



Type 1 Diabetes and Pregnancy

MATERNAL FETAL MEDICINE
SPECIALISTS OF THE MOUNTAIN STATES



What to Expect

- ▶ Weekly appointments either by phone, virtually, or in person to review blood sugars and plan of care. Please schedule these appointments.
- ▶ Ultrasounds monthly, or as recommended.
- ▶ Fetal Echocardiogram around 24 weeks.
- ▶ Fetal Non-Stress Tests (NSTs) starting at 32 weeks.
- ▶ A1c each trimester or as recommended.
- ▶ Eye exams with eye specialist.
- ▶ EKGs, labs and other exams are sometimes ordered.
- ▶ Home ketone testing.
- ▶ Check for thyroid disease (TSH).
- ▶ Low-dose aspirin (81 mg/day) to decrease risk of preeclampsia.

Our physicians will go over the plan with you.

Risks of Diabetes in Pregnancy

▶ Risks to Baby

- ▶ Birth defects
- ▶ Miscarriage/Stillbirth
- ▶ Large baby or small baby (IUGR)
- ▶ Polyhydramnios (increased fluid in amniotic sac)
- ▶ Preterm baby
- ▶ Hypoglycemia (low blood sugar), jaundice, respiratory distress, NICU admission
- ▶ Greater risk for obesity and diabetes later in life

▶ Risks to You

- ▶ High blood pressure and pre-eclampsia
- ▶ Progression of diabetic retinopathy (eye problems)
- ▶ DKA at lower blood sugars than might be expected (e.g. 200s)
- ▶ Frequent urinary tract, yeast, or vaginal infections
- ▶ Difficult delivery and increased risk for c-section



How Do I Manage Diabetes?

- ▶ Consistency!
- ▶ Blood sugar monitoring
- ▶ Eating a well-balanced diet
- ▶ Exercise and staying active
- ▶ Stress management
- ▶ Getting good sleep
- ▶ Frequent insulin adjustments
- ▶ Weekly appointments



Meter and Sharps Safety

- ▶ Never share your meter or testing supplies.
- ▶ Use new lancets each time, wash hands or use alcohol wipes.
- ▶ Store used needles/syringes and lancets in a sharps container; never throw sharps in the garbage.
- ▶ Don't leave your sharps out and keep them away from children and pets.
- ▶ Contact your local waste management when you are ready to throw your container away. They will give you instructions; different cities might have different rules.

Blood Glucose Monitoring

- ▶ Blood sugars will be reviewed weekly and sometimes twice weekly as needed.
- ▶ During pregnancy we recommend checking your blood sugars fasting, before and after meals, and as needed.
- ▶ This is a great time to consider getting a continuous glucose monitor (CGM) if you do not already have one.



Blood Sugar Goals

- ▶ Fasting:70-95
- ▶ 1 hour after meals: 110-140
- ▶ Or 2 hours after meal: 100-120
- ▶ Premeal: less than 95
- ▶ Middle of the night: 70-120

A1C goals:

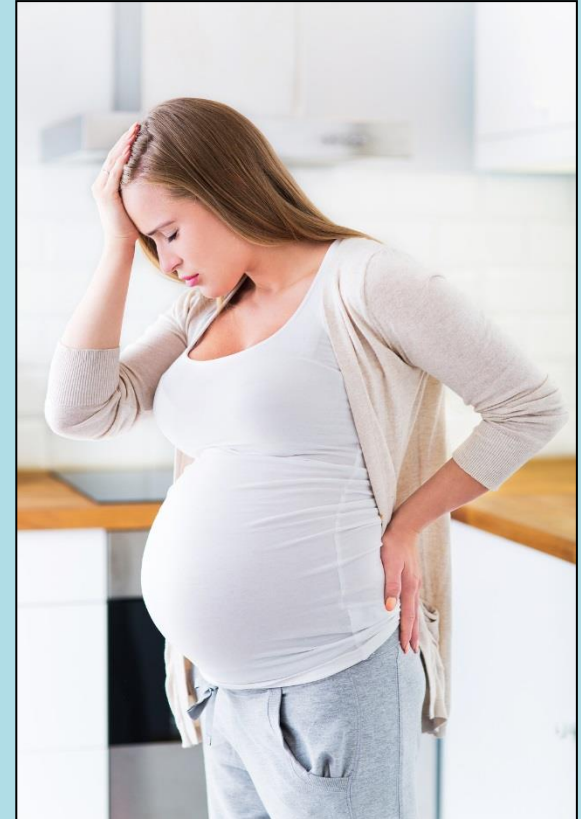
- 6-6.5%
- <7% if risk of hypoglycemia
- Main goal is to get blood sugars in range without having hypoglycemia.



Hyperglycemia (high blood sugar)

Elevated blood sugar can be caused by:

- Consuming too many carbohydrates
- Inaccurate carb counting & insulin dosing
- Lack of Sleep
- Illness
- Increased insulin resistance as pregnancy progresses
- Steroids, sometimes given if concern for a pre-term delivery.



If your blood sugars are consistently out of range, please call our office to schedule an appointment!



Hypoglycemia (low blood sugar)

Low blood sugar can be caused from taking too much insulin, not eating enough, or exercise.

1. If you feel shaky, sweaty, weak, confused or not well--check your sugar.
2. If sugar is less than 70, have 15 grams of carbohydrates. Example: fruit snacks, 1/2 cup of juice or four glucose tablets
3. Recheck blood sugar in 15 min.
4. Repeat until blood sugar is above 70 and eat a meal within one hour.
5. Treat any low blood sugars and contact MFM or your provider if you are having blood sugars less than 70.

Glucagon for severe hypoglycemia

- ▶ People who have Type I Diabetes should always have unexpired glucagon on hand. This is a medication given to treat severe hypoglycemia. It is important that you and your support people know how to use it.
- ▶ Please let our staff know if you need a prescription or training on how to administer it.
- ▶ Find information below on which glucagon is right for you.
 - ▶ Gvoke: prefilled syringe [Gvoke website](#)
 - ▶ Baqsimi: nasal spray [Baqsimi website](#)

Insulin During Pregnancy and After Delivery

Patients who have Type I Diabetes will need less insulin the first 17 weeks of pregnancy and may experience more lows during this time.

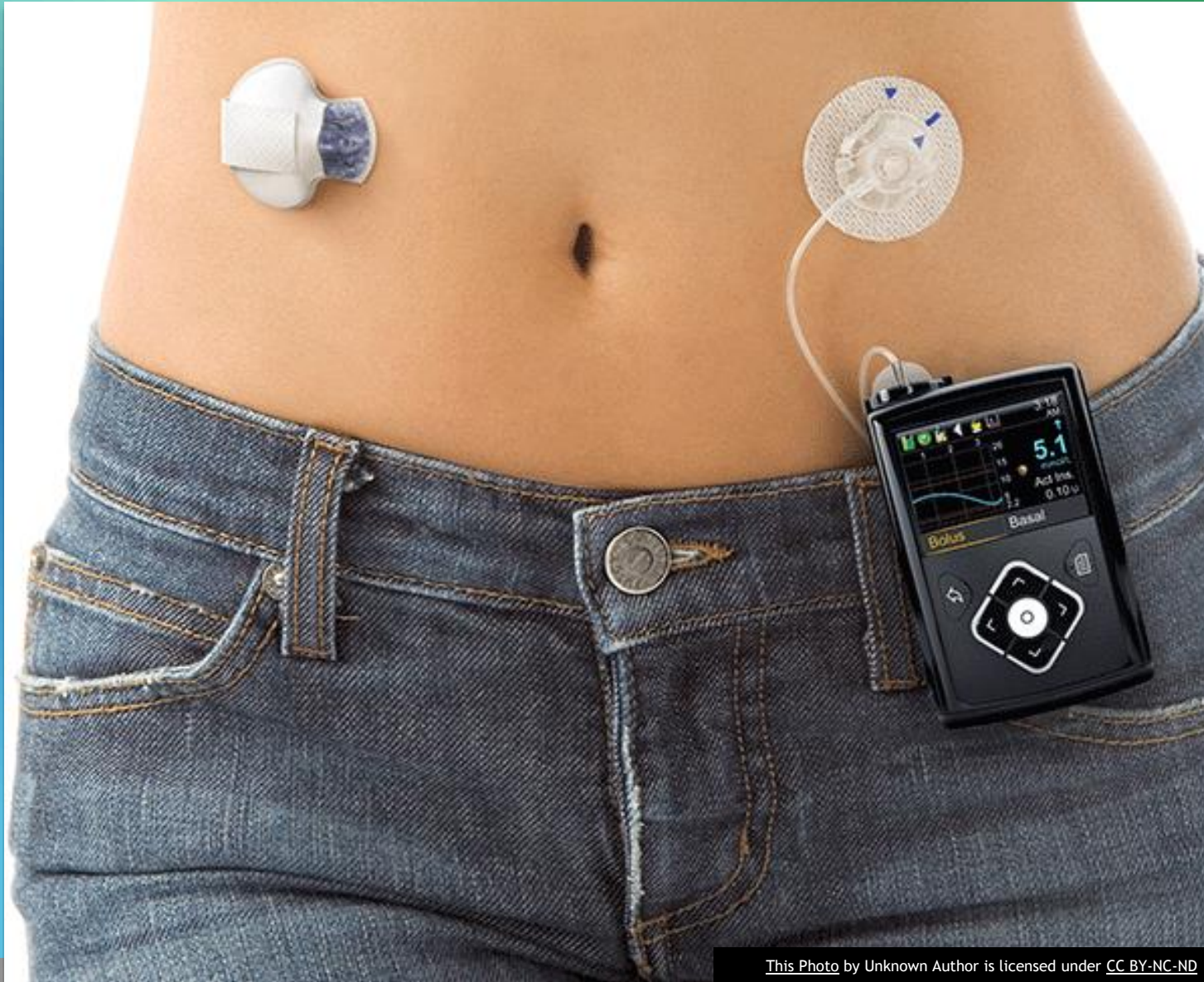
After 17 weeks, you will typically need more insulin. Sometimes adjustments will be needed each week of your pregnancy.

Many times, NPH insulin is used if you are on multiple daily injections. Our physicians will meet with you and discuss which insulin is right for you.

Patients who are using an insulin pump may continue with their pump. MFM will help with adjustments each week. You should make sure you know how to program/use your pump.

After delivery, your insulin dosages will decrease significantly. Insulin dosages should be adjusted immediately after delivery-either to ~70% of pre-pregnancy doses or to 1/2 to 1/3 of end-of-pregnancy doses.

There is an increased risk for hypoglycemia postpartum; keeping a close eye on your blood sugars will be particularly important.



Insulin pumps and CGMs

If you would like information on obtaining either of these devices, please talk with our MFM diabetes team.

Our physicians can prescribe these and order refills for diabetes supplies and medications.

CGMs are not FDA approved during pregnancy. However, they can provide good glucose data and have safety alarms for high and low blood sugars.



Diet

A healthy diet is known to decrease risks to mom and baby.

Poor nutrition can have negative effects on baby in utero and later in life.

Meeting with a dietician/nutritionist during your pregnancy is a great way to assure you are getting proper nutrition. MFM can arrange this appointment for you, if you would like.


Importance of Nutrition and Pregnancy

- ▶ According to the American Journal of Obstetrics and Gynecology, “A diet with balanced macronutrient intake provides the best chance for a healthy pregnancy and optimal perinatal outcomes. Nutritious diets are those that include ample quantities of vegetables, fruits, whole grains, nuts, legumes, fish, oils enriched in monosaturated fats, and fiber AND are lower in fatty red meat and refined grains. Furthermore, healthy diets avoid simple sugars, processed foods and trans and saturated fats.”

How Much to Eat:

- ▶ **Three Meals per day:** 45 grams of carbohydrates with a protein. Eat lots of veggies--it's a good idea to start each meal with a veggie.
- ▶ **2-3 snacks per day.** Always have a bedtime snack. Snacks should include 15-30 grams of carbohydrates and a protein. Adding veggies to your snacks is also a good way to get extra nutrients and fiber into your diet.





Nutrition Recommendations from the American Diabetes Association (ADA) on Pregnancy and Diabetes

Protein: at least 71 grams per day, and 50 additional grams if you are having twins.

Carbohydrates: at least 175 grams of carbs per day

Fiber: 28 grams per day.

Examples: beans, fruit, and veggies.

Healthy fats: 6-8 teaspoons per day, depending on your trimester. 1 tsp is about 4-5 gm of fat.

Examples: olive oil, nuts, avocado.



Carbohydrates

- Babies need carbohydrates for brain development and fetal growth. Do not restrict carbohydrates.
- This is *not* a low carb diet.
- Accurately counting your carbs and giving the correct amount of insulin for what you are eating will help with postprandial elevations.
- Regularly scheduled meals and eating similar things can help glucose control.
 - Consistency!



Eating carbohydrates

- ▶ **KEEP EATING HEALTHY CARBS**
- ▶ Choose healthy carbs such as: fruits, vegetables, beans, whole grains and whole wheat.
- ▶ Try to avoid processed foods and white products such as white rice and white bread.
- ▶ Try not to eat more than a ½ cup-1cup of pasta or rice in any meal, or more than a ½ of a large potato.
- ▶ Cereal, regardless if it's “healthy” or not, will typically cause elevations in blood sugar. This might be a food you want to avoid during pregnancy.
- ▶ Try to avoid fruit juices, sugary drinks, candy, cakes, cookies, added sugar and processed sugary snacks.

How to read a food label

- ▶ Important things to look for on a food label:
- ▶ Serving Size
- ▶ Carbohydrate
- ▶ Protein

Using a smart phone, an app or a smart home device such as an Alexa or Google Home can help in finding nutritional content in food.

Nutrition Facts

Serving Size 1 Cup (227g)
Servings per Container About 4

Amount per Serving

Calories 160 Fat Cal 80

%Daily Value

Total Fat 9g **14%**

Saturated Fat 6g **30%**

Trans Fat 0g

Cholesterol 30mg **10%**

Sodium 110mg **5%**

Potassium 370mg **11%**

Total Carbohydrate 12g **4%**

Dietary Fiber 0g **0%**

Sugars 11g

Protein 8g **16%**

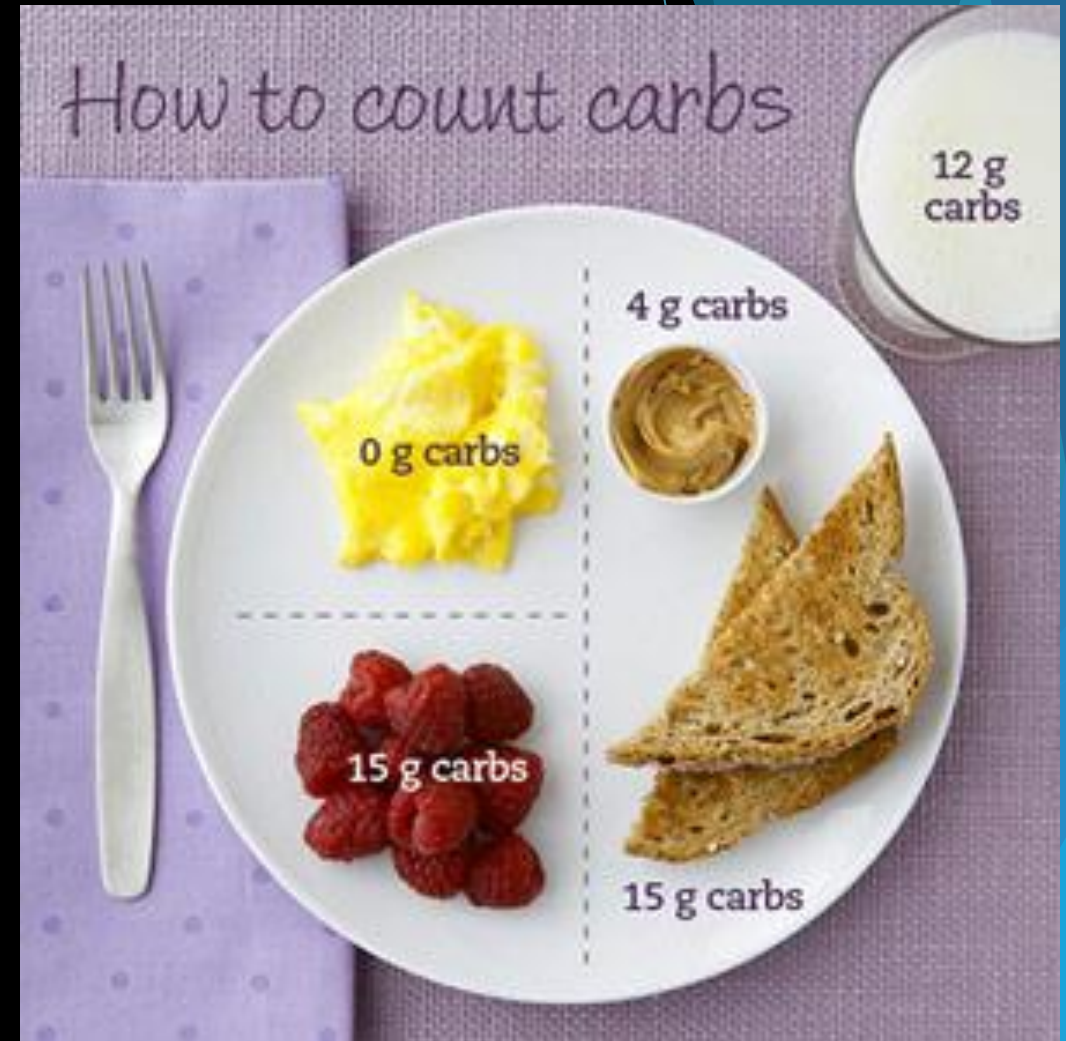
Vitamin A 8% • Vitamin C 0%

Calcium 30% • Iron 0%

Vitamin D 25%

How to Carb Count

- ▶ Count your carbohydrates.
- ▶ It is recommended to eat:
 - ▶ 45 grams of carbs at EACH meal.
 - ▶ 15-30 grams of carbs at EACH snack.
 - ▶ A pregnant woman should eat at least 175 grams of carbs each day, with 3 meals per day and 2-3 snacks per day.
 - ▶ Every meal and snack should include a carbohydrate and a protein.



Carb Counting



STARCH

One Serving = 15gm CHO / 1 CHO choice

- 1 slice (1 oz.) bread
- 1-6" tortilla
- 1/2 English muffin
- 1/2 hot dog or hamburger bun
- 1/4 bagel (1 oz.)
- 3/4 c. unsweetened ready-to-eat cereal
- 1/2 c. cooked cereal
- 1 c. broth-based soup
- 1/3 c. pasta
- 1/2 c. starchy vegetables (potatoes, sweet potatoes, yams, corn, peas, cooked beans)
- 1/4 large baked potato with skin (3 oz.)
- 3/4 oz. pretzels or potato chips
- 3 c. light microwave popcorn

FRUIT

One Serving = 15gm CHO / 1 CHO choice

- 1 small fresh fruit (4 oz.)
- 1/2 c. unsweetened canned fruit
- 1/4 c. dried fruit
- 17 small grapes (3 oz.)
- 1/2 c. unsweetened fruit juice
- 1 c. melon, raspberries
- 2 Tbsp. raisins

MILK

One Serving = 12-15gm CHO / 1 CHO choice

- 1 c. milk
- 2/3 c. plain yogurt (6 oz.)

NON-STARCHY VEGETABLES

One Serving = 5gm CHO / 0 CHO choice

- 1 c. raw vegetables
- 1/2 c. cooked vegetables
- 1/2 c. tomato or vegetable juice

SWEETS AND DESSERTS

One Serving = 15gm CHO / 1 CHO choice

- 2" square unfrosted cake or brownie (1 oz.)
- 2 small cookies (2/3 oz.)
- 1/2 c. ice cream or frozen yogurt
- 1/4 c. sherbet or sorbet
- 1 Tbsp. syrup, jam, jelly, sugar, honey
- 2 Tbsp. light syrup

Proteins

- ▶ Protein is very important to our body's function. It slows down the rate at which we digest sugar and helps to maintain a healthy blood sugar during digestion.
- ▶ Protein is highly recommended at each meal and snack. Pregnant women should eat 71 grams of protein per day. If you are pregnant with twins, you should have an additional 50 grams of protein daily.

Protein	Amount
3 oz. of Fish	19-26 grams of protein
4 oz. of Chicken	30 grams of protein
4 oz. of Beef	33 grams of protein
One Egg	6 grams of protein
Cottage Cheese ½ cup	12 grams of protein
Greek Yogurt	13-18 grams of protein
8 oz. of Milk	8 grams of protein
Protein nut bar	5-10 grams of protein
1 TBS of Peanut Butter	4 grams of protein
½ cup Lentils	7 grams of protein
2 TBSP of Chia Seeds	6 grams of protein



Some of the foods listed above may contain carbohydrates too.



Here are examples of 45-gram carbohydrate meals with a protein.

Make sure to add extra veggies to each meal. Ideally, each meal will include $\frac{1}{2}$ a plate of veggies.



Snack ideas

- ▶ Eating 6 times a day can be challenging. Here are some ideas to get you started.
- ▶ Each of the snacks below contains 15-30 grams of carbohydrates and a protein or healthy fat.

1 English Muffin with Peanut Butter

1 Large Apple with Peanut Butter

Fruit with String Cheese

Crackers and Cheese Slices

Trail Mix

3 Cups of Popcorn with $\frac{1}{4}$ Cup of Nuts

Whole Wheat Avocado Toast

Greek Yogurt Smoothie (watch carb count)

Small Whole Wheat Chicken and Veggie Wrap

1-2 Cups of Melon and $\frac{1}{2}$ Cup of Cottage Cheese

2 Graham Crackers w/ Peanut Butter and Milk

Crackers, $\frac{1}{2}$ Cup of Cottage Cheese, and Tomatoes

Wheat Toast with Cream Cheese and Cucumbers

Greek yogurt, berries and nuts

$\frac{1}{2}$ Pita with Hummus and Veggies and Nuts

Egg Salad Sandwich or Peanut Butter Sandwich

1 Protein Bar and 1 Cup of Milk



Sugar Substitutes

Sugar substitutes are found in sugar-free or diet foods and drinks. They are a sweetener added to foods and drinks that do not elevate blood sugars. Below are examples of sweeteners that have been approved in moderation during pregnancy.

- ▶ Examples: Splenda, Equal, Stevia, Sunett, NutraSweet, Newtame.
- ▶ Contact MotherToBaby if you are unsure if a sweetener or other item is safe during pregnancy.
- ▶ MotherToBaby is a helpful resource to find out the safety of medications, chemicals and substances while pregnant and breastfeeding.
- ▶ [MotherToBaby Link](#)

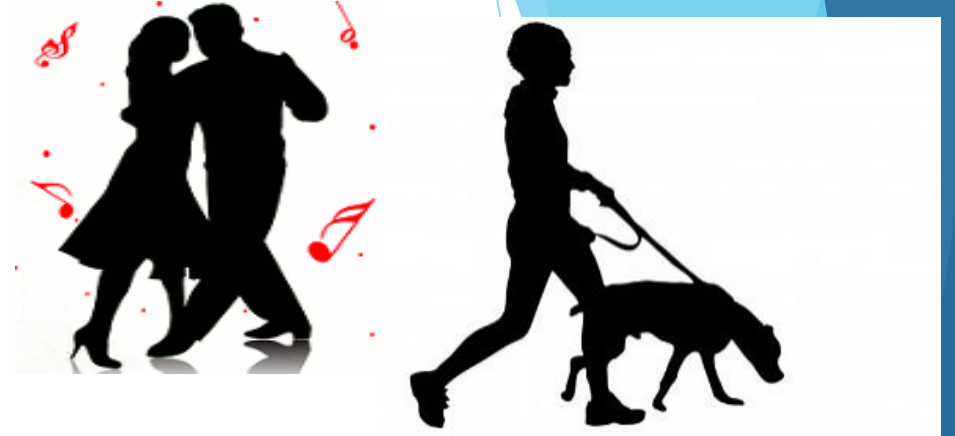
Having a routine helps!

- ▶ To keep blood sugar steady throughout the day, it is best to eat every 2-3 hours.
- ▶ Eating 3 meals a day with snacks in between can help prevent your blood sugar from dropping too low or becoming too high.
- ▶ A bedtime snack is important to make sure you have enough food to last while you are sleeping and to avoid middle of the night hypoglycemia.
- ▶ Routine is important. Eat well and get rest.



Exercise and pregnancy

- ▶ 150 minutes of exercise per week is encouraged. Examples are walking, cleaning, dancing, yoga, and exercise programs for pregnancy.
- ▶ You should not exercise if you are on bedrest, or you are on restrictions.
- ▶ Always consult your doctor before starting an exercise program.
- ▶ Schedule walks into your day. Walking for 10 minutes after eating will help decrease your blood sugars.
- ▶ Do not lift heavy weights or engage in activities where you can lose your balance.
- ▶ Always stay hydrated. If you are on medication for your diabetes, it's best to exercise after a meal or snack. Do not exercise if your blood sugar is less than 100. Keep a snack and your meter close by for symptoms of hypoglycemia.



Sick days

It is very important to monitor your blood sugars and watch for signs of Diabetic Ketoacidosis (DKA) during pregnancy. DKA can occur during pregnancy with lower blood sugars than when you are not pregnant.

Below you will find a link on sick days. Please read and familiarize yourself on what to do if you become sick.

It's always best to contact a member of your care team or go to the ER right away if you are sick and have elevated urine ketones.

▶ [Sick Day Handout from the ADCES](#)



Daily fetal kick counts

Do fetal kick counts daily starting at 28 weeks gestation

Do a fetal kick count each day.

Pick a time each day when your baby is usually active to monitor movement.

Have a something to eat and drink before starting.

Look at the clock and starting counting movements.

Make sure you feel 10 kicks in one hour. You can stop counting after 10 kicks are felt.

If you DO NOT feel 10 kicks in the hour, contact your doctor right away.

Management During your Labor and Delivery Stay

- ▶ Every laboring patient is different. It is a great idea to discuss your labor plan with your OB provider. Some patients will continue to use their insulin pump and continuous glucose monitor (CGM), while others may need an insulin IV drip and finger stick blood sugars during labor.
- ▶ If you are having a scheduled c-section or induction, please talk with our team about how to dose your insulin prior to admission to the hospital.
- ▶ Goal for blood sugars in labor is ~70-125. This decreases the risk for your baby to have low blood sugars and low oxygen levels (hypoxemia) at birth.
- ▶ Once delivered, the newborn nurse will monitor your baby's blood sugar per hospital protocol.



Follow up care after delivery

- ▶ Insulin requirements will decrease *immediately* after the delivery. Discuss new dosages with your OB while in the hospital.
- ▶ Hypoglycemia can occur postpartum. Please watch your sugars closely after delivery and the days following.
- ▶ Breastfeeding is recommended and lactation nurses are available in the hospital to help you get started.
 - ▶ If you breastfeed, your basal insulin needs may be ~15% lower than prior to pregnancy.
- ▶ Patients with Type I diabetes should resume care with their endocrinologist or primary care provider within a week or so of delivery, sooner if needed.



Thank you!

Please reach out to our staff if you have any questions or concerns.

If you have concerns after hours, please call your OB provider and follow the prompts to reach a provider after hours.

- ▶ Below is our clinic website. You will find our locations, phone numbers and other helpful information listed on our website.
- ▶ [Maternal-Fetal Medicine Specialists of the Mountain States | Pediatrix \(mednax.com\)](#)