Case Study:
Colectomy, Ileostomy, & Complications

Jean Liu
Simmons University Dietetic Intern
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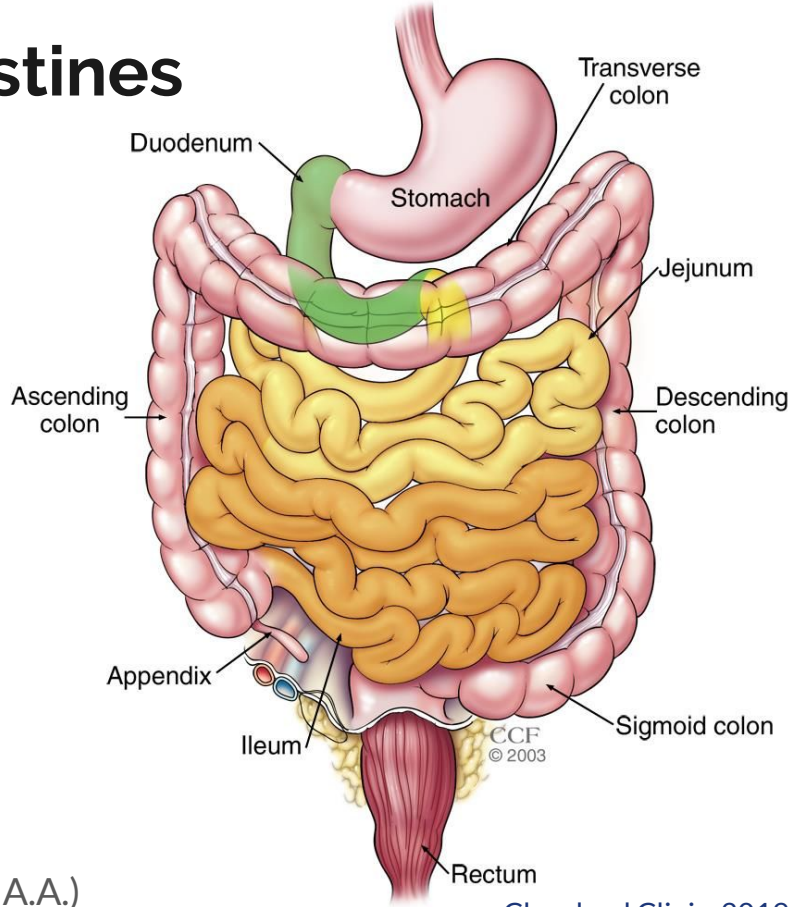
Normal Function of the Intestines

Small Intestine:

- ~20-30 feet long, 1 inch in diameter
  - Duodenum = 1.5 feet
  - Jejunum = 6.5-10 feet
  - Ileum = 10-13 feet
- Primary site of digestion and absorption
  - Physical digestion w/ segmentation
  - Chemical digestion w/ digestive enzymes
  - 200-300 m^2 surface area

Large Intestine:

- ~5 feet long, 3 inches in diameter
  - Cecum, colon, rectum, and anal tract
- Absorbs water, Na, K+
- Site of bacterial fermentation (remaining CHO and A.A.)



Cleveland Clinic, 2019

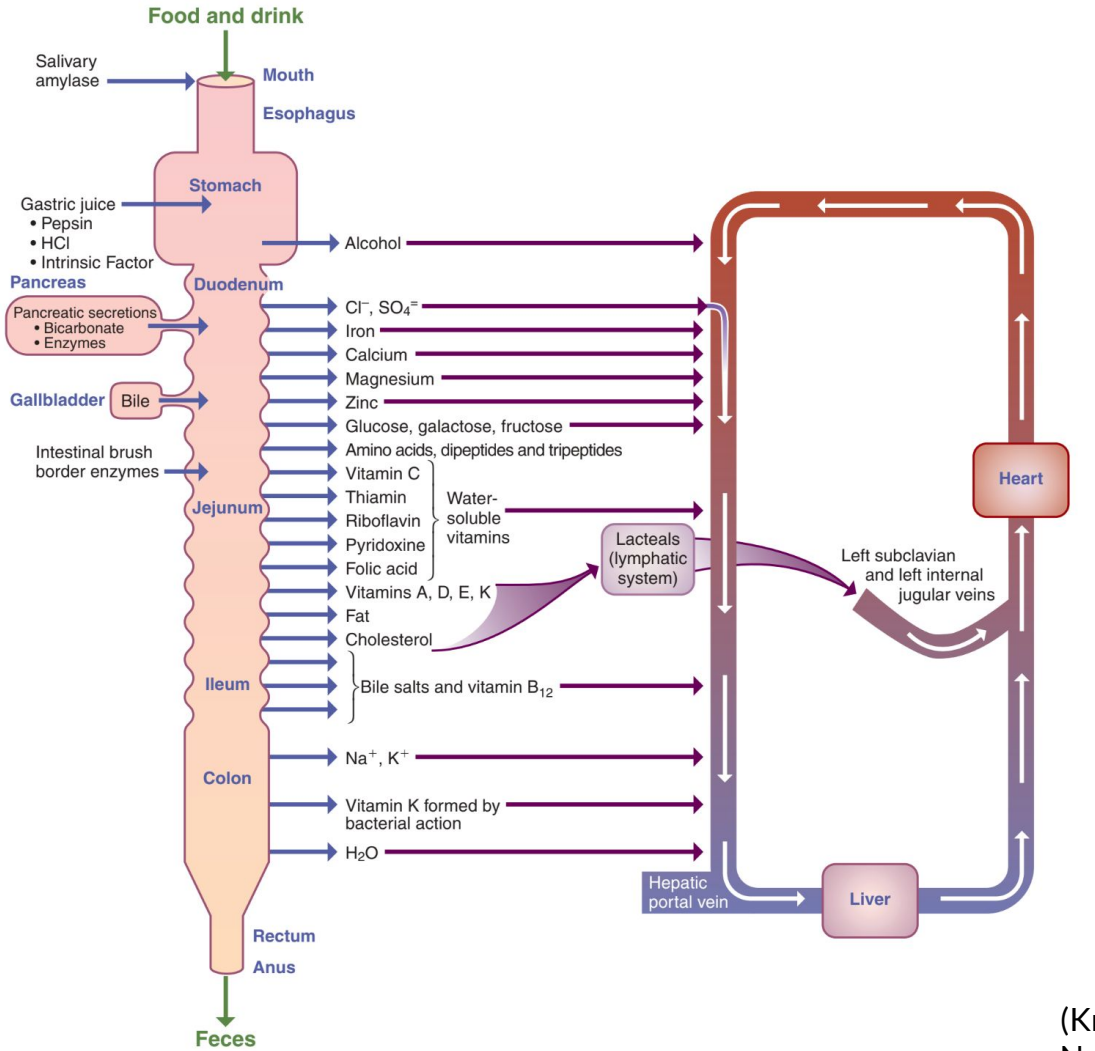


FIGURE 1-9 Sites of secretion and absorption in the gastrointestinal tract.

(Krause's Food & the Nutrition Care Process, 2012)

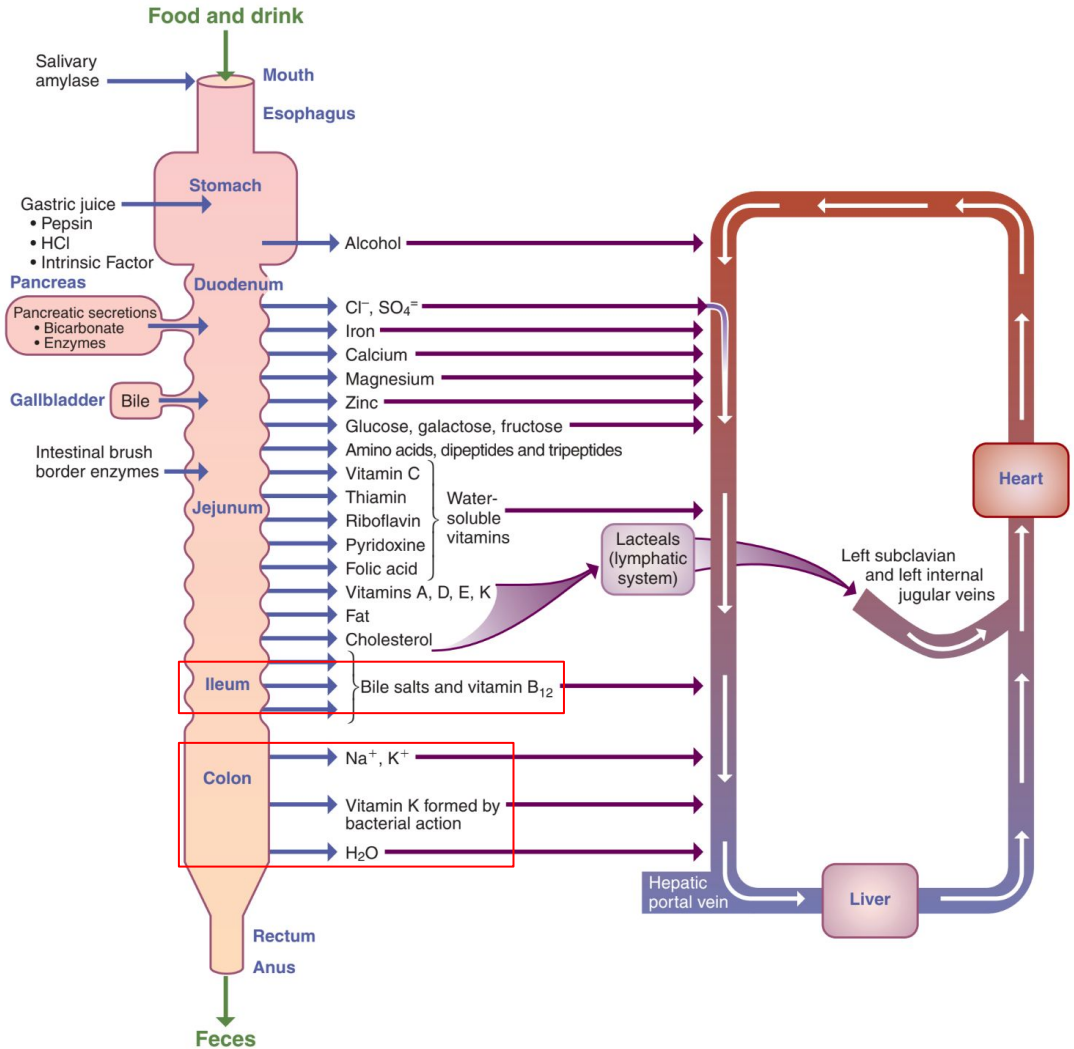


FIGURE 1-9 Sites of secretion and absorption in the gastrointestinal tract.

Colectomy and Ileostomy

Colectomy: resection/removal of the colon, rectum, and/or anus

- ➔ Total colectomy = removal of entire large intestine
- ➔ Subtotal colectomy = partial removal of the large intestine

-Ectomy: surgical removal of something

Ex. Ileocec**ectomy**, Jejun**ectomy**

Ileostomy: a surgical opening in the abdominal wall (stoma) at the end of the small intestine (ileum) **to release stool**

- ➔ After intestinal surgery, a **stoma** may be necessary for waste elimination

-Ostomy: opening created to move waste out of the body when colon/rectum is not working properly

Ex. Col**ostomy**, Jejun**ostomy**

Indications for a Colectomy or Ileostomy

Treatments for:

1. Malignancy
2. Inflammatory bowel disease
    - Crohn's Disease → Symptom relief
    - Ulcerative Colitis → Cure
3. Benign disease
    - Obstruction
    - Diverticulitis
    - Blunt or penetrating trauma

- Fecal diversion with stoma
- Ileostomy:
    - Emergent subtotal colectomy
    - Anastomotic protection/avoidance in bowel resection or injuries
        - Restoration?
- Colostomy:
    - Injury/perforation of colon with pt of high risk reanastomosis
    - Preferred over ileostomy

Complications with Intestinal Surgeries...

Fistula: abnormal passage between two organs (organ/organ) or body surfaces (organ/skin)

(Medical News Today, 2018)

- Loss of intestinal function
  - Malabsorption
  - Fluid/electrolyte imbalances
- Stoma complications (Shabbir, J., & Britton, D. C., 2010)
  - 25-70% occurrence rate
  - Seal around the ostomy pouch
- Anastomotic leakage or stricture → obstruction
- Others...
  - Steatorrhea (fatty stool)
  - Fistulas

Nutrition Implications

- Adaptability dependent on type/location of resection, patient age, nutrition status, diet
  - ➔ Malabsorption

- Higher output (ASPEN)
  - Colostomy 200-600 mL/day
  - Ileostomy initially 1200 mL/day; goal ~600 mL/day
  - Jejunostomy 6000 mL/day (must limit oral fluids)

- Ileostomy: ↓absorption of Na, K, and water → dehydration

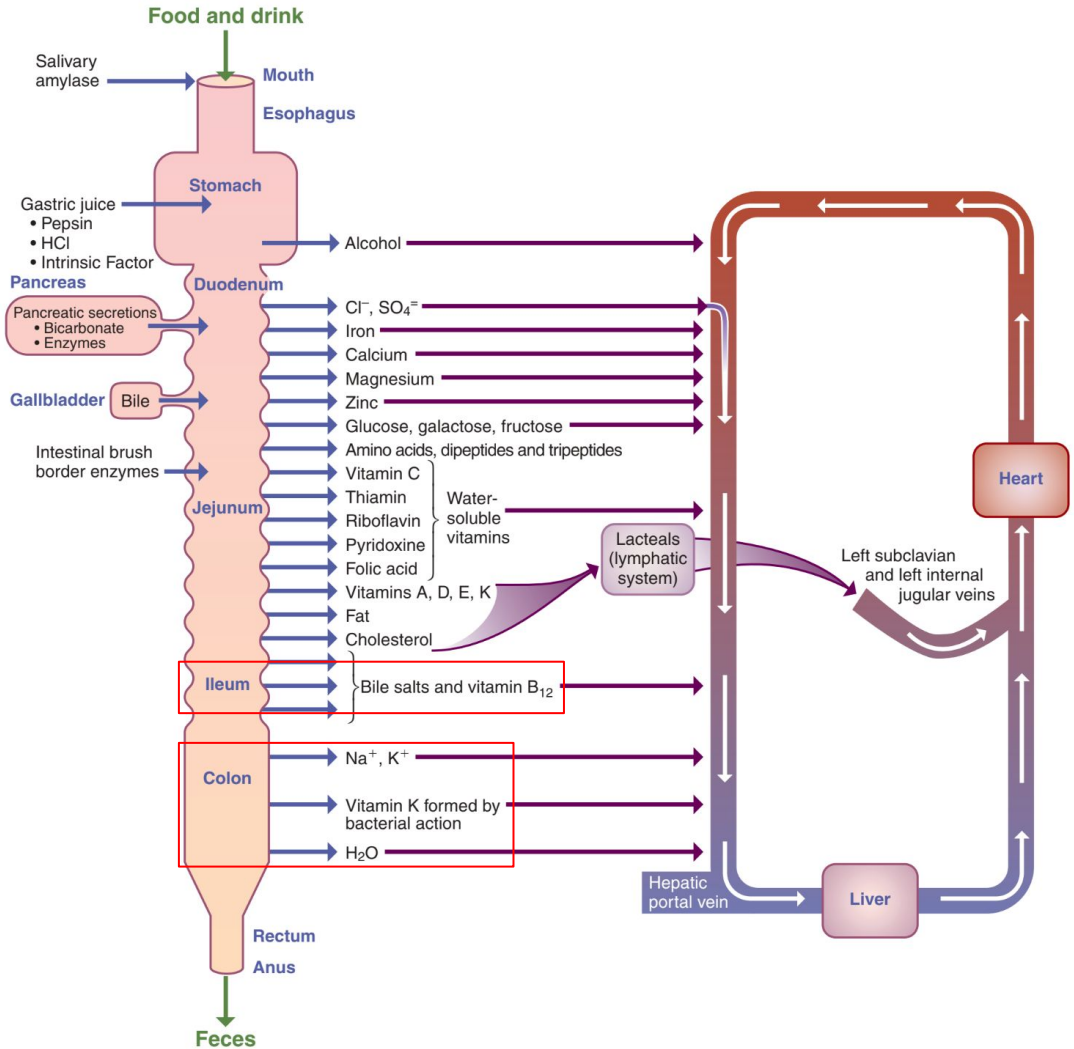


FIGURE 1-9 Sites of secretion and absorption in the gastrointestinal tract.

Nutrition Standards of Care:

Strict dietary recommendations (Nutrition Care Manual):

- Bowel rest or clear liquid diet following surgery
- Progress to low-fiber/residue diet for ~4 weeks
  - Goal <8 g fiber/day
  - Soluble fiber OK
  - Thorough chewing
- Vitamin/Mineral supplements
- Good hydration status, closely monitoring Na and K+
- Avoid:
  - Gassy foods (ex. cruciferous vegetables, legumes)
  - High sugar items (ex. soda, juice, candy)

Case Study: Assessment of D.C.

37 y/o F

Diagnosis: Sepsis with Colonic Perforation s/p Subtotal Colectomy and End-Ileostomy (8/25) with rectovesical fistula

PMHx: DVT/PE, HCV, anemia, chronic constipation, and opiate dependence

Social: Active heroin user with a long hx of opiate dependence. Works as a hairdresser and skipped meals frequently. Pt is strongly supported by her boyfriend

Assessment: Anthropometric Data

Height: 5’3” or 63 inches

Weight: 100.2 lbs (9/26)
➔ 1 month after surgery

Weight Changes: ~25 lb loss in 1 month

BMI: 17.7 kg/m2 - underweight

IDW: 115 lbs, %IDW: 87.13%

Estimated Nutrient Needs based on Actual BW (45.5 kg)

EEN: 1593-1820 (35-40 kcal/kg)

EPN: 55-68 g pro (1.2-1.5 g pro/kg)

EFN: 1.6-1.8 L fluid + GI losses (1 mL/kg)

Nutrient Concerns:
Kcals, fiber, vitamins, minerals, fluids

Assessment

Pertinent Labs	9/19:	9/27: (Admission)	Normal Ranges:
Na	136 (WNL)	136 (WNL)	135-145 mEq/L
K+	4.0 (WNL)	4.6 (WNL)	3.5-5 mEq/L
Alb	1.8 (L)	2 (L)	3.4-5 g/dL
CRP	-	71.51 (H)	0-3 mg/L

Pertinent Medications: Vitamin B12 and ferrous sulfate supplement, MVI supplement added on 10/1

Assessment

Interview:

- **Intake**: ~50% of meals, but many snacks from her boyfriend. Feels hungry and thirsty
  - “I get full after a few bites of food, but I eat snacks and meals my boyfriend brings for me”
  - “My lips and skin are always dry”
- Ostomy output ~1.2-1.5 L/day, a lot of gas
- Pt reports poor dentition (missing some front and back teeth)
- Behavior: engaged and receptive to nutrition education

Observational Data:

NFPE

- Moderate to severe muscle wasting:
  - Temple region (slight depression)
  - Clavicle bone region (protruding acromion process, square shoulder to arm joint)
  - Scapular bone region (visible scapula)
  - Patellar region (prominent knee cap)
- Mild to moderate subcutaneous fat loss:
  - Orbital region (dark circles)
  - Triceps region (shallow depth in the pinch)
- Many foods brought from outside the hospital: Cheerios, Rice Krispies cereal, canned tuna, applesauce, jello, pudding

Nutrition Diagnosis

1. Increased nutrient (energy and fluid) needs related to altered absorption of water, bile salts, and decreased functional length of intestine as evidenced by subtotal colectomy and end-ileostomy and weight loss.

2. Severe malnutrition (undernutrition) related to prolonged hospitalization and physiologic causes (altered GI function) as evidenced by severe weight loss of 19.8% (24.8 lbs) in 1 month and moderate to severe muscle mass wasting in the temple, clavicle, scapular, patellar regions.

Nutrition Intervention

NCO: Regular diet

- Recommend low fiber/residue diet for altered GI function and high ostomy output

SUPP: Ensure Clear TID

MEDS: Recommend monitoring output as pt may not adequately absorb medications.

EDU: Education provided regarding foods to help manage ostomy output, signs of dehydration, and low-fiber foods.

COORDINATION: Daily weights, I&O's, GI function, PO status

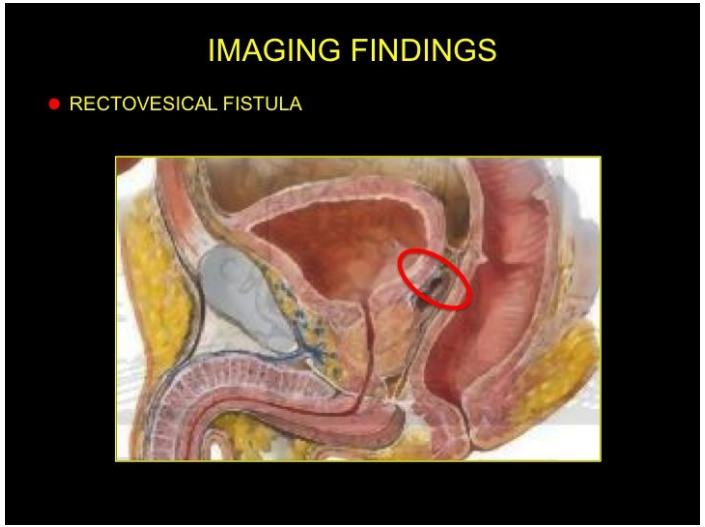
Goals:

1. Gradual weight gain (0.5-1 lb/week)
2. Ostomy output < 1.2 L daily
3. Electrolyte panels WNL
4. Comprehension of ileostomy nutrition therapy

Monitoring/Evaluating:
Daily weights, I&Os, GI function, electrolyte labs, PO status, PO tolerance, dietary compliance, education comprehension, hospital course

Complications...

- Poor dentition —> many foods came out of her bag undigested
- Fast transit time with many foods
  - Wakes up 2-3x at night
- Developed a second fistula (periumbilical fistula)
- Small bowel obstruction 1 month after admission
  - Vomited, NGT placed to remove gastric content
  - Stricture, scar tissue, maybe diet?



Outcomes

Monitored Trends:

Weights:

109.6 lbs (11/11)
106.8 lbs (10/30)
105.5 lbs (10/23)
108.3 lbs (10/22)
99.8 lbs (10/15)
98.9 lbs (10/8) (brief NPO)
100.2 lbs (9/26) - admission

Outputs:

<1.2 L/day (10/11-10/18)
~1.4 L/day (10/8-10/11)
~1.85 L/day (10/1-10/8)
>1.2 L/day (9/27-10/1)

Pertinent Labs	9/27: (Admission)	11/11:	Normal Ranges:
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Nutrition Re-assessment:

- Pt requested change back to regular diet. Pt would appropriately choose low fiber foods
- Adjusted menu items to avoid cruciferous vegetables/legumes, added soft vegetables
- Discontinue Ensure Clear as pt met ENN through good PO and foods brought from outside hospital

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Thank you!