YOUR QUICK GUIDE TO

Gestational Diabetes & Insulin Resistance

BY ASHLEY KING LM, CPM

Contents

About Me

Hey there! I'm Ashley, a Licensed & Certified Professional Midwife living in Texas.
I'm also now working towards a Certification in Perinatal Mental Health.

All those letters really mean is:

My passion is to empower women as they walk through hard.

I've been working in this birth world for more than 10 years now, and the people I've met along the way keep me going. Birth is one of the most bittersweetly beautiful and demanding things I've ever witnessed, and I've had the honor of partnering with women during some of the most joyful and darkest moments of their lives.

My hope is to educate and create beautiful content that helps women feel seen, heard and courageous enough to keep holding onto hope.

This is for you my friend.

ashley

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Dear Mama,

If you're reading this packet, you're either at risk for/have just been diagnosed with Gestational Diabetes or you are struggling with insulin resistance. The good news is - there are lots of options, and the majority of women do really well at managing their Gestational Diabetes without prescriptive intervention!

Being diagnosed with Gestational Diabetes is not your fault, but that knowledge doesn't take away some of the fear and overwhelm that can often accompany the diagnosis. You're pregnant, working hard to grow a healthy baby, and now someone has just handed you a new list of things to do.

So first, take a deep breath. This IS a lot, but you DO have a team that is committed to supporting you all the way!

We put together this packet to put an easy reference tool in the hands of all our pregnant mamas and their families as they navigate Gestational Diabetes.

Its important to note here that this packet is not an all-inclusive, in-depth resource. **We don't want to reinvent the wheel**, so our notes are brief and meant to be used only as a quick reference guide for our clients. Knowledge is power, and so to help round out your understanding **we require that all clients newly diagnosed with GDM read the book Real Food for Gestational Diabetes by Lily Nichols.** Her book, in coordination with information provided here, gives you the best chance at success!

As you move through all the information, take notes of things that stick out to you and write down questions that come up.

Take one day at a time, just doing the next right thing. Pretty soon, these changes and new habits will become part of the rhythms of your day and take up less and less of your mental energy.

We've got your back.

How to Use This Guide

Order or borrow a copy of, *Real Food for Gestational Diabetes* by *Lily Nichols RDN*. Begin reading as you get your journey started.

Anytime you see this icon, be sure to go back and reference Lily's book.

Anytime you see this icon, click on the referenced link to be taken to more information.

Important Disclaimer & Consent

The booklet is *not* to replace recommendations, protocols or instructions from **your personal healthcare provider.** This information was written for my personal clients to reference according to our Practice Policies. You should discuss all information with your healthcare provider before making any changes to your diet, supplements or activities.

The information contained herein is provided for educational purposes only. It is not meant to replace professional medical advice, diagnosis, or treatment. Any attempt to diagnose and treat a medical condition should be done **under the direction of a healthcare provider or physician.** For any medical conditions, each individual is recommended to consult with a healthcare provider before using any information, idea, or products discussed. **Neither the authors nor the publisher shall be liable or responsible for any loss or adverse effects allegedly arising from any information or suggestion in this book.** While every effort has been made to ensure the accuracy of the information presented, neither the authors nor the publisher assumes any responsibility for errors. References are provided for information purposes and do not constitute endorsement of any websites or other sources. Readers should be aware that the websites listed here and in the book may change.

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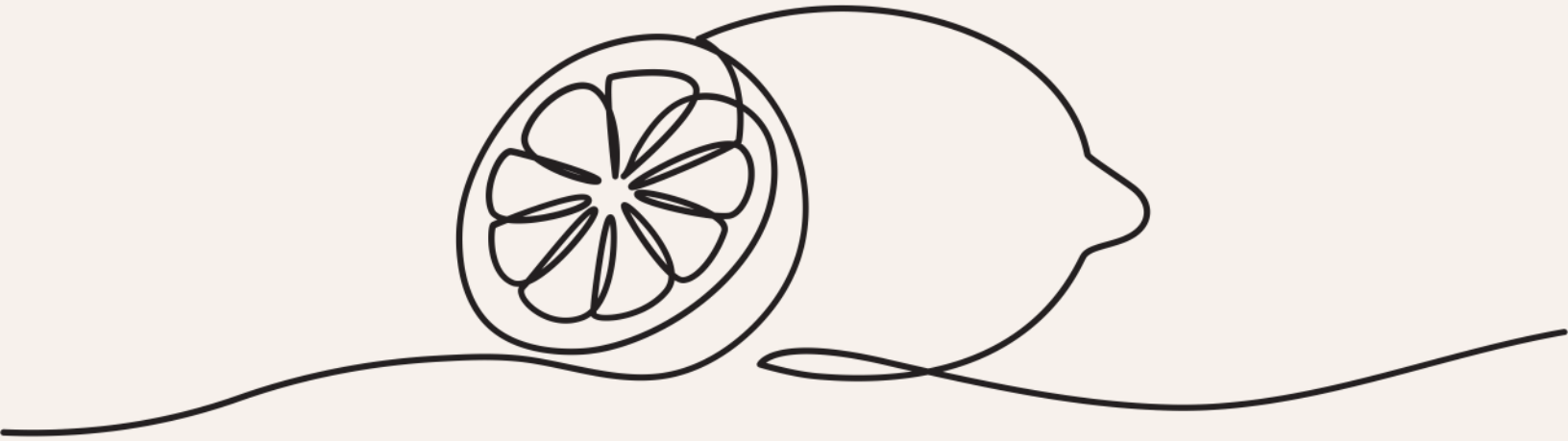


01

About Gestational Diabetes & Insulin Resistance

How the Body is *Supposed* To Work

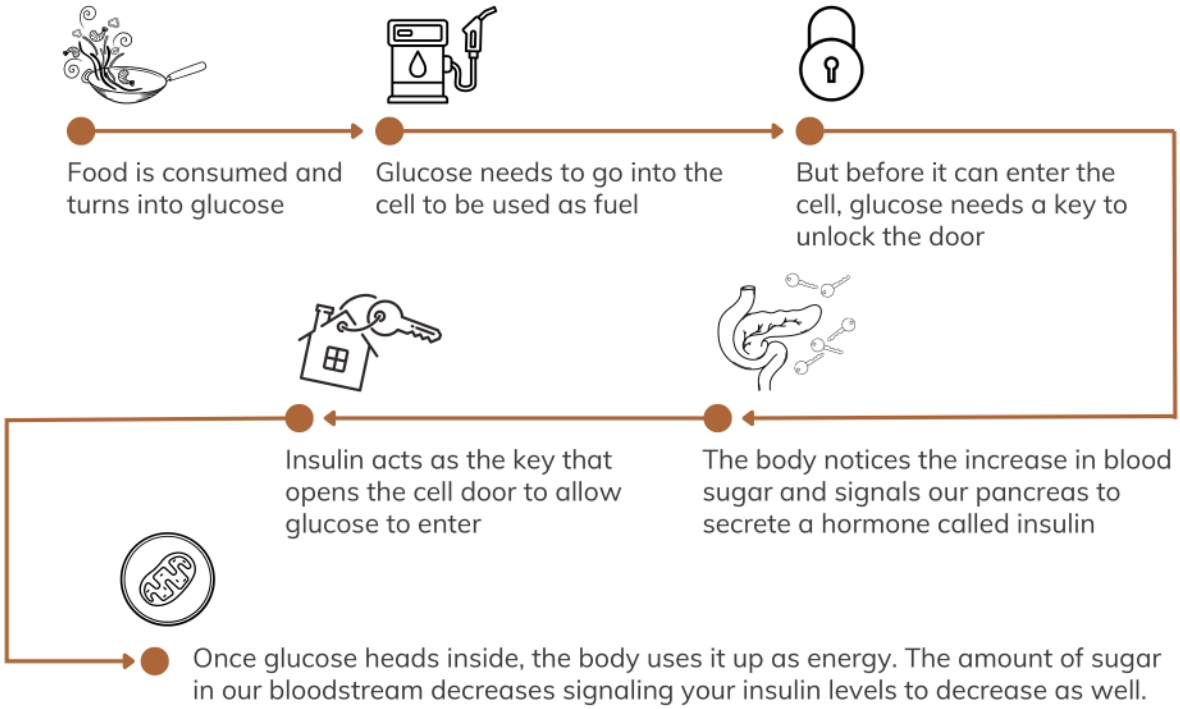
To understand Gestational Diabetes Mellitus (GDM), its important to understand how the body is *supposed* to work under normal conditions.

When we eat, our food gets broken down by the body. The sugar and starches are then turned into glucose which the body uses as fuel (energy). Glucose is the main source of energy for the cells, and because you are made up of billions of them - you want the cells to get the fuel they need!

If glucose stays in the blood at increasing levels for prolonged periods, it can cause some serious damage to your organs. To get that glucose out of your bloodstream and into the cells where it belongs, you need a key to open the cell door.

Insulin, a hormone secreted by the pancreas, is that **key**.
Insulin escorts glucose to the door of the cell, unlocks the door, and glucose heads inside.

The Body's Roadmap



Diabetes occurs when the body's roadmap gets interrupted. In Type 1 Diabetes, you lack enough insulin. (i.e. the factory isn't producing enough keys). For some people, you might be producing enough insulin keys, but the lock is defective and insulin can't open the door. In an effort to get the door open, your pancreas releases more and more insulin until one of the keys finally works. This is called **Insulin Resistance.**

Insulin resistance occurs when cells in your body don't respond well to insulin and can't clear the glucose from your blood. The pancreas produces more and more insulin to help glucose enter the cells. As long as your pancreas is able to keep ahead of your cells' weak response, you blood glucose will stay in a safe range.

If Insulin Resistance continues unchecked, your pancreas can't keep up and gets exhausted. Your blood sugar rises...setting the stage for pre-diabetes and Type 2 Diabetes.
As the backlog of blood sugar waiting to get into the cells increases - it can begin damaging organs.

Our body attempts to put that excess sugar in storage. When the storage units in our liver and muscles are full, our body begins to store the extra sugar as fat. Which causes weight gain.

What is Gestational Diabetes?

Gestational Diabetes Mellitus (GDM) is a type of diabetes that occurs specifically in pregnancy, affecting up to 10% of pregnancies in the United States.

During pregnancy, the placenta supports the baby as it grows and produces a variety of hormones to maintain the pregnancy.

The problem is, these hormones also have a habit of blocking insulin which usually begins about 20-24 weeks of pregnancy. As the placenta grows, these hormones increase and the risks of insulin resistance become greater.

Normally the pancreas is able to keep up production to overcome insulin resistance. However when the production of insulin is not enough to overcome the effect of the insulin-blocking hormones, gestational diabetes results.

So What's the Big Deal?

If Gestational Diabetes remains untreated or poorly controlled, there can be significant risks to your baby.

As your pancreas is working overtime to produce insulin, the insulin doesn't lower your blood glucose levels.

While insulin itself does not cross the placenta, glucose *does*. The extra glucose goes through the placenta, giving the baby high glucose levels.

Risk Factors for Developing Gestational Diabetes

- ✓ Obesity
- ✓ Being over the age of 25
- ✓ Family History of Diabetes
- ✓ A history of PCOS or pre-diabetes
- ✓ Having GDM in a previous pregnancy
- ✓ Giving birth to a previous baby weighing more than 9lbs
- ✓ Race: women who are African-American, American Indian, Asian American, Hispanic or Latino, or Pacific Islander have a higher risk

This causes baby's pancreas to also produce extra insulin in an attempt to get rid of the blood glucose. Since the baby is getting more energy than it needs to grow, the extra energy is stored as fat.

This process can cause your baby to grow excessively large, also called macrosomia. Babies with macrosomia face health challenges of their own, including shoulder dystocia at birth. The extra insulin made by the baby may also cause them to have very low blood sugar at birth called hypoglycemia.

Children who are born to mothers who had uncontrolled gestational diabetes face a six-fold higher risk of developing type 2 diabetes by the time they turn 13.

Risks of Uncontrolled GDM for Baby

- ✓ **Macrosomia (weighing more than 9lbs) possibly making baby too big to fit through the pelvis, increasing risk of C-section**
- ✓ **Shoulder Dystocia (head is born but sholders unable to fit through pelvis in a timely manner leading to possible paralysis or death)**
- ✓ **Premature Birth**
- ✓ **Respiratory Distress at birth**
- ✓ **Hypoglycemia (low blood sugar, which if untreated can lead to seizures, coma & death)**
- ✓ **Stillbirth**

The GDM Roadmap

Food is consumed and turns into glucose

Glucose needs to go into the cell to be used as fuel

But before it can enter the cell, glucose needs a key to unlock the door

The body notices the increase in blood sugar and signals our pancreas to secretes a hormone called insulin

Insulin acts as the key that opens the cell door to allow glucose to enter

The placenta produces hormones which block insulin from doing it's job well (insulin resistance)

Pancreas cannot keep up with demand, blood sugar levels rise, resulting in GDM

If GDM is poorly controlled or untreated, the glucose levels continue to rise and cross the placenta to baby

Baby's pancreas produces extra insulin to try and lower glucose levels.

To attempt to compensate, the extra glucose gets stored as fat...which causes baby to grow excessively large.

How do you test for Gestational Diabetes?

Because of the insulin resistance-like effect of pregnancy hormones, it is recommended that pregnant women are screened for Gestational Diabetes between 24-28 weeks.

Testing traditionally involves drinking a measured glucose drink and drawing your blood 1 hour later to see how high your blood glucose levels are. There are different types and stages of testing, so it is important to talk to your provider about your evidence-based options.

Lily Nichols, a renowned nutritionist helping to change the outdated GDM standards in the U.S., has a blog post about testing options and alternatives. You should also check out The Fresh Test!

DID YOU KNOW?

There is a myth that an acceptable alternative to testing is the Hemoglobin A1c.

The A1c is ***only*** helpful as a screening tool in ***early*** *pregnancy*.
Even if you have a good A1c in early pregnancy, you should still be evaluated for GDM at 24-28 weeks

It ***can not*** be used in place of the standard testing, as the A1c will drop mid-pregnancy and underreport your glucose numbers.

How is Gestational Diabetes Treated?

If you are diagnosed with Gestational Diabetes, the first step for management involves keeping a diet log and tracking your blood glucose levels at home. Working with your provider and/or a nutritionist, you will begin adjusting your diet to keep your glucose levels within a specific range of normal.

You will continue at home blood glucose monitoring and diet logs for the remainder of your pregnancy.

If diet changes and monitoring do not ensure safe blood glucose levels, you may require medication to help manage your glucose levels and minimize risks

to you and your baby. Most recent studies show that an estimated 15% of all Gestationally Diabetic women will require medication to manage their glucose levels. In addition to dietary and lifestyle changes, you may also have co-care visits with a Maternal Fetal Medicine specialist who will perform more frequent sonograms throughout the third trimester to ensure the baby is doing well.

Does Gestational Diabetes risk me out of midwifery care?

The good news about the above statistic is that 85% of women ***will*** be able to manage their GDM diagnosis through dietary and lifestyle changes!

In the state of Texas, as long as your glucose levels can be controlled without the use of insulin - you can continue with your out of hospital birth plans. If your status changes, or a new risk factor is discovered during your follow up scans, a hospital birth may be needed for the safety of you and your baby. If this becomes necessary, your midwife will work with you to transition to this new plan of care.

*If you live outside of Texas, be sure to ask your provider what the midwifery laws are in your home state.

A Common Misconception

I occasionally encounter women who report that they do not need glucose testing because they do not have any of the listed risk factors and/or they are healthy eaters.

While limiting your risk factors **does** improve your chances of testing negative, it is important to remember that **100% of pregnant women are dealing with some form of insulin resistance because of the hormones produced by the placenta.**

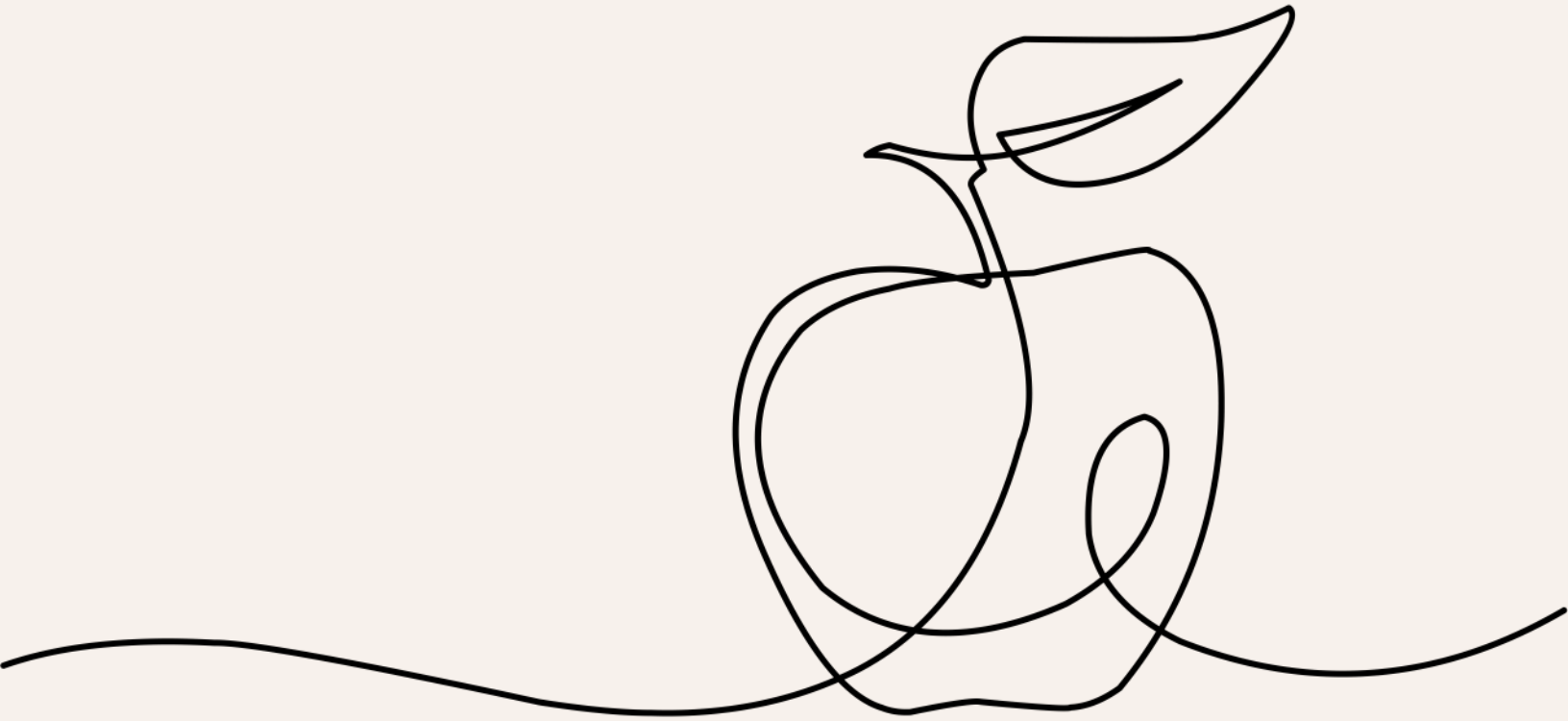
Am I still at risk if I test negative on my glucose screen?

While testing negative is a good sign, it is important to remember that insulin resistance is still a player throughout pregnancy for **every woman**.
It is best to continue eating a healthy diet and limit excess sugar intake. We recommend you read Lily Nichols book, *Real Food for Pregnancy*.

In our practice, if you barely pass your glucose test I generally recommend that you complete 7 days of diet logs and at home blood glucose monitoring in addition to beginning a supplement called Ovasitol. This can help you discover exactly how your body is reacting to certain foods *and* alert you to any potential triggers while Ovasitol helps improve your insulin resistance. (*don't worry! more info on Ovasitol later!*)

It can also be helpful to repeat this at home tracking by 34 weeks to screen for late-onset gestational diabetes.

Ask your provider what the testing cutoff is, what your result was, and what her practice protocols are.



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Diet Log & Glucose Monitoring

Read Chapter 2 of *Real Food for Gestational Diabetes*

Getting Started With At Home Monitoring

While this information can feel overwhelming, we promise you'll get the hang of it! It is important that you are consistent and as accurate as possible with your tracking. These diet logs are how your provider can help you the most, and the more information - the better! Your provider will review these logs with you to help determine if there are any triggers or troubleshooting that needs to be done in order to get your glucose numbers within an acceptable range.

Grab a journal, purchase a Gestational Diabetes logbook, or use one of the PDFs at the end of this packet to track your food and blood sugar readings. It takes time to build new habits, so pick a system for tracking and stick with it. You've got this!

Supplies Needed

- Glucometer: Contour Next (highest rated for accuracy)
- Glucometer Test Strips & Lancets (should match meter, often sold as set)
- Logbook or PDF (to track food/drink and blood glucose readings)

How to Track Your Blood Glucose

1. Test your blood sugar first thing in the morning. This is called your **Fasting Glucose**. Write this reading with the time at the start of today's journal entry.
   Goal Reading: <90 mg/dL

2. Log everything you eat/drink. You may use a version of the sample below, create your own, or make copies of the chart provided in the PDF linked above.

3. Test your blood sugar exactly 2 hours after each meal.
   Goal Reading: <120 mg/dL

Sample Daily Diet Log

Date: 8/1/22

- Fasting Glucose: 86 (8:00am)

- Breakfast: 8:45am
  2 eggs, 1 piece of bacon, 1 slice of whole grain, low carb toast
  Blood Glucose: 107 (2 hours after meal)

- Snack: 10:45am
  ¼ C. nuts, small apple

- Lunch: 12:45pm
  Salad with fresh greens, tomatoes, ¼ c. grated cheese, cucumber, ⅓ c. turkey
  Blood Glucose: 103 (2 hours after meal)

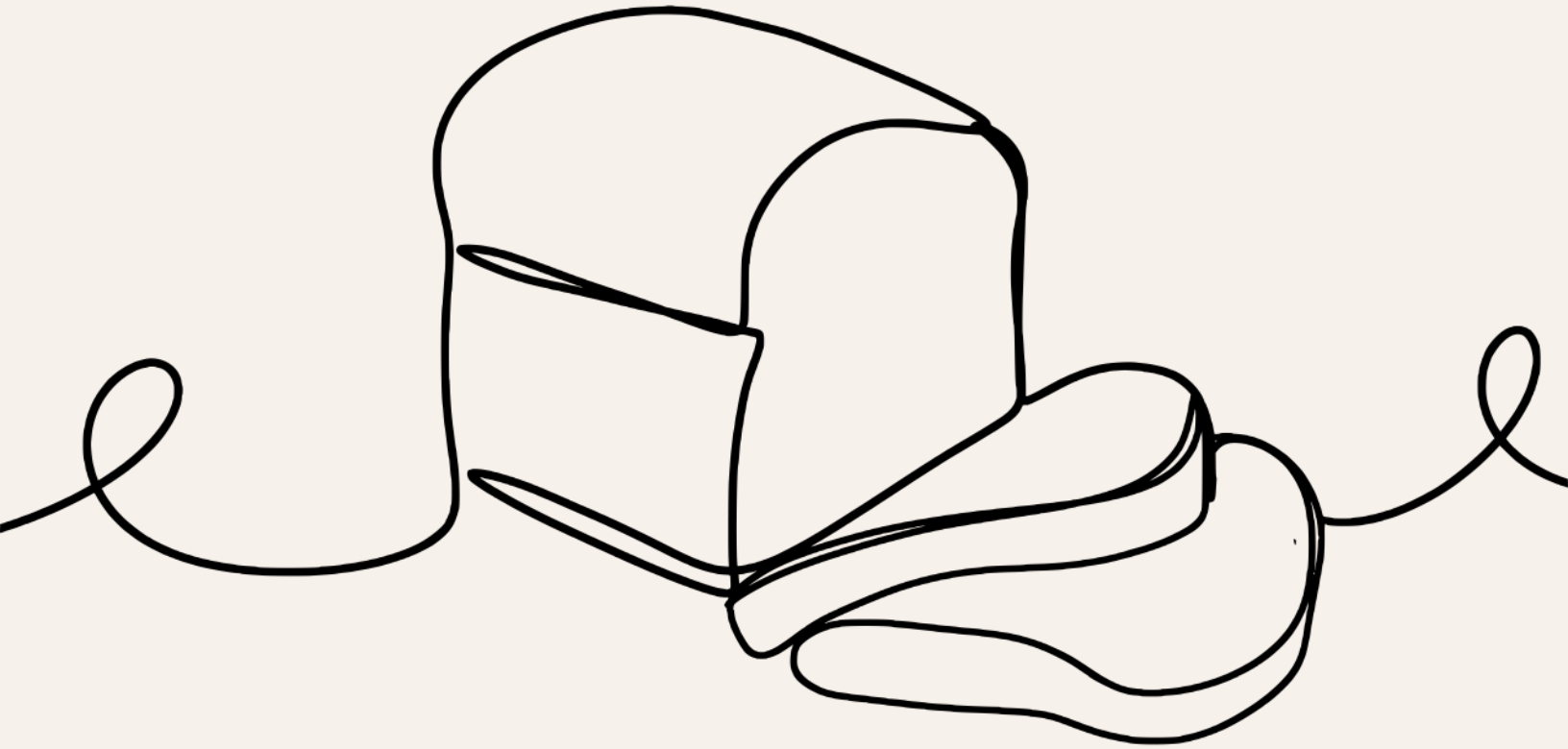
- Snack: 4:00am
  8 raw baby carrots, 3T. Hummus

- Dinner: 7:00pm
  4 oz. chicken breast, ½ c. green beans, ⅓ c. brown rice
  Blood Glucose: 110

- Bedtime Snack: 10:00pm
  ½ oz. Cheese, 1 slice of Turkey

*You do not have to do finger sticks after snacks, but you should write down time and details of any snacks you have so that we can see how your body is responding overall. Blood glucose readings are only required in the morning after fasting (for at least 8 hours) and two hours after each meal.

Blood Glucose Goals During Pregnancy	**Fasting Glucose: < 90** **2 Hours After Meal: < 120**



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Nutritional Recommendations

Read Chapters 3, 4 & 5 of *Real Food for Gestational Diabetes*

Eat every 3 hours or so to keep your glucose levels more stable throughout the day (and night!). You'll note that there is also a bedtime snack listed in the sample log above - and this can be very important for most women. At night, you'll be fasting for at least 8 hours. If your blood sugar goes on a "roller coaster ride" overnight, you might have a higher than normal blood glucose level in the morning. By having a snack of protein and fat about an hour before bedtime, your blood sugar levels stay more even throughout the night and can help your fasting numbers stay within range.

What to Focus On

- **Protein** - a minimum of 80 grams a day; pairing your carbs with protein!
- **Carbohydrates**
- **Healthy Fats**
- **Hydration** - Studies show that dehydration can cause elevated glucose readings. Aim for 100 ounces of water a day, adding more when exercising

What to Avoid

- **Foods high in sugar (added or naturally occurring)**
- **All sodas, sweet drinks and candy**
- **Starchy vegetables**
- **Refined Carbohydrates -** anything made from white flour (bread, pizza, pasta, noodles, crackers, chips, etc), breakfast cereal, white rice or potatoes, "instant" products like rice, ramen, potatoes or quick oats.

Know the Glycemic Index

The Glycemic Index rates carbohydrates by how quickly and how much they raise blood sugar, on a scale of 1-100.
Lower glycemic foods have higher amounts of fiber, vitamins and minerals. Because of their high fiber content, these foods are digested slowly and have a more gradual impact on blood sugar.

Nutrients to Help Manage Blood Glucose Levels

magnesium

Required for the proper function of insulin receptors

SPINACH

AVOCADO

YOGURT

PUMPKIN SEEDS

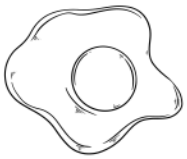
CHARD

chromium

Helps balance blood sugar, prevents sugar cravings

BROCCOLI

CORN



EGG YOLK

SWEET POTATO

OATS

chlorophyll

Cleansing effect on the blood, boosts immune system

WHEAT

BROCCOLI

SPINACH

KALE

PARSLEY

fiber

Slows down sugar absorption & carb breakdown

BROCCOLI

CELERY

CABBAGE

RASPBERRY

ORANGES

04

Supplement & Lifestyle Recommendations

Read Chapters 6 & 7 of *Real Food for Gestational Diabetes*

Supplements

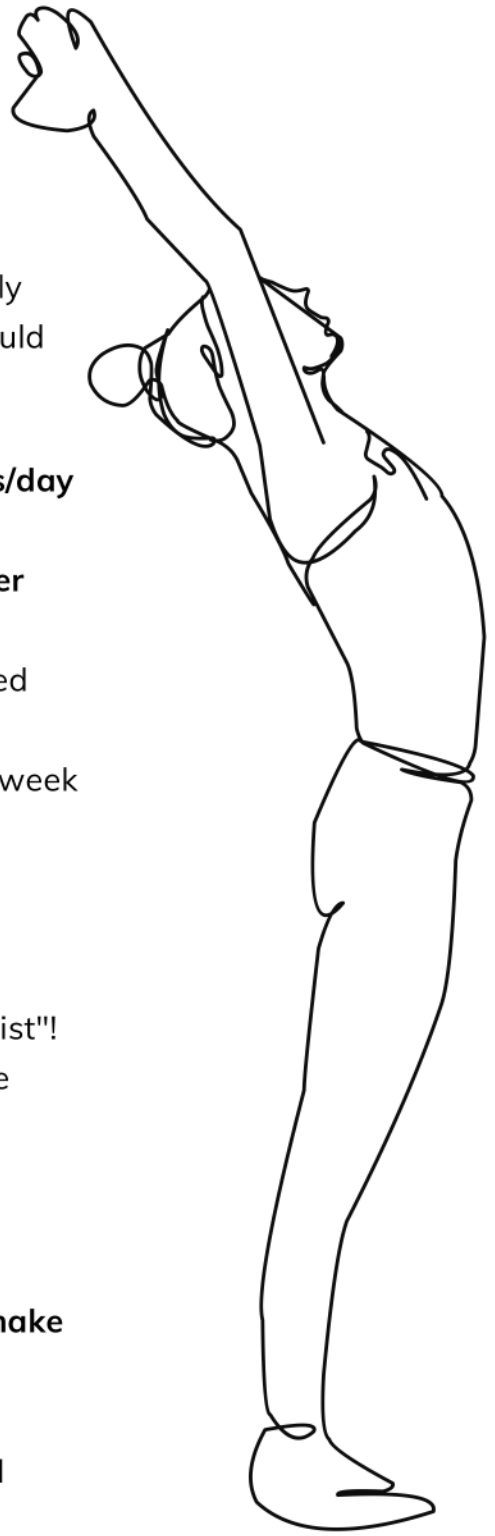
There are some supplements that show incidences of supporting blood glucose regulation and insulin sensitivity. We recommend starting these supplements immediately and tracking when you take them. Please discuss with your midwife any questions you may have.

Ovasitol from Theralogix - 2 pkts or scoops a day (2,000mg / twice a day)
This is our preferred brand of Inositol as the quality is high, it is the correct 40:1 ratio of the two types of Inositol, and also is simpler to take as you only need a twice daily dose. The powder is odorless and tasteless, simply mix into your drink! This product only comes in a three month supply, thus the higher starting price. **To get a discount, you can enter the following code in the PRC Box at Checkout: 678130**

Chromium Picolinate - 200mg / twice a day
Glucose Regulation Complex by Shaklee is an often recommended brand that includes not only the correct Chromium Picolinate dosage, but other minerals that support blood glucose regulation as well.

Apple Cider Vinegar - 1-3 tsp before each meal
If you are struggling with higher fasting numbers, you can also include a dose before bedtime with your bedtime snack.

Vitamin D - see provider for exact dosing
Studies show if your Vitamin D levels are < 20 that you may be at higher risk of GDM. The same study showed that supplementing with Vitamin D, particularly in women with a higher BMI, can improve outcomes.



Exercise

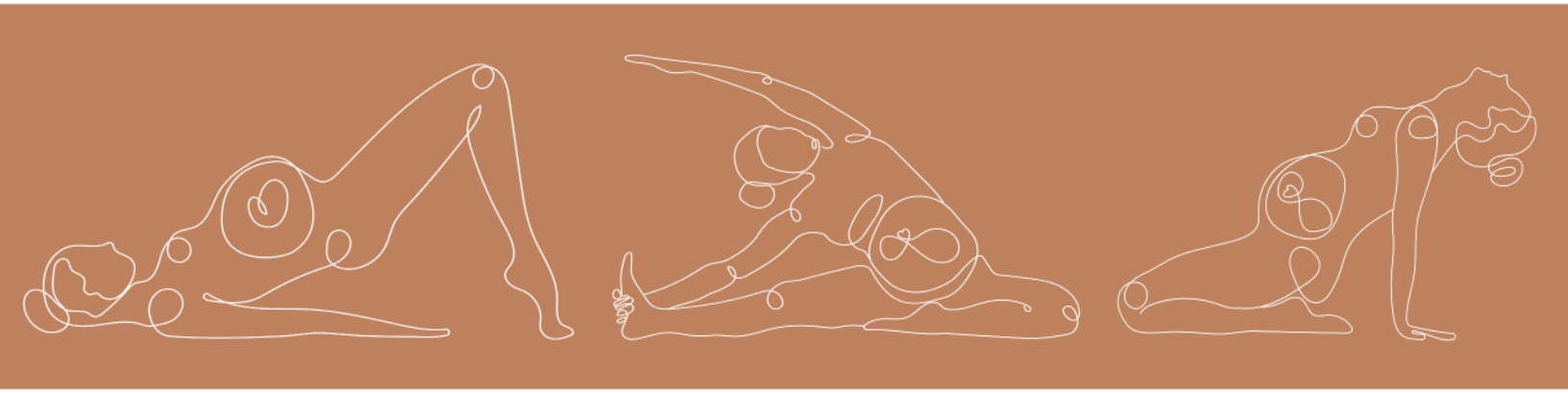
Countless studies show blood glucose readings significantly improve when exercise is added into the regimen. This should be part of your daily plan of care.

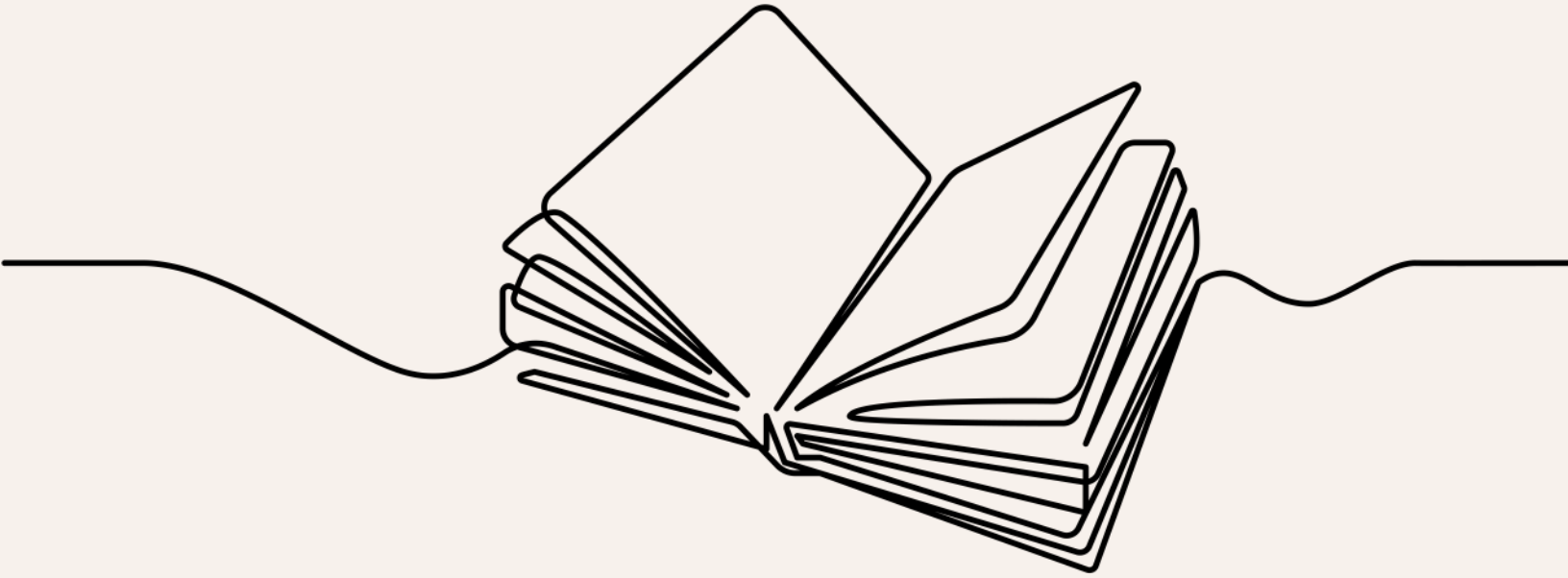
- **Increase heart rate for at least 30 minutes, 1-2 times/day**
- **If fasting numbers are high, go for a walk after dinner**
- **Resistance weight training** can provide more sustained glucose control - Women who used resistance band exercise training at a moderate intensity three days a week had improved glucose control.

Set Yourself Up for Success

You already have a busy life, now you have a GDM "to do list"! Consider some of the following tips to make your life a little easier.

- **Skim Pinterest for recipes and meal prep ideas**
- **Keep snacks handy in your car, purse and office to make sure you are eating the right things on time.**
- **Join an online GDM support group for tips, tricks and ideas!**





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Resources & Log Sheets

Books

- Real Food for Gestational Diabetes *by Lily Nichols RDN*
- The Ultimate Gestational Diabetes Log Book *by Ashley King (available on Amazon)*

Online

- Lily Nichols Website: www.lilynicholsrdn.com has educational videos, free printables as well as up-to-date blogs with information for moms
- Real Food for Pregnancy E-Cookbook https://shop.lilynicholsrdn.com/collections/all
- Evidence On: Induction for Gestational Diabetes *https://evidencebasedbirth.com/evidence-on-induction-for-gestational-diabetes/*

Podcasts

- The Birthful Podcast, episode with Lily Nichols RDN
- The Optimal Body Podcast: Ep. 215 Updated Nutrition for Pregnancy & Gestational Diabetes

Citations & Research

When viewed as a digital PDF, the links below are clickable for easy reference. If not reading via digital PDF, you may copy the titles and paste them into your browser for review.

- Alternatives to the Glucose Test
- Investigation of the Accuracy of 18 Marketed Blood Glucose Monitors
- Diagnosing Gestational Diabetes: The NIH Consensus Conference
- The effect of vitamin D supplementation on gestational diabetes in high-risk women: Results from a randomized placebo-controlled trial
- Gestational Diabetes UK Blog
- The effect of different doses of vitamin D supplementation on insulin resistance during pregnancy
- Exercise guidelines for gestational diabetes mellitus.
- Resistance exercise and glycemic control in women with gestational diabetes mellitus
- Sufficience serum vitamin D before 20 weeks of pregnancy reduces the risk of gestational diabetes mellitus

WEEKLY FOOD & GLUCOSE LOG

NAME:_____

DATE	FASTING	BREAKFAST	BG	SNACK	LUNCH	BG	SNACK	DINNER	BG	BEDTIME SNACK

DAILY DIET LOG & GLUCOSE READINGS

BREAKFAST

SNACK

LUNCH

SNACK

DINNER

SNACK

BREAKFAST

SNACK

LUNCH

SNACK

DINNER

SNACK

Ashley King is a Licensed Midwife, living in Texas, who loves all things caffeine, people and words.

When she's not catching babies, you can find her listening, writing or telling the latest Netflix-documentary-worthy life story.

Or in therapy. Just depends on the day.

You can find more info over at her website: www.ashleylking.com