Nutrition Therapy for Gestational Diabetes (GDM)

Presented by: Maternity Dietitian

This is a consensus document from Dietitian/ Nutritionists from the Nutrition Education Materials Online, "NEMO" Team. Disclaimer: http://www.health.qld.gov.au/masters/copyright.asp
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Session overview

• What is GDM and what role does food play?
• Carbohydrate foods
  – Carbohydrate counting
  – Glycaemic index (GI)
  – Reading labels
• Healthy eating during pregnancy
• Physical activity
• Healthy pregnancy weight gain
• Trouble shooting
What is GDM?

- Higher than normal blood glucose (sugar) levels during pregnancy
Blood Glucose Monitoring

• You will need to monitor your blood glucose levels four times per day
  – Fasting (before breakfast)
  – 2 hours after each main meal
  – Blood Glucose Targets

• The diabetes educator will explain this in more detail
What are carbohydrates?

- Main source of energy for your body
- Carbohydrate foods also provide your body with important vitamins, minerals, and fibre.

What are some carbohydrate foods?
Foods with carbohydrates

Cereals and grains

Starchy vegetables and legumes

Fruit (fresh, canned, dried, juice)

Dairy products (not cheese)
Foods with little or no carbohydrates

Meats, fish, eggs, cheese

Non-starchy vegetables

Berries, passionfruit, lemon, lime

Avocado, nuts, oils, fats
Do I need to stop eating carbohydrates?

NO!

- **Too little** carbohydrate can increase the risk of complications and of having a small baby.
- **Too much** carbohydrate at a meal or snack will cause your blood glucose levels to be high.

You need to:
- Include carbohydrate at each meal and snack
- Spread out carbohydrate foods over the day
- Monitor your carbohydrate portions
Monitoring carbohydrate portions

• Different foods contain different amounts of carbohydrate

• Carbohydrates can be counted in portions (15g of carbohydrate) which you can mix and match over the day to help to manage your blood glucose levels.
What is 1 carbohydrate portion?

Cereals and grains
1 portion = 1 regular thin slice bread or 2/3 cup cereal flakes or 1/4 cup raw oats or muesli or 1/2 cup cooked pasta/noodles or 1/3 cup cooked rice or 2–3 plain biscuits/crackers.

Starchy vegetables and legumes
1 portion = 1 medium potato or 1/2 cup mashed sweet potato/potato or 1/2 cup/cob of corn or 1/2 cup legumes (e.g. baked beans).

Fruit (Fresh, canned, or dried)
1 portion = medium apple/orange/pear or 1/2 large banana or 2 or 3 plums/apricots/kiwifruit or 3/4 cup diced or tinned fruit or 15–20 grapes/cherries or 1 tablespoon dried fruit or 125ml juice.

Dairy products (not cheese)
1 portion = 1 cup milk (cow or soy) or 1/2 tub fruit yoghurt (100g) or 1 tub natural or diet yoghurt (200g) or 1/2 cup custard.
How many portions should I have?

- As a guide to get you started:
  - **At main meals:** aim for 3-4 carbohydrate portions.
  - **At snacks:** aim for no more than 1-2 carbohydrate portions.

- Separate meals and snacks by at least 2 hours.

**IMPORTANT**

Eating foods with no carbs or a small amount between meals and testing can affect your reading. It is best not to eat or drink anything between finishing your meal and testing your blood glucose, but water is ok.
<table>
<thead>
<tr>
<th>Breakfast</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 slices of multigrain toast</td>
</tr>
<tr>
<td><strong>plus</strong></td>
</tr>
<tr>
<td>Avocado, scrambled eggs, mushrooms and spinach</td>
</tr>
<tr>
<td><strong>plus</strong></td>
</tr>
<tr>
<td>250mL glass of milk</td>
</tr>
</tbody>
</table>

Let’s try carb counting
Breakfast

- 2 slices of multigrain toast
- Avocado, scrambled eggs, mushrooms and spinach
- 250mL glass of milk

= 3 carbohydrate portions
Let's try carb counting

Breakfast
- $1\frac{1}{3}$ cups of low GI cereal flakes
- *plus*
  - 250mL of milk
- *plus*
  - 1 medium apple
Let’s try carb counting

Breakfast

$1\frac{1}{3}$ cups of low GI cereal flakes

*plus*

250mL of milk

*plus*

1 medium apple

= 4 carbohydrate portions
Let’s try carb counting

Lunch
Sandwich (2 pieces multigrain bread) with meat and salad
plus
1 small banana
Let’s try carb counting

Lunch
Sandwich (2 pieces multigrain bread) with meat and salad
plus
1 small banana

= 3 carbohydrate portions
Let’s try carb counting

Lunch
2 small chappati

plus

Meat and vegetable curry (no starchy vegetables)

plus

1 medium orange
Let’s try carb counting

<table>
<thead>
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<tr>
<td>2 small chappati</td>
</tr>
<tr>
<td>plus</td>
</tr>
<tr>
<td>Meat and vegetable curry (no starchy vegetables)</td>
</tr>
<tr>
<td>plus</td>
</tr>
<tr>
<td>1 medium orange</td>
</tr>
</tbody>
</table>

= 3-4 carbohydrate portions (depends on size of chappati)
Let’s try carb counting

<table>
<thead>
<tr>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td>150-200g piece of meat</td>
</tr>
<tr>
<td>plus</td>
</tr>
<tr>
<td>½ cup mashed sweet potato</td>
</tr>
<tr>
<td>plus</td>
</tr>
<tr>
<td>1 cob of corn, broccoli and cauliflower</td>
</tr>
</tbody>
</table>
Let’s try carb counting

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<tr>
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</tr>
</tbody>
</table>

= 3 carbohydrate portions
Let’s try carb counting

Dinner
1$\frac{1}{3}$ cups basmati rice
*plus*
Meat and vegetable stir fry
Let’s try carb counting

<table>
<thead>
<tr>
<th>Dinner</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{4}{3}) cups basmati rice</td>
<td></td>
</tr>
<tr>
<td>plus</td>
<td>Meat and vegetable stir fry</td>
</tr>
</tbody>
</table>

\[= 4 \text{ carbohydrate portions}\]
Snack ideas

Each snack is 1 carbohydrate portion (have up to 2 per snack)

- 1 medium piece of fruit
- 2 small fruit (plums, kiwi fruit)
- 1 tub diet yoghurt or ½ tub low fat yoghurt
- 1 glass of milk
- 2-3 multigrain crackers or 2-3 plain biscuits
- 1 slice of thin raisin toast
- 1 slice of soy and linseed toast
What if I am still hungry?

- Add extra of the low or no carbohydrate foods into your meals.

- For example:
  - Add more meat/chicken/fish/eggs at meals
  - Add more salad or non-starchy vegetables at meals
  - Cheese on crackers or toast
  - Nuts in addition to morning tea/afternoon tea tea snack
  - Extra berries or passion fruit with yoghurt or cereals
Activity 1

• Write down what you had for breakfast today or dinner last night.

• What are the carbohydrate foods?

• How many carbohydrate portions did you have?

• Share with the rest of the group
What about sugar?

• It’s okay to still include small amounts of sugar e.g. 1 teaspoon of sugar in coffee, a thin spread of jam on bread.

• **Avoid** foods with lots of added sugar (softdrink, cakes, lollies, chocolate, fruit juice, fruit drinks)

• If you consume a lot of sugar then changing to an artificial sweetener or artificially sweetened foods will have less of an affect on blood glucose e.g. diet soft drink or cordial
What about takeaway or extras?

- Big Mac Meal = 10 carb portions
- 2 Tim Tam = 2 carb portions
- 3 Slices Pizza = 4-5 carb portions
- Sml Noodle Box = 5 carb portions
# Checking labels

## NUTRITION INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>Quantity per serving</th>
<th>Quantity per 100g</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy</strong></td>
<td>447 kJ</td>
<td>1490 kJ</td>
</tr>
<tr>
<td><strong>Protein</strong></td>
<td>3.7 g</td>
<td>12.4 g</td>
</tr>
<tr>
<td><strong>Fat, total</strong></td>
<td>0.4 g</td>
<td>1.3 g</td>
</tr>
<tr>
<td>— saturated</td>
<td>0.1 g</td>
<td>0.3 g</td>
</tr>
<tr>
<td><strong>Carbohydrates</strong></td>
<td>20.1 g</td>
<td>67.0 g</td>
</tr>
<tr>
<td>— sugars</td>
<td>1.0 g</td>
<td>3.3 g</td>
</tr>
<tr>
<td><strong>Sodium</strong></td>
<td>81 mg</td>
<td>270 mg</td>
</tr>
<tr>
<td><strong>Dietary fibre</strong></td>
<td>3.3 g</td>
<td>11.0 g</td>
</tr>
</tbody>
</table>

Contains oats, wheat and soy as indicated in bold type.

Ingredients: Wholegrain wheat (97%), raw sugar, salt, barley malt extract, vitamins (niacin, thiamin, riboflavin, folate), mineral (iron).

All Weet-Bix™ Original contains cereals containing gluten. All Weet-Bix™ Original pack sizes (except for 30g and 1.12kg) contain cereals containing gluten and may contain soy.
Glycaemic Index (GI)

A measure of how quickly or slowly your body digests and absorbs the carbohydrate in the foods you eat.

- **Choose** low GI carbohydrate
- Limit high GI carbohydrate
If you make your own breads or chappati, swap to besan (chickpea) or multigrain flour instead of white flour.

TIP

Choose more often

Choose small portions, less often
Choose low GI

- Doongarra rice ‘Clever Rice’
- Low GI brown or white rice
- Basmati rice

Choose more often

Choose small portions, less often

- Calrose rice
- Long grain white rice
- Medium grain white rice
- Jasmine rice
- Brown rice
Choose low GI

Choose more often

Choose small portions, less often
Choose low GI

Choose more often
Choose small portions, less often
Choose low GI

Choose more often

Choose small portions, less often
Healthy Eating during Pregnancy

Enjoy a wide variety of nutritious foods from these five food groups every day. Drink plenty of water.

- Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties
- Rolled oats
- Quinoa
- Poletta
- Hind
- Fatcucum

Vegetables and legumes/beans
- Kidney beans
- Black kidney beans
- Red lentils
- Chickpeas
- Frozen peas

- Fruit
- Milk, yoghurt, cheese and/or alternatives, mostly reduced fat
- Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans

- Mixed nuts
- Lamb
- Chicken
<table>
<thead>
<tr>
<th>Food group</th>
<th>Number of food serves per day</th>
<th>1 serve equals ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables and legumes/beans</td>
<td>5</td>
<td>½ cup cooked green or brassica or cruciferous vegetables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>½ cup cooked orange vegetables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>½ cup cooked, dried or canned beans, chickpeas or lentils (no added salt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 cup raw leafy green vegetables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75g starchy vegetables (e.g. 1 small or ½ medium potato, sweet potato, taro, sweet corn or cassava)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75g other vegetables (e.g. 1 small-medium tomato)</td>
</tr>
<tr>
<td>Fruit</td>
<td>2</td>
<td>1 piece medium sized fruit (e.g. apple, banana, orange, pear)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 pieces smaller fruit (e.g. apricot, kiwi fruit, plums)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 grapes or cherries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>½ cup 100% juice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 cup diced, cooked or canned fruit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30g dried fruit (e.g. 1½ tbsp sultanas, 4 dried apricot halves)</td>
</tr>
<tr>
<td>Grain (cereal) foods, mostly wholegrain, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley</td>
<td>8 ½</td>
<td>1 slice of bread</td>
</tr>
<tr>
<td></td>
<td></td>
<td>½ medium bread roll or flat bread</td>
</tr>
<tr>
<td></td>
<td></td>
<td>½ cup cooked rice, pasta, noodles, polenta, quinoa, barley, porridge, buckwheat, semolina, cornmeal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 3 cup breakfast cereal flakes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>¼ cup muesli</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 crisp breads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 crumpet or 1 small English muffin or scone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>¼ cup flour</td>
</tr>
<tr>
<td>Food group</td>
<td>Number of food serves per day</td>
<td>1 serve equals ...</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------</td>
<td>--------------------</td>
</tr>
</tbody>
</table>
| Lean meat and poultry, fish, eggs, nuts and seeds, and legumes/beans | $3^{1/2}$ | 65g cooked lean red meats (e.g. beef, lamb, pork, venison or kangaroo) or $1/2$ cup lean mince or 2 small chops or 2 slices roast meat  
80g cooked poultry (e.g. chicken, turkey)  
100g cooked fish fillet or 1 small can fish, no added salt, not in brine  
2 large eggs (120g)  
1 cup (170g) cooked dried beans, lentils, chickpeas, split peas, canned beans  
170g tofu  
$1/3$ cup (30g) unsalted nuts, seeds or paste, no added salt |
| Milk, yoghurt, cheese and/or alternative (mostly reduced fat) | $2^{1/2}$ | 1 cup (250ml) milk  
$1/2$ cup (125ml) evaporated unsweetened milk  
40g (2 slices) hard cheese (e.g. cheddar)  
200g yoghurt or custard |
| Discretionary serves for taller or more active women | $0-2^{1/2}$ | Additional serves from the five food groups or  
3–4 sweet biscuits  
30g potato crisps  
2 scoops ice-cream  
1 Tbsp (20g) oil |
<table>
<thead>
<tr>
<th>Time</th>
<th>Food Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td>½ cup of uncooked rolled oats or muesli with ½ cup low fat milk <strong>OR</strong> 2 slices of multigrain bread with avocado, tomato, an egg or peanut butter <strong>OR</strong> 1 piece fruit or ½ cup of fruit juice</td>
</tr>
<tr>
<td><strong>Morning snack</strong></td>
<td>1 piece of fruit <strong>OR</strong> A tub of low fat fruit yoghurt</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td>2 slices of multigrain bread or 1 bread roll with fillings <strong>OR</strong> 1 piece of fruit or 1 tub of low fat yoghurt</td>
</tr>
<tr>
<td><strong>Afternoon snack</strong></td>
<td>4 multigrain cracker biscuits with a low fat spread or tomato and cheese <strong>OR</strong> 1 glass of low fat milk with 2 tsp milo</td>
</tr>
<tr>
<td><strong>Main meal</strong></td>
<td>100–150g of lean meat, chicken, fish or eggs (note: no carbohydrate in protein foods) 1 cup sweet potato, sweet corn, or potato Add plenty of non-starchy vegetables ½ cup of tinned fruit with ½ cup of low fat yoghurt or custard <strong>OR</strong> a maximum of 1 cup cooked basmati rice, add vegetables and meats as desired with no other carbohydrate in the meal <strong>OR</strong> a maximum of 1 and ½ cups pasta or noodles, add vegetables and meats as desired with no other carbohydrate in the meal</td>
</tr>
</tbody>
</table>
Keep active

- Physical activity helps to lower your blood glucose levels
- Aim for at least 30 min of activity per day
- Doing 10-15min of activity after meals will help use up some glucose from that meal
- Try to avoid sitting for long periods or sleeping straight after meals
- Ask your doctor, midwife or physiotherapist about safe exercise
Activity 2

• Consider:
  – How many carb portions
  – Physical activity
  – GI
  – Timing of meals
Healthy pregnancy weight gain

- Depends on pre-pregnancy weight
- Managing GDM may slow weight gain down
- We will help you if you are not gaining enough weight or gaining weight too quickly.

<table>
<thead>
<tr>
<th>If your pre-pregnancy BMI was:</th>
<th>You should gain:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 18.5kg/m²</td>
<td>12.5 to 18kg</td>
</tr>
<tr>
<td>18.5 to 24.9kg/m²</td>
<td>11.5 to 16kg</td>
</tr>
<tr>
<td>25 to 29.9kg/m²</td>
<td>7 to 11.5kg</td>
</tr>
<tr>
<td>Above 30kg/m²</td>
<td>5 to 9kg</td>
</tr>
</tbody>
</table>
What happens after pregnancy?

- Repeat glucose tolerance test at 6-12 weeks
- You now have an increased risk of type 2 diabetes

You can lower your risk by:
- Continued healthy eating
- Regular physical activity
- Getting back to a healthy weight
- Breastfeeding your baby
Troubleshooting

• If you have a high reading after meals it’s important to work out why
  – Did I eat too much carbohydrate or a larger meal than usual?
  – Did I have high GI foods?
  – Was I active enough?
  – Did I have my snack too close to a main meal?
  – Was I stressed or unwell?
What next?

Complete all monitoring, bring your book and meter to appointments.

Questions?
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