

Type 1 Diabetes and Pregnancy

YES, you can have a healthy baby and a safe pregnancy with type 1 diabetes. What you need to do is **plan your pregnancy**. This means having **normal blood glucose control before and during pregnancy**.

Key points to planning a healthy pregnancy:

1. Have normal blood glucose levels before and during pregnancy.

Blood glucose levels should be in the normal range before becoming pregnant. The baby's organs are formed early, during the first 9 weeks of pregnancy, so you must have good BG (blood glucose) control before you become pregnant.

Keeping your BG in the normal range before and during pregnancy reduces the risk of malformations in the baby. Some problems the baby may develop include heart, spinal cord or kidney.

While you are improving your BG control use a reliable method of birth control. Examples: condom and foam or the birth control pill. Talk to your health care team to help you decide.

See your doctor before you start trying to get pregnant. Your doctor will do a blood test called an A1C. An A1C test measures the average blood glucose over the last 3 months. Once your A1C is less than 7%, your doctor will tell you it is safe to get pregnant.

Your blood glucose should be in the normal range before becoming pregnant. Blood glucose Goals are lower during pregnancy.

Type 1 or Type 2 diabetes BG Targets	A1C % goal	Before meal goal (mmol/L)	2-hr after meal goal (mmol/L)
Not planning pregnancy	≤ 7.0	4.0 – 7.0	5.0 – 10.0
Before pregnancy (Normal range)	< 7.0	4.0 – 6.0	5.0 – 8.0
During pregnancy	≤ 6.0	3.8 – 5.2	5.0 – 6.6

2. Take Folic Acid to prevent neural tube defects in the baby (spinal cord or brain abnormalities)

- Extra folic acid is recommended for **all** women.
- Prenatal vitamins contain 1 mg of folic acid.
- For women with diabetes, 1.0 – 4.0 mg folic acid is recommended after stopping birth control. When pregnant, continue to take folic acid until 12-14 weeks after your last menstrual period. After 14 weeks, continue to take a prenatal vitamin which contains 1 mg folic acid.

3. Check for Diabetes Complications before getting pregnant.

It is important for you and your doctor to be aware of any current complications of diabetes you may have before you become pregnant. Some complications can get worse during pregnancy which may leave you with a permanent medical condition.

Eye exams: See your ophthalmologist before you become pregnant to look for any signs of eye disease. Laser treatment for retinopathy can be done safely in pregnancy if necessary, but pregnancy may worsen unstable eye disease.

Urine Test for Protein: Checking for protein in urine can show early stages of kidney changes. Have a blood and urine test to make sure your kidneys are healthy.

Check for High Blood Pressure: High blood pressure can get worse in pregnancy. Your doctor will monitor your blood pressure during your pregnancy.

4. Check Thyroid:

Women with type 1 are at increased risk for thyroid disease. Thyroid-stimulating hormone (TSH) should be checked and medication can be given if a problem is found. The amount of medication will change during the pregnancy. Thyroid medication is safe to take in pregnancy.

5. Check Medications:

Some medications that you are currently taking may not be safe in pregnancy. Check with your doctor before trying to get pregnant. Your doctor may be able to change the type of pills to ones that are safe to take in pregnancy. Stop taking any Ace inhibitors prior to pregnancy. Some natural and homeopathic supplements may not be safe during pregnancy. Call Mother Risk at (416) 813-6780 to find out more.

Congratulations! Now you are Pregnant

Normal blood glucose in pregnant women is 20 % lower than in women who are not pregnant

Blood glucose goals during pregnancy	A1C < 6.0	Before Breakfast 3.8 – 5.2	2 hours after meals 5.0 – 6.6
---	-----------	-------------------------------	----------------------------------

Test BG frequently

- Testing BG before meals and 2 hours after meals will allow you to evaluate how well the insulin dose matches with your food and activity. Since pregnancy is such a changing condition, weekly insulin dose adjustments are usually required. Testing at bedtime and occasionally during the night will help with decisions about bedtime snacks.
- Work with your dietitian and nurse to help you interpret your BG results and how to make appropriate adjustments to your food and insulin.

Adjust insulin doses to match changing blood glucose.

The amount of insulin needed to keep BG in the normal range will change throughout the entire pregnancy.

- You are more **insulin sensitive** during the 1st trimester. The amount of insulin you need to keep your BG normal may decrease during 8-12 weeks of pregnancy. Testing your BG frequently will give you the information needed to lower the insulin doses to prevent or catch low blood glucose.
- Increasing insulin doses are expected during the second half of the pregnancy. (22-26 week) The insulin dose will continue to go up until the last few weeks of pregnancy.
- More low BG results near the end of pregnancy may indicate the placenta is changing. Increased fetal monitoring (fetal stress tests) may be needed to make sure the baby is well. Call your doctor if you are having a lot more low BG results than usual.
- It is safe to inject insulin in your stomach while you are pregnant. The insulin and/or needle will not harm the baby. Insulin does not cross the placental to the baby. The baby starts to make its own insulin at 9 weeks.

Adjust treatment to reduce lows (Hypoglycemia)

- Prevent lows by matching insulin to food and activity.
- More glucose testing is needed to catch low BG that you may not feel as easily. As blood glucose levels get closer to normal, the usual signs of low BG may change. You may no longer feel the early warning signs of shakiness or sweatiness but may only have other mild signs of sleepiness or confusion.
- Treat lows with 15 g of carbohydrate. $\frac{3}{4}$ c of juice or pop
- Retest BG in 15 minutes. If BG still less than 4 have another 15g of carbohydrate.
- Once your BG is over 4, have a snack if your next meal is more than an hour away.
- Glucagon is recommended for a severe low BG if you are unconscious and unable to eat. Family members need to learn how to use it. It is safe to give in pregnancy.

Prevent high Blood sugars & ketones

- Preventing ketones from forming is important! Ketones can be harmful to the baby. Blood (or urine) ketone testing is needed if BG is high and you are feeling ill. Fast treatment of high BG will prevent ketosis.
- Get a blood ketone meter and keep unexpired strips on hand for emergencies.
- Always take your insulin when you are ill, even if you are not eating as much as usual. Never skip your insulin.

Get a referral to a special pregnancy unit

The special pregnancy clinic will ensure you have the following tests:

- Ultra sound of the baby at 11-13 weeks gestation. NTS (nuchal translucency screening) to look for increased risk of Down syndrome. Diabetes does not increase the risk of Down syndrome.
- Routine screening includes maternal blood test at 16 weeks and a structural ultrasound done at 19-20 weeks.
- You will have an ultra sound every 4 weeks after 24 weeks to monitor the baby's health and how the baby is growing.

Possible complications for the mother

- Worsening high blood pressure or preeclampsia/eclampsia. Your blood pressure will be monitored throughout pregnancy.
- Hydramnios (excess amniotic fluid) is more common in pregnant women with diabetes.

Possible complications for the baby if mother has high BG

- High BG in early pregnancy can be related to birth defects. Heart and spinal cord problems are the most common.

High BG also can lead to:

- Large baby over 9 pounds
- Increased risk of baby having breathing problems, low blood glucose, jaundice, too many red blood cells, low calcium level, and heart problems. These problems are usually treatable and go away in a few hours or days.
- Increased risk of still birth or preterm delivery

Will your baby get type 1 diabetes later in life?

- If the mother has type 1 diabetes the risk is 1-2%
- If the father has type 1 diabetes the risk is 6%