



# Why Do You Need Your Dietitian?

## Let's Talk About Short Bowel Syndrome and More

Christine Young, RD, LD, CNSC  
Nutrition Support Dietitian  
BriovaRx Infusion Services

# Make Your Dietitian Work for You

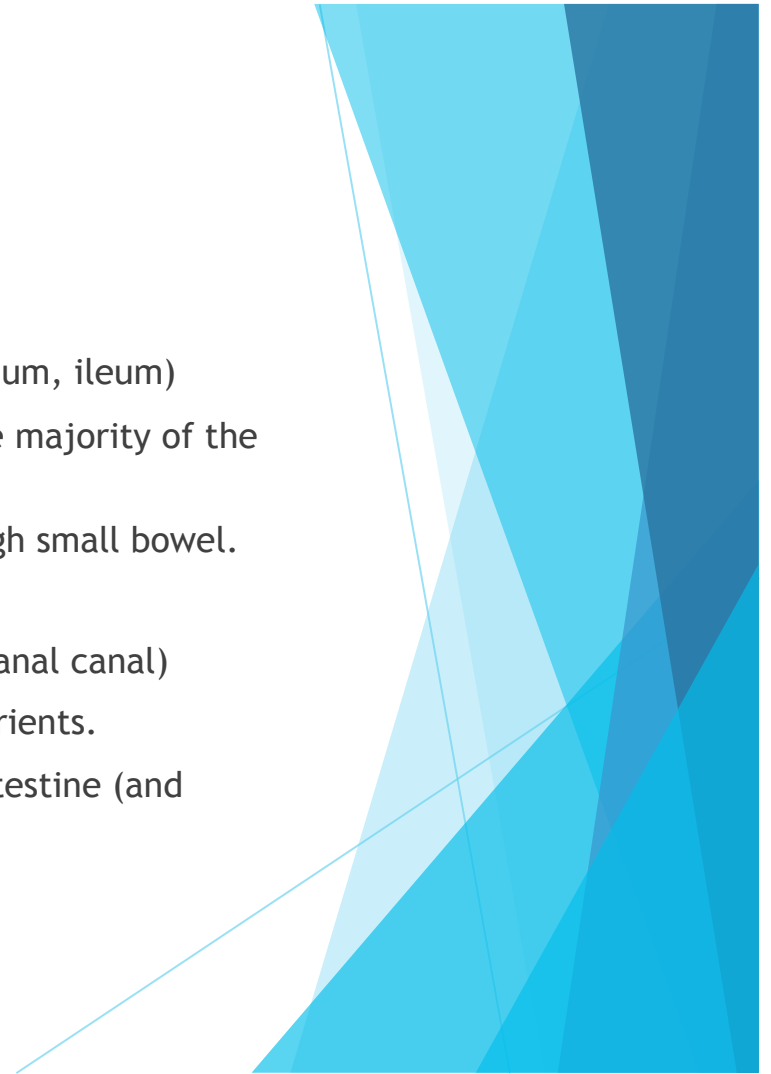
- ▶ Dietitian can help you develop an individualized meal plan and set protein, carbohydrate, fat, fiber and fluid intake goals.
- ▶ If you are receiving PN therapy, the RD will recommend early oral diet advancement and can guide you toward appropriate choices that will help maximize bowel adaptation and minimize complications.
- ▶ Dietitian advises your physician of needed routine and other laboratory tests that assess metabolic and nutritional status
- ▶ Dietitians are skilled at identifying malnutrition and nutrient deficiency signs and symptoms
- ▶ Dietitian will determine the appropriate vitamin and mineral supplementation regimen for you.

# Make Your Dietitian Work for You

- ▶ Nutrition Support Dietitians are specialists in enteral nutrition (tube feedings) and parenteral nutrition (PN). They work primarily in hospitals and home infusion companies.
- ▶ Your outpatient dietitian and home infusion dietitian are the specialists you have available to assess the adequacy of your nutrition therapy and to guide you and your physician in implementing the optimal nutrition therapy for you.
- ▶ Credentials to know:
  - ▶ Registered Dietitian (RD) or Registered Dietitian Nutritionist (RDN)
  - ▶ Certified Nutrition Support Clinician (CNSC)
  - ▶ Certified Specialist in Oncology Nutrition (CSO)
  - ▶ Certified Diabetes Educator (CDE)

# Get to Know Your Anatomy

- ▶ Small intestine is about 20 to 23 feet long (duodenum, jejunum, ileum)
  - ▶ The small intestine is the location in the body where the majority of the nutrients from ingested food are absorbed.
  - ▶ Digestion normally takes 2 to 6 hours to complete through small bowel.
- ▶ Large intestine is about 5 feet long (cecum, colon, rectum, anal canal)
  - ▶ Doesn't play a major role in absorption of foods and nutrients.
  - ▶ Most fluids and electrolytes are absorbed in the large intestine (and ileum).



# Short Bowel Syndrome

- ▶ Short Bowel Syndrome Defined:

- ▶ < 200 cm of small bowel length with colon OR
- ▶ < 50 cm of small bowel length with a colon

- ▶ Need for Parenteral Nutrition (PN or TPN):

- ▶ > 150 cm of small bowel without colon or 60-90 cm of small bowel with colon:
  - ▶ Initially require PN but may be able to transition to oral nutrition over 1-2 years
- ▶ < 100-140 cm of small bowel and no colon:
  - ▶ Likely need life-long PN support



# WELL NOURISH – YOU’LL FLOURISH !

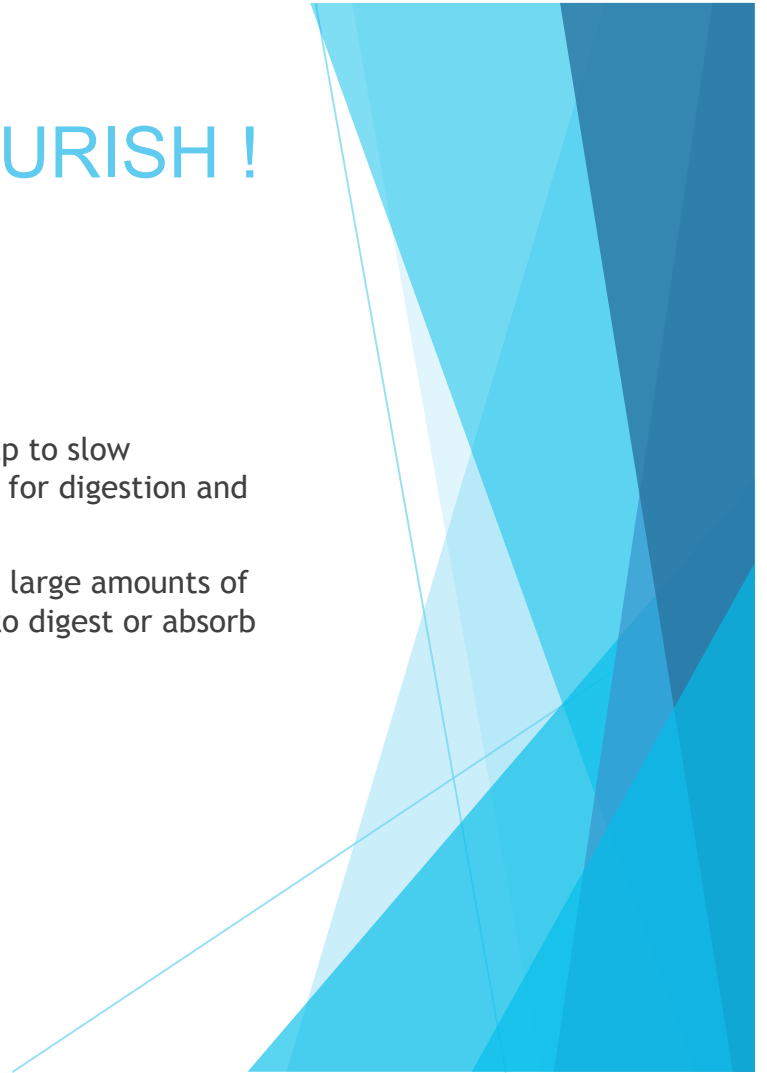
## ▶ # 1 Goal: Absorb as much as you can

- ▶ May absorb as little as 33% and as much as 60%.
- ▶ Eat 6 to 8 small meals a day—eat every 2 to 3 hours
- ▶ Small versus big meals help put less stress on your bowel, lessen your symptoms and, in turn, allow for better digestion and absorption.
- ▶ Don’t skip meals. This can aggravate intestine and increase incidence of watery stools and gas.
- ▶ Eat slowly and chew your foods well to break them down and facilitate digestion. May need to chew food 40 times.

# WELL NOURISH – YOU’LL FLOURISH !

## ▶ Absorb as Much as You Can

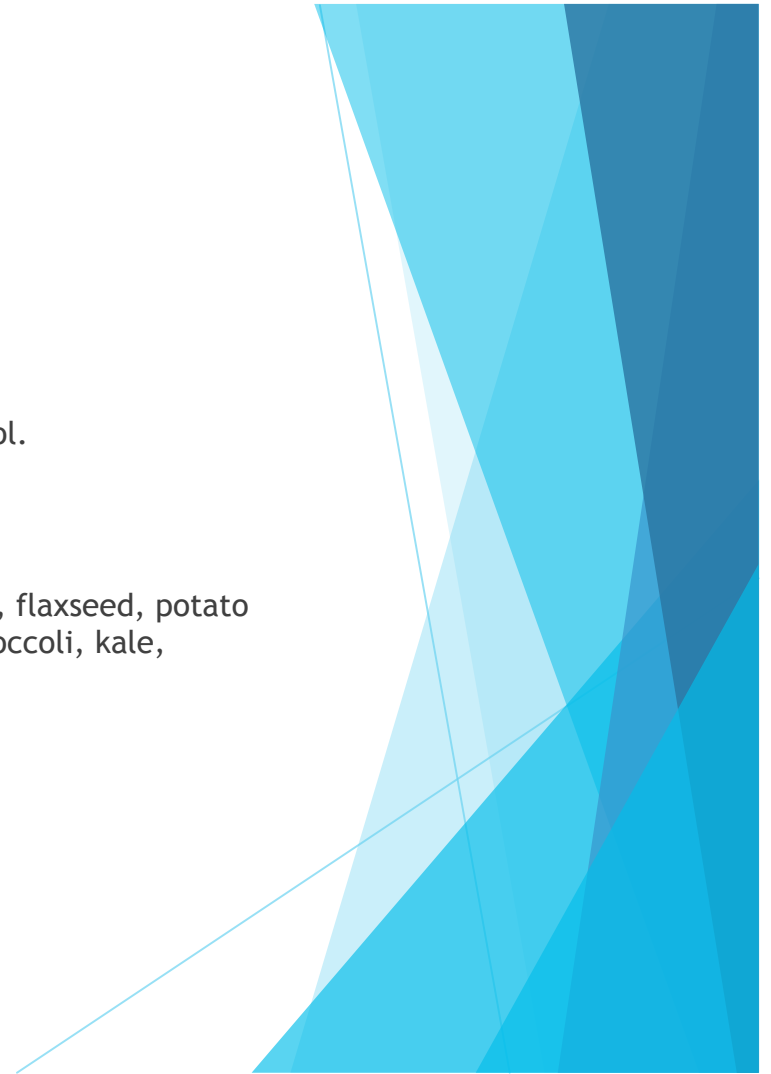
- ▶ Eat a starchy food and a protein food at each feeding - both help to slow movement of food through intestine and, in turn, increase time for digestion and absorption
- ▶ Drink only ½ cup (4 ounces) of fluid during each meal. Drinking large amounts of fluid pushes food through your bowel faster, giving it less time to digest or absorb nutrients.



# Fiber . . . Friend or Foe ?

## ▶ Insoluble Fiber

- ▶ Can't be broken down by body but do help form soft, bulky stool.
- ▶ Shortens transit time—so may not be tolerated.
- ▶ Holds more water in the bowel and can increase diarrhea.
- ▶ Mainly found in whole grains, wheat and corn bran, nuts, seeds, flaxseed, potato skins, skins of some fruits and woody stem vegetables (e.g., broccoli, kale, cauliflower, okra).





# Fiber . . . Friend or Foe ?

## ▶ Soluble Fiber

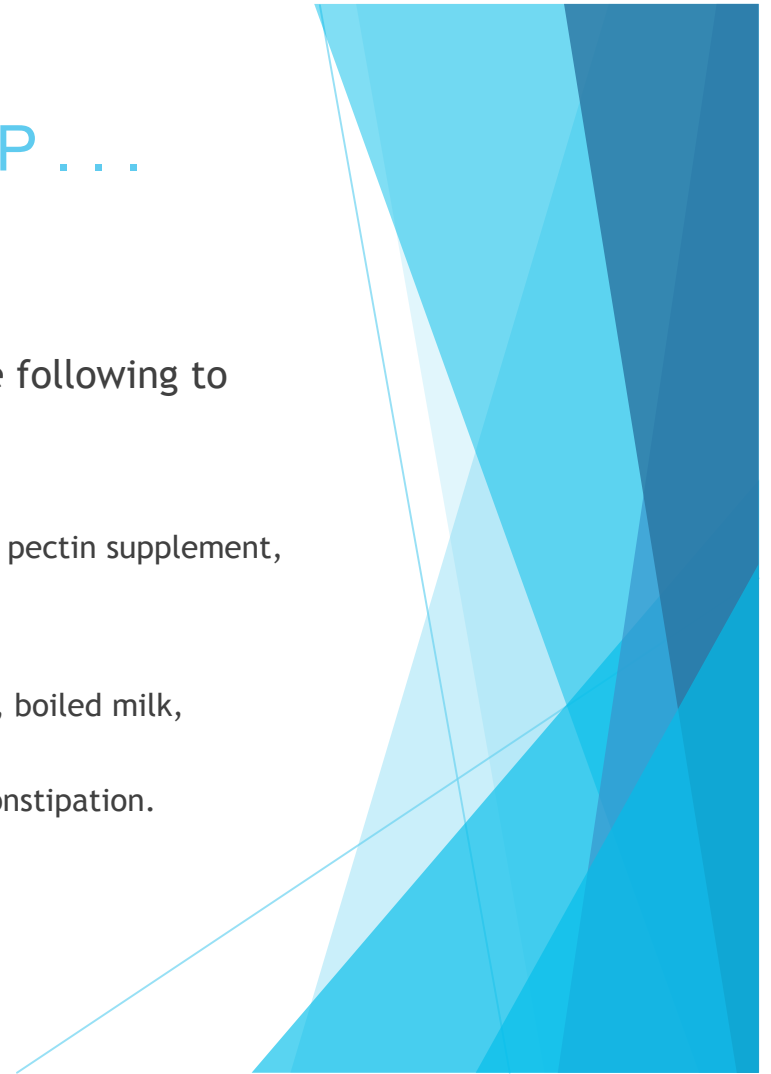
- ▶ Dissolves in water (soluble) and forms gel-like substance when combined with water.
- ▶ Slows transit time which may help absorption of nutrients.
- ▶ Adds bulk to stool which helps to solidify bowel movements and gelatinize ostomy output.
- ▶ For those with a colon segment:
  - ▶ Soluble fiber stimulates production of short-chain fatty acids (SCFA) in the colon.
    - ▶ SCFAs are absorbed through lining of colon and used as energy source, possibly 500 to 1000 calories a day
    - ▶ Help with sodium and water reabsorption—decrease fluid loss!
    - ▶ Aid in development of cells in gastrointestinal tract and stimulate intestinal adaptation.

# Fiber . . . Friend or Foe ?

- ▶ With jejunostomy or ileostomy, use fiber supplements cautiously. Fiber can result in fluid loss as it draws out fluid from the intestinal mucosa (lining).
- ▶ Examples of soluble fiber:
  - ▶ Oatmeal, oat bran, barley, soy, legumes (e.g., chickpeas, lima beans, kidney beans, lentils)\*, citrus fruits, strawberries, blueberries, apples, oranges, pears, carrots, ground flaxseed, chia seeds
  - ▶ Fruit pectin (e.g., Certo)
  - ▶ Psyllium (e.g., Metamucil or generic brand)
  - ▶ Guar gum (e.g, Benefiber or generic brand)
  - ▶ \*May cause gas. Start with ¼ cup portions to test your tolerance. Increase gradually.

# THERE'S HOPE . . . DON'T GIVE UP . . . THICKEN – UP !

- ▶ For diarrhea with SBS or high-output ostomies, eat the following to thicken stools
- ▶ Most Recommended:
  - ▶ Applesauce, bananas, cheese, nut butter (smooth-type), pasta, pectin supplement, potatoes, white rice, tapioca, toast (white bread)
- ▶ Others possible:
  - ▶ Green beans, marshmallows, oatmeal\*, oat bran\*, soft pretzels, boiled milk, buttermilk, yogurt
  - ▶ \*May work to bulk you up for diarrhea or loosen things up for constipation.



# Beat the Sugar-Time Blues

- ▶ Sugar (sweets) can cause diarrhea—they pull water into GI tract.
- ▶ Avoid high-sugar drinks, such as fruit juices, regular soft drinks, sweetened fruit-flavored drinks (e.g., Kool-Aid, fruit punch), sweetened tea, hot chocolate, sweet coffee drinks, high protein drinks such as Ensure or Boost
- ▶ Avoid foods high in sugar (“concentrated sweets”), such as:
  - ▶ Cookies, cakes, pie, candies, chocolate, ice cream, sherbet, other sweet desserts
  - ▶ Corn syrup, molasses, honey, pancake syrup, jams/jellies



# Beat the Sugar-Time Blues

- ▶ Limit or avoid sugar alcohols (sorbitol, xylitol, mannitol) which may have a laxative effect.
  - ▶ Found in sugar-free (or “diabetic”) candies and desserts, sugar-free chewing gum, sugar-free cough drops
- ▶ Artificial sweeteners that are okay to use:
  - ▶ Sucralose (Splenda), aspartame (Equal), saccharin (Sweet N Low), Stevia



# THE LOW-DOWN ON FAT

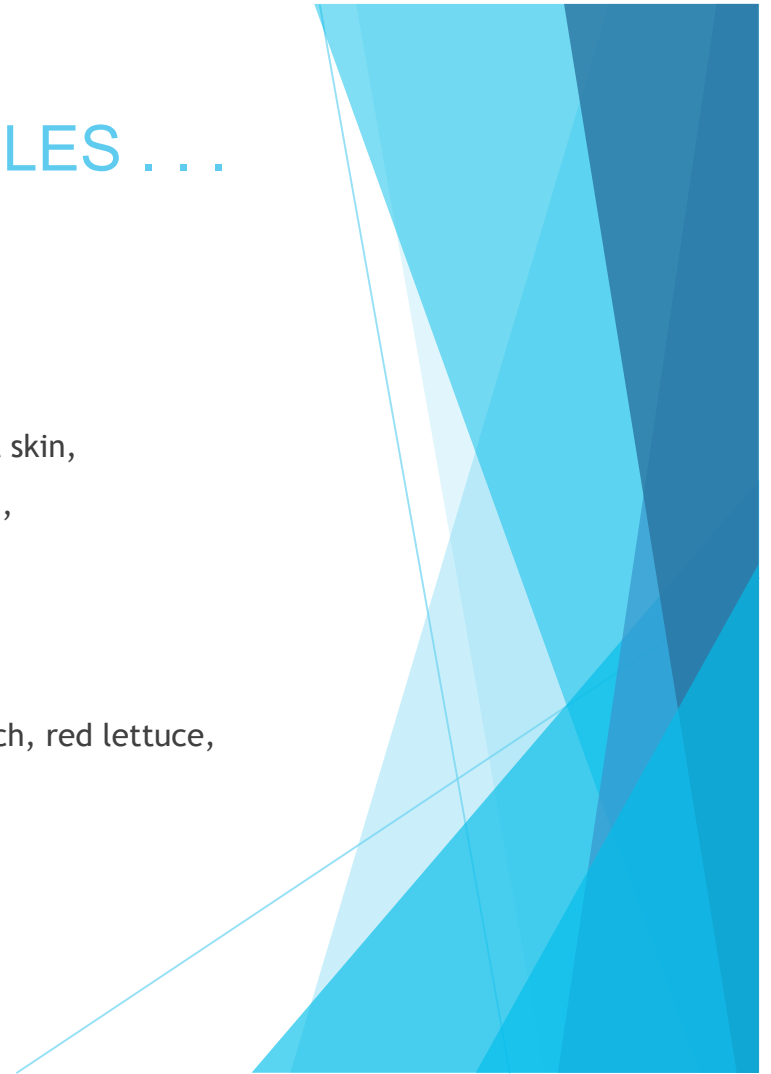
- ▶ SBS with colon: Maximize absorption with diet low in fat (and simple carbohydrates).
- ▶ If end jejunostomy (no ileum or colon remaining) or ileostomy, no restriction of fat is necessary.
- ▶ Fat malabsorption: Foul-smelling stools that appear oily and or frothy.
- ▶ High fat foods: Oils, butter, margarine, mayonnaise, regular salad dressing, gravy, cream sauce, high fat chips and crackers, cookies, fried foods, sausage, high fat beef/pork.



# EAT YOUR FRUITS AND VEGETABLES . . . SOMETIMES

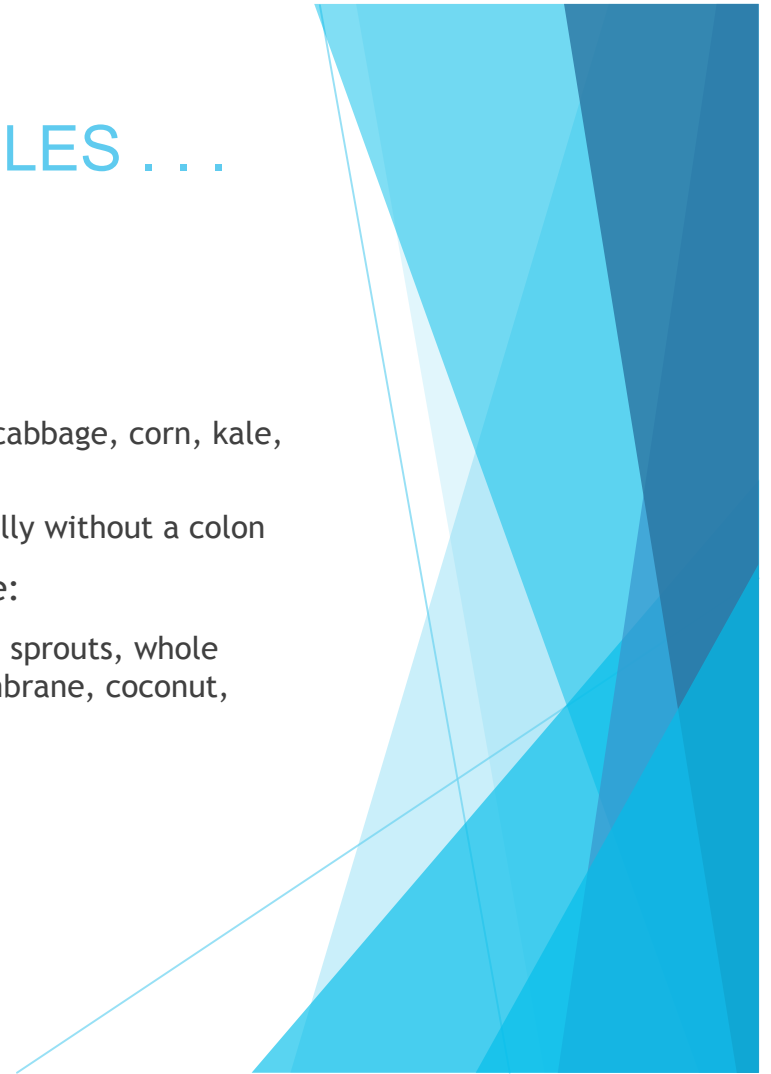
## ▶ Most likely best tolerated:

- ▶ Potatoes, baked French fries, sweet potatoes and yams without skin,
- ▶ Butternut squash, pumpkin squash, zucchini, eggplant, plantain,
- ▶ Cooked carrots, beets, turnips, green beans, asparagus tips,
- ▶ Tomato sauce and tomatoes without skin or seeds,
- ▶ Green, red or yellow peppers, cucumbers without skin,
- ▶ Small amounts of leafy greens (iceberg lettuce, romaine, spinach, red lettuce, etc.)



# EAT YOUR FRUITS AND VEGETABLES . . . SOMETIMES

- ▶ Likely not tolerated - may cause gas or discomfort:
  - ▶ Creamed vegetables, onions, leeks, broccoli, Brussels sprouts, cabbage, corn, kale, peas
  - ▶ Legumes (lima beans, kidney beans, pinto beans, etc.), especially without a colon
- ▶ With ostomy, avoid the following which may cause blockage:
  - ▶ Raw cabbage, celery, Chinese vegetables, bamboo shoots, bean sprouts, whole kernel corn, popcorn, mushrooms, apple skins, citrus fruit membrane, coconut, dried fruit, pineapple, nuts, seeds





# GIVING IT TO YOU STRAIGHT – YOU NEED TO HYDRATE !

- ▶ Limit fluids at meal time to ½ cup (4 ounces) but drink fluids between meals.
- ▶ Avoid caffeine-containing beverages and alcohol (gastric stimulants). Can have diuretic effect.
- ▶ Avoid fruit juices and high sugar beverages (cause diarrhea).
- ▶ If you lose > 1 pound in a day or 2.5 pounds in a week, increase fluid intake.

Very hot or very cold drinks—these may aggravate cramping

## GIVING IT TO YOU STRAIGHT – YOU NEED TO HYDRATE !

- ▶ If you have high ostomy outputs, diarrhea or no colon remaining (jejunostomy, ileostomy)
  - ▶ Your ability to absorb fluids is reduced. Drinking too much fluid can increase the output from your ostomy and cause you to become dehydrated. This may be opposite to what you might expect.
  - ▶ Change the types of fluids you are used to drinking: Stick with “isotonic” beverages, such as oral rehydration solutions (see below).
  - ▶ Drink enough fluid to maintain urine output ~ 1200 milliliters.
  - ▶ Avoid high sugar drinks (hypertonic drinks) and water (hypotonic).
  - ▶ Avoid sports drinks (e.g., Gatorade, Powerade). These contain too much sugar and not enough sodium which can worsen diarrhea.

# GIVING IT TO YOU STRAIGHT – YOU NEED TO HYDRATE !

- ▶ If you have high ostomy outputs, diarrhea or no colon remaining (jejunostomy, ileostomy)
  - ▶ Your ability to absorb fluids is reduced. Drinking too much fluid can increase the output from your ostomy and cause you to become dehydrated. This may be opposite to what you might expect.
  - ▶ Change the types of fluids you are used to drinking: Stick with “isotonic” beverages, such as oral rehydration solutions (see below).
  - ▶ Drink enough fluid to maintain urine output > 1200 milliliters.
  - ▶ Avoid high sugar drinks (hypertonic drinks) and water (hypotonic).
  - ▶ Avoid sports drinks (e.g., Gatorade, Powerade). These contain too much sugar and not enough sodium which can worsen diarrhea.

# GIVING IT TO YOU STRAIGHT – YOU NEED TO HYDRATE !

## ▶ Oral Rehydration Solutions (ORS)

- ▶ ORS contain water, carbohydrate, sodium and potassium that promotes intestinal water absorption and replenishes fluid losses.
- ▶ Examples: Pedialyte®, Ceralyte®, or Liquilyte®.
- ▶ The World Health Organization ([www.who.int/en/](http://www.who.int/en/)) publishes a popular recipe:
  - ▶ 1 liter (4.5 cups) water
  - ▶ 8 tsp sugar
  - ▶ ½ tsp salt
  - ▶ ½ tsp potassium chloride (salt substitute)
  - ▶ ½ tsp baking soda
  - ▶ Combine and stir well until mixed and dissolved.

# GIVING IT TO YOU STRAIGHT – YOU NEED TO HYDRATE !

- ▶ Other ORS recipes:

Solution No. 1	Solution No. 2	Solution No. 3
▶ 1 quart water	▶ 1 cup orange juice	▶ 4 cups water
▶ $\frac{3}{4}$ tsp salt	▶ 8 tsp sugar	▶ 1 dry chicken broth cube
▶ 6 tsp sugar	▶ $\frac{3}{4}$ tsp baking soda	▶ $\frac{1}{4}$ tsp salt
▶ Crystal Light to taste	▶ $\frac{1}{2}$ tsp salt	▶ 2 Tbsp sugar
▶ (optional)	▶ 1 liter (4.5 cups) water	

- ▶ Solutions should have 70-90 mEq sodium and 20 gm carbohydrate per liter.

- ▶ 1 tsp salt = 100 mEq sodium; 1 tsp b.soda = 59 mEq sodium, 1 tsp sugar = 4.2 gm carb

# GIVING IT TO YOU STRAIGHT – YOU NEED TO HYDRATE !

- ▶ Other simple ORS recipes:
  - ▶ 4 oz orange juice + 4 oz water + pinch of salt
  - ▶ 32 oz bottle Gatorade G2 (low calorie) + ½ tsp salt
- ▶ Start slow - drink 1 L per day and increase as tolerated
- ▶ Keep solution chilled
- ▶ Sip throughout the day



## Drink Your Milk, or Not ?

- ▶ Avoid milk and lactose-containing foods if lactose intolerant
  - ▶ Lactose is a sugar that is found in dairy products. It can cause gas, cramps, and diarrhea in some people. These symptoms usually begin within the first 30 minutes of taking a dairy product.
  - ▶ To see if you can tolerate lactose, start by drinking  $\frac{1}{2}$  cup of milk and monitor for symptoms.
  - ▶ Try lactose-free dairy products, such as Lactaid<sup>®</sup> milk, or almond, rice, or soy milk.
  - ▶ Try Lactaid<sup>®</sup> tablets or Lactaid<sup>®</sup> drops to help you digest dairy items.

# Drink Your Milk, or Not ?

## ▶ Lactose Intolerance - continued

- ▶ Some dairy foods have very small amounts of lactose. Try cultured yogurt, aged cheeses (e.g., hard cheeses such as cheddar and Swiss), soft cheeses (e.g., cream cheese, cottage cheese).
- ▶ If the latter foods aren't tolerated, you may want to avoid all dairy products for 1 to 2 months and try them again at that time.



# Questions ?

- ▶ Feel free to email or call me with any questions:

Christine Young, RD, LD, CNSC

913-747-3720, ext 2395

[cyoung1@briovaxinfusion.com](mailto:cyoung1@briovaxinfusion.com)

