HYDRATION FOR OSTOMATES

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Overview

- Ostomy Diversions & Their Impact on Nutrition/Hydration
- Remember: Nutrition for Ostomates
- Hydration for Ostomates
- Online Resources
- References
- Questions
Ostomy Diversions & Their Impact on Nutrition/Hydration

- **Colostomy**
  - Portion of large intestine is bypassed.

- **Ileostomy**
  - Entire colon, rectum and anus are removed or bypassed.

- **Continent Ileostomy**
  - Abdominal Pouch/K-Pouch

- **Ileoanal Reservoir/Pelvic Pouch**
  - J-Pouch

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**Diagram: Key Nutrients in the Intestines**

- **Esophagus**
- **Stomach**
- **Duodenum**
- **Jejunum**
- **Ileum**
- **Large Intestine**

**Shaded area represents a typical RNY bypass of small intestine**

- Calcium
- Phosphorus
- Magnesium
- Iron
- Copper
- Selenium
- Thiamin
- Riboflavin
- Niacin
- Biotin
- Folate
- Vitamins A, D, E, K
- Lipids
- Monosaccharides
- Amino acids
- Small peptides
- Vitamin C
- Folate
- Vitamin B12
- Vitamin D
- Vitamin K
- Magnesium
- Others
- Water
- Ethyl alcohol
- Copper
- Iodide
- Fluoride
- Molybdenum
- Thiamin
- Riboflavin
- Niacin
- Pantothenate
- Biotin
- Folate
- Vitamin B6
- Vitamin C
- Vitamin A, D, E, K
- Calcium
- Phosphorus
- Magnesium
- Iron
- Zinc
- Chromium
- Manganese
- Molybdenum
- Lipids
- Monosaccharides
- Amino acids
- Small peptides
- Bile salts and acids
- Sodium
- Chloride
- Potassium
- Short-chain fatty acids

*Many additional nutrients may be absorbed from the ileum depending on transit time.*

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Ostomy Diversions & Their Impact on Nutrition/Hydration

- **Urostomy**
  - Bladder removed/bypassed and conduit is built from small intestine.
  - Ureters implanted into conduit which is brought through abdominal.

- **Continent Urinary Reservoir**
  - Bladder removed/bypassed and an internal reservoir is created from a section of the small and large intestine.
  - Ureters are implanted, a stoma is brought through abdominal wall and attached to catheter to empty pouch.
Nutrition for Ostomates

- **Digestion**
  - Mechanical digestion: chewing.
  - Chemical digestion: digestive enzymes, gastric juices and bile.

- **Absorption**
  - Mostly occurs small intestine
  - Water & electrolyte reabsorption occurs in the large intestine
Remember…

**MyPlate:** Healthy and Balanced Diet for Everyone

- Make half your plate fruits and vegetables.
  - Focus on whole fruits.
  - Vary your veggies.
- Make half your grains whole grains.
- Move to low-fat and fat-free milk or yogurt.
- Vary your protein routine.
- Drink and eat less sodium, saturated fat, and added sugars.

Make healthier beverage choices
Remember...

The first 8-12 weeks after bowel diversion surgery

- Begin with clear liquids and advance to fiber-restricted diet
- Small, frequent meals with a schedule
- Eat the largest meal in the middle of the day
- Choose lactose-free products if you are lactose intolerant
- Avoid acidic, spicy, greasy and sugary foods
- Be cautious with foods that may cause blockages, produce gas/odor, discolor stool or produce diarrhea
- Avoid drinking fluids with your meals
- **Stay hydrated!**
Remember...

Urostomy

- No restrictions (unless renal complications)
- Goal is to maintain an acidic urine

<table>
<thead>
<tr>
<th>Acidic Ash Foods</th>
<th>Alkaline Ash Foods</th>
<th>Neutral Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most meats, fish &amp; poultry</td>
<td>Most fruits (including citrus fruits)</td>
<td>Butter</td>
</tr>
<tr>
<td>Breads, cereals &amp; crackers</td>
<td>Most vegetables</td>
<td>Coffee</td>
</tr>
<tr>
<td>Cheese</td>
<td>Milk</td>
<td>Cream</td>
</tr>
<tr>
<td>Corn</td>
<td>Beans</td>
<td>Honey</td>
</tr>
<tr>
<td>Cranberries</td>
<td></td>
<td>Salad oils</td>
</tr>
<tr>
<td>Eggs</td>
<td></td>
<td>Syrups</td>
</tr>
<tr>
<td>Macaroni</td>
<td></td>
<td>Tapioca</td>
</tr>
<tr>
<td>Nuts</td>
<td></td>
<td>Tapioca</td>
</tr>
<tr>
<td>Pasta, rice</td>
<td></td>
<td>Tea</td>
</tr>
<tr>
<td>Prunes, plums</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hydration for Ostomates

Water

- Largest single component of the body
- About 60% of adult body weight
- Integral to cellular function
- It is found in fluids and foods
Hydration for Ostomates

Water

- Most fluids containing water help to meet daily requirements
- Caffeinated and alcoholic beverages contribute to dehydration
- Water alone may not be the best option as a sole source of hydration
Hydration for Ostomates

- Optimal health is dependent on the maintenance of adequate hydration, tissue perfusion, and electrolyte balance.

- Alterations in fluid balance can be affected by:
  - Insensible losses
  - Heat Exposure
  - Exercise
  - Fever
  - Trauma
  - Disorders of digestion and absorption
  - Diarrhea
Hydration for Ostomates

How much fluids do we need daily?

- **Average healthy adult**: 30-35 ml per kilogram
- **Adult 55-65**: 30 ml per kilogram
- **Adult 65 & over**: 25 ml per kilogram

**Rule of Thumb**: Aim for at least 8-10 glasses of fluids (64-80 ounces daily)
Hydration for Ostomates

- Fluid losses via the ostomy must be replaced to prevent dehydration
- Oral rehydration solutions may be helpful
- Intravenous fluids may be required to replace high ostomy losses
- Losses of 2-3 liters of ostomy output daily can contribute to losses of:
  - Sodium
  - Potassium
  - Chloride
  - Magnesium
Hydration for Ostomates

Colostomy

Output

- Normal output
  - About 500 ml/day
  - May vary 200-700 ml/day

- Look out for signs of obstruction: minimal output or spurts of watery stool combined with cramping
Hydration for Ostomates

Ileostomy

Output

- **Normal output**
  - About 500 ml/day
  - May vary 1200-1500 ml/day
  - Pouch emptying 5-8 times/day

- Output consistently > 1.5 – 2 liters/day may lead to complications

- Look out for signs of obstruction!

- **Output consistency:** liquid to semi-liquid with undigested food particles
Hydration for Ostomates

Fluid needs for Ostomates

- Fluid intake should exceed ostomy output
- Over-consumption of water can wash away electrolytes
- Drink a combination of water and electrolyte-rich beverages
  - Glucose in beverages aid absorption of electrolytes
  - High sugar beverages can contribute to dehydration
Hydration for Ostomates

Electrolytes

- Normal chemicals within body fluids
- Sodium and potassium are especially important
- Bowel diversions can impair electrolyte absorption
- Electrolyte imbalances can occur
Hydration for Ostomates

Signs of Dehydration
■ Increased thirst, dry mouth, dry skin, decreased urine output, fatigue, shortness of breath, headaches, dry eyes and abdominal cramping.

Signs of Sodium Depletion
■ Loss of appetite, drowsiness, headaches, abdominal and leg cramping, feelings of faintness, particularly when standing, cold sensation in arms and/or legs.

Signs of Potassium Depletion
■ Fatigue, muscle weakness, gas, bloating, shortness of breath, decreased sensation in arms and legs.
# Hydration for Ostomates

## Water content of food...

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Serving size</th>
<th>Water content/serving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooked oatmeal</td>
<td>1 cup</td>
<td>100 ml</td>
</tr>
<tr>
<td>Gelatin</td>
<td>3.5 oz snack size</td>
<td>83 ml</td>
</tr>
<tr>
<td>Juice</td>
<td>1 cup</td>
<td>215 ml</td>
</tr>
<tr>
<td>Oral Rehydration Solution</td>
<td>1 cup</td>
<td>227 ml</td>
</tr>
<tr>
<td>Sherbet</td>
<td>1 cup</td>
<td>127 ml</td>
</tr>
<tr>
<td>Milk, 2%</td>
<td>1 cup</td>
<td>217 ml</td>
</tr>
<tr>
<td>Yogurt</td>
<td>1 cup</td>
<td>126 ml</td>
</tr>
<tr>
<td>Fruit cocktail, raw</td>
<td>6 oz snack size</td>
<td>95 ml</td>
</tr>
<tr>
<td>Grapes, raw</td>
<td>1 cup</td>
<td>120 ml</td>
</tr>
<tr>
<td>Banana, raw</td>
<td>1 medium</td>
<td>90 ml</td>
</tr>
<tr>
<td>Berries, raw</td>
<td>1 cup</td>
<td>130 ml</td>
</tr>
<tr>
<td>Watermelon, raw</td>
<td>1 cup</td>
<td>140 ml</td>
</tr>
<tr>
<td>Lettuce, raw</td>
<td>1 cup</td>
<td>52 ml</td>
</tr>
<tr>
<td>Broccoli, cooked</td>
<td>1 cup</td>
<td>170 ml</td>
</tr>
<tr>
<td>Chicken, lean, cooked</td>
<td>4 ounces</td>
<td>70 ml</td>
</tr>
<tr>
<td>Beef, lean, cooked</td>
<td>4 ounces</td>
<td>55 ml</td>
</tr>
<tr>
<td>Pork, lean, cooked</td>
<td>4 ounces</td>
<td>70 ml</td>
</tr>
<tr>
<td>Tuna, lean, cooked</td>
<td>1 cup, drained</td>
<td>115 ml</td>
</tr>
</tbody>
</table>
Hydration for Ostomates

A basic salad of:

- 4 cups of lettuce (208 ml)
- ½ cup broccoli (85 ml)
- 1 cup berries (130 ml)
- 4 ounces of chicken (70 ml)

Over 2 cups of water + nutrients!
Hydration for Ostomates

Electrolytes in food...

Foods High in Sodium

- Broth
- Buttermilk
- Canned soups
- Canned vegetables
- Cheese
- Soy sauce
- Table salt
- Tomato juice
- Commercially prepared foods and bread
Hydration for Ostomates

Electrolytes in food...

Foods High in Potassium

- Black-eyed peas
- Bananas
- Bouillon
- Chicken
- Fish
- Oranges
- Pinto beans
- Potatoes
- Raisins and prunes
- Tomato or vegetable soup veal
- Watermelon
- Yogurt
Hydration for Ostomates

Special Considerations for Colostomates

- Hydration helps relieve constipation
- Combine good hydration with gradual increase of insoluble fiber in the diet
- Being active helps gut motility
- Replace fluid losses for ostomy output, draining wounds, perspiration, etc.
Hydration for Ostomates

Special Considerations for Ileostomates

- The colon reabsorbs fluids and electrolytes
- Measure your input and output
- Adjust fluid needs for high output
- Excessive fluid loss of > 1 - 1.5 liters of liquid stool in 24 hours can cause dehydration and may require medical attention
Hydration for Ostomates

Special Considerations for Ileostomates

Promoting absorption and decreasing output

- Soluble fiber: thickens and binds stool
- Small, frequent meals
- Avoid drinking fluids with your meals
- Don’t forget to chew your foods

What If dietary changes don’t help...?

- Soluble fiber supplements (ask your doctor first)
- Consult your doctor for anti-diarrheals
- Consult your doctor to rule out other causes
Hydration for Ostomates

Special Considerations for Urostomates

- Adequate hydration is key for adequate urine output
- Pay attention to the color and volume of your urine
- Alkaline water can make your urine less acidic
Hydration for Ostomates

Drink the Right Fluid: Colostomates & Urostomates

- Normal Output
  - Water

- Consider electrolyte-rich drinks especially if:
  - Output > 1+ liter
  - Sick days
  - Strenuous exercise
Hydration for Ostomates

Drink the Right Fluid: Ileostomates

- Water and flavored water
- Coconut water
- DIY rehydration solutions
- V8 vegetable juice
- Vegetable broths
- Sports drinks*
- Pedialyte*
- Caffeine-free herbal teas
- Less caffeinated beverages and alcohol

* Dilute with water
# Hydration for Ostomates

DIY Oral Rehydration Solutions

Water + Electrolytes (primarily sodium & potassium) + Glucose

<table>
<thead>
<tr>
<th>Homemade Electrolyte Drink 1</th>
<th>Homemade Electrolyte Drink 2</th>
<th>WHO Recipe</th>
<th>Diluted Sports Drink</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ 1 tsp salt</td>
<td>▪ 1 quart water</td>
<td>▪ 1 quart water</td>
<td>▪ 2 cups electrolyte drinks</td>
</tr>
<tr>
<td>▪ 1 tsp baking soda</td>
<td>▪ 2/3 tsp table salt</td>
<td>▪ ½ tsp salt</td>
<td>▪ 2 cups water</td>
</tr>
<tr>
<td>▪ 1 tsp white corn syrup</td>
<td>▪ 2 tbsp sugar</td>
<td>▪ 6 tsp sugar</td>
<td>▪ 1/2 tsp salt or 1 tsp potassium chloride</td>
</tr>
<tr>
<td>▪ 1 can (6 oz) frozen orange juice</td>
<td>▪ Sugar-free Kool-Aid or Crystal Light to taste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Add water to make 1 quart</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Hydration for Ostomates

## DIY Oral Rehydration Solutions

Water + Electrolytes (primarily sodium & potassium) + Glucose

<table>
<thead>
<tr>
<th>Homemade Electrolyte Drink 3</th>
<th>Homemade Electrolyte Drink 4</th>
<th>Homemade Electrolyte Drink 5</th>
<th>Quick Fix</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 cups water</td>
<td>½ cup grape or cranberry juice</td>
<td>1 cup apple juice</td>
<td>½ cup orange juice</td>
</tr>
<tr>
<td>1 cup orange juice</td>
<td>3½ cups water</td>
<td>3 cups water</td>
<td>½ cup water</td>
</tr>
<tr>
<td>¾ tsp salt</td>
<td>½ tsp salt</td>
<td>½ tsp salt</td>
<td>Pinch of salt</td>
</tr>
<tr>
<td>½ tsp baking soda</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hydration for Ostomates

Electrolytes

Dietary Reference Intake (DRIs)

**Sodium:** 1,500 mg/day up to 50
  1,300 mg/day 51-70
  1,200 mg/day > 70

**Potassium:** 4,700 mg/day
Hydration for Ostomates

Use percent Daily Values (DV)

- Based on 2,000 calories/day
- 5 percent or less is low
- 20 percent or more is high

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Nutrition Facts

About 3 servings per container
Serving size 12 fl oz (360 mL)

<table>
<thead>
<tr>
<th></th>
<th>Per serving</th>
<th>Per container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>25</td>
<td>70</td>
</tr>
<tr>
<td>Total Fat</td>
<td>0g</td>
<td>0g</td>
</tr>
<tr>
<td>Sodium</td>
<td>370mg</td>
<td>1030mg</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>6g</td>
<td>16g</td>
</tr>
<tr>
<td>Total Sugars</td>
<td>6g</td>
<td>16g</td>
</tr>
<tr>
<td>Incl. Added Sugars</td>
<td>6g</td>
<td>16g</td>
</tr>
<tr>
<td>Protein</td>
<td>0g</td>
<td>0g</td>
</tr>
<tr>
<td>Potassium</td>
<td>280mg</td>
<td>780mg</td>
</tr>
<tr>
<td>Zinc</td>
<td>2.8mg</td>
<td>7.8mg</td>
</tr>
<tr>
<td>Chloride</td>
<td>440mg</td>
<td>1240mg</td>
</tr>
</tbody>
</table>

Not a significant source of saturated fat, trans fat, cholesterol, dietary fiber, vitamin D, calcium and iron.

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.
Hydration for Ostomates

Hydration Tips

- Have a large pitcher of fluids available at all time
- Set a goal to consume (E.g.: two pitchers per day)
- Carry a water bottle everywhere you go
- Get a bottle or pitcher that has measuring lines on the side
- Use an app to keep track of your intake or to give you reminders
- Keep a glass of water by the bed so you can drink it when you first wake up
Hydration for Ostomates

Final Key Points

Increased Stool Output
- Increase soluble fiber intake
- Increase fluid intake

Decreased Stool Output
- Increase insoluble fiber intake
- Increase fluid intake
Hydration for Ostomates

Final Key Points

Maintain adequate hydration & electrolyte balance
- Consume fluids and foods rich in water and electrolytes

Things to factor in:
- Exercising
- Summer time A.K.A. Miami Year Round
- Draining wounds
- Sick times (fevers, diarrhea, vomiting, cold sweats)
Before you go... Remember this!

- Balanced & complete nutrition is achievable
- Good hydration goes a long, long way
- Ask your doctor about vitamins & other supplements
- If diet/home hydration doesn’t work, call your doctor!
Online Resources for Ostomates

Food log/calorie tracking
- Cron-O-meter: App & Website
- My Fitness Pal: App & Website
- Nutrients: App

Hydration
- Drink Water Reminder N Tracker App
- Hydro Coach: App (Android)
References


Questions?