

Dietary Strategies for Fecal Incontinence (FI)

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Introduction

■ Definition of FI:

- Continuous or recurrent uncontrolled passage of fecal material (>10 mL) for at least one month in an individual older than three years of age
- Lack of control over defecation

■ Causes

- 1) Altered bowel habits due to underlying etiology
- 2) Complications from ano-rectal surgery
- 3) Damage from childbirth

- Both diarrhea and constipation can contribute to FI; therefore dietary advice must be tailored to address the underlying stool consistency
- Loose stools fill the rectum quickly and are more difficult to hold than solid stools

Intestinal Failure May Lead to FI

- Loss of small bowel absorptive capacity
 - Obstruction
 - Dysmotility
 - Inflammation/Infection
 - Surgical resection
 - Congenital defect
 - Mucosal disease
- Presenting features
 - Chronic diarrhea (FI)
 - Dehydration
 - Electrolyte abnormalities
 - Micronutrient imbalances
 - Malnutrition

O'Keefe et al. Clin Gastroenterol Hepatol. 2006; 4:6-10.

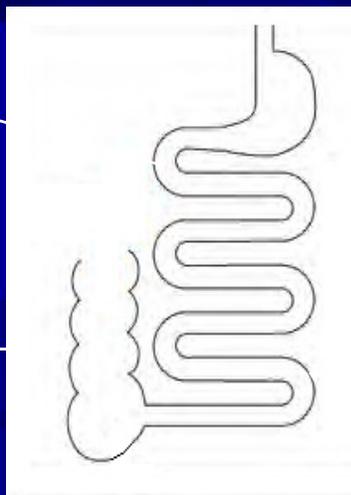
Length and Sites of Absorption

Duodenum

~30cm
amino acids,
mono- and
disaccharides,
iron, selenium
folate, copper

Colon

~150cm
H₂O, Na, Cl,
K, bile salts



Average SB length 16 ft / 488cm

Jejunum ~150cm

monosaccharides,
a.a.'s, lipids, A-D-
E-K, Ca, PO₄, Mg,
zinc, chromium,
H₂O and lytes

Ileum ~250cm

Vitamin B₁₂,
intrinsic factor,
bile salts, H₂O
and lytes

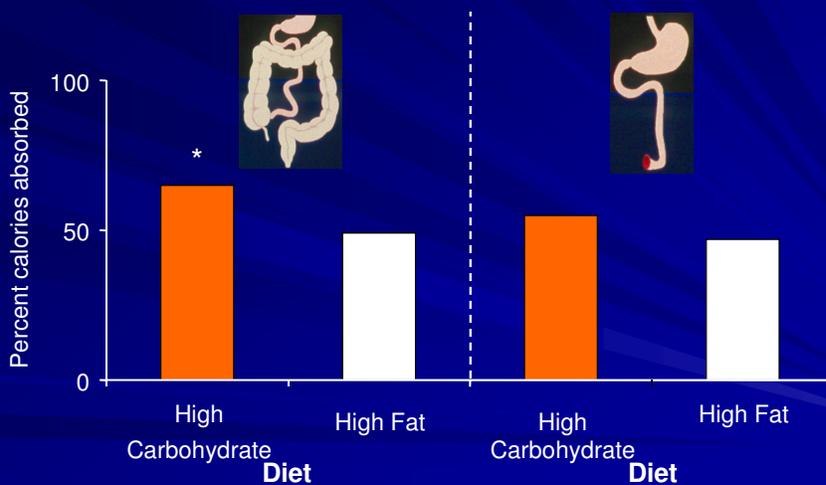
Learning Objectives

- Identify dietary factors contributing to increased diarrhea, which may contribute to FI
- Recommend appropriate macronutrient distribution to optimize absorption and lessen feculent volume
- Educate IF patients regarding the use of Oral Rehydration Solutions (ORS)
- Discuss dietary fiber and its benefits for FI
- Review Anti-diarrheal therapy
- Recognize treatment for vitamin and mineral deficiencies that may contribute to diarrhea

Dietary Factors

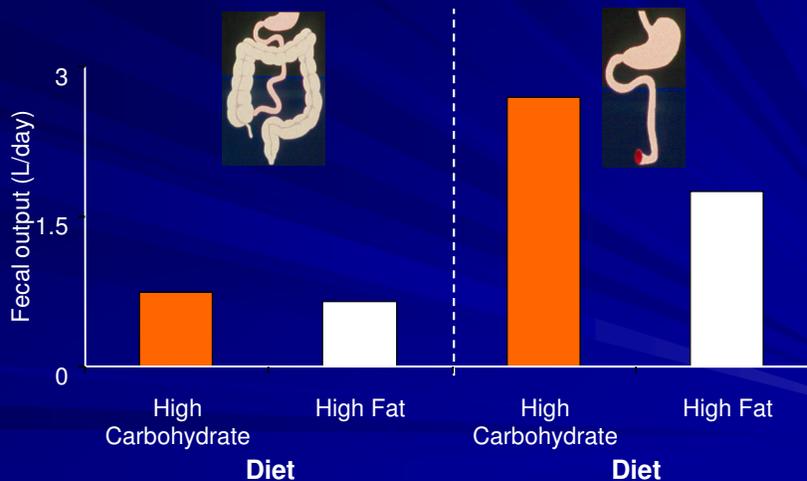
- Small, frequent meals
- Separate fluids from meals
- Limit sugar alcohol containing foods and medications
- Limit cruciferous vegetables
- Limit GI stimulants
 - Alcohol
 - Caffeine

Diet Based on Presence of Colon



Lancet 1994;343:373.

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Dietary Modification

WITH COLON

- CHO 50-60% (limit sweets)
- PRO 20%
- FAT 20-30%
- Meals 5-6 daily
- Isotonic fluids
- Fiber as tolerated
- Lactose as tolerated

NO COLON

- CHO 40-50% (limit sweets)
- PRO 20%
- FAT 30-40%
- Meals 4-6 daily
- Isotonic, high Na fluids
- Fiber as tolerated
- Lactose as tolerated

Byrne et al. NCP 15:306-311, 2000

Simple vs. Complex CHO

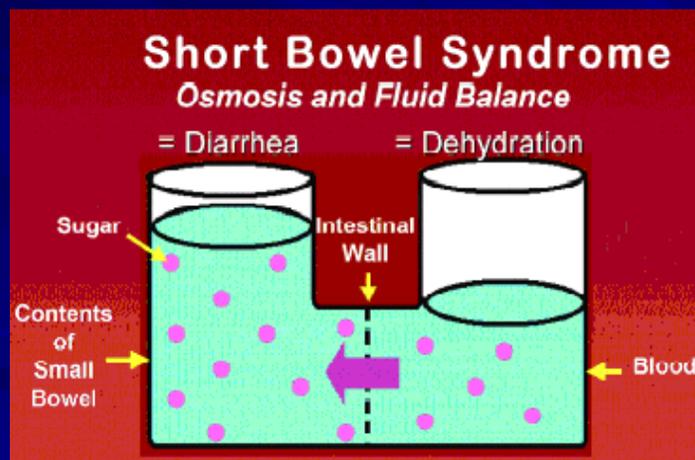
AVOID

- Sugar
- Candy
- Cakes, cookies, pies
- Regular soda pop
- Jelly, jam, syrup
- Ice cream, sherbet
- Sorbet
- Sugar-containing supplements

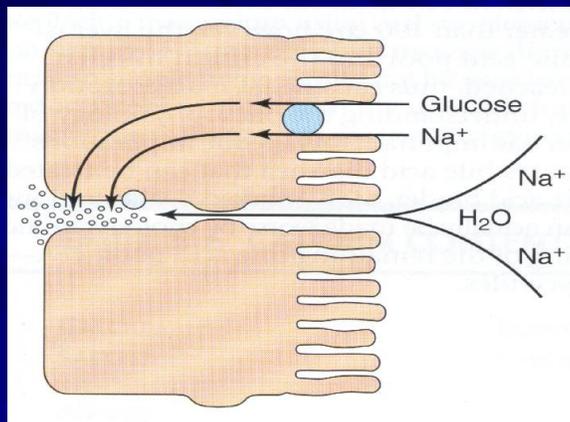
INCLUDE

- Pasta
- Potato
- Breads
- Cereals
- Rice
- Whole grains as tolerated
- Fruits and vegetables as tolerated

Hyper-osmolar Diet



Oral Rehydration Solution (ORS)



Sodium-glucose Co-transport

-Osmolarity 200-300 mosm/L

-Sodium 60-90 mEq/L

ORS and Other Beverages

	Sodium	Carbohydrate	Osmolality
	mEq/L	g/L	mOsm/kg
WHO-ORS	75	13.5	245
Rice-based	70	20	260
Pediatric sol	45	20	270
Sports drink	20	60	380
Ginger ale	3	90	540
Apple juice	3	124	730
Chicken broth	250	0	450
Ensure Plus	32	165	680

Common ORS Recipes

- Gatorade G2: 12 oz + One salt packet (1/8 tsp)
- Gatorade G2: One liter + 1/2 tsp salt
- 2 c Gatorade + 2 c Water + 1/2 tsp salt
- 1.5 c Powerade + 2.5 c Water + 3/4 tsp salt
- One liter Water + 2/3 tsp salt + 2 tbsp sugar + sugar free Crystal Light/Kool Aid

Soluble Fiber

- Soluble fiber absorbs liquid and forms a gel
 - Thickens stool, may give heightened sign of urgency
 - Slows transit
- Fiber is fermented in colon to form SCFA
 - Additional calories
 - Improved absorption of sodium and fluids
- Additional benefits
 - Lowers LDL cholesterol
 - Improves the glycemic control by slowing passage of nutrients

Types of Fiber

Soluble

- Pectins, gums; some hemicelluloses, mucilages, polysaccharides
- Ei. Oatmeal, bananas
- Fermentable by colonic bacteria
- Forms a viscous gel in GI tract
- **Increases fecal transit time**

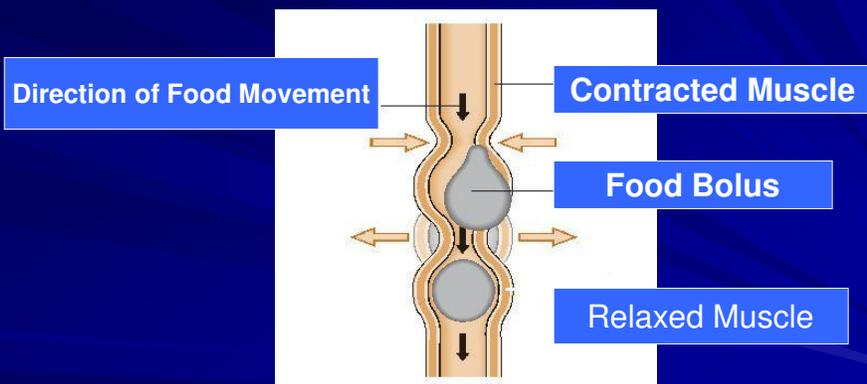
Insoluble

- Cellulose, lignin, some hemicelluloses, mucilages, & algal polysaccharides
- Ei. Coarse wheat bran
- Non-fermentable in colon
- Increased fecal volume
- **Decrease fecal transit time, prevent constipation**

Dietary Sources of Soluble Fiber

- | | |
|-------------|------------------|
| ■ Potatoes | ■ Legumes |
| ■ Bananas | ■ Apples |
| ■ Bread | ■ Avocados |
| ■ Rice | ■ Sweet Potatoes |
| ■ Oatmeal | ■ Squash |
| ■ Tortillas | ■ Carrots |
| ■ Barley | ■ Beets |
| ■ Rye | ■ Peaches |
| | ■ Pears |

Antidiarrheals



Nightingale J. Gut 2006; 55:iv1-iv12

Antidiarrheal Therapy

To increase intestinal transit time

Medication	One Dose	Starting Dose PO QID	Max Dose/Day
Loperamide (Imodium)	2 mg tab	1-2 tabs	8 tabs
	10 mL	10-20 mL	80 mL
Diphenoxylate (Lomotil)	2.5 mg tab	1-2 tabs	8 tabs
	5 mL	5-10 mL	40 mL
Codeine	15 mg tab	15-60 mg	240 mg
	5 mL	5-20 mL	80 mL
Tincture of Opium	0.5 mL	0.5-1.5 mL	6 mL

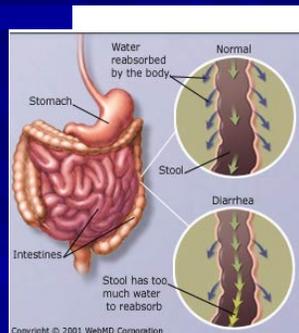
* All antidiarrheal meds should be given ½ hr to 1 hr before meals

Liquid Medications

Sorbitol

Discomfort
Nausea
Vomiting
Diarrhea
Dry mouth
Xerostomia
Fluid/lyte loss
Lactic acidosis
Edema

Osmolarity



5 - 20 g/day can produce symptoms

20 - 50 g/day can cause diarrhea

Bauditz et al. Brit Med J 336:96-97,2008.

Sorbitol

Liquid Medications/Dosage	Sorbitol Content	Potential Alternatives
Loperamide	Some brands may contain sorbitol	2mg chewable
Diphenoxylate (20-40mL/d)	1-8 g/d	Crush tablets
Codeine (20-80mL/d)	2-8 g/d	Crush tablets
Potassium Chloride	2.1-13.1 g/d	Klor-Con Powder
Magnesium Gluconate (15-45mL/d)	4.2- 12.6 g/d	Crush MagTab SR or Mg Gluconate tab
Bicitra (13-78 mL/d)	6-36 g/d	Oracit, Citric acid

Other Possible Nutritional Factors

- Zinc deficiency
- Niacin deficiency

