

Resources

- *Healthy Beginnings. Your Handbook for Pregnancy and Birth.* 2009. Available for purchase at www.sogc.org/healthybeginnings/index.html.
- *Active Living During Pregnancy: Physical Activity Guidelines for Mother and Baby.* Available for purchase at www.csep.ca/publications
- *Physical Activity Readiness Medical Examination for Pregnancy* (PDF). Available online at www.csep.ca/publications
- **Health Canada** (www.hc-sc.gc.ca)
 - Canada's Food Guide: Pregnancy and Breastfeeding
 - Prenatal Nutrition information
- **Motherisk Program** (www.motherisk.org)
 - Helpline: 1-877-439-2744 or 416-813-6780
 - The *Complete Guide to Everyday Risks in Pregnancy & Breastfeeding* by Dr. Gideon Koren. Available for purchase online.
- **Public Health Agency of Canada** (www.phac-aspc.gc.ca) under the Health Promotion section:
 - The Canada Prenatal Nutrition Program
 - Healthy Pregnancy Website
- **Local Prenatal Nutrition Programs**
 - Orillia Native Women's Group Prenatal Nutrition Program
Tel: 705-329-7755
 - Simcoe County MotherCare Network
Tel: 705-733-3227 (Barrie)
Tel: 705-326-9905 (Orillia)
www.catulpa.on.ca
 - Great Beginnings Prenatal Nutrition Program
Tel: 705-645-3155 (Bracebridge & Gravenhurst)

Name: _____

Date: _____

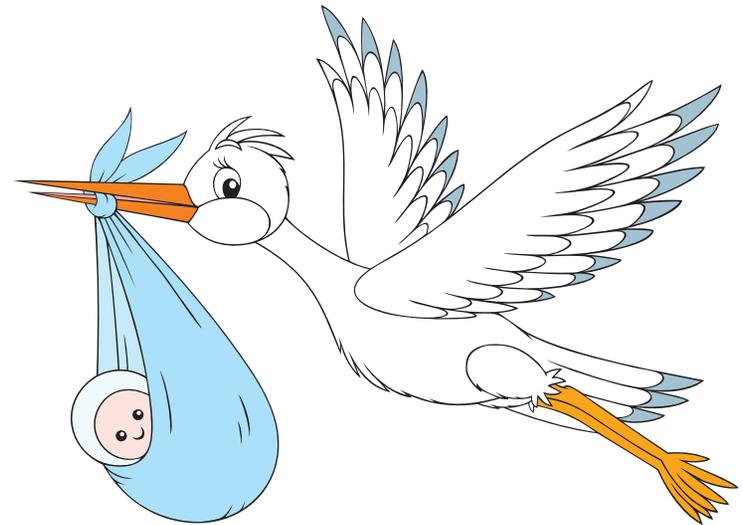
Diabetes Dietitian Educator: _____

Diabetes Nurse Educator: _____

Gestational Diabetes

INFORMATION BOOKLET

Gestational diabetes mellitus is a type of diabetes that is identified during pregnancy. Learning how to manage gestational diabetes will help you have a *safe* pregnancy and deliver a *healthy* baby.



Diabetes Education Centre
Orillia Adult Program: 705-325-7611
Gravenhurst Adult Program: 705-687-9515
Paediatric Program: 705-327-9152

What is gestational diabetes?

Gestational diabetes is the term that describes diabetes when it is diagnosed during pregnancy. A small percentage of women diagnosed with gestational diabetes actually have undiagnosed type 1 or type 2 diabetes; however, gestational diabetes is usually related to insulin resistance caused by pregnancy hormones. This insulin resistance usually occurs around 24 to 28 weeks and then goes away once the baby is born.

What is insulin?

Insulin is a hormone that moves the glucose (sugar) from the blood into the cells of the body. Most pregnant women are able to produce the extra insulin needed to keep the blood glucose level within the normal range. However, some women are not able to and this causes gestational diabetes.

When can I be tested for gestational diabetes?

Most women are screened for gestational diabetes between 24 and 28 weeks. Some women may be screened earlier if they are considered at risk for developing gestational diabetes.

The screening test is called a Glucose Challenge Test and is a blood test performed one hour after drinking a 50 gram (g) glucose drink. Some women will be asked to do a further test called a Glucose Tolerance Test. This blood test is taken while fasting, and 1 and 2 hours after a 75 g glucose drink. Or your doctor may use the Glucose Tolerance Test as the initial test.

Who is at risk of developing gestational diabetes?

The following are some of the factors placing you at higher risk for developing gestational diabetes:

- You are 35 years of age and older;
- Have prediabetes or with a family history of diabetes;
- Are obese or have gained too much weight during pregnancy;
- Have given birth to a baby that weighed more than 9 lbs (4 kg);
- Have had gestational diabetes in a previous pregnancy;
- From a high-risk group (Aboriginal, African, Asian, Hispanic, and South Asian); and
- Have Polycystic Ovary Syndrome (PCOS) or acanthosis nigricans (darkened patches of skin).

Follow-up with the Diabetes Education Centre

Please come and see us for a follow-up visit about 6 months after the birth of your child.

Appointment: _____

Please arrange labwork with your family doctor (75 g Glucose Tolerance Test and A1C).

Results of lab work

Date: _____

75 g Glucose Tolerance Test:

Fasting: _____

1 Hour: _____

2 Hours: _____

A1C: _____

Are you considering having another child?

As mentioned, having had gestational diabetes means that you are at greater risk of developing prediabetes, type 2 diabetes, or gestational diabetes in future pregnancies. That is why it is important to plan for the future. Discuss pregnancy planning with your doctor and consider the following:

- Family planning with use of reliable birth control until a pregnancy is desired. Discuss birth control methods with your doctor. Keep in mind that you can get pregnant while breastfeeding.
- A daily multivitamin supplement including 0.4 to 1 mg folic acid, 16 to 20 mg iron and vitamin B12 taken at least 3 months before you conceive.
- Follow-up with your doctor to be screened for prediabetes and type 2 diabetes before you conceive. It is important to have good blood glucose control before you become pregnant.

Do I need to do anything after the baby is born?

Vitamin supplements

- Continue to take a multivitamin with 0.4 to 1.0 mg folic acid for 6 weeks after you deliver. If you are planning to breastfeed, take a multivitamin for the duration of breastfeeding.
- All breastfed infants require a vitamin D supplement of 400 IU.

Follow-up with your doctor for regular screening

Gestational diabetes should disappear once the baby is born, but it is important that you follow-up with your doctor for regular diabetes screening. Because you have had gestational diabetes, you are at greater risk of developing prediabetes or type 2 diabetes, as well as gestational diabetes in future pregnancies. The following is recommended:

- A 75 g Glucose Tolerance Test within 6 weeks to 6 months of delivery. Follow-up with your doctor sooner if you suspect that you have undiagnosed type 1 or type 2 diabetes.
- Ongoing screening for prediabetes or type 2 diabetes.
- Screening before planning another pregnancy.
- Screening once conception is determined in future pregnancies, and if negative, reassessed during every trimester.

Learn how to prevent diabetes

To help prevent prediabetes or type 2 diabetes you should:

- Consider breastfeeding for at least 3 months.
- Maintain a healthy body weight.
- Include regular exercise. Health Canada recommends 150 minutes per week.
- Eat healthy by following *Eating Well with Canada's Food Guide*.
- Know the risk factors and symptoms of type 2 diabetes (refer to the Canadian Diabetes Association pamphlet "Are you at Risk").

To help your child have a healthy weight, you can:

- Consider breastfeeding.
- Encourage your child to have a healthy diet and take part in regular exercise as per Health Canada's recommendations.

Why is it important to take care of myself?

High blood glucose levels during pregnancy can cause several problems for mom and baby. Some of these problems include:

- The baby could grow too large, creating a difficult delivery and/or an early delivery or C-section. A difficult or early delivery can cause problems for your baby.
- The baby's blood glucose may drop too low after delivery.

Learning how to manage gestational diabetes will help you achieve recommended blood glucose levels. This will help you have a safe pregnancy and deliver a healthy baby. Note that breastfeeding immediately after you deliver may help to prevent your baby's blood glucose levels from dropping low after delivery.

Will I have diabetes after my baby is born?

Most women with gestational diabetes will have normal blood glucose levels after the baby is born. However, you are at risk of developing gestational diabetes in future pregnancies or getting prediabetes or type 2 diabetes later. Also, your baby is at higher risk of becoming overweight or developing prediabetes or type 2 diabetes later in life.

Therefore, it is important that both you and your child make healthy lifestyle choices to manage your weight and help prevent diabetes. You should also follow-up with your doctor for regular screening tests for diabetes, with the initial test 6 weeks to 6 months after you deliver your baby.

As mentioned earlier, a small percent of women actually have undiagnosed type 1 or type 2 diabetes. If your doctor suspects undiagnosed diabetes you should be screened for diabetes soon after you give birth.

What can I do to manage gestational diabetes?

During pregnancy it is important to have a healthy lifestyle. The following resources will guide you in your choices:

- The Sensible Guide to a Healthy Pregnancy
- Eating well with Canada's Food Guide
- PARmed-X for Pregnancy

Nutrition

- Have 3 meals and 3 snacks a day, including a bedtime snack. Try to have regular meal and snack times.
- Limit sugar and sweet foods, *e.g. sugar, juice, regular beverages, sweet desserts and candy.*
- Include fibre by choosing whole grain breads, cereals, rice and pasta, fresh fruits and vegetables, and legumes (lentils, beans).
- Have well-balanced meals. Aim for 3 to 4 of the food groups from *Canada's Food Guide* at every meal, and 1 to 2 of the food groups for snacks.
- Artificial sweeteners such as Aspartame, Sucralose (Splenda) and Acesulfame Potassium are safe to use in moderation during pregnancy. Sweeteners not recommended are Saccharin and Cyclamate.

Medication and supplements

Taking a daily prenatal supplement, including 0.4 to 1 milligram (mg) folic acid, 16 to 20 mg iron, and vitamin B12 is recommended. If your doctor advised you to take up to 5 mg folic acid it needs to be reduced to 0.4 to 1 mg at 12 weeks gestation.

Check with your doctor or pharmacist to make sure that all prescription or over-the-counter medication and vitamin/mineral supplements are safe for use during pregnancy.

Nutrition related pregnancy complications

The *Sensible Guide to a Healthy Pregnancy* provides information on how to deal with common symptoms of pregnancy, such as constipation, heartburn, nausea/vomiting and diarrhea. If your symptoms are severe contact your doctor or dietitian for assistance.

Exercise

Regular exercise such as aerobics and strength training during pregnancy offers many benefits and can help you manage the gestational diabetes. However, before you begin any exercise program talk to your doctor and use the *PARmed-X for Pregnancy*.

What should I do if I'm not feeling well?

Contact your doctor or go to the emergency department immediately if you have any of the following symptoms of an illness: fever, nausea, vomiting and/or diarrhea. You may require emergency care.

During an illness, contact your diabetes nurse or dietitian for review of your blood glucose management. If you are on insulin your nurse and/or dietitian will help you with your insulin dose requirements.

In addition, follow these tips:

- Test your blood glucose every 2 to 4 hours.
- Drink plenty of sugar-free beverages to help prevent dehydration. Aim for 1 cup (250 mL) of sugar-free beverage every hour. Water, broth (low-sodium if you have a salt restriction) and sugar-free drinks or sugar-free beverage crystals such as Kool-Aid (made with artificial sweetener) or Crystal Light are good choices.
- Try to eat regularly. If you can eat, continue to follow your meal plan. If not, try to have a light snack or beverage that contains carbohydrate. Aim to have 1 Carbohydrate choice (15 g of carbohydrate) every hour. For example:

Light Snack	Beverage
1 slice of bread or toast	½ cup (125 mL) juice
7 soda crackers	½ cup (125 mL) regular soft drink
4 melba toast	1 cup (250 mL) milk
¾ cup (200 mL) hot cereal	½ cup (125 mL) chocolate milk
1 medium fruit	1 bottle (237 mL) Glucerna
1 meal replacement bar (Glucerna)	1 bottle (237 mL) Boost Diabetic
1 cup (250 mL) chicken noodle soup	1 cup (250 mL) regular sport drink
½ cup (125 mL) regular Jell-O	
1 popsicle	

- **Over-the-counter medication:** When purchasing over-the-counter medication get advise from the pharmacist to confirm that they are safe to take during your pregnancy and to make sure that they won't affect your blood glucose.

Fast-acting carbohydrate	BG 3 to 3.4 mmol/L 15 g fast-acting carbohydrate	BG less than 3 mmol/L 20 g fast-acting carbohydrate
Glucose tablets	15 g carbohydrate Check label to determine amount	20 g carbohydrate
Fruit juice or regular pop	¾ cup (175 mL)	1 cup (250 mL)
Lifesavers (chew and swallow) or jelly beans	6	8
Table sugar	3 tsp (15 mL)	4 tsp (20 mL)
Pasteurized honey	3 tsp (15 mL)	4 tsp (20 mL)
Milk	1 cup (250 mL)	1½ cups (375 mL)

Should I be driving a motorized vehicle if I require insulin therapy?

Before you get behind the wheel make sure that you have your blood glucose meter and testing supplies, as well as a supply of fast-acting carbohydrate (e.g. glucose tablets or juice) within reach.

Test your blood glucose before you drive and then approximately every 4 hours if you go for a long drive. Do not drive if your blood glucose is less than 5 mmol/L.

Monitoring your baby

Your doctor or obstetrician will recommend tests throughout your pregnancy to monitor your baby. It is a good idea to monitor your baby's movements, especially during the last 8 to 10 weeks of your pregnancy. Advise your doctor or obstetrician if you notice that the baby is moving less than usual.

Ketone testing

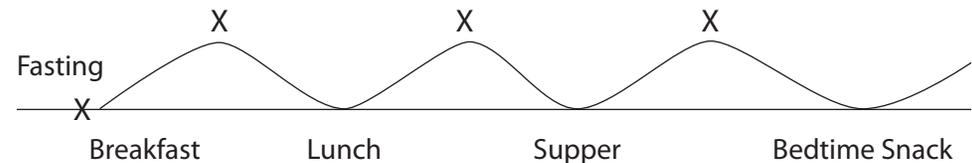
Testing your urine or blood for ketones will help make sure that you are eating enough food. If you are not eating enough your body will break down body fat to use for energy; this process produces ketones. If the urine or blood test shows that you have ketones, speak with your dietitian to adjust your diet.

You will be asked to test your urine first thing in the morning using Ketostix strips; or test your fasting blood ketones using a Precision Xtra meter and blood ketone test strips. Please purchase either Ketostix or blood ketone test strips.

Blood glucose monitoring

Testing your blood glucose with a meter is the best way to monitor your blood glucose levels. The results will help determine how often you should test. You will be asked to test while fasting and either 1 or 2 hours after a meal. You may also be asked to test before your meals.

Here is an example of when to initially test. Make sure that you record your test results and review the results with your dietitian and/or nurse.



Target blood glucose levels during pregnancy:

Fasting and before meal	3.8 - 5.2 mmol/L
1 hour after meal	5.5 - 7.7 mmol/L
2 hours after meal	5 - 6.6 mmol/L

Will I need insulin therapy?

Insulin may be required if you are not able to achieve target blood glucose levels within 1 to 2 weeks with diet and exercise. Some women will need to take insulin at meals and bedtime, whereas others may only need insulin either at bedtime or at meals.

If you are on insulin it is important to test your blood glucose to determine the insulin dose needed to maintain target blood glucose levels. Continue to test fasting and 1 to 2 hours after your meals. You will be asked to include a test before each meal and occasionally at 2 a.m. to 3 a.m. (to make sure you are not having a low blood glucose overnight).

Your nurse and/or dietitian will help you with any required insulin adjustments based on your blood glucose test results. You may be given a "Pregnancy Insulin Adjustment Scale" to help you adjust the insulin yourself.

Reduce the bedtime dose of insulin the night before a planned caesarean section _____ (or the amount suggested by your doctor).

Other: _____

If I am taking insulin, am I at risk of hypoglycemia?

If you are taking insulin your blood glucose level could drop too low causing hypoglycemia or low blood glucose. During pregnancy blood glucose levels are lower than normal. Hypoglycemia occurs when your blood glucose is less than 3.4 mmol/L. You need to treat hypoglycemia if your blood glucose level is less than 3.4 mmol/L or if you feel the symptoms of hypoglycemia.

It is very important to know both the symptoms of low blood glucose and how to treat it. And, be prepared. Have a supply of fast-acting carbohydrate with you at all times (e.g. glucose tablets or juice).

What are the symptoms of hypoglycemia?

Hypoglycemia symptoms may include: dizziness, shakiness, sweating, headaches, hunger, weakness, sleepiness, confusion, anxiety, nervousness, or nausea. You may also have vision changes, numbness and tingling, difficulty concentrating or speaking.

Others may notice that you are irritable, sweaty, pale, acting or speaking strange, or having a restless sleep.

What could cause hypoglycemia?

- Eating less than usual and/or delayed meals and snacks;
- More exercise than usual;
- Taking too much insulin; or
- Drinking alcohol (not recommended during pregnancy).
- Hormonal changes during the last few weeks of pregnancy.

How do I treat hypoglycemia?

Follow these 4 steps to raise your blood glucose (BG) promptly and prevent rebound hyperglycemia (high blood glucose).

1. Test your BG using your blood glucose meter.
2. If your BG is less than 3.4 mmol/L treat with fast-acting carbohydrate (chart on next page).
3. Wait 15 minutes. Re-test your BG. If it is less than 3.4 mmol/L re-treat as described. Although 15 minutes may feel like a very long time it is important *not to eat* food that contains complex carbohydrate, protein or fat (e.g. chocolate or snack bar) until your BG is 3.4 mmol/L or higher.
4. Once your BG is 3.4 mmol/L or higher, have your usual meal or snack. If your next meal is more than 1 hour away, or you are going to be active, eat a snack containing 1 Carbohydrate choice (15 g carbohydrate) and 1 Meat & Alternatives choice (e.g. ½ sandwich or crackers and cheese, or 1 snack bar).