

## Managing Hypoglycemia

Carbohydrate in the food we eat breaks down into glucose, a type of sugar, in the body. It is absorbed and then enters the bloodstream. As the amount of glucose in the blood rises, the pancreas releases insulin. Insulin is a hormone that helps glucose enter our cells so it can be used for energy. Glucose can also go into the liver and be stored for later use. When glucose levels in the blood begin to drop, glucagon, another hormone from the pancreas, causes the liver to release the stored glucose into the bloodstream. This causes blood glucose levels to rise.

Hypoglycemia occurs when our blood glucose falls below the regular range. It is important to keep blood glucose levels within normal limits so that our cells (especially our brain and nerve cells) have enough energy to function. Usually the body keeps blood glucose levels between 70-100 mg/dL. Hypoglycemia is when our blood glucose drops below 70 mg/dL. This can be caused by:

- Taking too much insulin or when the pancreas makes too much insulin
- Eating less food than normal
- Being more physically active
- Drinking alcohol on an empty stomach
- After stomach or intestinal surgeries

**Symptoms of hypoglycemia differ from person to person and include:**

- Sweating
- Confusion
- Trembling
- Hunger
- Anxiety
- Nausea
- Dizziness
- Weakness
- Difficulty speaking
- Headaches
- Inability to concentrate
- Tingling around mouth or lips

Dietitian: \_\_\_\_\_

Phone: \_\_\_\_\_

Facility: \_\_\_\_\_

## Description of the Diet

There are two types of hypoglycemia: 1) fasting and 2) reactive. Symptoms are similar for both, but treatment can vary.

### Fasting Hypoglycemia

Fasting Hypoglycemia is often associated with diabetes and the use of insulin or other hypoglycemic medications, but it can also occur if someone has not eaten for 8 hours or more. Hormone deficiencies and/or disorders of the pancreas, heart, liver, or kidneys can also cause fasting hypoglycemia.

To help prevent fasting hypoglycemia, eat meals and snacks on time, monitor blood sugars closely, especially if there are changes made to insulin doses, meal patterns, exercise schedules, and/or travel routines.

To treat fasting hypoglycemia, consume foods or beverages that contain carbohydrate. This can be done by following the '15/15 rule':

- Eat or drink 15 g of carbohydrate and wait 15 minutes before retesting your blood glucose. Table 1 lists examples of different foods and their serving sizes that contain 15 g of carbohydrate. As carbohydrate is absorbed, it increases glucose in the blood and relieves the symptoms of hypoglycemia.
- If glucose is still less than 70 mg/dL after 15 minutes, take another 10-15 g of carbohydrate. If it is more than 60 minutes until the next meal or snack, eat something more substantial, such as:
  - 1 oz. cheese & 6 crackers
  - 1 cup whole milk
  - 1 tbsp. peanut butter & 6 crackers
  - ½ meat or cheese sandwich.

Table 1 - Carbohydrate Sources to Treat Fasting Hypoglycemia		
Source	Amount	Carbohydrate
Glucose tablets	3-4	15 g
<b>Starches</b>		
Animal crackers	6-11 each	15 g
Graham crackers	3 each	15 g
Saltine-type crackers	6 each	15 g
<b>Other Carbohydrates</b>		
Gelatin (regular)	½ cup	17 g
Hard candies	2-3 each	10-15 g
Honey	1 Tbsp.	17 g
Jelly beans	5-8 each	10-15 g
Sherbet	¼ cup	15 g
Soft drinks	½ cup	13 g
<b>Fruits</b>		
Juice (apple, pineapple, grapefruit, orange)	½ cup	15 g
Juice (cranberry, grape, or prune)	1/3 cup	15 g
Raisins	2 Tbsp.	17 g
<b>Dairy</b>		
Ice cream (low-fat)	½ cup	15 g
Milk (skim, 1%, 2%)	1 cup	12 g
Pudding	½ cup	12 g
Yogurt (plain, low-fat)	¾ cup	12 g

This handout is meant for use during an appointment with a registered dietitian only and is not intended for use by other clinicians.

## Reactive Hypoglycemia

In reactive hypoglycemia, carbohydrate is quickly digested and absorbed, causing too much insulin to be released. This often occurs after intestinal surgery. Symptoms disappear upon eating.

### To treat and prevent reactive hypoglycemia:

- Avoid simple carbohydrates (candy, sugar, jam, jelly, syrup, honey, soda, cookies, cakes, and ice cream). Simple carbohydrates should only be used to treat hypoglycemia. Sometimes a small amount of simple carbohydrates can be tolerated if eaten with other foods.
- Eat six small, frequent meals spread throughout the day. Plan meals at appropriate times during the day.
- Eat mixed meals to help delay carbohydrate absorption. Mixed meals include carbohydrates, protein, fat, and fiber.
- Increase your intake of complex carbohydrates. These foods are absorbed more slowly than simple carbohydrates so don't cause rapid increases in blood sugar levels. Examples of complex carbohydrates are breads, cereals, pasta, rice, vegetables and legumes.
- Eat fresh fruit or fruit canned without sugar, rather than drinking fruit juice. The added fiber will slow down sugar absorption.
- Decrease the amount of fat in the diet. A high-fat diet (especially saturated fat) can affect the body's ability to use insulin. Decreasing the amount of fat in your diet will help with weight loss.
- Weight loss may be necessary. Excess weight interferes with the body's ability to use insulin.
- Limit alcohol intake. Alcohol may affect the liver's ability to release stored glucose and result in hypoglycemia.
- Limit caffeine, which may reduce blood flow and glucose supply to brain. Caffeine often produces the same symptoms as hypoglycemia and may make you feel worse.
- Practice carbohydrate counting when planning meals and snacks.
- Lactose, especially in milk and ice cream, may need to be avoided temporarily. Cheese and yogurt may be more easily tolerated.
- Lie down and avoid activity for an hour after eating. This may help to slow gastric emptying.

Table 2 – Sample Meal Plan, Reactive Hypoglycemia		
Meal & Time	Food Item	Amount
<b>Breakfast – 7:30 a.m.</b>		
45-60 g carbohydrates	Raisin bran	1 cup
	Skim milk	1 cup
<b>Snack – 10:00 a.m.</b>		
15 g carbohydrates	Whole grain toast	1 slice
	Peanut butter	1 Tbsp
<b>Lunch – 12:00 Noon</b>		
45-60 g carbohydrates	Whole wheat bread	2 slices
	Lettuce and tomato slices	1 each
	Turkey	2 oz
	Reduced-fat mayonnaise	1 Tbsp
	Vegetable beef soup	1 cup
	Apple	1 small
<b>Snack – 3:00 p.m.</b>		
15 g carbohydrates	Pretzels	¾ oz
	Cheese	1 oz
<b>Dinner – 6:30 p.m.</b>		
60-75 g carbohydrates	Chicken breast	3 oz
	Baked potato	1 medium
	Sour cream	2 Tbsp
	Dinner salad	1 cup
	Reduced-fat salad dressing	2 Tbsp
	Broccoli spears	½ cup
	Dinner roll	1 each
	Skim milk	1 cup
<b>Snack – 8:30 p.m.</b>		
15-30 g carbohydrates	Light yogurt	1 cup

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## Resources

### American Diabetes Association

National Service Center  
1701 North Beauregard Street  
Alexandria, VA 22311  
Phone: 1-800-232-3472  
Fax: (703) 549-6995  
Email: [customerservice@diabetes.org](mailto:customerservice@diabetes.org)  
Internet: [www.diabetes.org](http://www.diabetes.org)

### Juvenile Diabetes Research Foundation International

120 Wall Street  
19th Floor  
New York, NY 10005-4001  
Phone: 1-800-533-2873 or (212) 785-9500  
Fax: (212) 785-9595  
Email: [info@jdrf.org](mailto:info@jdrf.org)  
Internet: [www.jdrf.org](http://www.jdrf.org)

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