

Diabetes during Pregnancy

«Caring for Mother and Child!»



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Schweizerische Diabetes-Gesellschaft
Association Suisse du Diabète
Associazione Svizzera per il Diabete

What is Diabetes in Pregnancy?

Diabetes in pregnancy or gestational diabetes is identifiable by increased blood glucose levels that are first detected in late pregnancy. This diabetes during pregnancy probably occurs in 10 – 15% of all pregnant women and is hence one of the most frequent pregnancy complications.

Directly after childbirth, the diabetes manifested during pregnancy then fades in almost all women, although in 25 – 50% Type 2 diabetes develops at a later stage.

Diabetes occurs when the body is unable to produce an adequate amount of insulin. Insulin is a hormone, which is formed in the pancreas and regulates the body's sugar balance. The blood sugar serves as energy for the body.

The ongoing hormonal changes during pregnancy trigger a greater need for insulin in the pregnant mother. So that if the pancreas fails to produce an adequate amount of insulin, the blood sugar level rises and diabetes during pregnancy is the outcome.

With an enhanced level of blood sugar in the body, the sugar

passes through the placenta into the foetus. This responds with its own heightened production of insulin. However, unlike the sugar, this insulin is unable to pass the so-called placental barrier. For this reason, the higher insulin level stimulates the baby's growth and the storage of fat. This means that the babies are larger and heavier.

Who is the group at risk?

There is a greater risk of diabetes during pregnancy in cases of:

- Obesity with a body mass index of $> 30 \text{ kg/m}^2$
- A history of diabetes in the family (parents or siblings)
- Diabetes during an earlier pregnancy
- Women of African, Asian or Latin American descent
- Pregnant women over 30 years of age
- A history of miscarriages in late pregnancy
- Previous childbirth, when the baby weighed more than 4000 gram

These women are at risk and should be tested at their first pregnancy check-up. If the fasting blood glucose level is $< 5.1 \text{ mM}$, an oral glucose tolerance test with 75g glucose

should be performed between the 24th and 28th week of pregnancy.

Nevertheless 30 to 50% of all pregnant women present none of the above risk factors. In the interests of simplicity, therefore, it is recommended that all women should be tested between the 24th and the 28th week of pregnancy.

Symptoms and Diagnosis of Diabetes during Pregnancy

In most cases the mothers have no discomfort at all, i.e. the typical signs of diabetes (such as pronounced thirst, frequent urination) are not manifest.



Often only unspecific symptoms point to diabetes, as for example an enhanced susceptibility to urinary infections, elevated blood pressure, excessive amniotic fluid or an enhanced excretion of sugar in the urine.

The failure to treat diabetes during pregnancy might have the following effects for the child:

- More pronounced growth and weight at birth (in excess of 4000 gram)
- Disorders with the maturation of organs (the lungs are particularly affected in this respect)
- Childbirth complications
- Infant sugar deficiency after the umbilical cord has been cut
- Elevated levels of bilirubin in the blood (infant jaundice)

The proper treatment of diabetes during pregnancy will banish any anxiety that the baby might not be healthy!





The risks for the mother are:

- Pregnancy intoxication (pre-eclampsia) with high blood pressure, oedema, renal failure
- Birth injuries

Glucose tolerance test

The glucose tolerance test means that the level of blood sugar in the mother's blood is determined in a fasting state and also 1 and 2 hours after the intake of a glucose solution (75 gram). If the reading is below threshold value, the diagnosis will be gestational diabetes (fasting state: ≥ 5.1 mmol/l, 1 hour: ≥ 10 mmol/l, 2 hours: ≥ 8.5 mmol/l).

The term fasting state means that as from midnight the night before the test, you

-  eat nothing more,
-  drink no sweetened beverages and
-  no fruit juices,
-  but only water.

How is diabetes during pregnancy treated?

In 85% of the cases of diabetes during pregnancy, a change of diet is very effective. Several small meals in place of fewer, large meals and in cases of overweight (BMI in excess of 25), a slight reduction in calories are the initial steps to take.

You can be sure that the right diet – as advised by a dietician – lays the foundation for addressing diabetes during pregnancy.

Regular exercise that is easy to carry out without risk to the pregnant mother, such as swimming, walking and climbing stairs, often helps the body cells to react better to the body's own insulin.



If an adjusted diet and regular exercise fail to produce the right effect, insulin will have to be injected.

An optimal management of diabetes means checking your blood sugar level at home.

As a rule, oral anti-diabetics (blood sugar tablets) are not allowed.

Normally, diabetes during pregnancy disappears shortly after the placenta has been ejected. With some women, however, this metabolic disorder persists even after the child has been born. 25 – 50% of all mothers develop Type 2 diabetes mellitus inside a period of five to ten years after childbirth.

For this reason, professionals recommend that the blood sugar level is checked approximately 6 weeks after childbirth and then once a year.

Self-monitoring your blood sugar during pregnancy

Target values of blood sugar with gestational diabetes:

Recommendations of the Swiss Society of Endocrinology and Diabetes

Before the main meals:	$\leq 5.3 \text{ mmol/l}$
1 hour after main meals:	$\leq 8.0 \text{ mmol/l}$
2 hours after main meals:	$\leq 7.0 \text{ mmol/l}$

Self-monitoring your blood sugar level during dietetic therapy:

4 x daily

- in fasting state before breakfast
- exactly 1 or 2 hours after breakfast is finished
- exactly 1 or 2 hours after lunch is finished
- exactly 1 or 2 hours after evening supper is finished

Self-monitoring your blood sugar level during insulin therapy:

6 x daily

- in fasting state before breakfast
- exactly 1 or 2 hours after breakfast is finished
- before lunch and exactly 1 or 2 hours after lunch is finished
- before evening supper and exactly 1 or 2 hours after supper is finished



Please note:

If the target values are topped more than once, i.e. if at least 2 blood sugar readings a day on at least 2 days in 1 week are more than they should be, consult your attending physician or contact the diabetes advisory service.

Who can also give you advice?

Your physician or a Diabetes Society near your home:

Aargauer Diabetes-Gesellschaft	Kantonsspital / Haus 16	5000 Aarau	062 824 72 01
Diabetesgesellschaft Region Basel	Mittlere Strasse 35	4056 Basel	061 261 03 87
Berner Diabetes Gesellschaft	Swiss Post Box 101565, Helvetiaplatz 11	3005 Bern	031 302 45 46
Diabetes Biel-Bienne	Bahnhofstrasse / Rue de la Gare 7	2502 Biel-Bienne	032 365 00 80
Diabetes-Gesellschaft GL-GR-FL	Steinbockstrasse 2	7001 Chur	081 253 50 40
Diabetes-Gesellschaft Oberwallis	Kantonsstrasse 4	3930 Visp	027 946 24 52
Ostschweizerische Diabetes-Gesellschaft	Neugasse 55	9000 St. Gallen	071 223 67 67
Diabetes-Gesellschaft des Kt. Schaffhausen	Vordergasse 32 / 34	8200 Schaffhausen	052 625 01 45
Solothurner Diabetes-Gesellschaft	Solothurnerstrasse 7	4601 Olten	062 296 80 82
Zentralschweizerische Diabetes-Gesellschaft	Falkengasse 3	6004 Luzern	041 370 31 32
Diabetes-Gesellschaft des Kantons Zug	Artherstrasse 27	6300 Zug	041 727 50 64
Zürcher Diabetes-Gesellschaft	Hegarstrasse 18	8032 Zürich	044 383 00 60
diabètefrribourg - diabetesfreiburg	Route St-Nicolas-de-Flüe 2	1705 Fribourg	026 426 02 80
diabète genève	36, av. Cardinal-Mermillod	1227 Carouge	022 329 17 77
Association jurassienne des diabétiques	Case postale 6	2854 Bassecourt	032 422 72 07
Association des diabétiques du Jura bernois	Case postale 4	2610 Saint-Imier	032 940 13 25
Association Neuchâteloise des diabétiques	Rue de la Paix 75	2301 La Chaux-de-Fonds	032 913 13 55
Association Valaisanne du Diabète	Rue des Condémines 16	1950 Sion	027 322 99 72
Association Vaudoise du Diabète	Avenue de Provence 12	1007 Lausanne	021 657 19 20
Associazione Ticinese per i Diabetici	Via Motto di Mornera 4	6500 Bellinzona	091 826 26 78

Threshold value reference:

R. Lehmann, A. Troendle, M. Brändle

Recommendations of the Swiss Society for Endocrinology and Diabetology

Ther Umsch. 2009, 66: 695-706

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