Ileostomy and Nutrition
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Adv. Clinical Presentation

Outline
- What is an ileostomy?
- Patient Population
- Common Complications
- Current Nutrition Guidelines

Typical Patient Population
- Crohn’s disease
- Ulcerative Colitis
- Diverticulitis
- Cancer
- Trauma
- Peritonitis
- GI bleed

Common Complications
- Fluid and Electrolyte Abnormalities
  - Na, Mg, Ca
- Vitamin and Mineral Deficiencies
  - D, B12, Zinc
- Inadequate Nutrient Absorption
- Increased Gastric Motility
- High Output Stoma
Ileostomy Output

- Output Progression
  - First 1-2 Weeks: 1200 ml/day
  - As bowel adapts: 400-750 ml/day

- Typical Output
  - 500-1000 ml/day

- Greater than 1000 ml/day is considered diarrhea

- Greater than 2000 ml/day is considered High-Output Stoma (HOS)

High Output Stoma

- Hypotonic fluids restricted to 500-1500 ml daily
  - Water, tea, juice, sports drinks

- At least 1000 ml of a 'rehydration solution' daily
  - NaCl, Glucose, Sodium Bicarb

- Zinc Sulfate Supplement
  - 220-440 mg daily until corrected

- Increase caloric needs to 30% normal needs

- Carbohydrates: 40-50% kcals

- Protein: 20% kcals

- Fat: 30-40% kcals

- Continued Monitoring: Wt, BMI, Urinary Sodium, Medications

![Image](image1.png)

### Article 1 - The ‘not so short-bowel syndrome’: potential health problems in patients with an ileostomy

**Purpose:** To investigate nutrition, hydration and electrolyte status and bone mineral status in ileostomy patients with and without small bowel resections.

### Table 2 Body weight and composition differences between ileostomy patients with and without small bowel resections.

<table>
<thead>
<tr>
<th>Body weight and Composition</th>
<th>Ileostomy, n = 60</th>
<th>Controls, n = 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW (kg)</td>
<td>67.8 (36.6-115.1)</td>
<td>77.7 (48.0-103.3)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>25.0 (14.3-43.0)</td>
<td>27.3 (20.2-32.2)</td>
</tr>
<tr>
<td>LBM (kg)</td>
<td>47.8 (19.3-72.0)</td>
<td>52.9 (24.0-73.0)</td>
</tr>
</tbody>
</table>

### Estimated Nutrition Needs

**IN HOSPITAL**

- 25-30 kcal/kg (UBW or Adj BW), MSJ x 1.2
- 1.5-2.2 g protein/kg (UBW or Adj BW)

**Estimated Needs should be individualized taking into consideration the patient’s history and current medical status**

![Image](image2.png)

### Article Critiques

- Small study sample
- Only 60 participants
- Studied in UK
- Used UK’s general population to determine appropriate BMI and height parameters
- SBR and NSBR patients were included in the ileostomy group as a whole
- SBR patients may have contributed to low body weight composition more than the NSBR patients

![Image](image3.png)

| Table 3 The 24 h urinary volumes and sodium, potassium, calcium and magnesium excretion of ileostomists and controls (median [range]). |
|-----------------|-----------------|-----------------|-----------------|
| Control (n = 60) | Ileostomy (n = 60) |
| Volume (ml)     | 2000 (1648-2464) | 1500 (1089-2096) |
| Urine Na (mmol/L) | 107 (50-207) | 72 (50-404) |
| Urine K (mmol/L) | 1.1 (0.8-1.6) | 0.98 (0.8-1.6) |
| Creatinine (mg/dL) | 1.6 (1.3-2.5) | 1.0 (1.0-1.6) |
| Sodium (mmol/L) | 139 (135-147) | 142 (138-154) |
| Calcium (mg/dL) | 9.0 (7.5-10.4) | 9.1 (8.9-10.5) |
| Magnesium (mg/dL) | 2.3 (2.0-2.7) | 2.3 (1.9-2.7) |
| Water (ml)      | 1500 (1000-2000) | 1500 (1000-2000) |

| Table 4 Estimated nutrition needs for patients with ileostomies. |
|-----------------|-----------------|-----------------|-----------------|
| Estimated Needs (n = 60) | Control (n = 60) |
| Protein (g)     | 1.0-1.2 g/kg (UBW or Adj BW) | 1.2 (0.9-1.5) |
| Carbohydrates   | 40-50% BC (UBW or Adj BW)     | 45 (40-55) |
| Fat (g)         | 30-40% BC (UBW or Adj BW)     | 35 (30-45) |

![Image](image4.png)
Diet Progression

<table>
<thead>
<tr>
<th>Progression</th>
<th>Diet Specifics</th>
</tr>
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<tbody>
<tr>
<td>Clear Liquid Diet</td>
<td>Day 1 - 3 Avoidance of high sugar options</td>
</tr>
<tr>
<td>Low Fiber Diet</td>
<td>Day 3 - 5 Less than 8g daily</td>
</tr>
<tr>
<td>Low Fiber Diet</td>
<td>Week 1 - Week 6 Less than 13g daily</td>
</tr>
<tr>
<td>Regular Diet</td>
<td>20-30g fiber daily</td>
</tr>
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</table>

- Small, Frequent Meals (3-6/day)
- Higher Sodium Diet (up to 4000mg daily)
- Liquid Multivitamin
- Liquid Calcium Supplement

Foods that May Cause Diarrhea
- Alcohol
- High-Sugar Foods
- Fruits
- High-Fat Foods
- Caffeinated Beverages
- Spicy Foods
- Chocolate
- Gum

Foods that May Help Thicken Stool
- Applesauce
- Bananas
- Oatmeal
- Marshmallows
- Peanut Butter
- Saltines
- White Bread
- White Rice
- Yogurt

Article 2 - High-fiber rye diet increases ileal excretion of energy and macronutrients compared with low-fiber wheat diet, independent of meal frequency in ileostomy subjects

Purpose: To investigate the impact on ileal excretion of energy and macronutrients in response to a rye bread high-fiber diet compared to a refined wheat low-fiber diet, as well as meal frequency.

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<th>Wash-Out</th>
<th>Week Three</th>
<th>Week Four</th>
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<tr>
<td>Low Fiber, Nibbling</td>
<td>Low Fiber, Ordinary</td>
<td>High Fiber, Nibbling</td>
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Table 1: Mean and standard deviation of mean ileal recovery of macronutrients. (g/L/day) and energy (M Hindus) during the refined wheat low-fiber diet (W) and the high-fiber rye diet (R) in six ileostomy subjects in response to meal frequency of 1-2 g/day (G) and 1-2 daily (D).

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Nutrition Support

- Enteral Nutrition
  - Polymeric formula that is isotonic (Osmolite, Promote)
  - Additional Sodium (90 mEq/L) on top of recommended 1-2 g/day

- Parenteral Nutrition
  - Monitor Na, K, Mg to determine need for repletion
  - H2O: 12mg Total Zinc

Article Critiques

- Very small sample size
- Only 10 participants
- Participants not monitored
  - May have not followed diet correctly which may have affected results
- Low fiber diet is not actually a consider low in fiber
References

- Isaksson H, Landberg R, Sandberg B, et al. High-fiber rye diet increases ileal excretion of energy and macronutrients compared with low-fiber wheat diet independent of meal frequency in...