

Real-Time Continuous Glucose Monitoring (RT-CGM) for Diabetes

Participant Packet

Take Charge of
Your Health!



1. CGM Device:

The Continuous Glucose Monitoring (CGM) device is inserted in the skin of your stomach, arm or upper buttock. You can continue all your daily activities, including showering and swimming, while you wear it.

2. Food:

In the log provided, record each meal and snack you eat, including the amount. For example if you eat pasta record “2 cups of pasta” rather than just “pasta” or if you have cheese record “3 oz of cheese” rather than just “cheese”.



3. Physical Activity:



Record physical activity in the log. For example if you go for a walk, record “20 minutes brisk walking” or if you take the stairs, log: “climbed 3 flights of stairs”.

Monitor your Health Using CGM Real-Time (RT-CGM)



1. Continue to record each meal and snack you eat, including the amount.



2. Record physical activity.



Blood Glucose Goals

Pre-meal glucose: 80 to 110 mg/dL

1 hour after eating: less than 160 mg/dL

2 hours after eating: less than 140 mg/dL

American Association of Clinical Endocrinologists, 2018



DON'T get discouraged if your values are higher at first. Think about what may be causing those higher values. Make changes to see if you can get those numbers down!

With RT-CGM you will be able to see your glucose values in real time with the Dexcom system!

Using the Dexcom Continuous Glucose Monitoring (CGM) system:

1. You will receive readings on the Dexcom G6 app on your Smartphone or the Dexcom receiver. The Dexcom updates the glucose reading every five minutes.
2. If the reading on your device does not match how you feel, you should check your glucose with your meter.
3. Along with the current value of your glucose, the Dexcom will show trend arrows. Arrows tell you if your glucose is stable, heading up, or down and how quickly.



<i>What do the arrows mean?</i>	 Glucose is stable. It is not changing more than 1 mg/dL per minute.
 Glucose falling slowly. Glucose could decrease 30 to 60 mg/dL in the next 30 minutes.	 Glucose rising slowly. Glucose could increase 30 to 60 mg/dL in the next 30 minutes.
 Glucose falling moderately. Glucose could decrease 60 to 90 mg/dL in the next 30 minutes.	 Glucose rising moderately. Glucose could increase 60 to 90 mg/dL in the next 30 minutes.
 Glucose falling quickly. Glucose could decrease more than 90 mg/dL in the next 30 minutes.	 Glucose rising quickly. Glucose could increase more than 90 mg/dL in the next 30 minutes.

What Things Affect Glucose?

Many things can make your glucose go up or down. Food can affect your glucose. Certain types of food may raise your glucose faster and higher than others.

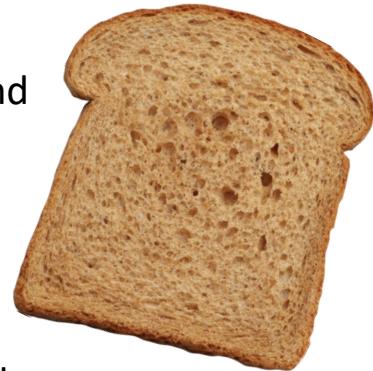
Effect of FOOD on Glucose

↑	Carbohydrates
↑	Fat
→	Protein
↓ ↑	Alcohol

→	no effect on glucose
↑	raises glucose
↓	lowers glucose

Carbohydrates

1. Carbohydrates include sugars and starches. Sugars are found in foods such as desserts, fruit and some dairy. Starches include foods made from grains (bread, cereal, rice, etc.) and some starchy vegetables like peas, potatoes, and beans. Carbohydrates may be included in a healthy diet. But QUALITY and QUANTITY are important!



2. Carbohydrates with fiber tend to be better quality than those without fiber. Check your food labels when you are choosing your carbs and aim to eat foods with at least 3 grams of fiber per serving.



3. Notice your glucose level after eating different carbohydrates. About two hours after a meal, notice what happens to your glucose. For example if you have 1 cup of rice, and your glucose goes up a lot, consider decreasing to ½ cup or skipping rice altogether. Note the difference in your glucose.

4. Try substituting different carbohydrates. Have a piece of whole wheat toast with 3 grams of fiber, a glass of skim milk, and one hard-boiled egg (250-300 calories). Compare your glucose to when you eat a bowl of cereal and milk (250-300 calories). Observe what keeps you feeling full longer.



Key: Limit portion sizes and choose foods with high fiber.

Nutrition Facts

8 servings per container	
Serving size	2/3 cup (55g)
Amount per serving	
Calories	230
% Daily Value*	
Total Fat 8g	10%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	13%
Dietary Fiber 4g	14%
Total Sugars 12g	
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%

* 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.

Aim for at least 3 grams of fiber per serving and no more than 5 grams of added sugar.

Added Sugar and Natural Sugar:

- As a rule, avoid foods that have more than 5-10 grams of *added* sugar.

For example, flavored yogurt may have as much as 18-20 grams of sugar. Watch your glucose after eating your typical yogurt vs. $\frac{1}{2}$ cup plain Greek yogurt with $\frac{1}{4}$ cup fresh blueberries or other fresh fruit.

- Fruit is healthy but is still has natural sugar in it. Too much can cause your glucose to spike. A serving of fruit is typically about the size of a tennis ball. Examples include: 1 small apple, $\frac{1}{2}$ of a banana, $\frac{3}{4}$ cup of berries or about 15 grapes. Observe your glucose after eating $\frac{1}{2}$ cup applesauce vs. a small apple.



Sugared Beverages:



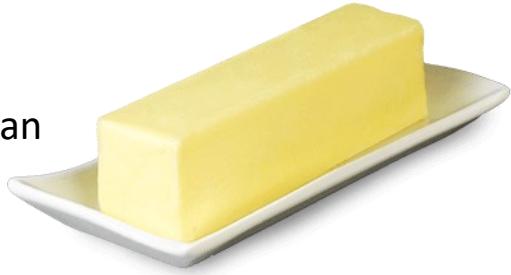
- Our body only needs water but we have trained our bodies to crave this sugar. Fruit juice, sodas, Gatorade®, sweetened coffee drinks all are filled with sugar. If you drink these you will notice a spike in your glucose value on the RT-CGM!
- Giving up sugary drinks can be a hard habit to break but will make a huge difference. Try to substitute water with lemon or other non-calorie flavors for these sugared beverages. Notice the difference in your glucose. If your beverages are already sugar free... great job!



Key: Avoid added sugars and eat natural sugar (like in fruit) in moderation.

Fat:

1. Gram for gram, fat contains more calories than other nutrients. Fats may be “hidden” in foods we already eat. For example, when you drink a cup of skim milk vs. a cup of 2% milk, you drink the same amount, but calories in the 2% milk are quite a bit higher. One cup of green beans with garlic pepper, versus butter gives you the same amount of green beans, but a lot more calories when butter is added. Cutting out some fat is a good way to reduce calories.
2. While there are no “carbohydrates” in fat, eating too much fat may cause a sustained rise in glucose over many hours. This is because fat causes *insulin resistance* (your body’s own insulin does not work as well). Observe your glucose 4 to 8 hours after a high-fat meal. Consider choosing leaner cuts of meat, and limiting some high-fat foods such as sour cream or mayonnaise.
3. Even “good fats” such as nuts can increase your glucose which highlights the need for small portion sizes such as no more than 15-18 nuts per serving/sitting. Unsaturated fats are a better choice than saturated, but you still need to pay attention to the quantity.



Alcohol:

Unfortunately alcohol is another “empty calorie”. Watch your blood sugars after a mixed drink or beer. Limit alcohol as much as possible.



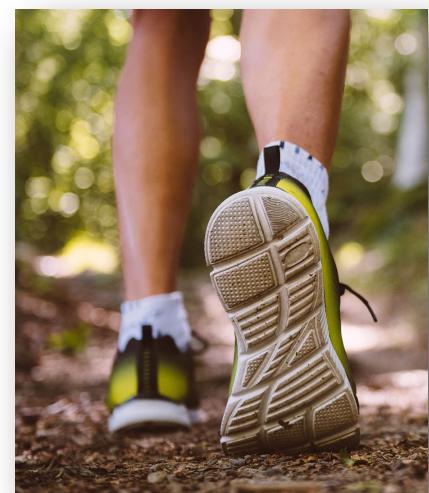
Key: Don't drink your calories!



Physical Activity:

1. Physical activity has many benefits, including weight loss, lowering blood pressure, and improving cholesterol. In addition, light to moderate activity such as walking can lower glucose. Aim for your 30 minutes a day of moderate-intensity activity and then increase over time. Moderate intensity means your heart is beating a little faster and you are breathing a little harder (without being too out of breath).
2. Consider adding 10 minutes of walking or taking the stairs after each meal in addition to your planned exercise. Use your food intake as a trigger; after each meal, go for a walk and see how it affects your glucose.
3. Moderate to intense activity such as weight lifting, interval training or sprinting may initially increase your blood sugar but then improve your blood sugar over the course of the day.
4. Add more walking into your daily activities. Walk as part of your commute. Choose a farther spot in the parking lot. Walk instead of taking the shuttle. Take the stairs. Adding steps to your daily routine is a great way to increase physical activity and relieve stress!
5. Be prepared to address the barriers. What will you do if the weather is bad? What will you do if it gets boring? If you have a plan to address these situations, you are more likely to stay on track.
6. Compare your glucose level on days you are more active vs. days you are less active.

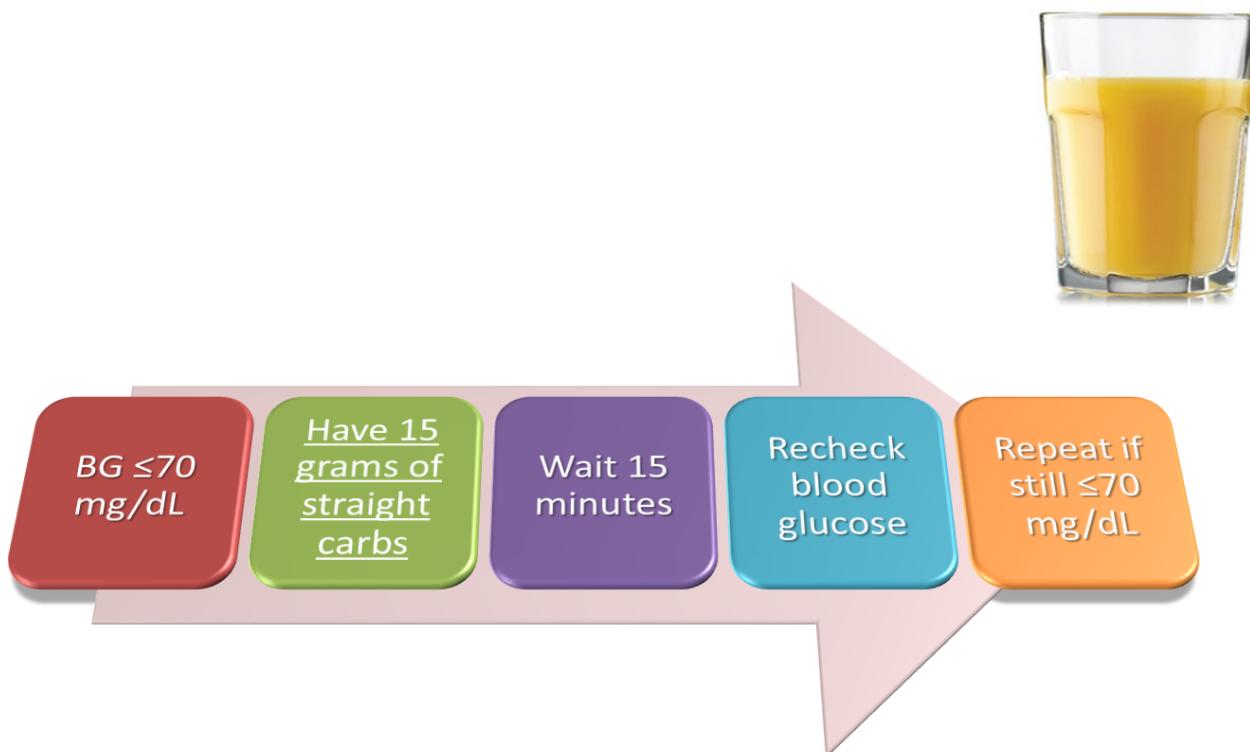
Effect of ACTIVITY on Glucose		
→	↓	Light-intensity exercise
↑	↓	Moderate-intensity exercise
↑	↓	High-intensity exercise



Key: Physical activity can lower glucose, among other things. Working more “steps” into your day is a great way to increase your physical activity level and all the benefits that go with it.

Low Blood Glucose:

1. If you take insulin, or a pill that makes your body release more insulin, you may be at risk for low blood glucose. When you lose weight or make healthier food choices, you may need less of your diabetes medication(s).
2. Symptoms of low glucose include shakiness, sweating, confusion, feeling weak and possibly hungry. If you feel these or any other unusual symptoms, check your CGM glucose reading. You may also want to confirm with a fingerstick test on your glucose meter.
3. To treat low glucose, you should eat/drink something with about 15 grams of carbohydrates/sugar. This might include $\frac{1}{2}$ cup of juice, one cup of skim milk, or 3 to 4 glucose tablets. It will take at least 15 minutes for these sugars to work. If your glucose is still less than 70 mg/dL after 15 minutes, treat with another 15 grams of sugar.
4. If you have any readings less than 70 mg/dL, you should talk with your provider. Ask if you should reduce your medication(s) doses to prevent low glucose.



Dexcom CGM Real-Time (RT-CGM)

Your goals for the 3 months: Improve your glucose numbers and learn what food and activity does to your glucose!

1. Review at the following values on your Clarity App :
 - Pre-meal glucose average
 - Post-meal glucose average
 - Average Glucose f
2. Identify factors that resulted in the best and the worst glucose values.
3. Choose foods and activities that will improve your pre and post-meal glucose. Continue to record your food and activity, and pre meal values and post glucose on the log.



Being healthy or fit isn't a trend or a fad; it's a lifestyle!