

Diabetes in Pregnancy

Session Eight
Diabetes 101 Education Series

**Kathleen Gibson, Registered Dietitian
and Certified Diabetes Educator**



Outline

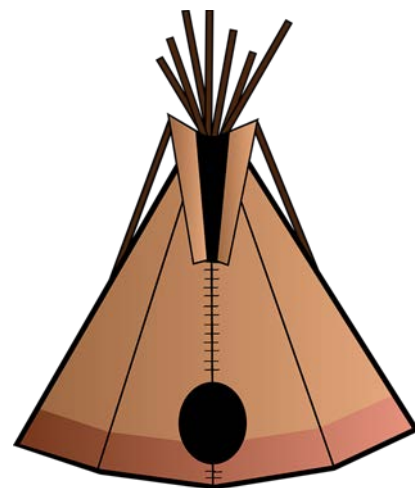
- What is Diabetes in Pregnancy?
- Getting ready for pregnancy
- During pregnancy
 - Nutrition
 - Active Living
 - Medications
 - Healthy Weight Gain
- After the baby is born
- Questions



Are Prevention and Management Different?

- In diabetes, the steps you take to prevent diabetes are the same steps you take to manage diabetes.
- This idea is helpful when you plan programs and/or talk to clients.
- The basics of diabetes prevention and management are: Nutrition, Active Living and Medications.
- Culture is at the core of prevention and management.

Medications



Nutrition

Active Living

Diabetes in Pregnancy – Two kinds

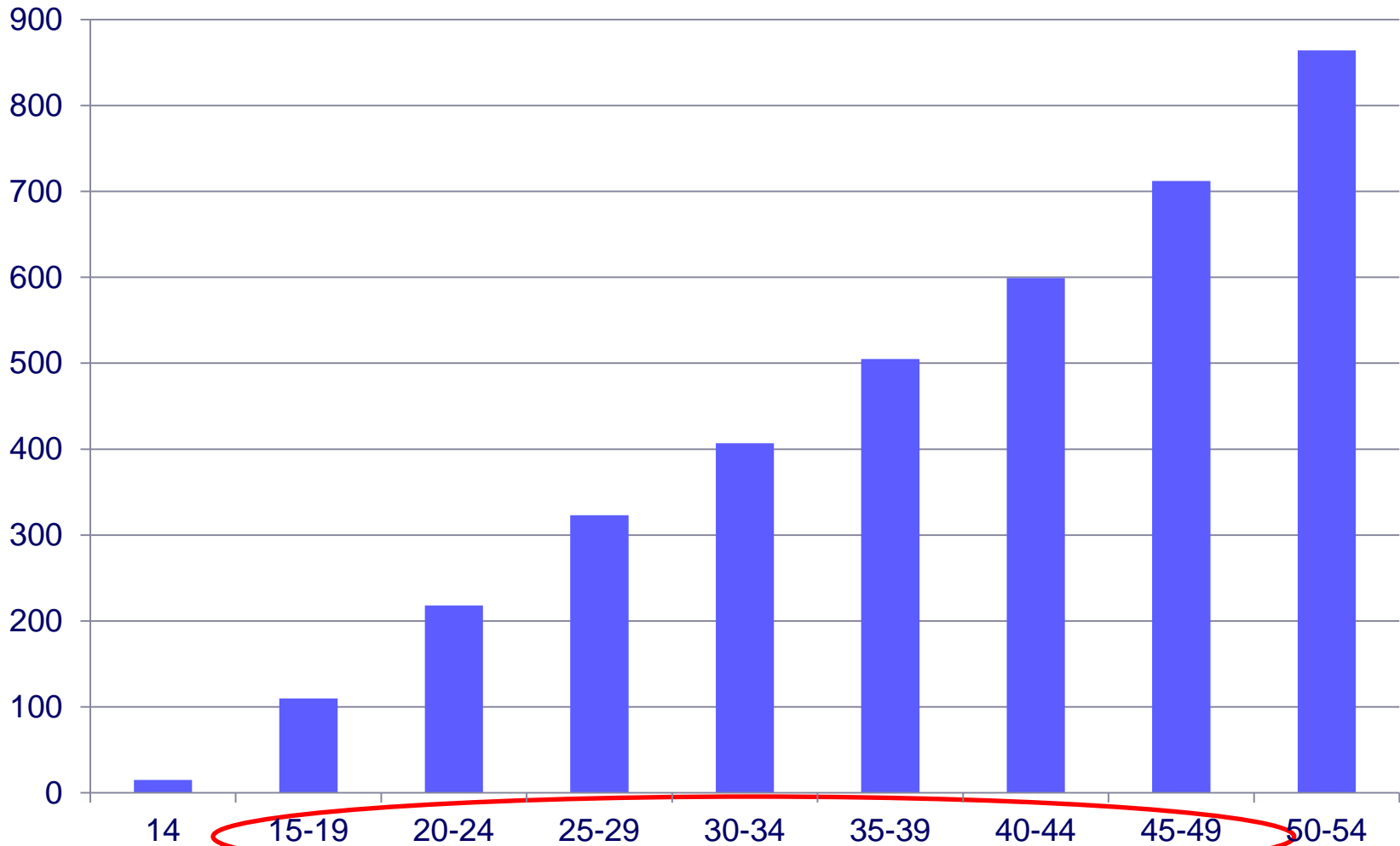
Women with **pre-existing** diabetes

- Diagnosed with Type 1
- OR
- Diagnosed with Type 2
- Diabetes does not go away after pregnancy

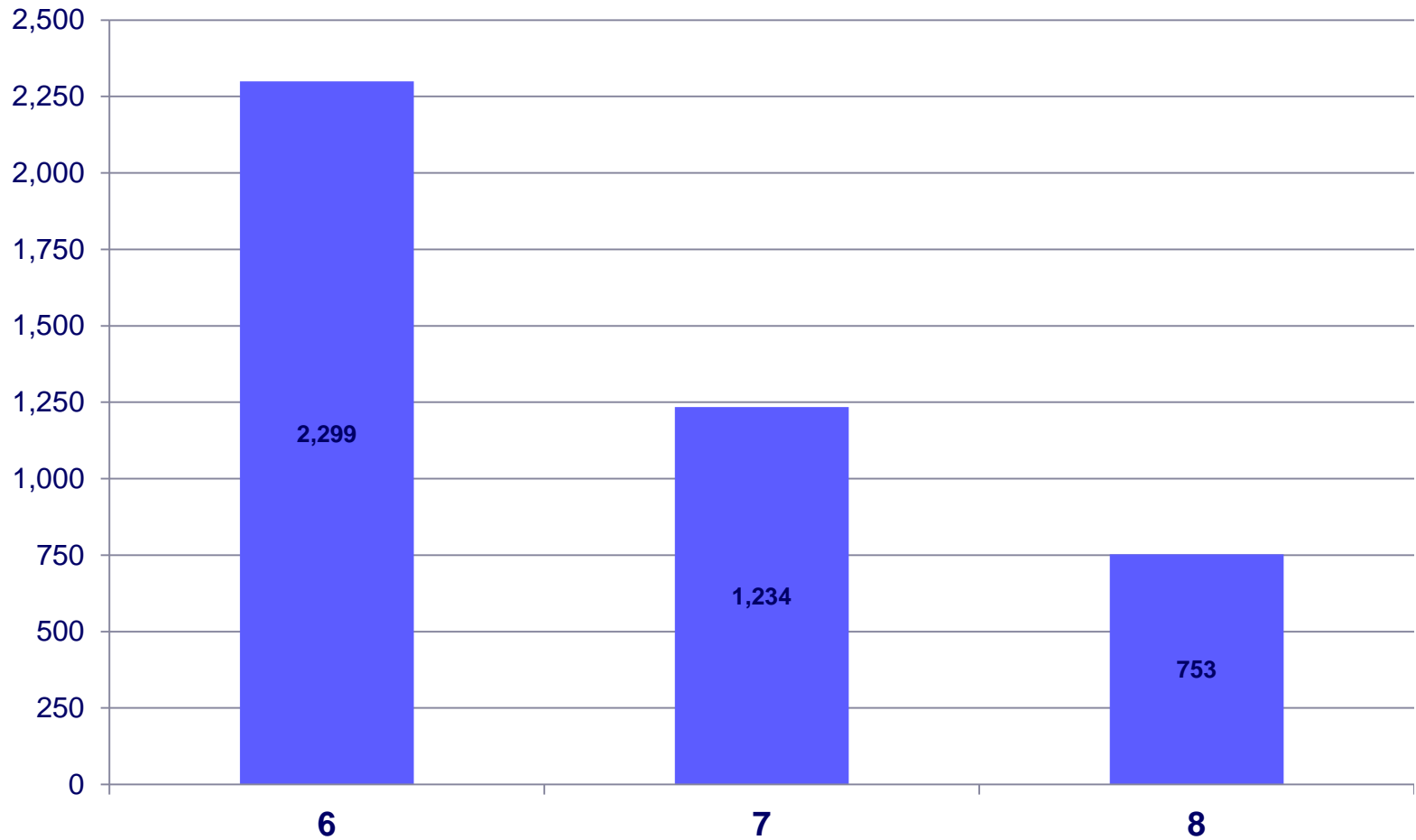
Women with **gestational** diabetes

- Diabetes first appears during pregnancy
- No prior diagnosis
- Diabetes often goes away after pregnancy

First Nations women of child-bearing age with diabetes in Alberta



First Nations women of child-bearing age with diabetes by Treaty Area



Healthy pregnancy weight gain

BMI	Recommended Weight Gain
Below 18.5 Underweight	28 to 40 pounds (12.5 to 18 kg)
Between 18.5 and 24.9 Normal Weight	25 to 35 pounds (11.5 to 16 kg)
Between 25.0 and 29.9 Overweight	15 to 25 pounds (7 to 11.5 kg)
30 and more Obese	11 to 20 pounds (5 to 9 kg)

Gestational Weight Gain:

Not enough weight gain	Too much weight gain
Low birth weight baby	High birth weight baby
Early birth	Difficult birth
Baby may not develop properly	Higher risk of C-section delivery
Baby may have life-long health problems	Higher risk of baby dying
Higher risk of baby dying	Higher risk of health problems like high blood pressure (pre-eclampsia), gestational diabetes for mom
Baby may have mental and behavioural problems	Higher risk of baby being obese later in life and getting diabetes
	Mom has extra weight after delivery

Getting ready for pregnancy

Women with pre-existing diabetes

Pre-conception care for woman with diabetes

A key step for women with pre-existing diabetes who want to become pregnant is **pre-conception care** and open conversations about getting ready for pregnancy.

Uncontrolled diabetes can cause problems for the baby before the mother even knows she is pregnant.

Things for a women with diabetes to consider **before** becoming pregnant:

1. Healthy body weight
2. Supplementation with folic acid; **1.0 mg per day**
3. Changing medications
4. **Good blood sugar control; A1C less than 7%**
5. **Complications screening**



Diabetes Complications

Pregnancy can impact pre-existing diabetes complications. Having some additional screening can help protect the mother.

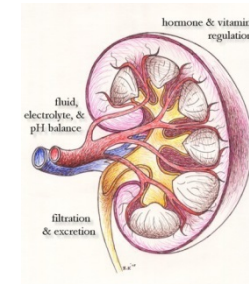
Retinopathy: Check before becoming pregnant, check in the first trimester, check as needed during pregnancy and within one year of giving birth.



Hypertension: Women may have pre-existing high blood pressure or develop preeclampsia during pregnancy. Pregnant women with diabetes are at higher risk (40 – 45%) for high blood pressure.



Chronic Kidney Disease (CKD): In addition to her annual screenings, a woman intending to become pregnant should be screened again. Women with CKD need to be followed closely to avoid preeclampsia.



Medication Changes

Some commonly used medications may be harmful to the baby even before the mother knows she is pregnant.

Blood Pressure Medications:

- Safe medications during pregnancy include calcium channel blockers, labetalol and methyl dopa.
- Discontinue ACE and ARB inhibitors. ACE inhibitors end in “pril” like ramipril (Altace). ARB inhibitors end in “sartan” like losartan (Cozaar).

Cholesterol Medications: Discontinue statins and fibrates

Diabetes Medications:

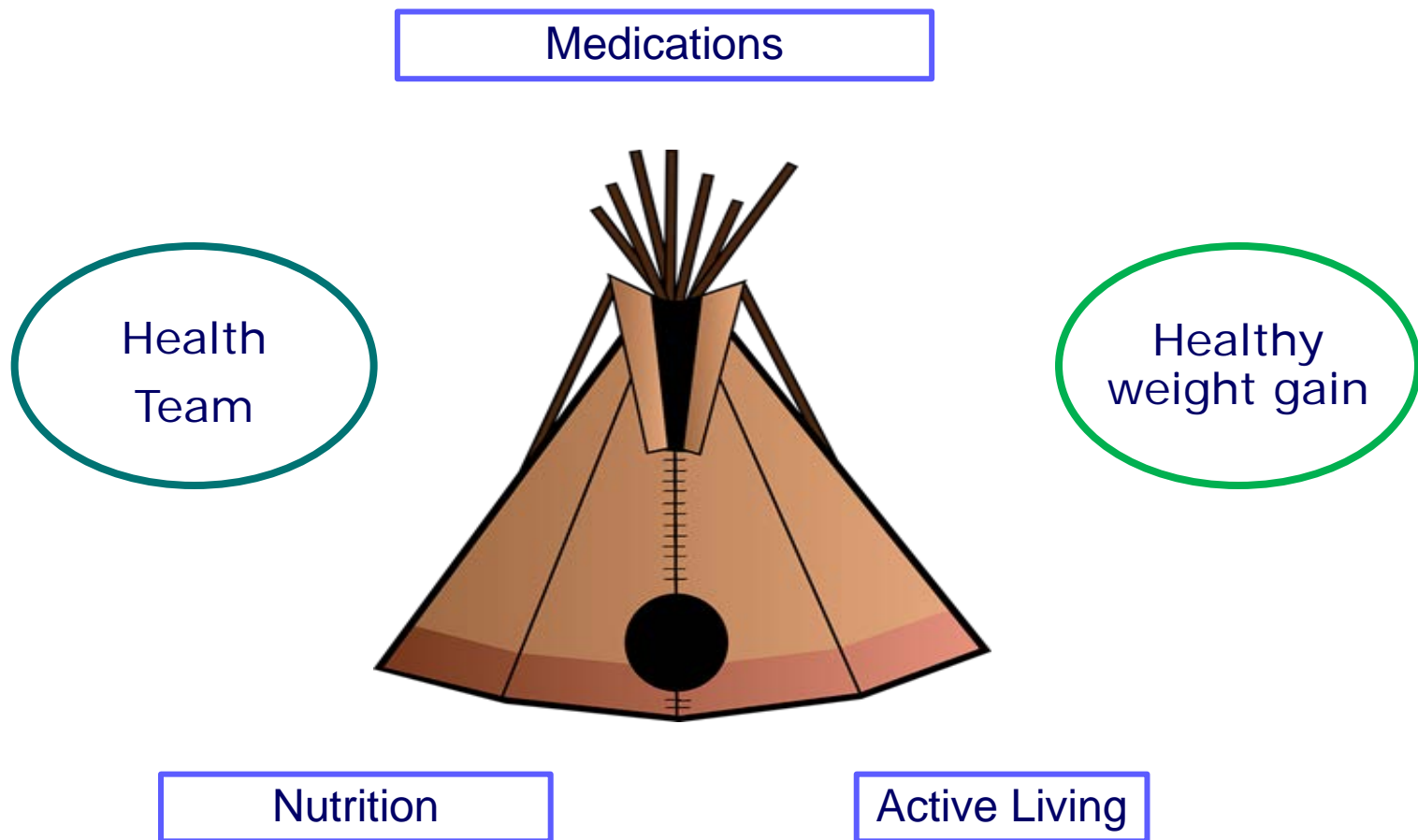
- Metformin and glyburide okay during preconception if blood sugars are on target.
- All other types of diabetes medications (DPP-4, GLP-1, SGLT2, TZD), should be switched to insulin **before** becoming pregnant.

Once pregnant, all women with diabetes should be **switched to insulin.**

During Pregnancy

Women with pre-existing diabetes

Management of Diabetes in Pregnancy



Blood Glucose Targets during Pregnancy

Time	Target (mmol/L)
Fasting	Less than 5.3
Before Meals	Less than 5.3
1 hour after a meal	Less than 7.8
2 hours after a meal	Less than 6.7

Target A1C during pregnancy is **less than 6.5%**.
If possible, get A1C to **less than 6.1%**.

Nutrition Tips

1. Spread carbohydrates throughout the day; 3 smaller meals and snacks
2. Choose higher fibre foods more often
3. Eat food higher in protein at each meal and evening snack
4. Watch for low blood sugar
5. You can use most sugar substitutes in small amounts. Do not use cyclamate (e.g., Sugar Twin, Sweet N'Low)
6. Take a multivitamin: folic acid, vitamin D, Ca, iron, vitamin B₁₂
7. Talk to your health care team if you have heartburn, nausea, vomiting or constipation



Carbohydrates in Food

Alberta Health Services has a two page handout that clearly shows what foods are carbohydrates and what foods are not.

Every serving size mentioned is equivalent to 15 g of carbohydrate.

For example, ¼ bagel, ½ cup potato, 1 medium apple and 1 cup of milk all have 15 g carbohydrate.

[https://www.albertahealthservices.ca/assets/nfo/nutrition/if-nfs-carbohydrate-in-foods\(Pictorial\).pdf](https://www.albertahealthservices.ca/assets/nfo/nutrition/if-nfs-carbohydrate-in-foods(Pictorial).pdf)

Carbohydrate in Foods

This handout can help you find out which foods are higher and lower in carbohydrate. Knowing this can help you manage your blood sugar.

Carbohydrate foods

These foods turn into sugar in your blood. You can have some carbohydrate foods every day.

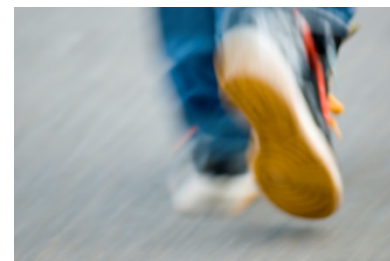
Each serving below is 1 choice.
1 choice = 15 grams of carbohydrate.

Grains							
 1 slice	 2x2x1 inch (5x5x2.5 cm)	 ¼	 ½	 7	 ¾ cup (175 mL)	 ½ cup (125 mL)	 1 (4 inch or 10 cm)
 ½ cup (125 mL)	 ¾ cup (75 mL)	 1 cup (250 mL)	 ½ of 12 inch or 30 cm pizza	 ¾ (6 inch or 15 cm)	 1 (6 inch or 15 cm)		
Starchy Vegetables							
 ½ cup (125 mL) cooked	 ½ cup (125 mL)	 1 cup (250 mL)	 ¾ cup (125 mL)	 ¾ cup (175 mL)	 ¾ cup (125 mL)		
Fruit							
 1 medium	 ½ large	 1 cup (250 mL)	 2 cups (500 mL)	 15	 ½ cup (125 mL)	 2 medium	 1 large
 1 cup (250 mL)	 1 small	 ¾ cup (175 mL)	 2 medium	 ¾ cup (125 mL)			
Milk and Alternatives							
 1 cup (250 mL)	 ¾ cup (175 mL)	 ¾ cup (75 mL) or 100 g	 ¾ cup (125 mL)				
Other foods							
 1 Tbsp (15 mL)	 ¾ cup (125 mL)	 3 cups (750 mL)					

Be Active Every Day

Activity during pregnancy is associated with:

- Fewer newborn complications, like high birth weight.
- Benefits for the mother like reduced risks of preeclampsia, excess weight gain, depression, caesarean section, and forceps delivery.
- Improved blood sugars.



Recommendations for Activity during Pregnancy:

- 2.5 hours of moderate level activity each week
- Be active at least three times a week; but everyday is a good choice
- Both aerobic and resistance activity is important for health
- Pelvic floor exercises (e.g., Kegel's) can be performed every day
- Exercise can be modified to accommodate feeling unwell when lying flat on the back

Medications

- Women with **pre-existing diabetes** should be switched to insulin to manage their blood sugars during pregnancy.



- Individualized plan using basal and bolus insulin
- Women with type 1 may benefit from an insulin pump
- Watch for hypoglycemia in 1st and 2nd trimesters
- Hypo in pregnancy is less than 3.7 mmol/L

- Women with pre-existing diabetes should start on 81 mg ASA (aspirin) at 12-16 weeks to reduce the risk of preeclampsia.
- After 3 months, folic acid may be reduced to 0.4 mg



After the baby is born

Women with pre-existing diabetes

Breastfeeding

Breastfeeding is very important immediately after giving birth:

- Prevents hypoglycemia in the baby
- Breastfeeding for at least 4 months may protect the baby from developing diabetes and obesity later in life
- Protection for the mother from obesity



Considerations for managing diabetes while breastfeeding:

- Insulin is safe to use during breastfeeding
- Some women might need to watch for hypoglycemia with night time feedings
- Metformin and glyburide may be safe during breastfeeding
- Other diabetes medications are not currently considered safe

Gestational Diabetes

Risk Factors for Gestational Diabetes (GDM)

Being:

- 35 years of age or older
- From a high-risk group (African, Arab, Hispanic, Indigenous or South-Asian)

Using:

- Corticosteroid medication

Having:

- Obesity (BMI higher than 30)
- Prediabetes
- Gestational diabetes in a previous pregnancy
- Given birth to a baby that weighed more than 4 kg (8.8 lbs)
- A parent, brother or sister with type 2 diabetes
- Polycystic ovary syndrome (PCOS) or acanthosis nigricans



Screening for Gestational Diabetes (GDM)

Screening for all pregnant women without pre-existing diabetes:

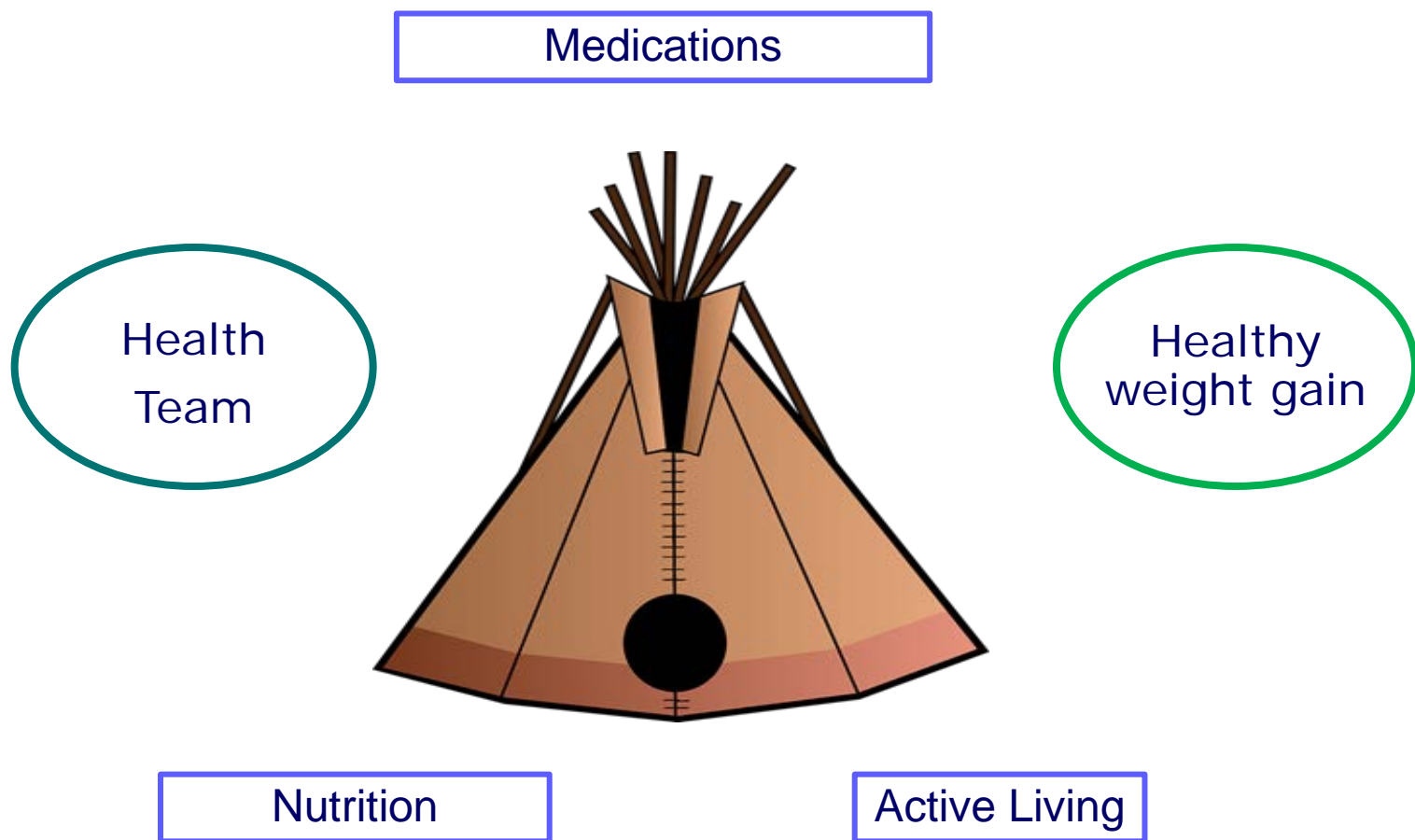
- At **24-28 weeks gestation**.
- Two-step oral glucose challenge test (GCT)
 - Step 1: Take a 50-gram GCT (non-fasting) and measure blood sugar one hour later.
 - Step 2: If blood sugar is between 7.8 and 11.1 mmol/L, proceed with a 75-gram oral glucose tolerance test (OGTT).

Test	Blood Sugar	Results
50 g GCT	7.8 – 11.1 mmol/L at 1 h	Proceed with 75 g OGTT
50 g GCT	More than 11.1 mmol/L at 1 h	Diagnosed with GDM
75 g OGTT	Fasting more than 5.3 mmol/L 1 h more than 10.6 mmol/L 2 hour more than 9.0 mmol/L	Confirmation of GDM if one or more blood sugar values match.

After Diagnosis

Women with Gestational Diabetes

Management of Diabetes in Pregnancy



Healthy pregnancy weight gain

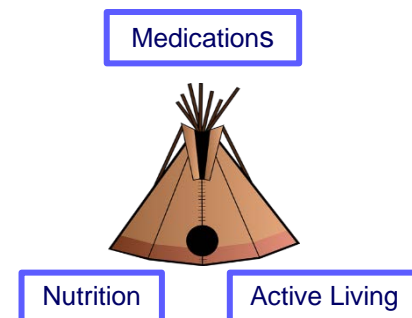
BMI	Recommended Weight Gain	Weekly weight gain (2nd – 3rd trimesters)
Below 18.5 Underweight	28 to 40 pounds (12.5 to 18 kg)	1.1 pounds (0.5 kg)
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30 and more Obese	11 to 20 pounds (5 to 9 kg)	0.5 pounds (0.2 kg)

Nutrition

Nutrition is one of the foundations to managing Gestational Diabetes. We want to provide adequate nutrition to support healthy weight gain and growth of the baby along with managing blood sugars and satisfying hunger.

Key messages:

- Three meals and two (or more) snacks to spread carbohydrates across the day
- A bedtime snack is very important
- A minimum of 175 g of carbohydrates are needed each day (~12 choices)
- Use the split plate model to balance meals
- Limit ultraprocessed foods – focus on high fibre and lower glycemic index foods
- Sugar substitutes can be used in moderate amounts



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Glycemic Index

Not all carbohydrates are created equally! We've already discussed how ultra-processed foods are high in sugar, fat and salt. These lower quality foods quickly turn into sugar in your body.

Another way to consider carbohydrate quality is Glycemic Index (GI). Foods with a high GI raise your blood sugar higher and faster than a food with a low GI.

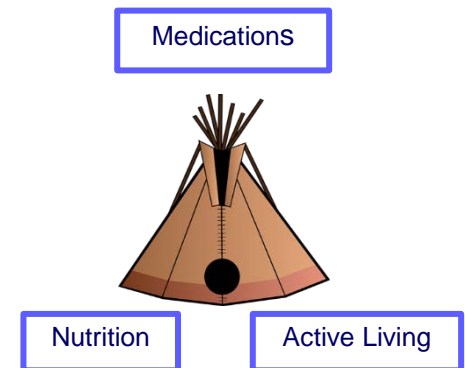
Low GI	Medium GI	High GI
Whole Grain Tortilla	Whole Grain Bread	White or Whole Wheat Bread
All-Bran Cereal	Oats	Rice Krispies, Corn Flakes
Dried Beans and Lentils	Cornmeal	Puffed Wheat, All-Bran Flakes
Pasta (al dente)	Wild Rice	Instant White Rice
Converted or Parboiled Rice	Brown Rice	Carrots
Sweet Potato	Potatoes (cooled)	Potatoes (hot)
Popcorn	Rye Crisp Crackers	Soda Crackers
Apple, Orange, Berries	Cherries, Grapes, Banana	Watermelon
Milk, Yogurt		

Activity

Being active every day is helpful for all pregnancy women. Activity is also one of the foundations to managing Gestational Diabetes. Being active can help manage blood sugars from getting too high after eating a meal. Remember that activity increases insulin sensitivity.

Key messages:

- Light activity like walking at a moderate pace for 30 to 60 minutes after meals – helps to control blood sugars and may delay the need for insulin



Blood Glucose Targets during Pregnancy

Time	Target (mmol/L)
Fasting	Less than 5.3
Before Meals	Less than 5.3
1 hour after a meal	Less than 7.8
2 hours after a meal	Less than 6.7

A1C targets are not used with Gestational Diabetes

Medications

If target blood sugars are **not met** with eating well and being active in **1-2 weeks** then medication is needed.

1. Insulin

- Insulin is the first choice for medication management
- Basal-Bolus insulin; rapid acting insulin is safe to use

2. Metformin

- Metformin can be used for gestational diabetes.
- Women need to know it can cross the placenta
- 40% of women using metformin will still need to use insulin

3. Glyburide

- Women who refuse insulin and cannot tolerate metformin can use glyburide

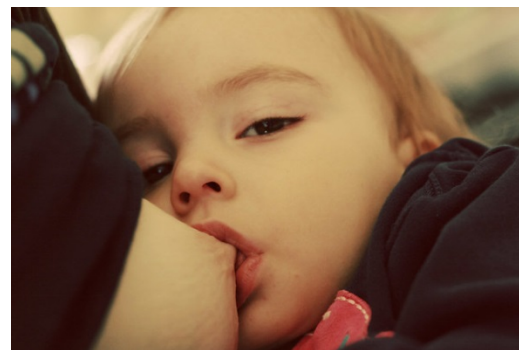
After the baby is born

Women with Gestational Diabetes

Breastfeeding

Breastfeeding is very important immediately after giving birth:

- Prevents hypoglycemia in the baby
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Managing Weight

Reducing weight to be in the normal body mass index range:

- Prevents gestational diabetes in the next pregnancy
- Prevents type 2 diabetes later in life

Screening for Type 2 Diabetes

Having gestational diabetes is a risk factor for type 2 diabetes. Yet most women do not get the recommended post partum screening.

1. Between 6 weeks and 6 months after birth:

- A 75 g OGTT

2. Before planning another pregnancy

- Have gestational diabetes screening earlier in the next pregnancy

2. At least every three (3) years; more if there are other risk factors



Where can I get more help?

1. TSAG

- a. Continue attending ISC-FNIHB Diabetes 101 Education series with TSAG
<https://fntn.ca/Home.aspx>

2. ISC-FNIHB:

- a. Get to know your Community Nutrition Advisor!
- b. General Diabetes Information: Kathleen Gibson RD CDE, 780-495-8641
- c. Resource Library: <https://www.onehealth.ca/ab/ResourceLibrary/WhatWeOffer.aspx>

3. Diabetes Canada – www.diabetes.ca

- a. 2018 Clinical Practice Guidelines: <http://guidelines.diabetes.ca/>
Diabetes in Pregnancy: <https://www.guidelines.diabetes.ca/cpg/chapter36>

Where can I get more help?

4. Alberta Health Services

- a. AHS Indigenous Wellness Program – 780-735-4512, learn more at <https://www.albertahealthservices.ca/findhealth/service.aspx?id=1009563>
- i. Jane Jensen, RD can provide clinical nutrition to communities in Treaty 8 by videoconference.
- b. Health Link: Call 811 or visit www.MyHealth.Alberta.ca
- c. Nutrition Guideline Diabetes in Pregnancy (for health professionals): <https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-ng-diabetes-in-pregnancy.pdf>
- d. Carbohydrates in Food handout (for clients): [https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-carbohydrate-in-foods\(Pictorial\).pdf](https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-carbohydrate-in-foods(Pictorial).pdf)
- e. Healthy Eating for Pregnancy When You Have Diabetes handout: <https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-healthy-eating-for-pregnancy-when-you-have-diabetes.pdf>
- f. Healthy Parents Healthy Children: <https://www.healthyparentshealthychildren.ca/>

Overview of Diabetes 101 Series

- *What is Diabetes?* – January 23, 2019
- *Diabetes Complications* – February 28, 2019
- *History Plays a Part in our Health Today* – March 7, 2019
- *Diabetes Prevention and Management: Nutrition 101* – March 21, 2019
- *Diabetes Prevention and Management: Active Living 101* – April 11, 2019
- *Meaningful Conversations* – April 25, 2019
- *Diabetes Prevention and Management: Medications 101* – May 9, 2019
- *Diabetes in Special Populations: Diabetes in Pregnancy* – May 23, 2019
- *Diabetes in Special Populations: Diabetes and Youth* – June 6, 2019

Questions?

Thank you for Watching Diabetes in Pregnancy!

- Please fill out the Attendance and Evaluation forms for your site. The forms can be found on www.fntn.ca.
- This information helps us plan additional sessions or new series.
- Please send by fax to 780-495-7338 or scan and email to kathleen.gibson@canada.ca
- Join us on June 6, 2019 for Diabetes in Youth.

