Diet Guidelines for Kidney Disease and Gastroparesis

Introduction

Gastroparesis means "stomach (*gastro*) paralysis (*paresis*)." In gastroparesis, your stomach empties too slowly. Gastroparesis can have many causes, so symptoms range from mild (but annoying) to severe, and week-to-week or even day-to-day.

This handout is designed to give some suggestions for diet changes in the hope that symptoms will improve or even stop. Very few research studies have been done to guide us as to which foods are better tolerated by patients with gastroparesis. The suggestions are mostly based on experience and our understanding of how the stomach and different foods normally empty. Anyone with gastroparesis should see a doctor and a Registered Dietitian for advice on how to maximize their nutritional status.

Essential Nutrients - Keeping Healthy

Calories - A calorie is energy provided by food. You need calories (energy) every day for your body to work, just like putting gas in a car. If you need to gain weight, you need more calories. If you need to lose weight, you need fewer calories. Protein, carbohydrate, and fat are all different kinds of calories.

- **Protein** – Most people need about 60 grams of protein per day to meet their protein needs. For patients on dialysis, a higher protein intake is encouraged to replace dialysis protein loss. Eat at least 8 ounces of lean meat per day.
  Examples: meats, fish, poultry, milk, eggs, cheeses (see table 2).
- **Carbohydrate** (starches and natural sugars) – Our main energy source and one of the easiest nutrients for our bodies to use. Get some at every meal or snack.
  Examples: Toast, crackers, potatoes, rice, pasta, fruit
- **Fat** – Extra fat can help you gain weight because it is the most concentrated source of calories – a little goes a long way!
  Examples: butter, mayonnaise, oils, lard, olives, avocados, nut butters

Water or fluids – We all need a certain amount of fluid every day to make sure we are well hydrated. You can get fluid from juice, milk, water, tea, coffee, soda, and other liquids. Even if you are vomiting a lot, you need to somehow take in fluids to stay hydrated. Vomiting may actually get worse, just from being dehydrated.

It is very important for people with decreased urine output to monitor their fluid balance. Fluid requirements vary when you are on dialysis, but usually range between 1000-1500 mL (32-48 ounces) per day.

Vitamins and minerals – These are found in all different kinds of foods and beverages and are essential to us all. Most dialysis patients are prescribed a specially formulated renal vitamin supplement. Vitamins and minerals do not supply energy, so even if you take vitamins, you still need to eat foods for energy and other nutrients.

If you have a lot of vomiting and have lost a lot of weight, your doctor or Registered Dietitian may recommend that you have certain vitamin or mineral levels checked with a simple blood test. If extra vitamins and/or minerals are needed, you may tolerate chewable or liquid forms better.

Other specific nutrients – People who have had a big weight loss are at risk for multiple nutrient deficiencies. The most common nutrient deficiencies seen in patients with gastroparesis are iron, vitamin B12 (cyanocobalamin), vitamin D, and calcium. Patients with gastroparesis from partial stomach resections are at greatest risk for these types of nutrient deficiencies.

Diet Therapy - The Basics

Volume - The larger the meal, the slower the stomach will empty. It is important to decrease the amount of food eaten at a meal, so you will have to eat more often. Smaller meals more often (6-8 or more if needed) may allow you to eat enough.

Liquids versus solids - If eating less at each meal and increasing the number of "meals" does not work, the next step is to switch to more liquid-type foods. Liquids empty the stomach more easily than solids do. Pureed foods may be better also.

Fat - Fat slows stomach emptying, but many people with gastroparesis have no trouble with fat in beverages like whole milk, milkshakes, and nutritional supplements. *Unless a fat-containing food or fluid clearly causes worse symptoms, fat should not be limited.* Eating enough may be very hard to do, and liquid fats provide a great source of calories in smaller amounts.
Fiber - Fiber may slow stomach emptying and fill it up too fast. This won't leave room for enough calories and protein. A *bezoar* is a mixture of food fibers that may get stuck in the stomach and not empty well, like a hairball in a cat. For patients who have had a bezoar, a fiber restriction is important. This includes avoiding over-the-counter fiber medicines like Metamucil®.

Table 1: High Fiber Foods and Medications and Those Associated with Bezoar Formation

High Fiber Foods
• Legumes/dried beans (refried beans, baked beans, black-eyed peas, lentils, black, pinto, northern, fava, navy, kidney, garbanzo beans, soy beans) • Bran/whole grain cereals (such as bran cereals, Grape-Nuts®, shredded wheat type, granolas) • Nuts and seeds (pumpkin seeds, soy nuts, chunky nut butters) • Fruits (blackberries, blueberries, raspberries, strawberries, oranges, kiwi) • Dried fruits (apricots, dates, figs, prunes, raisins) • Vegetables (green peas, broccoli) • Popcorn
Foods Associated with Bezoar Formation
Apples, berries, Brussels sprouts, coconuts, corn, figs, green beans, legumes, oranges, persimmons, potato peels, sauerkraut, tomato skins
High Fiber Medications/Bulking Agents
Examples include: Acacia fiber; Benefiber®; Citrucel®; FiberChoice®; Fibercon®; Konsyl®; Metamucil®; Perdiem Fiber; any psyllium product

Dental Health – Normally, the stomach helps "chew" food a second time, but in gastroparesis, it's not good at this. So, chewing food really well before you swallow is even more important. Plus, frequent vomiting wears down tooth enamel. Make every effort to see your dentist regularly and take good care of your teeth.

Medications - There are quite a few medications that can slow stomach emptying. Ask your doctor if any of the medicines you are on could be slowing down your stomach emptying.

Getting Started

DO:

1. Set a goal weight you want to meet or keep. Then, check your weight twice a week.
2. Eat enough to meet your goal weight. It may be 4-8 smaller meals and snacks. If your weight is decreasing, drink more liquid supplements or milkshakes and eat more popsicles, gelatin, etc.
3. Eat nutritious foods **first** before filling up on "empty calories" like candy, cakes, sodas, etc.
4. Chew foods well, especially meats. Meats may be easier to eat if ground or puréed.
5. Sit up while eating and stay upright for at least 1 hour after you finish. Try taking a nice walk after meals.

DON'T:

1. Eat large meals.
2. Eat solid foods that are high in fat.
3. Add too much fat to foods (e.g., butter, mayonnaise, etc.).
4. Avoid high fat drinks like whole milk, shakes, and supplement drinks. Most people tolerate these just fine, so try them! Only avoid them if they make your symptoms worse.
5. Eat high fiber foods or take fiber medicines like those in Table 1.

On bad days, remember that solid food is more work for the stomach to empty than liquids. So, try taking just liquids to let the stomach rest. Any food may be used if it is liquefied, thinned, or blenderized and strained.

If you lose more than 10 pounds without trying, tell your doctor.

When Solids Do Not Seem to Be Working – Try Blenderized Food

Any food can be blenderized, but solid foods will need to be thinned down with some type of liquid. Always clean the blender well. Any food left in the blender for more than 1-2 hours could cause food poisoning. If you do not have a blender, strained baby foods will work and can be thinned down as needed with milk, soy or rice milk, water, broth, etc.

Blenderized Food (Continued)

- **Meats, fish, poultry and ham**: Blend with broths, water, a small amount of milk, low potassium vegetable juice, gravies.
- **Vegetables**: Blend with water, broth, strained low potassium baby vegetables.
- **Starches**: Blend leached potatoes, pasta, and rice with soups, broth, milk, water, gravies; add strained baby meats, etc. to add protein if needed. Consider using hot cereals such as wheat farina or cream of rice, grits, etc. as your "starch" at lunch and dinner.
- **Low potassium fruits**: Blend with their own juices, other fruit juices, water, strained baby fruits.
- **Cereals**: Make with caloric beverage such as whole milk (or even evaporated/condensed milk), soy or rice milk, juice, Ensure®, Boost® or store brand equivalent, etc., instead of water. Add sugars, honey, molasses, syrups, or other flavorings, butter or vegetable oil for extra calories.
- **Mixed dishes**: Add adequate liquid of your choice to lasagna, macaroni and cheese, spaghetti, chili, chop suey, etc. Then, blend well and strain.

Getting your Calories

When getting enough calories is a daily struggle, make everything you eat and drink count:

- Take medications with calorie-containing beverages like milk, juice, and sweet tea instead of water or diet drinks.
- High calorie drinks are better than water because they provide calories AND fluid. Use peach or pear nectar, cranberry juice, lemonade.
- Fortify milk by adding dry milk powder: add 1 cup powdered milk to 1 quart milk.
- Add half and half, non-dairy creamer, cream or sour cream to omelets, noodles, rice and vegetables.
- Add Carnation Instant Breakfast, protein powder, dry milk powder, or other flavored powders or flavored syrups to whole milk or juices.
- Make custards and puddings with eggs or egg substitutes like Eggbeaters®.
- Make milkshakes using ice cream and ready-made supplements.

General Kidney Diet Guidelines

Your dietary restrictions will depend on your nephrologist's (kidney doctor) assessment. There are many great reasons to follow your diet instructions carefully when you have kidney disease. Briefly, doing so will:

- ✓ Help control buildup of waste products and fluid in your blood.
- ✓ Decrease workload of your kidneys and slow down loss of kidney function.
- ✓ Keep you healthy by avoiding complications.

Follow a healthy diet

- If you are diabetic, keep track of your carbohydrate intake.
- Include variety of allowed foods: meat, fruit, vegetables, grains.
- Choose "low fat" foods, unless you are trying to gain weight.
- Portion control is important: have 3 oz lean meat, and make you're your plate grains/starch, vegetables, and fruit.

Vitamins and Minerals

- Vitamins made for patients with kidney disease may be prescribed. These have vitamin C, increased levels of certain B-vitamins, and no Vitamin A. *Do not take over-the-counter multivitamins.*
- Iron supplements are needed to help increase red blood cells. *Do not take iron with your antacids or calcium.*

Protein

- For growth, building muscles and tissue repair.
- Too much protein turns into a toxic waste product called *urea* that your kidneys cannot get rid of.
- Goal: adequate protein for nourishment, but not too much (in order to avoid making too much urea).
- Rich sources of protein: lean meat, poultry, dairy, fish, seafood, eggs, cheese.
- **Usually you will need at least 8 ounces of lean meat if you are on dialysis or 4-6 ounces if you are at the early stage of kidney disease. Ask your Renal Dietitian how much protein is enough for you.**

Sodium

- High sodium intake can increase blood pressure and fluid retention (edema).
- High sodium foods: salt, canned soups, processed cheese, some canned goods, "fast food," pickles, olives, smoked and cured foods like bacon, ham, and luncheon meats.
- Read labels. Choose products with less than 140 mg sodium per serving and less than 600 mg sodium per frozen dinner.

Fluids

- If you are on hemodialysis, limit fluids to 1000-1500 mL (32-48 ounces) per day. Count as fluid any liquid or food that melts in your mouth like ice cream, ice, Jell-O®, pudding, broth, coffee, tea, milk.
- Excess fluid in the body causes difficulty breathing, chest pain, edema, and high blood pressure. Your dietitian can share tips on how to control thirst and dry mouth.

Phosphorus

- Your kidneys may not be able to remove phosphorus from your blood. **NOTE:** Most people on nocturnal dialysis do not need to restrict phosphorus in their diet.
- High levels of phosphorus weaken your bones and can cause them to break easily.
- Control phosphorus:
  - Avoid high phosphorus foods: dried beans and peas, nuts, liver and other organ meats (such as kidney, heart, etc.), pancake and biscuit mixes, "dark drinks" such as cola, Dr. Pepper®, Hawaiian Punch® and other phosphorus-containing liquid and powdered drinks, beer, canned salmon. Limit milk to ½ cup and cheese to 1 ounce. Obtain a complete list of high phosphorus foods from your renal dietitian.
  - Take phosphate binders WITH MEALS as prescribed by your doctor. Examples of "binders" are calcium carbonate, Tums®, Phoslo®, Renagel®/Renvela®, Renvela® Powder, Fosrenol®, Amphojel/Alucap.
  - **NOTE:** Notify your doctor or dietitian if you switched to small frequent meals. Your phosphate binder dose will need to be adjusted accordingly.

Potassium

- Restriction varies depending on the stage of your kidney disease and your lab results. Ask your doctor about your potassium level.
- High levels of potassium can cause rapid heartbeat. In serious cases, a heart attack may occur.
- Control potassium:
  - Avoid high potassium foods: bananas, orange, kiwi, avocado, cantaloupe/honeydew, mango, papaya, dark green leafy vegetables (spinach), Brussels sprouts, dried beans, "salt substitutes", nuts. Leach potatoes by soaking peeled and diced potatoes overnight, boiling and draining off liquid. Limit tomatoes to 2 thin slices and milk to 1 cup. Obtain a complete list from your renal dietitian.
  - Do not skip dialysis.
- People on peritoneal dialysis may not need to restrict potassium. Potassium may also be liberalized for patients on short daily and nocturnal home dialysis.

What to Eat

Important: Follow portion sizes closely to prevent high phosphorus and potassium!

Dairy

½ cup:

- Milk: skim, low fat, whole
- Ice Cream: vanilla & other allowed flavors
- Pudding: vanilla, rice, tapioca
- Yogurt: plain, without fruit, vanilla
- Home-made creamed soup

1 ounce of cheese or ½ cup cottage cheese

Vegetables – cooked, and if necessary, blenderized/strained

Have 1 cup per day total, or ½ cup at lunch and dinner

Asparagus	Garlic	Potatoes - *(Leach: peel, cut up, soak overnight, discard water. Or, boil 30 minutes, discard water).*
Beets	Green beans	
Cabbage	Kale, boiled	
Carrots	Lettuce	
Cauliflower	Mushrooms	Radishes
Celery	Okra	Rutabagas
Cucumber	Onions	Summer Squash
Eggplant	Parsley	Tomato – 1 small or 2 thin slices
Escarole	Peas	
Endive	Peppers	Water chestnuts - 4 pieces
		Zucchini

Fruit, no skin – cooked and, if necessary, blenderized/strained

1 serving = ½ cup or 1 small piece. Limit to 4 servings a day; discard liquid from canned fruits.

Applesauce (no fresh apple)	Cranberry Juice	Pears, canned
	Fruit Cocktail	Pineapple
Apricot, canned (limit to 2 only)	Grapes (12-15)	Plums
	Lemon, Lemonade, Lime	Strawberries
		Watermelon
Cherries	Peaches, canned	Seedless jams & jellies

Starch *1 serving = 1 slice or ½ cup. Get 6-8 servings a day.*	
Bagel – plain or egg Bread – White, Italian, Rye Cake – Vanilla, Pound, Angel Food Cereal – Cheerios®, Cream of Rice, Cream of Wheat, Oatmeal, Puffed Rice, Puffed Wheat, Rice Krispies®, Special K® Cookies – no chocolate Crackers – unsalted	English Muffin Hamburger or Hot Dog Buns Graham Crackers, Animal Crackers Noodles/Pasta (plain) Pancake, Waffle (not from mix) Pie (allowed main ingredient) Pretzels – unsalted Rice Rolls – plain hard, soft, dinner
Meats/Protein – ground or pureed, no breading *1 Breakfast, 3 Lunch, 3 Dinner* *1 serving = 1 ounce, 1 egg, ¼ cup.* *Recommended servings:* *People with stage 2-4 CKD: 4-6 servings per day* *People with stage 5 Dialysis: 6-8 servings per day*	
Beef Chicken - without skin Eggs or egg substitutes Fish Game	Lamb Pork Shellfish Turkey – without skin Veal
Fat – if tolerated	
Cream Cheese Gravy – without salt, fat free Margarine Mayonnaise Non-dairy Creamer	Oil Salad Dressing – low sodium Sour Cream – non fat Whipped Cream – non fat
FLUIDS *Note: Count these as part of the 4–6 cup total allowed per day unless otherwise specified by your doctor or Registered Dietitian.*	
Coffee & Tea - limit to 3 cups **total** Ice Cubes Italian Ice* Jell-O®* Juices from allowed fruits	Kool-Aid® & Tang®* Lemonade* Plain Sherbet* Popsicles* Soda (Gingerale, 7-up®, Sprite®)* (may cause gas or bloating)

*Avoid if you have diabetes, or use sugar free if available.

Foods to Avoid or Moderate

High Potassium Foods

- Dried Fruits: prunes
- Coconut
- Nuts: peanuts, cashews, pecan, walnuts, etc.
- Dried Beans: kidney, limas, pinto, baked beans, black-eyed peas, lentils, chick peas, black beans, soybeans, "Pork & Beans", Tofu
- Chocolate, Cocoa
- Tropical Fruits: mango, papaya, guava
- Other fruits: cantaloupe, honeydew, banana, orange, avocado
- Juices: orange, grapefruit, prune, tomato
- Vegetables: winter squash, spinach, collard greens, brussel sprouts, artichoke
- Potatoes and sweet potatoes – unsoaked
- Tomato – more than 2 slices, tomato sauce
- Chewing tobacco
- Coffee – not more than 3 cups
- Beer

High Phosphorus Foods

- Milk Products – limit to ½ cup
- Cheese - limit to 1 ounce
- Liver/Organ Meats
- Processed Meats (hot dog, sausage, bologna, luncheon meats)
- Sardines, Canned Salmon, Herring, Fish Roe, Anchovies
- Seeds (sunflower, pumpkin, sesame)
- "Dark sodas" and other drinks with phosphorus additives
- Biscuit or pancake from mix
- Chocolate, Cocoa

High Sodium Foods

- Salty Foods
- Dill Pickles, Olives
- Frozen or Canned Dinners
- Salted Crackers, Popcorn, Pretzels
- Salt, Bouillon Cubes, Soy Sauce, Steak Sauces, prepared Barbeque Sauces
- Canned Soups and Mixes – except low sodium

Oral Nutrition Supplements

Oral nutrition supplements must be considered when food intake is not enough to meet your needs. *It is very important to check with your renal dietitian before drinking supplements.* Although the primary concern is to provide calories and protein, it is also crucial to maintain serum potassium and intradialytic fluid weight gains within acceptable range.

Nutrition Supplements that may be Acceptable for Patients with Kidney Disease*

Company	Product Acceptable for Patients with Kidney Disease	Products with higher potassium content (consult your renal dietitian) before using
Nestle® Nutrition 1-877-463-7853	NovaSource® Renal Renalcal®	
	Boost® Pudding Boost® Breeze	Boost® / Boost® Plus Boost® High Protein
	BeneProtein®	
Abbott® Nutrition 1-800-258-7677	Ensure® Clear™ Ensure® Bar Ensure® Pudding	Ensure® / Ensure® Plus
	Glucerna® Meal Bar	Glucerna®
	Nepro®with Carb Steady®	
	Promod®	
Nutra/Balance® 1-800-654-3691	ReGen (Frozen) Regular Sugarfree	
	ReGen (Shelf Stable) Sugar Free	
	Protein Fortified Cookies	
Medical Nutrition USA, Inc. 1-800-221-0308	Pro-Stat®	
Llorens Pharmaceutical 1-888-324-4660	Proteinex®	
Global Health Products, Inc. 1-800-638-2870	ProCel® Liquacel™ Liquacel™ 100	

*Not a complete list; UVAHS does not endorse any one company or brand; consult your renal dietitian for more information or product ideas.

Sample Semi-Liquid Meal Pattern

Food choices should be consistent with kidney diet restrictions.

Breakfast

Allowed juice or other beverage containing vitamin C
Thinned Cooked Cereal
Liquid Supplement or Milkshake (see table on previous page)
Milk (if allowed)
Coffee or Tea (if allowed)
Cream, Sugar

Lunch and dinner

Thinned Soup
Thinned or Pureed Meat or Substitute
Thinned starch
Thinned or Pureed Vegetable
Thinned Dessert or Pureed Fruit
Liquid Supplement or Milkshake (see table on previous page)
Allowed seasonings

Snack: mid-morning, afternoon and bedtime

Liquid Supplement or Milkshake (see table on previous page)

It is recommended that anyone with gastroparesis, but especially those with combined medical problems (such as diabetes or kidney disease) seek diet counseling by a registered dietitian to maximize nutritional benefits. To locate a registered dietitian near you, call the Academy of Nutrition and Dietetics at 800-366-1655 or visit their website at www.eatright.org.

Additional Resources

- **University of Virginia Health System, Digestive Health Center website:** www.GInutrition.virginia.edu
  - Under Patient Education, look for Gastroparesis
    - Short version
    - Long version
    - Diabetes version
    - Renal version
  - Under Nutrition Articles by Topic, look for Gastroparesis
    - Parrish CR, McCray S. Gastroparesis & Nutrition: The Art. Practical Gastroenterology, Sept 2011
    - Parrish CR, Yoshida C. Nutrition Intervention for the Patient with Gastroparesis: An Update. Practical Gastroenterology, Aug 2005
- **Association of Gastrointestinal Motility Disorders, Inc. (AGMD)** www.agmd-gimotility.org
- **International Foundation for Functional Gastrointestinal Disorders (IFFGD)** http://www.iffgd.org/