

## GESTATIONAL DIABETES AND FOOD

In gestational diabetes, the maternal insulin production is insufficient to cover the increased need in pregnancy. Pre-pregnancy overweight or considerable weight increase during pregnancy decreases the effect of insulin and impairs the mother's sugar tolerance. This results in an elevated maternal blood sugar level and, possibly, foetal overgrowth. It is therefore important to keep the mother's blood sugar level normal and the weight increase under control during pregnancy. These goals are usually achieved by the means of diet, exercise and, if necessary, insulin therapy. Appropriate treatment of gestational diabetes ensures natural progress of the pregnancy and prevents foetal overgrowth. Postpartum weight management may prevent recurrent gestational diabetes and type 2 diabetes.

The diet can contain less carbohydrates but slightly more fat and proteins than is recommended for other diabetics. Recommended sources of carbohydrates include whole-grain products, vegetables, potatoes, liquid milk products, fruit, and berries. In gestational diabetes, the blood sugar level easily rises in the morning and after breakfast, which is why the breakfast is smaller than normal. The blood sugar level is kept in control by eating often and small amounts at a time, focusing on **high fibre** intake.

### CHOOSING YOUR FOOD

#### **Bread, other grain products and potatoes**

- Choose high-fibre whole-grain products (4-6 slices of bread a day): for example, different breads containing rye, crushed grain, oats, seeds or bran, crisp bread and porridge. A high content of white wheat flour in bread and other bakery products causes a rapid rise in the blood sugar level, and these products are low in fibre. Dark rice and pasta are good alternatives to potatoes.

#### **Berries, fruit**

- Berries and fruit contain fructose and glucose, which is why they raise the blood sugar level when consumed in large amounts. Berries and fruit are good sources of fibre, which makes them a refreshing addition to the diet of a gestational diabetic. You may eat 3-5 portions of fruit or berries, divided between the meals of the day. One portion is for example 2 dl berries, apple, small banana or 15 grapes.

#### **Milk products**

- Choose fat free milk, sour milk and yoghurt and low-fat cheese (< 17 % fat). Milk products are important sources of calcium, but high consumption leads to elevated blood sugar level and increased energy intake. You get enough calcium from 3–4 glasses of fat free milk or sour milk and 2–3 slices of cheese, for example. Milk product servings (1–2 dl) should be divided between the meals of the day to avoid excessive rise of the blood sugar level after meals. Avoid liquid milk products at breakfast, if your blood sugar level tends to rise easily after breakfast.

#### **Vegetables (green vegetables, root vegetables, legumes)**

- Eat plenty of vegetables at 5–6 meals, at least 500 g a day. At your main meals, fill half of your plate with vegetables. Add vegetables to your other meals, either plain or on your sandwich. Vegetables fill your stomach and help to balance the elevation of the blood sugar level after meals.

### **Fish, chicken, meat, eggs, cheese and cold cuts**

- Choose products with a **low fat and salt content**. In cooking, use as little salt and fat as possible. A moderate serving is enough to supplement your meal.

### **Fat**

- Use **6–8 tsp. of soft vegetable margarine (60-80%)** on bread and **1–2 tbs. of vegetable oil** or liquid margarine in cooking and eat fish twice a week to ensure sufficient intake of the necessary fatty acids and to improve your sugar tolerance. Almonds, nuts and seeds are also good sources of these fatty acids. Excessive use of hard animal fats and foods with a high fat content reduces the quality of fat, increases your weight and has a negative effect on your sugar metabolism.

### **Drink**

- To quench your thirst, drink water, low-salt mineral water and tea without sugar. Full-strength juices and sugar-containing soft drinks are not recommended, because they raise the blood sugar level rapidly and contain plenty of energy. Dilute full-strength fruit and berry juices with water. As for soft drinks, choose light ones sweetened with aspartame, acesulfame, steviol glycosides or sucralose.

### **Sugar**

- Sugars, syrups and honey are quick to raise the blood sugar level, but they may be included in the diet in small amounts. You do not necessarily need any other sweeteners. You may treat yourself to a daily low-sugar dessert, a bun or a piece of berry pie 1–2 times a week or a small amount (20 g) of sweets once a week.

### **Sweeteners**

- Small amounts of xylitol chewing gum and xylitol candy are allowed in daily use. Sweeteners (tablets and powders) containing aspartame, steviol glycosides or acesulfame may be used in drinks. So-called diet products cannot be used in any higher amounts than the corresponding sugar-containing products.

## **WEIGHT MANAGEMENT AND EXERCISE**

- The recommended average weight increase during pregnancy is 8–12 kg. For overweight mothers, 6–8 kg is enough or nothing if there is much overweight. In gestational diabetes, the recommended energy intake is about 1,600–1,800 kcal/day. If the weight before pregnancy is normal, the requirement for energy is usually higher, around 2,000-2,200 kcal/day.
- Regular brisk exercise helps to control your weight and enhances the utilisation of sugar in the body. Choose activities that you enjoy, and exercise daily or at least three times a week, 30 minutes at a time. Normal daily activities, such as walking to work, etc., provide natural opportunities for exercise. If exercise causes increased uterine contractions, you should exercise lighter. In addition, being in good shape will help you in labour.

## MONITORING OF THE BLOOD SUGAR LEVEL

- During the pregnancy the blood glucose limits in glucose tolerance test are 5,3 mmol/l (0 h), 10,0 mmol/l (1 h) and 8,6 mmol/l (2 h). A diet is the only required treatment if the fasting blood sugar (plasma glucose) level and the blood sugar level before meal are less than 5.5 mmol/l in home measurements with the 1 hour post-meal level being less than 7.8 mmol/l. Medical treatment is usually required if the fasting blood sugar (plasma glucose) levels repeatedly rises above the before-mentioned levels.
- Risk for type 2 diabetes is significantly increased for women who have had gestational diabetes. The glucose tolerance test is repeated 6-12 weeks after labour for women who have had medical treatment (insulin or tablet). The glucose tolerance test is repeated a year after labour for those who have been given only dietary treatment. If the results from the glucose tolerance test is normal, the test will be carried out every three years or annually if the glucose tolerance is weakened.

**MEAL PLAN Energy intake 1,600–1,800 kcal = 6.7–7.5 MJ (40-50 E% carbohydrates)**

<b>Meals</b>	<b>Examples of daily meals</b>	<b>Carbohydrates g/meal</b>
<b>Breakfast</b> 6–9 a.m.	1–2 slices whole-grain bread or 2–2.5 dl porridge 1–2 tsp. vegetable margarine or vegetable oil 2 dl fat free milk or viili fermented milk or 1.5 dl light yoghurt or 2 dl berries or one fruit 1–2 slices low-fat cheese or cold cuts vegetables coffee or tea	<b>20–30 g</b>
<b>Snack, if needed</b> 9–10 a.m.	1 slice bread + 1 tsp. vegetable margarine and/or 1 fruit	<b>10–20 g</b>
<b>Lunch</b> 11 a.m - 1 p.m.	1–2 potatoes or 1.5–2 dl rice or pasta 1–2 slices whole-grain bread + 1–2 tsp. vegetable margarine 2 dl fat free milk or sour milk 100–120 g fish, chicken, meat or baked beans plenty of vegetables + 1 tbs. salad dressing or a sandwich meal: for example, 2–3 slices whole-grain bread + 2–3 tsp. vegetable margarine, 2–3 slices low-fat cold cuts, salad, a fruit and 2 dl fat free milk, sour milk or natural yoghurt.	<b>40–60 g</b>
<b>Snack</b> 2–3 p.m.	1 slice whole-grain bread + 1 tsp. vegetable margarine and/or 1 fruit or 2 dl berries or 1.5 dl light yoghurt vegetables coffee or tea	<b>20 g</b>
<b>Dinner</b> 5–7 p.m.	2–3 dl soup or 2 dl casserole or filling salad 1–2 slices whole-grain bread + 1–2 tsp. vegetable margarine 2 dl fat free milk or sour milk 1 dl fruit soup or one fruit plenty of vegetables, or dinner may be similar to lunch.	<b>50–60 g</b>
<b>Evening snack</b> 8–10 p.m.	1–2 slices whole-grain bread + 1–2 tsp. vegetable margarine 1–2 slices low fat cheese or cold cuts 2 dl fat free milk, sour milk or viili fermented milk vegetables tea	<b>20–40 g</b>
<b>Total carbohydrates</b>		<b>160–230 g</b>

Use soft 60–80% vegetable margarine on bread (1 tsp. a slice) and 1–2 tbs. of oil-based salad dressing in salads. Use the plate model to plan your main meals.



Plate model (Picture: Valtion ravitsemusneuvottelukunta ©)

A 1,800 kcal diet suits most pregnant women. Some are recommended to follow a diet of 1,600 kcal or less to control the weight. The smaller servings and carbohydrate amounts in the table equal about 1,600 kcal and the larger ones equal about 1,800 kcal. **Regular, frequent meal timing keeps the blood sugar level steady** and help to control your appetite. Insulin-treated gestational diabetics must ensure that their meals contain enough carbohydrates, especially the evening snack. By following the meal plan you will automatically get the carbohydrates right, but you may adjust the plan according to your own eating habits, using the carbohydrate exchange table.

## CARBOHYDRATE EXCHANGE TABLE

Each of the portions below contains about 10–15 g carbohydrates (ch)

<p><b>Bread, porridge, cereals, buns</b></p> <p>1 thin slice of toast (20 g)            1 slice (30 g) of rye bread (Ruispala, Reissumies, Real)            ½ roll (small)            1 piece of crisp bread or 2 thin crisps            1 graham crisp roll            ½ Karelian pasty            2-3 slices low carb bread            1–1.5 dl porridge cooked in water (1/2 dl flakes)            1 dl porridge cooked in milk            1 dl berry porridge            1.5 dl 'velli' gruel            2 tbs. muesli            1 dl cereal            1 piece of Weetabix            3–4 dl popcorn            1 thin slice of plaited bun-loaf or ½ bun            1 thin slice of coffee cake, roll cake / Swiss roll or layer cake / cream cake            2 biscuits or crackers</p>	<p><b>Fruit, berries</b></p> <p>1 apple, pear, orange, peach, mango, papaya, nectarine or kiwi fruit (100–150 g)            ½ banana (50 g) or ½ grapefruit            1–2 mandarins            2–3 plums, prunes or apricots            1 dl (15) grapes or 2 tbs. raisins            1 dried or fresh fig            1 dl cherries            2–3 dl berries (1–2 dl defrosted frozen berries)            1 large slice of watermelon            1 dl fruit salad            1 dl crushed pineapple or 2 pineapple rings            1 dl full-strength fruit juice or nectar            2 dl diluted juice            1 dl fruit soup            1 dl berry soup or 4 dl sugar-free berry soup            1 tbs. jam or marmalade            1 frozen juice bar</p>
<p><b>Potatoes, rice, pasta</b></p> <p>1 potato (60 g)            1 dl mashed potatoes or chips (French fries)            1 dl potato salad            1 dl boiled rice            1 dl boiled pasta or noodles            1 dl boiled beans/peas or lentils            1 dl corn            1 dl beetroot salad or cooked root vegetable salad (rosolli)</p>	<p><b>Milk products, soy products, rice milk</b></p> <p>1 glass (2 dl) fat free milk or sour milk            2 dl natural yoghurt or 'viili' fermented milk            1–1.5 dl light berry or fruit yoghurt            1 dietary ice cream cone or cup            1 dl or 1 bar regular ice-cream            1 dl berry or fruit quark            2 dl soy milk or 1 dl soy yoghurt            3 dl rice milk</p>
<p><b>Dishes</b></p> <p>1 dl casserole, risotto or lasagne            1.5 dl beef, fish, chicken or pea soup            2 dl instant soup            1 vegetable patty            3 small pancakes            2 dl gravy</p>	<p><b>Drinks</b></p> <p>2 dl diluted juice            1 dl full-strength fruit juice            1 dl 'sima' mead            1 dl sugar-containing soft drink            4 dl home-brewed beer            1 bottle of alcohol-free beer</p>
<p><b>Note! Most of these have a high fat content:</b></p> <p>meat-filled pastry 20 g carbohydrates/portion            deep fried meat pie 35 g "            small pizza 60 g " (large 70-90 g ch)            hamburger 30 g " (large clubb. 50g hh)            hot dog 30 g "            wrap (tortilla) 40 g "</p>	<p><b>Snacks, sweets, sugar</b></p> <p>100 g (2 dl) almonds or nuts            20 g (2 dl) crisps (potato chips)            20 g chocolate, muesli bar or chocolate bar            10 g sweets or liquorice or 15 g chewing gum            3 tsp. granulated sugar or 3–5 sugar cubes            1 tbs. honey or syrup</p>

The carbohydrate exchange table helps you to have more variation in your meals, and you can apply the alternatives according to your own tastes. It is recommended to use the alternatives within the same group of foods to keep the meals balanced. Only a small amount of sweets is recommended to be exchanged once a week. Go for the healthy choices during the week – on festive occasions you may indulge yourself a little.