



Patient Education

Gestational Diabetes Management

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Gestational diabetes is a type of diabetes that happens during pregnancy. Unlike type 1 diabetes, gestational diabetes is not caused by having too little insulin. Instead a hormone made by your placenta keeps your body from using the insulin as it should. This is called insulin resistance. Blood sugar (glucose) then builds up in your blood instead of being absorbed by the cells in your body. The symptoms of gestational diabetes often go away after delivery.

Always seek medical advice from your healthcare provider. This Information is meant for informational and educational purposes – not medical advice. If you have questions about a medical condition, ask your physician before starting a diet, exercise, or health program.

Welcome to ARC Gestational Diabetes Class. We'll cover the basics briefly but the focus of this class will be how to treat and manage gestational diabetes with diet and exercise. At the end of the video, there will be an instructional video on how to use your glucometer.

About Gestational Diabetes Mellitus (GDM)

So what is Gestational Diabetes Mellitus or you'll frequently hear it called GDM? It is diabetes diagnosed during pregnancy that is not clearly overt diabetes that you may be familiar with outside of pregnancy like Type 1 or Type 2. What we do know about GDM is that it occurs in 1 of every 20 pregnancies. It is short lived, usually on last around 12 weeks and it starts around 20 weeks gestation and then usually ends to delivery or about 40 weeks. Your doctor will have you come back in after you have had your baby to do a 2 hour glucose tolerance test to verify it has resolved. It is very uncommon that it will continue.

The cause of GDM is really unknown, what we do know is that the placenta supports your baby and that hormones from the placenta help the baby develop. These same hormones also block the action of your insulin in your body leading to insulin resistance. This makes it hard for the body to use insulin. Without enough insulin, glucose can't leave the blood to be changed into energy. The glucose then builds up in the body causing high levels or hyperglycemia. GDM starts when your body is unable to use and make all the insulin it needs for pregnancy.

Risk and Outcomes

Now, why is all of this significant? Well, let's talk about some potential risks and outcomes if your gestational diabetes is poorly treated or managed. I want to remind you that these are all potential risks and that most babies will be born and not experience any of these outcomes. So, with GDM, your pancreas is working overtime to produce insulin however, it's not helping to lower your blood glucose levels. Insulin itself doesn't pass through the placenta but glucose and other nutrients do. The extra blood glucose that you're producing can pass through the placenta resulting in high blood glucose levels in the baby which causes the baby's pancreas to make extra insulin to rid of the excess blood glucose. Due to the baby getting extra energy than it needs from all that extra sugar to develop and grow the baby stores this excess energy or sugar as fat. This can lead to a few things.

The first is macrosomia or babies that are about 9 pounds at birth or a large baby. This can lead to the baby being too big to pass through the birth canal and could lead to C Sections, as well as shoulder dystocia. Your doctor will monitor the baby closely for these things by doing additional ultrasounds and using other screening tools throughout your pregnancy. These babies have their own health issues, one being damage to their shoulders during birth.



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Extra insulin can also cause newborns to have very low blood sugar levels at birth and also increase their risk of having breathing problems. These babies are also at risk for obesity during childhood, they are at risk of developing type 2 diabetes during adulthood and have a 6-fold higher risk of blood sugar problems during adolescents.

Lastly we have Jaundice or high bilirubin in the blood. Many babies are already at risk for this but babies born to a parent with GDM are at an increased risk. This will also be monitored after birth. Remember these are all things that occur in poorly managed GDM and we will talk next on how to prevent these things from happening.

Treatment

So next up is treatment. There are 3 main types of treatment for GDM. We have diet therapy, or what you eat. Exercise or physical activity and lastly medication. Today we will focus on diet therapy and exercise. If you are needing medicinal treatment which would be insulin, or Metformin, your physician will discuss those options with you individually.

The first step in treating gestational diabetes is to modify your diet to help keep your blood sugar level in the normal range. We do this by monitoring the amount of carbohydrates in your diet. Foods containing carbohydrates digest and turn into blood glucose, a type of sugar. Glucose in the blood is necessary because it is the fuel for your body and nourishment your baby receives from you. However, it's important that glucose levels stay within target.

What is a carbohydrate? It is a byproduct of glucose. Carbohydrates are found in the following foods listed on this screen. They are broken down into 2 types: Complex or healthy carbs which are the fiber. We want you to eat lots of fiber during pregnancy. And then, simple carbs which are the candy, juice all those unhealthy foods. We aren't asking you to be on a zero carb diet, our diets need the fuel and energy, especially during pregnancy. We just want you to be wise about the carbs you choose to eat. As we move on in class we will show you how to choose healthy carbohydrate options.

Now this is where we really get into how you, personally, can manage your gestational diabetes through food. The following are diet recommendations that can help you manage your blood sugar levels.

Diet Recommendations

First off, distribute your foods between three meals and two or three snacks each day. It is very important that you do not eat too much as this can cause blood sugar levels to rise too high. It is equally important to not skip meals because this will cause your blood sugar levels to drop too low. During pregnancy, you have increased nutritional needs and your baby requires balanced nutrition. We want to keep the glucose levels stable and steady and avoid spikes and falls. We do this by adding snacks. We also want you to divide your carbs evenly throughout the day. The goal is no more than 3 servings of carbs per meal, 4 at most with your biggest meal.

Next up is breakfast matters. We would like for you not to fast more than 6-8hrs. If you are sleeping more than 8hrs, a bedtime snack may be needed or you may need to adjust your schedule. Your body is in fasting mode when you wake up if you have gone an extended amount of time. Your blood sugar reading could either be really high or really low and you may not feel well so we need to break the fast. so we need to break the fast. to control in the morning because of normal fluctuations in hormone levels. Refined cereals, fruits and even milk may not be well tolerated in your morning meal. If your post-breakfast blood sugar level increases too much after having these foods, then you should not eat them for your breakfast. The breakfast that consists of a starch plus a protein is usually tolerated the best.

Next rule is to eat reasonable portions of starch. Starchy foods eventually turn into glucose so it's important not to be excessive. However, starch should be included in every meal. A reasonable portion is about one cup of total starch per meal, or two pieces of bread. We will come back to portion sizes in a bit, when we discuss how to count carbohydrates. You should have been given your



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"magic number"; this is your specific number of carbohydrate servings needed per day. If you have not received this number, please reach out to your provider via MyChart or the OB Triage line.

Another rule is to embrace protein and fat so no naked carbs. Emphasize foods with plenty of fat and protein, both of which stabilize, rather than directly raise the blood sugar. Pasture-raised meat (including organ meat), poultry, eggs, wild-caught fish, full-fat cheese, heavy cream, nuts, seeds, avocados, olives, butter, and some coconut products fit into this category. So a good example is to pair an apple with almonds or a cheese stick.

Next recommendation is to drink one cup of milk at a time. Milk is a healthy food and an important source of calcium. However, milk is a liquid form of carbohydrate and drinking too much at one time can raise your blood sugar. 1 cup of milk is 15gm of glucose. A good alternative is unsweet almond milk, which is ½ the carbs of regular milk. Moving on to fruit.

Just like milk, you want to limit fruit portions. Fruit is a healthy food, but it is high in natural sugars. You may eat one to three portions of fruit per day, but only eat one at a time. A portion of fruit is either one very small piece of fruit, like a Cutie or a plum, half of a large piece of fruit like an apple or a banana, or about one-half cup of mixed fruit. Do not eat fruit that has been canned in syrup. Please google your fruits, especially bananas and watermelon, because they tend to be high in glucose. You want to make sure that you're counting your carbohydrates correctly. Another important rule regarding fruit is to avoid fruit juices. Chew your fruit, don't drink it! It takes several pieces of fruit to make a glass of juice. So juice is a concentrated source of carbohydrates. Because it is liquid, juice can raise blood sugar quickly.

Next, strictly limit sweets and desserts. Cakes, cookies, candies and pastries tend to have excessive amounts of carbohydrates. These foods often contain large amounts of fat and offer very little in terms of nutrition. Additionally, avoid all regular sodas and sugar-sweetened beverages. There is 1 time when we will let this slide and that is at your baby shower. You deserve this one day so don't sweat it. Just know your readings will likely be high and be sure to note it when you are sending your levels to your provider. You also want to stay away from added sugars. So don't add sugar, honey or syrup to your foods.

Also, please be weary of "sugar-free". If you are currently using a sugar alternative, please reach out to your OBGYN to determine its safety in pregnancy. Lastly, remember to keep food records. Be sure to record all of the foods and the amount that you eat each day, which will help you monitor your carbohydrate intake. Please use measuring cups for accuracy when possible. Towards the end of the course, we will show you a sample food journal, you should of also received one in an email or MyChart message.

Now we will talk about carbohydrates counting. Carbohydrates in foods are measured in units called grams. You can count how many carbohydrates are in foods by reading food labels or using Google. The two most important pieces of information on food labels for a carbohydrate-controlled diet is the serving size and grams of total carbohydrate in each serving. As you can see on the screen, 1 serving of carbohydrates is 15 grams. So for 3 servings of carbohydrates it is 45 grams. On the next few slides we will look at how to count your carbs reading food labels and using portion sizes. Knowing your portion size is also a beneficial tool in counting carbs, especially for those foods that don't have food labels.

In the email or MyChart you received you should have received your magic number or a range of numbers. This is the amount of carbs you can have per day. Some of you may only have one number some have a range. If you have a range, try to consume at least the lowest number. So for example, if your numbers are 8-10 have at least 8 servings per day and no more than 10. If you have one number then you should make sure you have that much. So let's go through each food label. Start with the serving size, then go to grams of carbohydrate per serving. On the left, we have the Lay's potato chips. Serving size is 1 oz or 15 chips, grams of carbohydrates is 15 grams. Remember that 15 grams of carbohydrates is one serving of carbohydrates, so 15 chips or 1 oz of Lays would be considered 1 carbohydrates serving when eaten, if you were to double this and have 30 chips then it would be 30 grams of carbohydrates which would then be 2 carbohydrate servings or the size of regular snack.

On the right, we have the cranberry juice. The serving size is 8 full ounces. Grams of carbohydrates is 28gm per serving. So if 15 grams of carbohydrates is 1 serving of carbohydrates, then how many servings of carbohydrates are in one 8 full ounce of cranberry juice? The answer would be almost 2 servings of carbohydrates. I'd round up as most of the carbohydrates in juice are sugar, not fiber. It would be way better to eat these carbs then drink them, and 8 ounces is such a small amount, if you were allowed 8 servings per day you'd only have 6 left after drinking one small glass of this cranberry juice.



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So here are some examples of one serving of carbohydrates. Remember to use measuring cups or google it if you don't have a food label. Another thing to note is the bread is probably whole wheat and that is an extra small apple, not a honey crisp or large apple. That would be more like 2 carbohydrate servings. Also, remember all of these things need to be paired with a protein or a fat. No naked carbs.

So next, let's look at some common foods and how the necessary changes in assisting you in finding the right alternatives. Many carbohydrates are in them. First up, we have the 1 cup of spaghetti, or 43 grams of carbohydrates. This is almost 3 servings or your entire meal, and this doesn't include the meat, the sauce, the cheese, any of the good stuff. This would be a good time to substitute for a whole grain or wheat noodle option or veggie noodles.

To the right, we have a medium potato, or 37 grams. This could be about 2 ½ servings of carbohydrates. A good alternative would be a medium sweet potato which is 26 grams or closer to 2 servings. Sweet potatoes also have more fiber. Below the potato, is the grilled chicken sandwich, about 39 grams of carbohydrates or 2 ½ servings rounding up. Most of the carbs are from the bread so maybe try removing the top bun and you'll remove at least 15 - 20 grams of carbohydrates. Next is the medium fry, or 48 grams, about 3 servings of carbohydrates. This is when portion size is really important, so if you really want it, maybe try ordering a smaller fry or the kids size to satisfy that craving. Below we have the pizza or 39 grams of carbohydrates, about 2 ½ servings. Maybe look into different crust options, like thin crust or cauliflower crust. Maybe slice it in half. You can also pair this with a salad or chicken wings to make sure you're not eating those naked carbs. Lastly we have the milkshake. As we discussed earlier, milk is a liquid carbohydrate. So in a milkshake, you have the milk, plus all of the added sweeteners or yummy toppings. This tiny milkshake is 74 grams or 5 servings total. This would really be best to just avoid as it is larger than your biggest meal of the day.

We know you did not get here over night and we don't expect you to make all of these changes over night as well. Your doctor will give you about 2 weeks to make some adjustments. Which is also why it is so important to keep a food journal so we can make the necessary changes in assisting you in finding the right alternatives.

The first tip I'd like to go over is how to eat out but still stay on track with your blood sugar and GDM. As you start to change your eating habits, understanding carbohydrate servings and identifying servings of foods will get easier. However, here are a couple of examples as to what you could order at McDonald's and Rosa's Café that will keep you in line with your new eating plan. So don't worry or be scared of eating out, you can still be social and stay on track.

So first, let's look at McDonald's... We've got the cheeseburger it's about 2 carbohydrate servings. It contains fat and protein. You could even remove half the bun to remove some of the carbohydrates. You have the side salad about half a carbohydrate serving, this also has a little bit of protein. Be sure to double check your dressings, many of them have extra sugar or honey which can add carbohydrates. Lower you have the apple slices, a half a carbohydrate. So in total, this is 3 carbohydrate servings and a great lunch or dinner.

To the right, we have Rosa's Café. We have the chicken fajita taco which is 2 carbohydrate servings. It contains fat and a protein which is great. You could also remove part or all of the tortilla and that would take away 1 to 1 ½ carbs easily. You've got the 4 oz black beans which also have healthy fat and protein. They are 1 carbohydrate serving. And then the guacamole which is half a carbohydrate serving, also contains a healthy fat and a little bit of protein. This is also a great option at 3 ½ carbohydrate servings for lunch or dinner.

One tip for eating out is to take a look at the menu and nutritional value online to plan ahead.

Meal Plan Examples

Now here are some examples of meal plans and what a typical day should look like. Of course, everyone's will be different. Here is an example of a meal plan with just the numbers. This'll be used as a guide for you to develop your own meal plan. Of course, this can be changed based on each of your individual needs. Notice that breakfast has about 2 - 3 carbohydrates. And lunch moves up to 3 - 4, as well as dinner.



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So here is a meal plan with the food. We also recommend that patients use a food tracking app or there are many free GDM meal plans online. This is an example of a log used to track your blood sugar before and after meals. Tracking all of this will allow you to see trends in your blood sugar levels, along with the foods that may trigger a higher or lower response. You should have received an ARC food and blood sugar log via email or a MyChart message. If you did not, please reach out via MyChart or the OB triage line.

So when do you need to check your blood sugar? First, you want to check your blood sugar first thing in the morning before you have anything to eat or drink and then record in your first blood sugar column in your log. The goal of this is to be around 90 mg/dL. And again, this is a fasting blood sugar so not even water or a quick snack.

Secondly, you'll check your blood sugar 2 hours after consuming a meal or a snack. And you'll record in the column after each meal. This is what helps us check for trends in food and your blood sugar levels. This is also what tells us what is causing your spikes or what is helping you stay in normal ranges. We want this to ideally be around 120 mg/dL.

Benefits of Physical Activity

Next let's discuss physical activity. Exercise or physical activity is complementary to diet therapy, you need both. Unless you are medically limited or on bed rest, it's best to get moving. Not only can diet have benefits for your GDM but so can exercise. Physical activity in any form, can delay your need for insulin and/or reduce the dose of insulin when needed. A suggested regimen includes, 30 minutes of brisk walking, 3-4 times a week. However, if you were not active prior to getting pregnant, start small and try walking 5-10min after meals and see how that changes your blood sugar. You may also want to take someone with you. It's important to monitor your blood glucose levels before, during and after a workout. Be sure to adjust your carbohydrate intake to avoid exercise-induced hypoglycemia or low glucose levels in relation to exercise.

Increase your carbohydrate intake during low blood glucose times. If your blood sugar levels are below 100 mg/dL prior to exercise, the American Diabetic Association recommends that you consume a carbohydrate before you engage in exercise. It's also recommended to avoid exercise if your blood sugar is 250mg/dL or higher to prevent ketoacidosis or the high production of keto acids in the blood, which drops the body's pH level and can be fatal.

If you are on insulin, please discuss with your provider how this should be adjusted prior to exercise. If at anytime your blood sugar is 60 or less or 160 or greater, we would like you to call the OB Triage line that number is listed on your blood sugar log. Please do not contact us via MyChart with any blood sugar levels outside of this range. And remember always call medical assistance with any feelings of shortness of breath, chest pain, dizziness, feet swelling, headaches, vaginal bleeding, amniotic fluid leakage and painful contractions.

So let's review all of the tips and takeaways from this class. First up is check your blood sugar and use the chart. Check your blood sugar pre-prandial (or fasting) and post-prandial (after meals) as we've previously discussed. You'll be able to figure out what foods trigger a higher or lower response and eat more or less of those foods. Remember, numbers are not good or bad and they say nothing about who you are, they are information.

Next, eat every 2 to 3 hours. This is key. Skipping meals will cause our bodies to naturally increase our blood sugar levels. Our bodies need the right amounts of foods at the right times in order to function properly. Eating smaller portions throughout the day allows our bodies to never get too hungry or allow our blood sugar to drop too low. It also helps prevent us from overeating at meals. Lastly, eating this way will ensure that your baby is getting the nutrients it needs on a consistent basis throughout the day.

Next up is no naked carbs. What this means is that you don't want to eat carbs by themselves. If you are going to have crackers, pair it with peanut butter or cheese. If you want an apple, pair it with almond butter or almonds. Rule of thumb, try to always have some sort of protein or fat in combination with your carbohydrate. This will help you stabilize your blood sugar.

Next up, overall, just eat less sugar, simple enough right? drink less sugary drinks, eat less processed sugar or added sugars such as candy, cakes, cookies, juice (yes, even 100% juice) and choose more whole/fresh foods.



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Last rule is to just get moving. Exercise as much as your body will let you. Exercise allows our muscles to use the sugar in our bloodstream as energy. Remember: the recommendation by the ADA for pregnant women with GDM is 30min of brisk walking 3-4 times a day. However, if you were not active before getting pregnant, start small and try 5-10 min walk after meals and see how this changes your blood sugar. If you feel you need more guidance, please reach out and speak to your provider. Here at ARC we have many resources including our healthiness program. See the information listed on the screen.