



GESTATIONAL DIABETES

What is Gestational Diabetes? Gestational diabetes mellitus (GDM) is a condition in which women without previously diagnosed diabetes exhibit symptoms of diabetes, especially high blood glucose levels, during pregnancy. There is currently no international consensus on how to diagnose GDM. There exists a whole spectrum of professional opinions on GDM, ranging from it simply being undiagnosed type 2 diabetes and exceedingly rare, to, 1 in 6 pregnant women are likely affected.

To understand GDM, it is essential to first understand blood glucose, insulin, and diabetes in general. Glucose is the simplest of all the sugars and is the human body's primary fuel. The **blood glucose level** is simply a measure of how much glucose is available in the blood stream for cells to use as food to produce energy. A normal range is 90–130 mg/dL. **Insulin** is a hormone produced by the pancreas and it acts as a courier or chaperone for glucose between the blood stream and individual cells. It is insulin that “talks” to insulin receptors on individual cells which in turn activate the proper mechanism that allows the cells to take in glucose. **Diabetes** manifests itself as higher than normal blood glucose levels due to a relative lack of insulin in the body. Type 1 diabetes is an autoimmune disease in which the insulin producing cells in the pancreas are attacked and destroyed. Type 2 diabetes occurs because the insulin receptors on individual cells become resistant to the affect of insulin and therefore a higher concentration of insulin must circulate in the blood before the cells can properly fuel themselves with glucose.

In pregnancy, the placenta produces a hormone called **Human Placental Lactogen (HPL)**, which interferes with the insulin receptors of the mother's cells, thus *creating insulin resistance* and raising blood glucose levels. These higher blood glucose levels ensure that there is plenty of glucose available to the baby rapidly growing in the womb. Since all placentas create and secrete HPL, it is natural to conclude that all pregnant women should expect blood glucose levels somewhat higher than normal *for them* during their pregnancies.

Gestational diabetes is primarily diagnosed based on blood glucose levels. As mentioned above, there is no international consensus on exactly what levels are considered “too high” and therefore merit the gestational diabetes diagnosis. At present, US recommendations also vary. The American College of Obstetricians and Gynecologists (ACOG) suggests a 2-step screening/diagnosis process in which all pregnant women are *screened* for GDM but only those who are considered at risk go on to take a *diagnostic* test. Even though ACOG recommends this 2-step approach to managing GDM, it recognizes that the US Preventive Services Task Force in 2008 concluded that there is insufficient evidence to say whether universal screening for GDM will do more benefit than harm.

What are the risks associated with GDM? Even though there is no magic number or exact set of symptoms that absolutely determine a diagnosis of GDM, what is known for

sure is that the higher a mother's average blood glucose levels, the bigger her baby will be. Thus, the primary risk of GDM is that the baby will be larger than he would otherwise be which may lead to delivery complications such as shoulder dystocia or c-section. A baby born to a mother with very high blood glucose levels may also have significant blood sugar issues after birth and before the mother's breast-milk production is up to speed. Women with unmanaged GDM are at increased risk of developing type 2 diabetes after pregnancy, as well as having a higher incidence of induction and c-section.

Testing for GDM: ACOG recommends that all women be screened for GDM either by asking about risk factors or with a blood glucose screening test. ACOG's list of risk factors that make a woman more likely to have GDM include:

- Overweight: body mass index (BMI) greater than 25
- Older than 25-years-old
- Family members with diabetes, especially parents or siblings
- GDM or a large baby (8 pounds 13 ounces) in a previous pregnancy
- Member of a high-risk ethnic group, including Native American, Asian, Hispanic, and Pacific Islander.

If this list is used as above, most women will be at risk by age alone, so some suggest screening only for those who have at least one risk factor apart from age. Depending on the risk factor assessment, a glucose screening test is done. Screening is usually done at 28 weeks and involves consuming 50 grams of glucose and then testing blood sugar an hour later. If the blood sugar level comes back above 140 mg/dl, then a diagnostic test, called the Oral Glucose Tolerance Test (OGTT) is recommended.

An OGTT involves fasting before the test, consuming 100 grams of glucose and then having blood samples taken at 0, 1, 2, and 3 hours after consumption. If blood glucose levels are higher than recommended in 2 or more of the blood samples, then the diagnosis of GDM is made.

The rate of diagnosis of GDM in the United States is 7%. Note that ACOG's method for testing for GDM is based solely on blood sugar levels. No other common symptoms of diabetes such as extreme thirst, frequent urination, or spilling sugar in the urine are taken into consideration at all. It is also a highly specific test in that it is performed only one time and no other factors which may influence blood sugar levels, from environmental to emotional to physical are taken into consideration. This is an important consideration since in a 1993 study of women who took an OGTT two times, a week apart, nearly 1 in 4 of the women in the trial got different results the 2nd time.

Also remember that there are many other tests that are used to screen for GDM, including random finger pricks to test blood glucose levels using a hand-held glucometer, many variations on the glucose screening test, and sometimes even the totally different blood test, the hemoglobin A1c. This test measures a particular type of hemoglobin in

the blood and gives an average picture of blood glucose levels over about 6 weeks in a pregnant woman.

Treatment for GDM: Women who are diagnosed with GDM are advised to restrict carbohydrate intake, particularly processed, sugary foods. A regular regime of moderate exercise is also recommended. About 10-20% of women who have GDM will not be able to control their blood glucose levels through lifestyle changes alone and will be put on medications which stimulate the pancreas to produce more insulin, or in some cases, simply put on insulin injections for the duration of the pregnancy.

GDM and Midwifery Care: The midwifery model of care seeks to treat each woman and each pregnancy as unique. Midwives tend to reject the notion that every person must fit within a certain range or mold to be considered normal, yet at the same time, they recognize that a safe and healthy pregnancy is of highest importance. It is well documented that women with out of control, very high, blood glucose levels give birth to babies that are well over average weight and those babies tend to have health issues in the first few days of life. It is also true that some women simply, “make big babies,” but without any of the problems associated with a baby of a diabetic mother. Thus, you can expect your midwife to work with you to determine what, if any, screening or diagnostic testing you may wish to have. You can also expect her to monitor you carefully for signs of out of control blood glucose levels that may begin to compromise the safety of you, your baby, and your birth. In Colorado, your midwife will offer you a glucose screening test between 24 and 28 weeks of pregnancy per state regulation of midwifery. As with all aspects of your care, the decision is ultimately yours. It can be difficult to make a decision on what is best for you and your pregnancy when research doesn’t give clear answers. Don’t hesitate to ask questions and take time to consider what option is best for you.

References:

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