A Guide to Managing Your Gestational Diabetes

<table>
<thead>
<tr>
<th>Date:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient:</td>
<td></td>
</tr>
<tr>
<td>Dietitian Contact:</td>
<td>01-8172548 (Laura)</td>
</tr>
<tr>
<td>Diabetes Midwife Contact:</td>
<td>087-1427065 or 087-6832477</td>
</tr>
</tbody>
</table>
What is gestational diabetes?

Gestational diabetes (GDM) is a condition where there is too much glucose (sugar) in your blood. It is a form of diabetes that develops during pregnancy and usually goes away after your baby is born.

Most of the glucose in your body comes from foods called carbohydrates (e.g. bread, cereal). All carbohydrates break down into glucose after you eat them.

A hormone called insulin normally controls the amount of glucose in your blood. It acts like a key to open the cells in your body so that glucose can enter and be used for energy (fuel).

High levels of pregnancy hormones released by the placenta (usually during the 2nd and 3rd trimester) work against your insulin so your body needs to make more insulin than normal to manage your blood glucose levels.

GDM occurs when you can’t make enough extra insulin to manage your blood glucose levels. Without enough insulin, the level of glucose in your blood rises higher than normal after eating carbohydrate.
Why is it important to manage gestational diabetes?

Women often feel worried and upset when they first find out that they have GDM. While it is good to know the problems that can come with poor management of GDM, it is important to remember that good management greatly reduces the risks of these complications. Your diabetes team will work with you to manage your blood glucose levels.

If your diabetes is poorly managed, high blood glucose levels during pregnancy can cause health problems for you and for your baby.

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**Health problems for you:**
- **Pre-eclampsia** (a serious condition with high blood pressure)
- **Urinary Tract Infections** (UTI)
- **Induction of labour** (labour is started artificially)
- **Instrumental delivery** or **Caesarean section**

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**Health problems for your baby:**
- **Shoulder dystocia** (baby’s shoulders get stuck during delivery)
- **Macrosomia** (large baby)
- **Jaundice** (yellowing of baby’s skin and eyes)
- **Respiratory Distress Syndrome** (breathing difficulties)
- **Hypoglycaemia** (low blood glucose) and **hypocalcaemia** (low blood calcium).

If your baby develops any of these complications, they may need admission to the neonatal (baby) intensive care unit.
Managing your gestational diabetes

For most women with GDM, blood glucose levels can be managed with healthy lifestyle changes.

HEALTHY EATING + PHYSICAL ACTIVITY

This booklet will help you to plan a healthy lifestyle for pregnancy to help manage your blood glucose levels.
Foods you eat contain three basic nutrients: protein, fat and carbohydrate. **Carbohydrates** have the largest effect on your blood glucose level as they all **break down into glucose** after you eat them (this is normal).

Carbohydrates are found in many of the foods we eat:

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Even though you have GDM **you still need to eat carbohydrates** to get enough energy for you are your baby. The key to managing your blood glucose levels with GDM is to:

1. Eat **regular meals** and **snacks**
2. Choose the **right type** of **carbohydrate** foods
3. Watch your **carbohydrate portion** size
Step 1: **Eat regular meals and snacks**

To give you a **steady supply of energy** and help to **manage blood glucose** levels you should aim to spread your carbohydrate intake over:

- **3 regular meals** (for example, 4-5 hours apart)
- and **2-3 small snacks** (if needed) between your meals.

![Blood glucose level comparison](image)

It is best to **avoid very long gaps** between your meals. Including an **evening snack** (within 30 minutes of bedtime) with **carbohydrate and protein** can also be helpful in managing hunger overnight and reduce high morning blood glucose levels.
Step 2: Choose the right type of carbohydrate

Unprocessed carbohydrate foods, which are low in sugar and high in fibre often release glucose more slowly. This may help to manage your blood glucose levels. They also have a higher nutritional value, which is important for a healthy pregnancy.

Try to choose these foods at most of your meals:

<table>
<thead>
<tr>
<th>BETTER carbohydrate choices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bread</strong></td>
</tr>
<tr>
<td>Wholegrain, granary, multiseed, stoneground (e.g. McCambridge®), rye, “Low GI” breads (Aim less than 15g carbohydrate per slice). Pita, chapatti or roti made from chickpea or whole-wheat flour.</td>
</tr>
<tr>
<td><strong>Cereals</strong></td>
</tr>
<tr>
<td>Jumbo porridge oats, All Bran® (sticks) or Shredded Wheat®.</td>
</tr>
<tr>
<td><strong>Grains</strong></td>
</tr>
<tr>
<td>Whole-wheat pasta, white pasta, egg noodles, basmati rice, brown rice, whole barley, quinoa, wholemeal couscous</td>
</tr>
<tr>
<td><strong>Potato</strong></td>
</tr>
<tr>
<td>Boiled new or baby potatoes (with skin). Sweet potatoes, yams, cassava.</td>
</tr>
<tr>
<td><strong>Snacks</strong></td>
</tr>
<tr>
<td>Rye crispbread with seeds (e.g. Ryvita®) and oatcakes. Popcorn (preferably unsalted).</td>
</tr>
<tr>
<td><strong>Fruit</strong></td>
</tr>
<tr>
<td>Good choices include: Apple, pear, peaches, plums, berries, fresh figs, kiwi and oranges (Only 1 at a time and not at breakfast).</td>
</tr>
<tr>
<td><strong>Milk &amp; Yoghurt</strong></td>
</tr>
<tr>
<td>Plain, Greek, natural, “diet” and no added sugar flavoured yoghurts (Aim less than 12g carbohydrate per serving). Whole, low-fat and skimmed milks. Milk alternatives (soy, nut and oat milks) with no added sugar (aim for 5g total carbohydrate per 100ml, or less).</td>
</tr>
</tbody>
</table>
Highly processed carbohydrates (often “white” carbohydrates) often produce a faster, higher rise in your blood glucose levels. They also have lower nutritional value.

Try to limit or avoid these foods:

<table>
<thead>
<tr>
<th>Carbohydrate choices to LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bread</strong></td>
</tr>
<tr>
<td>White and wholemeal bread. White bagel and bread rolls</td>
</tr>
<tr>
<td>White crackers, pastries, pizza, yorkshire pudding.</td>
</tr>
<tr>
<td>White scones, cakes, biscuits.</td>
</tr>
<tr>
<td><strong>Cereals</strong></td>
</tr>
<tr>
<td>All other breakfast cereals including: quick-cook oats, muesli, Weetabix®, Shreddies®, Ready-Brek®, Coco-Pops®, Cornflakes®, Rice Krispies®, Branflakes®.</td>
</tr>
<tr>
<td><strong>Grains</strong></td>
</tr>
<tr>
<td>Easy-cook/ long grain rice or jasmine rice.</td>
</tr>
<tr>
<td>Pot noodle.</td>
</tr>
<tr>
<td><strong>Potato</strong></td>
</tr>
<tr>
<td>Mashed potato, chips, potato croquettes, waffles.</td>
</tr>
<tr>
<td><strong>Snacks</strong></td>
</tr>
<tr>
<td>Crisps, corn snacks</td>
</tr>
<tr>
<td><strong>Fruit</strong></td>
</tr>
<tr>
<td>Tinned fruit in syrup, dried fruits, fruit juices and smoothies.</td>
</tr>
<tr>
<td>Fruits with higher amounts of sugar: Bananas, grapes, mango, pineapple and melon.</td>
</tr>
<tr>
<td><strong>Milk &amp; Yoghurt</strong></td>
</tr>
<tr>
<td>Yoghurts with added sugar or fruit compote. Yoghurt drinks (Yop®, Yazoo®). Flavoured milk and milkshakes. Milk alternatives (soy, nut and oat drinks) with added sugar.</td>
</tr>
</tbody>
</table>
**Choose alternatives to high sugar foods:**

<table>
<thead>
<tr>
<th></th>
<th>Limit high sugar foods</th>
<th>Choose low sugar foods</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sugar</strong></td>
<td>Sugar (brown and white). Honey, syrups and treacle.</td>
<td>Artificial sweeteners (Candere®️, Nutrasweet®, Splenda®️)</td>
<td></td>
</tr>
<tr>
<td><strong>Jams</strong></td>
<td>Jams, marmalade, chocolate spread.</td>
<td>Fruit only or low-sugar jams (Follán®, Kelkin®, St. Dalfour®️).</td>
<td>Not suitable at breakfast.</td>
</tr>
<tr>
<td><strong>Drinks</strong></td>
<td>Full sugar fizzy drinks, hot chocolate.</td>
<td>Diet fizzy drinks, no-added sugar squash, water, tea, coffee.</td>
<td>Max. 2-3 cups of tea or coffee per day.</td>
</tr>
<tr>
<td><strong>Sweets and desserts</strong></td>
<td>Sweets, chocolates, biscuits, muffins, cakes. Desserts with added sugar. Sugar-coated breakfast cereals.</td>
<td>Sugar-free gum, mints and boiled sweets. No-added sugar jelly and desserts. Rich Tea, Goldgrain, Oat biscuits (Nairns®️), Marietta.</td>
<td>Limit biscuits to 1-2/day and at most twice per week.</td>
</tr>
<tr>
<td><strong>Soups &amp; sauces</strong></td>
<td>Ready-made sauces, meals and soups. Baked beans and tinned spaghetti (often have high levels of sugar and salt).</td>
<td>Home-made soups, sauces and curry (e.g. with tinned tomatoes or passata, garlic, ginger, herbs, spices). Reduced sugar baked beans.</td>
<td></td>
</tr>
</tbody>
</table>

**Read the ingredients label:** Look for foods with no added: sugar, glucose, maltose, dextrose, honey, syrup, fructose or fruit juice.

Some **medications** for heartburn/reflux or constipation may also contain sugar. Speak with your pharmacist for advice on sugar-free options.

‘**Diabetic**’ foods like sweets, biscuits and cakes are **not recommended**. The sweeteners used in these foods may cause stomach cramps. They can also be expensive and high in calories and fat, which may lead to weight gain.
Step 3: Watch your carbohydrate portions

The foods listed below all contain similar amounts of carbohydrate (10-15g) in one serving (or “choice”). As a general guide, most women will need to eat:

- **1-2 carbohydrate “choices”** at breakfast (max 30g carbohydrate)
- **3-4 carbohydrate “choices”** at other main meals (45-60g carbohydrate)
- **and 1 carbohydrate “choice”** at snacks (10-15g carbohydrate).

<table>
<thead>
<tr>
<th>Food</th>
<th>Serving size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Starch (Contains 1 carbohydrate “choice” or 15g of carbohydrate)</strong></td>
<td></td>
</tr>
<tr>
<td>All Bran® (sticks)</td>
<td>30g</td>
</tr>
<tr>
<td>Shredded Wheat®</td>
<td>1 biscuit (22g)</td>
</tr>
<tr>
<td>Porridge (jumbo oats)</td>
<td>20g / ¼ cup/ 2 tbsp (oats)</td>
</tr>
<tr>
<td>Bread (e.g. wholegrain, stoneground or low GI)</td>
<td>1 medium slice (30-35g)</td>
</tr>
<tr>
<td>Pitta bread (wholemeal)</td>
<td>1 small (30g) or ½ large (60g)</td>
</tr>
<tr>
<td>Tortilla wrap or chapati</td>
<td>½ of 8” wrap (full weight 60g)</td>
</tr>
<tr>
<td>Seeded rye crisp breads (e.g. Ryvita®)</td>
<td>2 crackers</td>
</tr>
<tr>
<td>Wholegrain/seeded oat crackers</td>
<td>3 crackers</td>
</tr>
<tr>
<td>New or baby potato (boiled)</td>
<td>100g or 3 baby potatoes</td>
</tr>
<tr>
<td>Sweet potato</td>
<td>75g (boiled) or 50g (baked)</td>
</tr>
<tr>
<td>Potato wedges (homemade)</td>
<td>50g (cooked)</td>
</tr>
<tr>
<td>Yam (1 slice) or plantain (unripe)</td>
<td>45g (boiled)</td>
</tr>
<tr>
<td>Cassava</td>
<td>50g (raw)</td>
</tr>
<tr>
<td>Pasta, rice (brown/basmati)</td>
<td>50g (cooked) or 20g (uncooked)</td>
</tr>
<tr>
<td>Couscous (semolina)</td>
<td>70g (cooked) or 20g (uncooked)</td>
</tr>
<tr>
<td>Tapioca flour</td>
<td>1 heaped tblsp (15g)</td>
</tr>
<tr>
<td><strong>Fruit (Contains 1 carbohydrate “choice” or 15g of carbohydrate)</strong></td>
<td></td>
</tr>
<tr>
<td>Apple, orange or pear</td>
<td>1 medium fruit</td>
</tr>
<tr>
<td>Kiwi, mandarin or plum</td>
<td>2 small fruit</td>
</tr>
<tr>
<td>Berries</td>
<td>1 cup/ handful</td>
</tr>
<tr>
<td><strong>Milk and Yoghurt (Contains 1 carbohydrate “choice” or 10g of carbohydrate)</strong></td>
<td></td>
</tr>
<tr>
<td>Yoghurt</td>
<td>125g pot</td>
</tr>
<tr>
<td>Cow’s milk</td>
<td>200ml glass</td>
</tr>
</tbody>
</table>

**Milk alternatives** (e.g. soy, nut, oat drinks) with no added sugar contain varying amounts of carbohydrate. Aim for 5g total carbohydrate per 100ml, or less.
Carbohydrate-free foods

The following foods contain little or no carbohydrate and do not cause blood glucose levels to rise. Bulking up meals and snacks with these foods will help to satisfy your appetite.

**Vegetables:**
- Aubergine
- Asparagus
- Avocado
- Bean sprouts
- Bok choy
- Broccoli
- Brussels sprouts
- Cabbage
- Carrots
- Cauliflower
- Celery
- Courgette
- Cucumber
- Salad greens
- Mushrooms
- Olives
- Onions
- Peppers
- Radish
- Sugar snap peas
- Tomatoes

Some vegetables contain carbohydrate (e.g. peas, beans and sweetcorn), but this is broken down very slowly into glucose. If you plan on eating more than ½ cup (125g) of these foods at one time, you should count this as 1 carbohydrate “choice”.

**Protein foods:**
- Meat, fish, chicken (lean cuts with no breadcrumb/batter)
- Eggs
- Cheese
- Nuts, nut-butters (sugar-free) and seeds
- Tofu

**Fats and oils:**
- Butter
- Vegetable spreads
- Vegetable and olive oils
Healthy eating for GDM means getting enough nourishment from a variety of foods to help baby’s growth and development.

1. Eat **regular meals** with the **right amount** and **type** of **carbohydrate** to provide you and your baby with **energy**.

2. Include **protein** (meat, fish, chicken, eggs, cheese, legumes e.g. beans, lentils) at **all meals** and **snacks** to support a healthy pregnancy and help manage blood glucose levels.

3. Eat **2-3 fruit** (1 at a time) and plenty of **vegetables** each day for **vitamins** and **fibre**.
   ✓ Base your meals on vegetables/salad and eat a range of colours to get a variety of nutrients.

4. Eat **3-5 servings** of **dairy** or **milk alternatives** (unsweetened) each day for **protein** and **calcium**.
   ✓ Choose low-fat options and avoid any soft, mold-ripened or un-pasteurised cheeses.

5. Eat **healthy fats** (nuts, seeds, avocado and plant oils).
   ✓ Avoid fast food, processed meats, cakes and biscuits.
   ✓ Eat oily fish (salmon, trout, mackerel, sardines) 1-2 per week or take a fish oil supplement (not cod liver oil) for **omega-3** to support baby’s brain development.
   ✓ Omega-3 is also found in Soya, walnut & rapeseeds.

6. Get enough **vitamin D** (eggs, salmon, mackerel, sardine and fortified milks) to help your body absorb calcium.
   ✓ You should also take a **daily vitamin D supplement** of 5-10 µg. Pregnancy multivitamins contain 10 µg (not cod liver oil).
Putting it all together: Your sample meal plan

Use the sample meal-plan below and the list of carbohydrate “choices” on page 10 to help plan your meals.

Meals should be adjusted to suit your individual needs. Talk to your dietitian about a plan that is right for you.

**Breakfast: (1-2 carbohydrate choices)**

✔ 1 Shredded Wheat®/30-40g All-Bran® sticks
   + 150-200ml milk

or 40g porridge (jumbo oats) (made on water) + boiled egg

or 30g porridge (jumbo oats) made with 200ml milk

or 1 slice wholegrain toast + 1 pot diet yoghurt (see list on pg. 6)

or 2 slices wholegrain toast + egg/cheese, avocado and tomato

or 1 slice wholegrain toast + ½ can baked beans (low sugar)

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_Hormones can make managing blood glucose levels at breakfast harder than after other meal. Eating a small meal at this time can help._

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**Morning snack: (1 carbohydrate choice)**

✔ 2 Ryvita® crackers + 30g light cheese

or 1 pot of yoghurt (see list on pg. 6) with 3 spoons of berries.

or 200ml milk (small glass)

or 1 piece of fruit + small handful of nuts or nut butter (no sugar)

or 1 slice of bread + turkey/chicken/cheese + salad.

or popcorn (15g bag) + handful of nuts.
Lunch: *(3-4 carbohydrate choices)*
✓ 2-3 wholegrain bread or 1-1½ wrap or 100-150g cooked rice/pasta or 200-300g boiled potatoes
✓ and meat or fish or chicken or eggs or cheese or beans
✓ and vegetables or salad or homemade soup
✓ and 1 fruit/1 milk/1 yoghurt (see list on pg. 6)

Afternoon snack: *(1 carbohydrate choice)*- See morning snack ideas

Dinner: *(3-4 carbohydrate choices)*
✓ 2-3 wholegrain bread or 1-1½ wrap or 100-150g cooked rice/pasta or 200-300g boiled potatoes
✓ and meat or fish or chicken or eggs or cheese or beans
✓ and vegetables or salad or homemade soup
✓ and 1 fruit/1 milk/1 yoghurt (see list on pg. 6)

Supper: *(1 carbohydrate choice and protein)*
✓ 1 slice of bread/ 2 Ryvita®/ 3 oat crackers
   + cheese/ egg/ peanut butter

*You should not go hungry.* If you feel hungry or notice any weight loss, ask to speak with your dietitian to make sure you are getting enough nourishment.
**Weight gain for pregnancy**

Gaining too much weight while pregnant can affect your pregnancy, labour and your baby’s future health. The amount of weight you need to gain from the 2nd trimester onwards depends on your BMI (Body Mass Index) at the start of pregnancy.

<table>
<thead>
<tr>
<th>BMI under 25:</th>
<th>Expect to gain about <strong>0.4 - 0.5kg each week</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI over 25:</td>
<td>Expect to gain about <strong>0.2kg each week</strong></td>
</tr>
</tbody>
</table>

It is important to check your weight when following this plan. If you feel you may be gaining too much or too little weight, ask to speak with your dietitian for some extra guidance. Losing weight at any stage **during pregnancy** is not recommended. **The best time to lose weight is before or after pregnancy.**

**Physical activity and gestational diabetes**

Regular physical activity is an important part of a healthy pregnancy and helps lower your blood glucose levels. Walking, swimming, pilates, yoga, antenatal and gentle exercise classes are all good options. If you are unable to do any of these activities, regular upper-arm exercises can be effective in reducing blood glucose levels.

Aim to build up to at least **30 minutes of suitable exercise** most days of the week. This can be broken into 2 x 15mins or 3 x 10mins during the day. For example, including a 10-15 minute walk after meals can be beneficial in keeping blood glucose levels within target.

It is very important that you do not overdo it, especially if you are not used to regular exercise. Always get your doctor’s advice before starting a new activity, especially if you have any health problems, pains or discomfort.
Monitoring your gestational diabetes control

Your diabetes midwife will ask you to attend the Breakfast Club outpatient clinic to monitor your gestational diabetes control.

This visit to the Breakfast Club will involve:

- A fasting blood test (no food or drinks from 8pm the night before).
- A blood test 1 hour after eating your breakfast (this breakfast will be provided to you free of charge).
- A visit with the Dietitian (at your first clinic visit).

Target blood glucose levels are:

- Less than 5.0 mmol/l fasting
- Less than 7.0 mmol/l 1 hour after eating

You will also be given an appointment for an ultrasound scan when you are 34 weeks pregnant to monitor your baby’s growth.

Your diabetes midwife will monitor the results of each of these tests closely. You will be contacted with your results:

- If the blood tests are normal, you will be sent a letter with a follow-up appointment for the Breakfast Club clinic in 2-4 weeks.
- If the blood tests are not normal, you will be asked to attend the Breakfast Club clinic in 1 week or the Day Assessment unit for a “Blood Sugar Series”.

The Blood Sugar Series involves a fasting blood test, an after breakfast blood test and a blood test before and after lunch. The results of these blood tests will be discussed with the diabetes consultant the following Tuesday to decide on your treatment.
Personal goals

Can you think about any changes you need to make to manage your blood glucose levels? Write down what you can do to make a change.

1. _____________________________________________

2. _____________________________________________

3. _____________________________________________

4. _____________________________________________

Monitor your progress: food and activity diary

You may find it useful to keep a food and activity diary to track your progress, especially in the first few weeks.

Each day, write down your meals, snacks and activity you have done. Note the positive changes you have made and anywhere there might still be room for improvement.

Feel free to bring this diary with you to your diabetes clinic visits and discuss with your dietitian.
What happens after your baby is born?

After your baby is born, we will check their blood glucose level before the first 3 feeds to make sure that their blood glucose levels are not low. For most women with GDM, blood glucose levels will return to normal after their baby is born. However, it is important that you attend for a repeat “Glucose Tolerance Test” 6 weeks after your baby is born to check your blood glucose level has returned to normal.

**IMPORTANT:** If you are not given an appointment for a repeat Glucose Tolerance Test on discharge, please contact your diabetes midwife on: 087-1427065 or 087-6832477.

Women who develop GDM during pregnancy are at higher risk of developing type 2 diabetes in the future. It is important to attend your GP every year to test for diabetes. To help delay or even prevent the development of type 2 diabetes you should also continue to eat a healthy diet, take daily physical activity and lose some weight if you are overweight. Ask your GP to refer you to a dietitian if you would like extra support managing your weight.

**Breastfeeding** is encouraged for all women with gestational diabetes. It can protect you and your baby against developing diabetes, obesity and other illnesses later in life. It is also the healthiest way to feed your baby.

Future pregnancies

For future pregnancies, it is recommended that you contact the diabetes service as soon as you find out you are pregnant. You will be given an appointment for the Diabetes Service even before your first booking visit appointment. You will need to start following the diet and lifestyle guidelines from the beginning of your pregnancy.
Developed by the Diabetes Dietitians and Diabetes Midwives at The Rotunda Hospital, in collaboration with dietetic colleagues at The National Maternity Hospital, The Coombe Women and Infants University Hospital and Cork University Maternity Hospital.

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