Nutrition Guidelines for Patients with Short Bowel Syndrome

What is Short Bowel Syndrome?
Short bowel syndrome or SBS occurs when the bowel does not absorb nutrition as well. This may be either from loss of bowel length or loss of bowel function. This handout will help you choose foods and eat in a way that will allow your bowel to absorb more of the nutrients.

- Symptoms may include:
  - Gas
  - Cramps
  - Diarrhea
  - Fluid loss
  - Weight loss

Does is matter what part of my bowel has been lost?
Yes. There are two main sections of your bowel, the small intestine (small bowel) and the large intestine (colon). The small bowel can also be broken down to 3 sections, the duodenum, jejunum, and the ileum. In the “normal” bowel, each section will absorb certain nutrients.

<table>
<thead>
<tr>
<th>Portion of the bowel</th>
<th>Where is it?</th>
<th>What is absorbed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duodenum</td>
<td>Right after the stomach</td>
<td>Calcium, magnesium, and iron</td>
</tr>
<tr>
<td>Jejunum</td>
<td>After the duodenum</td>
<td>Most things are absorbed here, including sodium, magnesium, and fluids.</td>
</tr>
<tr>
<td>Ileum</td>
<td>After the jejunum</td>
<td>Vitamins A, B₁₂, D, E, and K, as well as bile salts which help absorb fat</td>
</tr>
<tr>
<td>Colon</td>
<td>Connects the small bowel and the rectum</td>
<td>Most fluids and electrolytes</td>
</tr>
</tbody>
</table>

Will the portions of the remaining bowel ever be able to absorb more fluids and nutrients?
Yes. Over time the portions of the bowel that remain will be able to absorb more. This will begin to happen 24-48 hours after the loss of the bowel and continue to increase mostly within the first 2 years. During this time it is common to have diarrhea.

What can I do to help my body absorb as much as it can?
- **Eat 5 to 6 small meals a day.**
  - Eating small, frequent meals will put less stress on your shortened bowel. Small meals help control your symptoms, and will result in better digestion and absorption.
  - Eat slowly and chew your food well.
  - Once your bowel has adapted, you can resume having 3 meals a day.
• Select high protein foods
  o Eat foods high in protein at least 6 times per day. Examples include meat, fish, poultry, egg, legumes, and dairy as you are able to handle it.

• Moderation with fats
  o If you are having foul-smelling stools that appear oily and or frothy, decrease the amount of fat in your diet.
  o High fat foods include oils, butter, margarine, high fat chips and crackers, and cookies.

• Choose complex carbohydrates
  o Good choices are complex carbohydrates. Those are found in bread, cereal, pasta, potatoes, and rice.
  o Poor choices are foods rich in simple sugars. This includes regular soda, candies, frozen desserts, and fruit juice.

• Incorporate soluble fiber into your diet
  o Soluble fiber may help slow movement through the bowels and result in a more formed stool. Examples would include Benefiber® or guar gum, pectin, or foods such as oatmeal, oat bran, barley, and legumes.
  o Insoluble fibers hold more fluid in the bowel and can increase diarrhea, so you may want to limit them. Examples include bran from grains, woody vegetable stems, fruit and vegetable skins, and seeds.

• May need to limit oxalate absorption
  o Oxalate is an organic acid that is found in many foods and also made by our bodies when breaking down some foods.
  o Patients sometimes absorb too much oxalate after removal of their ileum. This could lead to too much oxalate in the urine which may form kidney stones.
  o To reduce oxalate absorption:
    ▪ Have calcium-rich foods at each meal and snack. Calcium binds to oxalate and helps it to be removed from the body.
    ▪ Consume “probiotic” foods like kefir and yogurt with “live active cultures.” These foods help break down oxalate and remove it.
    ▪ Eat a variety of fruit and vegetables, as tolerated. These provide fuel for good bacteria or ‘probiotics’ in your gut, which break down oxalate.
  o Lower oxalate intake may be needed if you have high urinary oxalate and if increased calcium intake is not taking care of it. Your registered dietitian can help you create a customized meal plan.

• Use of vitamins, minerals, and supplements
  o Take a daily chewable multivitamin with iron.
  o Take a 500mg calcium supplement (calcium citrate or Tums®) 3 times daily, for a total of 1500 mg per day.
  o You may need vitamin B12 injections if the last part of your ileum has been removed.
  o If you’re having a lot of diarrhea your doctor may prescribe a zinc supplement.
  o Keep a salt shaker at the table and use it.
• **Limit fluids at meal time and avoid high-sugar drinks**
  - Only drink 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.
  - Drink fluids between meals and at least 8 cups (64 ounces) of fluids per day.
  - Limit or avoid milk or dairy products if they cause bloating, gas, or diarrhea.
  - Avoid high-sugar drinks, such as fruit juices and soda.
  - Avoid caffeine and alcohol.
  - If you have high stool output you should add extra fluids. Oral rehydration solutions can be helpful to maintain fluids and electrolytes in your body. Try Cera-Lyte®, Equalyte®, Rehydralyte®, Drip Drop®, or make your own from the recipes below.

• **May need a rehydration solution with increased diarrhea**
  - An oral rehydration solution is not the same as a sports drink (such as Gatorade®).
  - Below are drink recipes that will help maintain fluids:

<table>
<thead>
<tr>
<th>Solution No. 1</th>
<th>Solution No. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ teaspoon salt</td>
<td>1 cup orange juice</td>
</tr>
<tr>
<td>¼ teaspoon salt substitute</td>
<td>8 teaspoons sugar</td>
</tr>
<tr>
<td>8 teaspoons sugar</td>
<td>¾ teaspoon baking soda</td>
</tr>
<tr>
<td>½ teaspoon baking soda</td>
<td>½ teaspoon. salt</td>
</tr>
<tr>
<td>1 liter water</td>
<td>1 liter water</td>
</tr>
</tbody>
</table>

  - Nutrition supplements, such as Ensure®, have too much sugar and are not recommended for high ostomy output. Gatorade® and juice can be too sugary alone.

**Try these recipes:**

<table>
<thead>
<tr>
<th>Ensure Plus® improved</th>
<th>Gatorade® improved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ounce Ensure Plus®</td>
<td>2 cups Gatorade®</td>
</tr>
<tr>
<td>8 ounces 2% milk</td>
<td>2 cups water</td>
</tr>
<tr>
<td></td>
<td>½ teaspoon salt</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Apple Juice improved</th>
<th>Cranberry/Grape Juice improved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cup apple juice</td>
<td>1/2 cup juice</td>
</tr>
<tr>
<td>3 cups water</td>
<td>3 ½ cup water</td>
</tr>
<tr>
<td>½ teaspoon salt</td>
<td>½ teaspoon salt</td>
</tr>
</tbody>
</table>

• **The following foods help naturally thicken stool. Try adding them to your meals.**

<table>
<thead>
<tr>
<th>Rice</th>
<th>Cream of rice</th>
<th>Peanut butter (creamy)</th>
<th>Tapioca</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bananas</td>
<td>Mashed potatoes</td>
<td>No sugar added applesauce</td>
<td>Weak tea</td>
</tr>
<tr>
<td>Cheese</td>
<td>Soda crackers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• Take medicine as prescribed
  ○ For high ostomy output, your doctor may have you take medicine to help slow down output. If you are not on these medicines and are having high ostomy output, talk to your doctor about increasing or adding medicine to help.

  ▪ Antidiarrheals - take these 30 minutes before eating.
    • Imodium® (loperamide)
    • Lomotil® (diphenoxylate)
    • Tincture of Opium
  ▪ Proton Pump Inhibitors (PPI)
    • Nexium® (esomeprazole)
    • Protonix® (pantoprazole)
    • Prilosec® (omeprazole)
    • Prevacid® (lansoprazole)
  ▪ Histamine2-Receptor Antagonists
    • Cimetidine (Tagamet®)
    • Famotidine (Pepcid®)
    • Ranitidine (Zantac®)

Teach Back:

What is the most important thing you learned from this handout?

What changes will you make in your diet/lifestyle, based on what you learned today?

If you are a UW Health patient and have more questions please contact UW Health at one of the phone numbers listed below. You can also visit our website at www.uwhealth.org/nutrition.

Nutrition clinics for UW Hospital and Clinics (UWHC) and American Family Children’s Hospital (AFCH) can be reached at: (608) 890-5500

Nutrition clinics for UW Medical Foundation (UWMF) can be reached at: (608) 287-2770

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person’s health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright 3/2015 University of Wisconsin Hospital and Clinics Authority. All rights reserved. Produced by the Clinical Nutrition Services Department and the Department of Nursing HF#369.