

## Understanding Gastric Motility and Gastroparesis in PWS

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### What is Gastric Motility and Gastroparesis?

**GASTRIC MOTILITY** is the rate it takes for a stomach to empty.

**GASTROPARESIS** is slow emptying of the stomach. This condition occurs when there is a delay or slowing in the contraction of the stomach muscle. Because of this delay, stomach contents can build up, and distention or bloating can occur. High-fiber foods may remain in the stomach or may cause bezoar formation. A **BEZOAR** is a mixture of food fibers that may cause a blockage in your stomach and prevent it from emptying well.

### How Do These Conditions Affect Children and Adults with PWS?

Gastric motility is slower in persons with Prader-Willi syndrome (PWS). It is being seen in both children and adults. More and more people are being diagnosed with gastroparesis. Feeling full is our body's mechanism for regulating the amount of food that the stomach can accommodate. For persons with PWS, this message of fullness does not reach the brain. The stomach can become "overstretched" and distended. When the stomach becomes so distended, it impacts how it works. The stomach can stretch to the point that it cuts off its blood supply, causing **NECROSIS** (death) of the stomach tissue. If severe and not caught early, the stomach can rupture, releasing highly acidic contents in the chest and/or abdominal cavity. The outcome, in most cases, is deadly. Constipation is also a common problem often seen in persons with PWS. It can contribute to gastroparesis. It is important to take steps to prevent and manage this problem. In some cases, x-ray imaging may be needed.

Symptoms	What to Do?
*Abdominal Pain or General "Discomfort."	<ul style="list-style-type: none"> <li>If the person with PWS has any of the * symptoms listed, they should be seen as soon as possible in a hospital Emergency Department.</li> <li>Share the PWSA   USA algorithm for GI Complaints. Don't be afraid to educate and advocate. <a href="https://www.pwsausa.org">PowerPoint Presentation (pwsausa.org)</a></li> <li>A PWSA   USA Family Support Counselor is available 24/7 at 1-800-926-4797 for consultation and advice.</li> </ul>
*Nausea / Vomiting	
*Distention/bloating of stomach	
Reflux and/or heartburn: Signs of reflux may include: <ul style="list-style-type: none"> <li>Sudden loss of tooth enamel or discoloration of teeth.</li> <li>Rumination or regurgitation of food into the mouth.</li> </ul>	<ul style="list-style-type: none"> <li>If symptoms are mild, a referral to a gastroenterologist (a specialist in the digestive system) should be made.</li> </ul>

### Preventing and Managing Gastroparesis

General Guidelines: There can be varying degrees of intensity with this condition, so it is important to follow the recommendations of the health care professional or dietician caring for this individual.

- Drink/offer plenty of fluids** in small to moderate quantities to prevent dehydration. Fluids can pass through the stomach with minimal to no effort. In severe cases, fluids may be the primary source of nutrition. Limit the amount of fruit juices due to their low nutritional value.
- Eat small meals** – 5-6 times a day. It's less work for the stomach when there is less quantity to digest.

3. **Avoid high fat and high fiber foods.** Fat and fiber slow stomach emptying. Typically, people with PWS eat a low-fat diet except in children under the age of 3. Consult with a dietitian for more specific recommendations if your child has been diagnosed with this problem.
4. **Chew foods well or assist by serving foods ground, cooked, liquefied, or softened.**
5. **Sit up while eating and for at least 1 hour after finishing your meal;** keep upright. This is often challenging in supporting persons with PWS. Exercise has been shown to increase stomach emptying in healthy individuals. Walking after meals is recommended.
6. **If the person has diabetes, keep blood sugar under control.** Keeping blood sugars in goal ranges may decrease gastroparesis. High blood sugars interfere with normal stomach emptying.

### A FOOD GUIDE FOR MANAGEMENT OF GASTROPARESIS

NOTE: Individuals should restrict food items on the “foods that are okay” list if they notice any individual sensitivity.

FOOD GROUP	FOODS OKAY TO EAT OR DRINK	FOODS TO AVOID
DAIRY/MILK & MILK PRODUCTS	Choose <u>fat-free or low-fat/reduced-fat</u> versions of milk, yogurt, pudding, cottage cheese, cheeses, sour cream, cream cheese, ice cream, or frozen yogurt. Fat-free or low-fat soy, rice or almond milk or yogurt	2% or whole milk, light or heavy whipping cream, half and half, regular cottage cheese and regular cheeses, regular yogurt and puddings, sour cream, cream cheese, ice cream, and frozen yogurt. Dairy products with berries, nuts, seeds, whole spices.
MEAT AND MEAT SUBSTITUTES	Eggs, reduced-fat peanut butter, tofu, poultry with skins removed, lean - fish, beef, pork, veal, and lamb. Ground meat or meat cut into small portions is preferred Pureed beans (fat-free refried beans) or cooked lentils pureed in soup and hummus	Bacon, sausage, hot dogs, fish packed in oil, regular peanut butter, steak, roasts, chops, and any meat with skin Dried legumes – baked beans, soybeans, navy beans, black beans, pinto beans, fava beans, northern beans, or lentils
FRUITS	Fruits that are peeled canned or baked work best Fruit juices (low sugar) in limited quantities, canned fruits in natural juice <u>without skins</u> (applesauce, peaches, pears), canned mandarin oranges or grapefruit <u>without membranes</u> , seedless melons, ripe bananas, baked apples, or pears	Dried or raw fruits, canned fruits with skins (apricots, cherries, plums, berries, pineapple, kiwi, coconut), and rhubarb
VEGETABLES	<b>Well-cooked and/or mashed peeled vegetables</b> – acorn squash, beets, carrots, mushrooms, potatoes, spinach, summer squash, yams, cauliflower, asparagus tips Tomato or vegetable juice Smooth tomato sauce	<b>AVOID RAW VEGETABLES</b> and/or cooked vegetables <u>with skins</u> . Avoid – brussels sprouts, cabbage, celery, corn, eggplant, onions, peas, pea pods, sauerkraut, turnips, potato skins, tomato skins, asparagus stalks, beans (green, wax, yellow, or lima)
STARCHES, BREAD, AND GRAINS	White breads, pasta, muffins, and rice (lower in fiber) Low fat, low fiber crackers Cream of Wheat, grits, quick oats, low fiber cereal Thin pizza dough	Oatmeal, whole-grain starches, Chinese noodles, croissants, donuts, bran cereals, Grape-Nuts, shredded wheat, granola Dense starches – bagels, dumplings, cavatelli, fettuccine, gnocchi, tortellini, fried dough Thick pizza dough
FATS	Fat-free or low-fat salad dressings, mayonnaise, light margarine, and spreads Fat-free gravy, mustard, ketchup, barbecue sauce	Fats and liquid oils (butter, margarine, and cooking oils) as well as regular salad dressings, mayonnaise should be used minimally. Gravies and meat sauces
BEVERAGES	Water, low sugar Gatorade, diet soft drinks, coffee, tea, or non-carbonated sugar-free drinks. (Also see dairy/milk), smoothies	Alcohol, carbonated beverages

DESSERTS	Low fat / fat-free desserts – angel food cake, Jell-O, ice cream, frozen yogurt, Italian ice, sorbet	High fat desserts – cakes, pies, cookies, pastries, ice cream, frozen yogurt
SOUPS	Made with fat-free or low-fat milk or broth	Made with cream, whole milk, cheese. Avoid soups containing vegetables with skin – corn, peas, cabbage, and potatoes
OTHER	Jellies, seedless berry jams, honey, syrup, and apple butter	Nuts, olives, pumpkin seeds, soy nuts, popcorn, chunky nut butters, marmalades