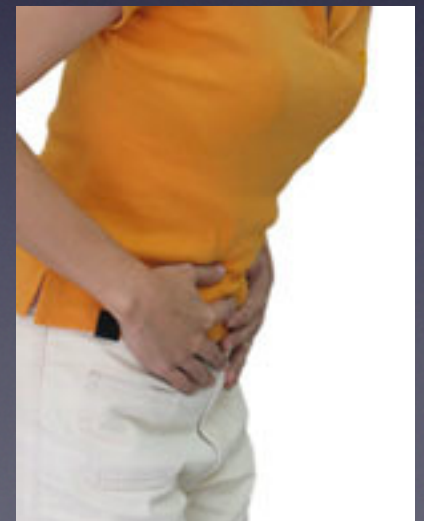
- Total parenteral nutrition (TPN)
- Delivered through a catheter which is placed into large blood vessel.
- Bypasses the intestine for “bowel rest”
- During severe flares, in preparation for surgery
- Risk of complications- blood infections, liver damage



Dietary Management of IBD

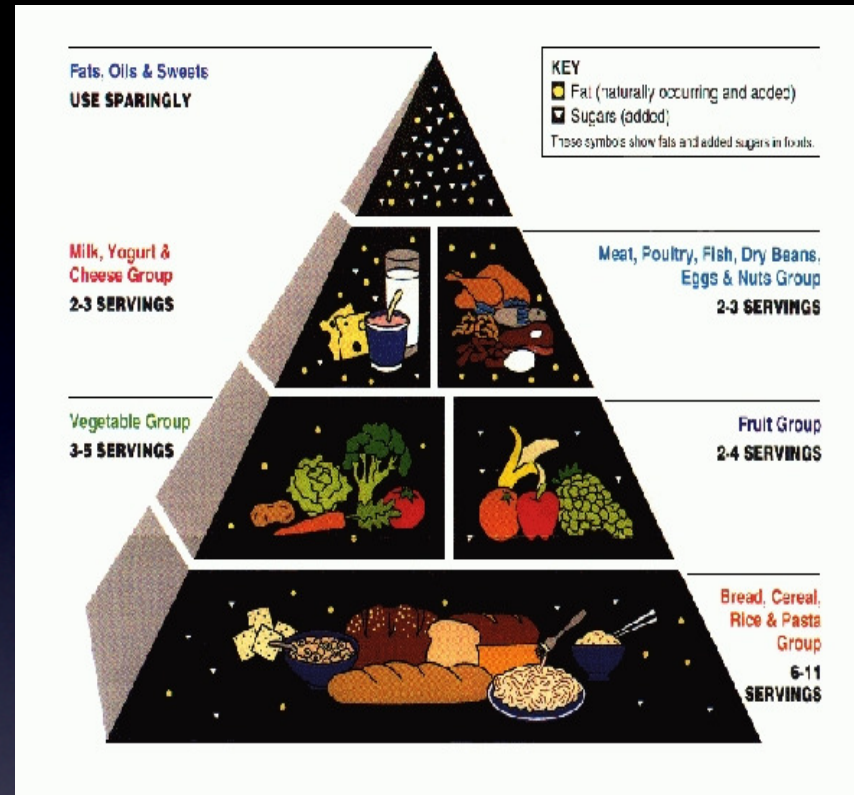
Strategies to control IBD symptoms

- Avoid trigger foods-not all IBD patients are affected by the same foods.
- Common foods which may cause GI discomfort
 - High-fiber foods (nuts, raw, leafy vegetables)
 - High-fat foods (greasy, fried foods)
 - Caffeine (coffee, tea, chocolate, soda)
 - Alcohol
 - Dairy(If lactose intolerant or symptoms)
 - Spicy foods



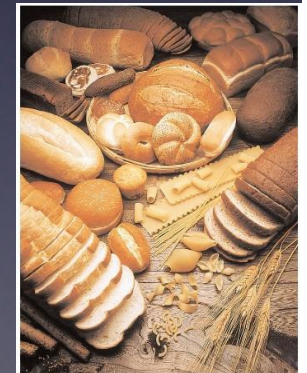
Ensure adequate and appropriate intake of calories.

- Fluids
- Carbohydrates
- Protein
- Fats
- Fruits and vegetables



Strategies to control IBD symptoms

- **Fluid intake**- Drink glasses 8-10 per day to prevent dehydration. Diluted fruit beverages, sport drinks, decaffeinated beverages.
- If fluid intake does not keep up with diarrhea, kidney function may be affected
- Sip rather than gulp beverages (introducing air by gulping can cause discomfort)
- **Carbohydrates**-Bread, rice, pasta, cereal
 - Good source of energy but low in vitamins
 - Tend to be consumed in excess because they cause little discomfort



Strategies to control IBD symptoms

- **Protein**- meats, fish, eggs, nuts, poultry, soy
- 30% of diet should consist of protein source



- **Fat** - “Healthy” fats preferred
- Omega 3 fatty acid- (?anti-inflammatory)
- Olive and Canola Oil
- Avoid saturated fats- butter, lard, margarine, fried foods

Diet during a flare

- Eat small frequent meals- 5 small meals every 3-4 hours (fist sized).
- Avoid greasy, fried foods.
 - Butter, margarine, cream sauces cause diarrhea and gas if fat absorption is incomplete (intestinal resection)
- Avoid foods which increase stool output
 - Raw fruits/vegetables, prunes, caffeine

Diet during a flare



- Limit milk or milk products if lactose intolerant
- Inner surface of small intestine lacks digestive enzyme, called lactase.
- Cramping, abdominal pain, gas, diarrhea and bloating.
- May take lactase supplements if consuming dairy products
- Dairy products good source of calcium and protein.
- Risk Calcium deficiency-steroids, malabsorption

Diet during a flare

- Low residue, low fiber diet
- Restrict nuts, seeds, corn, popcorn, raw/canned fruits, coconut, chunky peanut butter and Chinese vegetables.
- If there is intestinal narrowing (stricture), these food may cause bloating and cramping.
- High fiber foods provoke contractions which may also cause cramping
- Adjustments usually temporary until inflammation/narrowing respond to medication.

Probiotics



- **Probiotics** – Live microorganisms, “Good” bacteria, that benefit the host by restoring balance to the flora when given in adequate amounts. Not all are alike.
- Mechanism non well understood but benefits includes :
1)suppression/growth of bad bacteria, 2) affect immune function, 3) strengthen intestinal wall, and 4)affect pain
- Used for Irritable Bowel Syndrome (IBD), Infectious diarrhea (C.difficile), food allergy.
- Small studies suggest may help for maintenance of Ulcerative colitis and prevention of pouchitis (VSL#3). Expensive (\$90.00 box) and not covered by insurance.
- No good clinical data to support use for Crohn’s disease
- **Omega-3 fatty acids (fish oils)** – Large well-controlled trials showed no benefit in CD. May have anti-inflammatory activity

Take home points

- Diet has not been shown to cause or cure IBD.
- Proper nutrition can help prevent worsening of symptoms.
- “If it makes you feel worse, don’t eat it”
- Monitor/supplement for mineral and vitamin deficiencies (Iron, Folate, B12, Calcium, Vit D, Zinc, Magnesium, Fat Soluble Vitamins)
- Diet/nutrition should individualized based on type of disease (UC or CD), location of disease and state of disease (remission or flare)
- Strive for well-balanced diet which include all food groups.

Thank you