

Gestational Diabetes



Diabetes Care Guelph

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What is Gestational Diabetes?

- Gestational diabetes is a type of diabetes that occurs during pregnancy. It often happens during the second half of pregnancy, between 24 weeks (month 6) and 28 weeks (7 months). (American Diabetes Association, 2013)
- After your baby is born, blood sugars usually return to normal and you will no longer have gestational diabetes. (Nohira, 2006)



Did you know that 7% of women develop gestational diabetes in Canada?
(Canadian Diabetes Association Practice Guidelines Expert Committee, 2008)

What does Gestational Diabetes mean?

Diabetes means that the sugar in your blood is higher than it should be. The goal in managing gestational diabetes is to keep blood sugar levels as near to normal as possible. High blood sugars can impact baby's growth and development. (Obenshain, Adam, King, et al. 1990)

What causes gestational diabetes?

During pregnancy, hormones that are produced by the placenta can cause "insulin resistance", making it is less effective. Insulin is a hormone that controls blood sugar.

As a result, your body needs more insulin to do the same amount of work. If your body can't make enough insulin, sugar builds up in your blood.

In the 2nd half of your pregnancy, if there is not enough insulin or it isn't working well, the sugar in your blood becomes too high. (Hadden, 2000)

What are the risks?

When you are pregnant, if you have higher blood sugar, your baby will have higher blood sugar too. As a result the baby will producing more insulin and store this extra sugar as fat. This makes your baby grow larger. Extra sugar can also affect the development of baby's lungs, liver and other organs. (Ray, O'Brien, Chan, 2001)

Risks to you:

- Large birth weight
- Type 2 Diabetes later in life (Kim, Netwon, Knopp, 2002)

Risks to baby:

- Birth injuries due to large birth weight
- Diabetes for baby as an adult
- Low blood sugar

After birth, the extra insulin your baby was making continues to work. This could cause a drop in blood sugar. (Obenshain, Adam, King, et al. 1990)

- Immature lungs (If delivery is early, baby's lungs can be immature. Uncontrolled blood sugars contribute to early delivery)
- Infections: Bacteria loves sugar! You are more likely to have infections such as urinary tract infections when you have higher blood sugars

Insulin

For some women, even with healthy eating and physical activity their blood sugars remain high. It is common for women with gestational diabetes will need insulin injection(s) to help get their blood sugars in target. (Hadden, 2000)

What about the future?

Having gestational diabetes does put you at a higher risk of developing type 2 diabetes in the future. You can help delay or prevent this by:

- ✓ Breastfeeding your baby
- ✓ Keep eating healthy
- ✓ Keep your weight at a healthy level
- ✓ Exercise regularly

You will need to be screened for type 2 diabetes

- 3-6 months after delivering your baby
- when you are planning another pregnancy
- every 3 years (or more often depending on risk factors)
(Kerimoglu, Yalvac, Karaltincaba, et al. 2010)

Managing your GESTATIONAL DIABETES

- 1) Test your blood sugars
- 2) Test for ketones (if necessary)
- 3) Take insulin if required
- 4) Follow meal plan/healthy eating
- 5) Regular follow up with your care team

(Rizzo, Metzger, Burns, et al. 2010)

Monitoring Your Blood Sugars and Sugar Targets during pregnancy

When do you need to check your blood sugar?

Up to 4-7 times as directed by your care team:

- Fasting blood sugar (fbs): first blood sugar you test in the morning – before eating or drinking anything
- Before meals: before eating your meal – breakfast, lunch and supper
- 1 hour after meals **OR** 2 hours after meals
- Bedtime: before going to bed – Try to check this 1-2 hours after your evening snack or right before your evening snack if you plan on going to sleep right after

Blood Sugar Targets During Pregnancy

Fasting blood sugar: Less than 5.3mmol/L

1 hour after meals: Less than 7.8mmol/L

2 hour after meals: Less than 6.7mmol/L

HbA1C: Less than 6.0%

(de Veciana, Major, Morgan, et al. 1995)

Exercise Management

Physical activity has an important role on how insulin is produced, how insulin works in your body and how sugar is processed. Exercise is helpful as part of the treatment plan and helps to improve blood sugars.

Please check with your doctor, OB or midwife with any concerns before starting new exercises while pregnant.

If you have previously been active, you should be able to continue with your exercise routine to maintain a good fitness level during pregnancy. Pregnancy is not a time to reach peak fitness or train for competition.

If you have previously been inactive, it is recommended to wait until the start of your second trimester before becoming active. You can follow the outline below to get started

FREQUENCY:

Begin at 3 times per week and progress to 4 times per week.

INTENSITY:

Exercise within the somewhat hard target heart rate zone. Use the 'talk test'

TIME:

Attempt 15 minutes, and increase by 2-5min/week until at 30min/session

TYPE:

Non weight-bearing or low-impact endurance exercise using large muscle groups (e.g., walking, stationary cycling, swimming, aquatic exercises, low impact aerobics)

Exercising while lying on your back should be avoided after the first trimester.

(Kitzmilller, Block, Catalano, et al, 2008)

Healthy Eating During Pregnancy

Your Registered Dietitian can help you make healthy food choices for you and your baby during your pregnancy (Franz, 2002). Often, dietary changes can help with blood sugar control.

Carbohydrates are sources of energy found in a variety of foods. Carbohydrates break down into sugar in our body and are essential for adequate nutrition and optimal baby growth. Because they contain sugar, portions are important to ensure they do not raise blood sugar too high.

Sources of Carbohydrates

Grains & Starches

Breads, bagels, buns, cereals, crackers, rice, pasta, corn, potatoes, chapatti

Fruit

Banana, apples, pears, citrus fruit, pineapple, plums, berries, dried fruit, juice

Milk & Alternatives

Milk, yogurt, almond milk, soy milk, lactose free milk, chocolate milk

Sweets, baked goods, snack foods

Muffins, donuts, cookies, ice cream, jam, granola bars, popcorn, pretzels, chips

Carbohydrates raise blood sugars so it is important to have them throughout the day – having some each time you eat (Franz, 2002).

Your Dietitian will help you decide how many grams of carbohydrates to have at each meal and snack. It is recommended that you have a minimum of 130-175g of carbohydrates each day (Institute of Medicine, 2002).

Carbohydrate (g)
Breakfast
Snack
Lunch
Snack
Dinner
Snack

In addition to portions of carbohydrates, food combinations are important for blood sugar control. Protein, vegetables, and fats do not raise blood sugars and can help control blood sugars between meals. Protein is especially good at this. It is recommended to pair protein with carbohydrates at all meals and snacks.

Sources of Protein

Animal: beef, pork, poultry, fish, eggs

Dairy: cheese, cottage cheese, paneer, greek yogurt

Plant: nuts, seeds, nut butters, beans, lentils, legumes, tofu, tempeh

Balanced Snacks

Balanced snacks should consist of 15g of carbohydrate, paired with a protein source. Examples of balanced snacks are:

	Carbohydrate	Protein
1.		
2.		
3.		

Beverages

Fruit Juice & Pop

Naturally sweet and sweetened beverages are not recommended as they provide a very high dose and quick source of sugar that will spike blood sugars above target levels. Occasionally they can be used to treat a low blood sugar, but even then can often provide more sugar than is needed.

Note: natural sources of sugar including maple syrup, honey, agave nectar will also increase blood sugars (Canadian Diabetes Association, 2016).

Coffee & Tea (Health Canada, 2014a).

It is currently recommended that caffeine (from coffee, tea and cola) be limited to 300mg/day. Sugar free colas (355ml) contain approximately 35-45mg of caffeine and need to be considered in daily caffeine consumption.

Many herbal teas are safe for consumption. However, Health Canada recommends no more than 2-3 cups of citrus peel, ginger, lemon balm, orange peel or rosehip/day. Chamomile tea should be avoided during pregnancy.

Sweeteners (Canadian Diabetes Association, 2016).

If you are pregnant or breastfeeding, aspartame, acesulfame potassium, sucralose (splenda), stevia and sugar alcohols (lactitol, maltitol, maltitol syrup, mannitol, sorbitol, xylitol) are safe for consumption.

Cyclamate (Sucaryl®, Sugar Twin® and Sweet 'N Low®) is to be avoided during pregnancy.

Food Safety(Health Canada, 2015)

During pregnancy, the immune system is suppressed. Therefore it is important to be cautious of potential sources of bacteria. Pregnant women are advised to avoid:

- Raw fish (e.g. Sushi)
- Processed meat products
- Unpasteurized cheeses
- Cod liver oil (high Vitamin A content)

Natural Health Products to be Avoided

- | | |
|---|--|
| <ul style="list-style-type: none">• Bitter orange peel• Echinacea• Peppermint• Red raspberry leaf• Rose hip• Rosemary• Hops• Japanese mine• Calendula• Chamomile• Chaste tree• Ephedra• Evening primrose oil• Feverfew• Gingko• Labrador tea• Lobelia• Passionflower• Tea tree oil• Thuja• Uva-ursi | <ul style="list-style-type: none">• Red bush tea• Lemon balm• Linden• Valerian• Wild yam• Fennel• Alow• Black/blue cohosh• Buckthorn• Coltsfoot• Comfrey• Dong quai• Ginseng• Juniper• Kava• Licorice (as an herb)• Sage• Sassafras• Senna• St. John's wort |
|---|--|

(Halton Region, 2011)

Fish(Health Canada, 2014b)

Health Canada recommends 150g (5oz) of fish consumption per week for pregnant women.

Fish is generally higher in omega-3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Fish also contains high quality protein and other essential nutrients: vitamins (such as vitamin D and choline) and minerals important during pregnancy.

Women should choose the types of fish that generally have low levels of contaminants, such as salmon, trout, herring, haddock, canned light tuna, pollock (Boston bluefish), sole, flounder, anchovy, char, hake, millet, smelt, Atlantic mackerel and lake white fish.

Vitamin D

There is a high risk in vitamin D deficiency in cold climates due to low sun exposure. It is recommended that women supplement vitamin D daily (Dornhorst, 2002). Please speak to your dietitian about what dose is recommended for you.

Sample Day

Breakfast: **30g carb** + protein

1 slice of whole wheat bread

1/2 banana

1 Tbsp peanut butter

Herbal tea/water

Snack: **15g carb** + protein

1/2 banana

1/2 cup cottage cheese

Lunch: **45g carb** + protein + veg

1/3 cup cooked rice

1 cup lentils/beans or chicken/fish/meat

1 cup milk

15 grapes or small apple

More vegetables (not including potatoes or corn)

Snack: **15g carb** + protein

7 soda crackers

1 slice cheese

Dinner: **45g carb** + protein + veg

1 medium potato

1 cup milk

chicken/meat fish

More vegetables (not including potatoes or corn)

Snack: **15g carb** + protein

3/4 cup yogurt

1/4 cup nuts

GESTATIONAL DIABETES: Postpartum

According to the Canadian Diabetes Association:

- 16-20% of women have elevated blood sugars 3-6 months after giving birth. (Schaefer-Graf, Buchanan, Xiang, et al. 2002)
- 30-84% of women who had gestational diabetes in their first pregnancy will get it again in their future pregnancies. (Nohira, 2006)
- Breastfeeding immediately after delivery and for at least 3 months postpartum may reduce low blood sugar in baby at birth and obesity later in life. Breastfeeding can also reduce mother's risk of developing type 2 diabetes in the future (Liu B, Jorm L, Banks E, Parity, 2010)
- After 9 years, 20% of women with prior GDM will develop type 2 diabetes. (Feig, Zinman, Wang, Hux, 2009)



Postpartum: Testing

- 0-8 weeks:** Test blood sugars once a day (if taking insulin during pregnancy, please test before and after a meal once a day)
- Blood Sugar Targets:** Fasting: 4-6mmol/L
2hrs after eating: less than 7.8mmol/L
- 8 weeks:** 2 hour 75g Oral Glucose Tolerance Test to be done
- 8-12 weeks:** Attend Postpartum visit with Diabetes Care Guelph Team
- 1yr:** Eye exam within first year postpartum
- 1-3yrs:** Screening for Type 2 Diabetes should be done every 3 years or more frequently depending on other risk factors. Please discuss this with your family doctor

Planning for Future Pregnancies

Pre-pregnancy planning is recommended for future pregnancies. It is important to be taking folic acid (5mg), and vitamin D for three months pre-conception and to have good blood sugar control before getting pregnant (Wilson, 2007) Please consider pre-conception counseling through your doctor's office or Diabetes Care Guelph before getting pregnant.

Decrease Your Risk

Ways to decrease your risk of developing type 2 diabetes include:

- Breastfeed, if able, for at least the first 3 months
- Follow a healthy, balanced diet
- Participate in regular physical activity

(Liu, Jorm, Banks, Parity, 2010)

Resources

All patients of the Guelph Family Health Team have free access to a Registered Dietitian through their doctor's office for any ongoing postpartum nutrition support for mom and/or baby or future pre-conception counseling.

If you do happen to become pregnant please contact your Diabetes Care Guelph Team (via phone or email) to discuss next steps.

Phone: 519-840-1964



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