

Women's & Children's Hospital

Healthy Eating for Gestational Diabetes



**Government
of South Australia**

SA Health



**Women's
& Children's
Hospital**

Contents

- 1 What is Gestational Diabetes?
- 1 Why diet is important?
- 2 Healthy eating during pregnancy
- 4 Healthy eating when you have Gestational Diabetes
- 4 Carbohydrate foods
- 10 Label reading
- 13 Counting carbohydrates in recipes
- 14 'Free' foods
- 14 Artificial sweeteners
- 15 Fat
- 15 Protein
- 16 Physical activity
- 16 Medication and insulin
- 16 What happens after my baby is born?
- 17 Sample meal plan
- 18 Make your own plan
- 19 Key points
- 19 More information

What is Gestational Diabetes?

Gestational Diabetes is diagnosed when high blood glucose (sugar) levels are found during pregnancy. It is a temporary form of diabetes and usually goes away after the baby is born.

Gestational Diabetes occurs when the hormones made by the placenta during pregnancy stop insulin from working properly. Insulin is a hormone that allows glucose to pass from the blood into the body's cells where it can be used for energy. If insulin is not working properly, then blood glucose will rise.

High blood glucose levels in the mother usually passes into the baby and can cause the baby to grow bigger than normal. This may make delivery harder. It can also lead to low blood glucose in your newborn baby. When gestational diabetes is well controlled, these risks are greatly reduced.

This booklet provides you with information on healthy eating to help keep your blood glucose within the normal range for the rest of your pregnancy. For most women this can be done by:

- > following a healthy diet (as recommended for all pregnant women),
- > spreading your food intake over the day (particularly carbohydrate foods),
- > avoiding foods which contain large amounts of sugar,
- > checking blood glucose levels,
- > regular physical activity.

Why diet is important?

The most important part of treatment for gestational diabetes relates to **food** and your **eating pattern**. Diet is important to:

- > meet the nutrition needs of you and your baby
- > help keep your blood glucose levels in the normal range and reduce problems for your baby.

Healthy eating during pregnancy

It is important for women who are pregnant to eat a balanced diet. This will help your baby to grow strong and healthy. When pregnant you need to meet your own nutritional needs and also those of your baby. The types of food you eat is more important than the amount of food. Calcium, iron, protein and folate are examples of nutrients which are more important during pregnancy.

You can use the Australian Guide to Healthy Eating to help you understand what foods you need. As shown in the diagram, foods are divided into 5 food groups:

1. Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties
2. Vegetables and legumes/beans
3. Fruit
4. Milk, yoghurt, cheese and/or alternatives, mostly reduced fat
5. Lean meat and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans

Each group provides different nutrients. Try to choose a variety of foods from each of the food groups.

Some foods do not fit into the five food groups. These are not essential for your body. These 'extra' foods, pictured outside the five food groups (bottom right corner) should be chosen only sometimes or in small amounts. It is even more important to avoid or limit these foods when you have gestational diabetes.

For more information on nutrition during pregnancy please refer to the SA Health booklet, *Nutrition for pregnancy and breastfeeding* – Women's and Children's Hospital.

www.wch.sa.gov.au/services/az/other/nutrition/nut_resources.html



Australian Guide to Healthy Eating

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

Drink plenty of water.

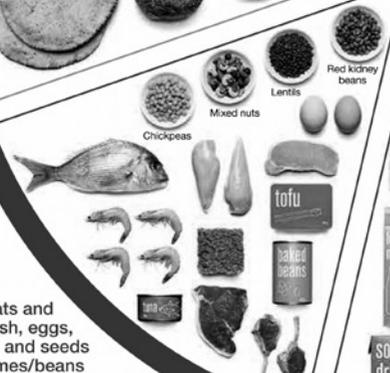
Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties



Vegetables and legumes/beans



Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans



Fruit

Milk, yoghurt, cheese and/or alternatives, mostly reduced fat



Use small amounts

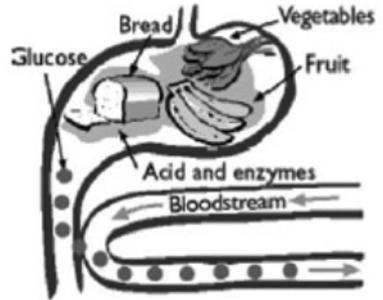


Only sometimes and in small amounts



Healthy eating when you have Gestational Diabetes

When you have gestational diabetes, large amounts of carbohydrate foods eaten at the same time can cause high blood glucose levels. This is because carbohydrates are broken down into glucose in your body. This glucose is used by the body as your main source of energy.



To help prevent high blood glucose levels you will need to:

- > satisfy your hunger and maintain a healthy weight by eating small amounts often.
- > spread your intake of food evenly over the day. It is better to have three small meals and three snacks than to eat three large meals.
- > The next few pages have more information on carbohydrate foods and how to eat well to help prevent high blood glucose levels.

Carbohydrate foods

Many foods contain carbohydrates, for example bread, milk, fruit, lollies and soft drinks.

Which carbohydrate foods do I need to eat?

Healthy carbohydrate foods, including:

- > Bread and breakfast cereals
- > Grains e.g. pasta, rice, noodles, couscous, quinoa or polenta
- > Potato, sweet potato, corn
- > Legumes, such as baked beans, red kidney beans and lentils
- > Fruit (fresh and tinned in natural juice)
- > Milk, yoghurt, custard



It is important to eat these healthy carbohydrate foods as they are a good source of vitamins, minerals, fibre and energy. These foods are important for you and your baby. They **should be eaten regularly** throughout the day but need to be counted so that you do not eat too much carbohydrate at once.

Which carbohydrate foods do I need to avoid?

High sugar carbohydrate foods, including:

- > Regular soft drinks and cordial
- > Lollies, regular jelly



These high sugar carbohydrate foods should **not be eaten** for the rest of your pregnancy. They will raise your blood glucose levels very high, very quickly.

- > Table sugar
- > Jam, honey

Research shows that a **small amount** of these carbohydrate foods, as part of a healthy eating plan, should not raise your blood glucose levels too much. Use only a half to one teaspoon per main meal. When using these small amounts, these carbohydrate foods do not need to be counted. It is best to avoid larger amounts, but if you do eat larger amounts of these foods they must be counted as part of your carbohydrate serves for the day.

High fat carbohydrate foods, include:

- > Sweet cakes and biscuits
- > Chocolate
- > Takeaway foods e.g. Pizza, burgers, chips, etc.

These high fat carbohydrate foods can be **eaten sometimes**, in small amounts only. You will need to count these foods in your carbohydrate serves for the day.

How much carbohydrate?

Remember, large amounts of carbohydrate foods eaten at one time will cause the blood glucose level to rise. Spreading carbohydrate foods over the day will help prevent this. This includes foods high in added sugar and also healthy carbohydrate foods.

To help you to eat the right amount of carbohydrate, you can count the number of carbohydrate serves that you eat during the day. As a guide, aim for about 2–3 serves at each main meal and 1–2 serves at each snack.

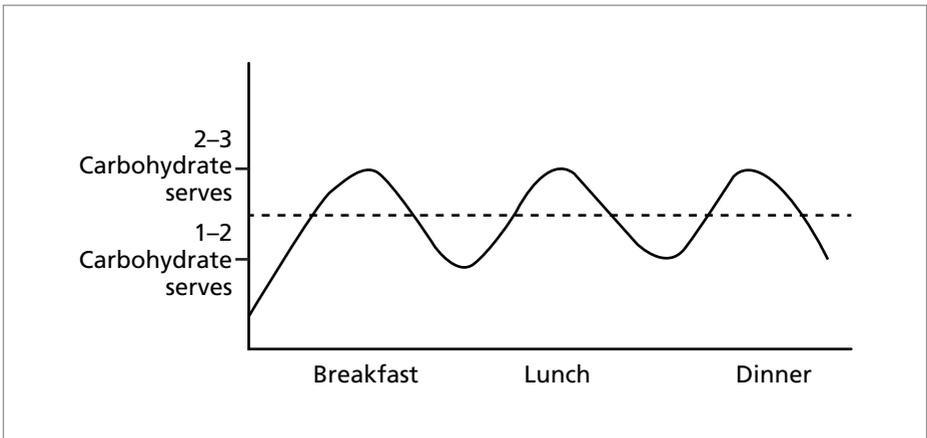
A serve is approximately 15grams of carbohydrate.

2–3 carbohydrate serves at each main meal (approx. 30–45 grams)

1–2 carbohydrate serves at each snack (approx. 15–30 grams)

1 serve = approximately 15 grams of carbohydrate

The foods listed in the tables on pages 8–9 all contain one serve of carbohydrate.



What type of carbohydrate?

All carbohydrate foods are broken down into glucose when eaten and will raise blood glucose levels. However, different types raise the blood glucose levels at different rates.

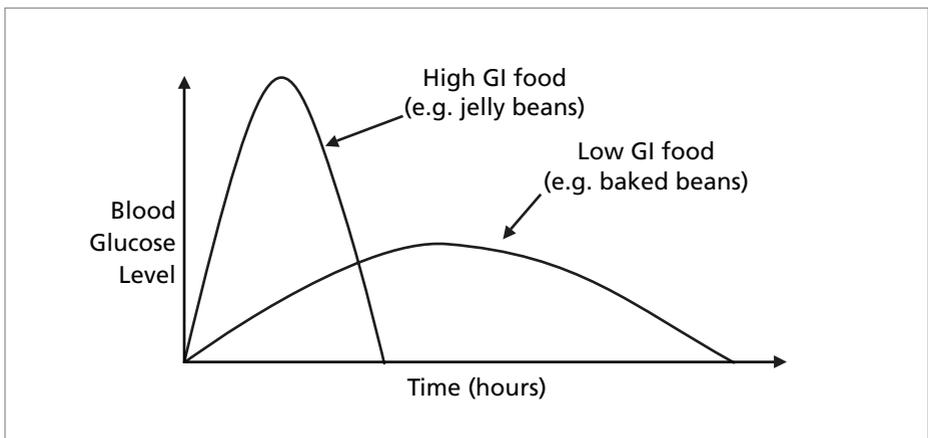
The **Glycemic Index (GI)** of a food tells you how quickly and how high your blood glucose levels rise after eating that food (see diagram below).

- > Foods with a **low GI** produce a **slower, lower rise** in blood glucose levels.
- > Foods with a **high GI** produce a **fast, high rise** in blood glucose levels.
- > Low GI foods will help to keep you fuller for longer.

Aim to include 1 low GI food at each meal/snack.

The foods listed in the tables on pages 8–9 show you the low GI or better choices to make when planning your meals and snacks.

For more information visit www.glycemicindex.com.



Breads and cereals

Carbohydrate serves (1 serve)	Better choices
Bread > 1 slice of bread or fruit bread > 1/2 bread roll > 1/2 English muffin > 1/2 wholemeal chapatti (30g)	> Choose wholegrain/multigrain breads, fruit bread or 'low GI' white breads.
Breakfast cereals > 1 1/2 Weetbix or Vita Brits > 1/4 cup oats, muesli, All Bran > 1/2 cup flake type cereal	> Choose wholegrain cereals e.g. porridge, Weetbix, Vita Brits, Guardian, muesli, All Bran.
Grains/pasta > 1/3 cup cooked pasta / noodles > 1/3 cup cooked rice, couscous, or quinoa > 1/4 cup cooked polenta	> Choose Basmati, Doongara brown, wild rice. All types of pasta, noodles are good choices. > Blue gourmet pearl couscous, quinoa, polenta.
Biscuits/crackers > 4 Vita-Weats > 6 water crackers/Jatz/Salada > 10 rice crackers/Sakatas > 2-3 plain sweet biscuits/Milk Coffee/Digestives/Yo-Yo/Marie > 2 rice cakes	> Choose grainy crackers e.g. Vita-Weats. Ryvita, multigrain rice crackers/cakes > Choose higher fibre plain sweet biscuits e.g. Digestives, Belivita breakfast biscuits

Milk and milk products

Carbohydrate serves (1 serve)	Better choices
> 1 cup (250ml) milk/soy milk	> Milk and milk products are low GI choices. > Best choices are low fat varieties.
> 1 tub (200g) natural yoghurt > 1/2 tub (100g) fruit or flavoured yoghurt > 1 tub (200g) artificially sweetened or 'diet' yoghurt > 1/2 cup (100ml) custard	
> 1 scoop plain ice-cream > 1 paddle pop > 6 squares plain milk chocolate	

Vegetables and legumes

Carbohydrate serves (1 serve)	Better choices
Vegetables > 1 Potato (boiled/baked) > 1/2 cup mashed potato > 1 medium sweet potato, yam > 10–15 hot chips > 200ml carrot juice > 250ml pumpkin soup	> Choose sweet potato as it has a lower GI than regular white potato.
> 1/2 cup corn kernels > 1 small corn cob	> Corn is low GI.
Legumes > 1/2 cup/small tin (130g) of baked beans > 2/3 cup cooked or canned kidney/haricot beans, chickpeas > 3/4 cup cooked or canned lentils	> All legumes are good choices and are low GI.

Fruit

Carbohydrate serves (1 serve)	Better choices
> 1 medium apple, banana, peach, pear, orange > 2 medium kiwifruit, mandarin, or nectarine > 3 small apricots or plums > 1 1/2 cups watermelon, rockmelon or honeydew melon > 20–25 grapes > 15–20 cherries	> Most fruits have a low GI and are good choices, but limit to 1 serve at a time . > Choose fresh fruit instead of fruit juice.
> 3/4 cup of tinned fruit salad (in natural juice, drained)	
> 6 dried apricot halves > 1 tablespoon sultanas/raisins	
> 150ml apple juice > 200ml orange juice (unsweetened)	

Label reading

Reading food labels is useful for working out the carbohydrate serves of foods not listed in this booklet.

Nutrition Information Panel

Muesli		
NUTRITION INFORMATION		
Serving Size: 50g (3/4cup)		
	Per Serve (50g)	Per 100g
Energy	890kJ	1780kJ
Protein	4.5g	9g
Fat	7.8g	15.6g
Carbohydrate		
Total	28.8g	57.6g
Sugars	14.2g	28.4g
Dietary Fibre	4.3g	8.6g
Sodium	60mg	120mg

INGREDIENTS: Cereals (49%) [wheat, oats], fruit (17%) [apricot, apple, raisins, sultanas, cranberries], seeds and nuts (16%) [almonds, pepitas, cashews, hazelnuts, coconut], raw sugar, honey, sunola oil, Maltodextrin, cinnamon, minerals (calcium), emulsifier (471), vitamins (natural Vitamin E, Folate).

Carbohydrate

- > Total = all carbohydrate including sugars.
- > Sugars = indicates how much of the total carbohydrate comes from sugars.

**Sugars will include all added sugars as well as naturally occurring sugars.
Fruit and milk contain naturally occurring sugars.**

Step 1: Look at manufacturer’s amount per serving size.

Step 2: Quantity per serving column refers to the serving size.

Step 3: To work out the amount of total carbohydrates in the portion you are eating. If you are eating 2 biscuits divide the 14.4g by 2, giving you 7.2g of total carbohydrate.

Step 4: Refer to the table 'working out carbohydrate serves from a label' to work out how many carbohydrate serves you are eating.

ARNOTT'S: Vita-Weat™ 100% Natural		
NUTRITION INFORMATION		
Serving Per Package: 11 – Serving Size: 23.2G (4 Biscuits)		
	Quantity Per Serving	Quantity Per 100G
Energy	364kJ	1570kJ
Protein	2.8g	12.2g
Fat	2.2g	9.4g
Saturated	0.3g	1.1
Trans	0.0	0.1g
Polyunsaturated	0.9	3.8g
Monounsaturated	1.0	4.3g
Cholesterol	0mg	0mg
Carbohydrate	14.4g	62.3g
Sugars	0.4g	1.8g
Dietary Fibre	2.8g	12.0g
Sodium	105mg	452mg
Niacin Vit (B3)	1.7mg	7.4mg

INGREDIENTS: Grains (86%) [wheat, poppy seeds, linola seeds, canola seeds, rye, barley, corn, sunflower, kernels, soya bean], vegetable oil, salt, sugar. May contain traces of egg, milk, nut and sesame.

Note: 100g column is used to compare nutrients in similar food products.

Working out carbohydrate serves from a label

Use this guide to work out the number of serves. Remember, one carbohydrate serve is about 15 grams of carbohydrate.

5–10g total carbohydrate = ½ serve
11–19g total carbohydrate = 1 serve
20–25g total carbohydrate = 1½ serves
26–34g total carbohydrate = 2 serves

In the Muesli example (page 11):

¾ cup of muesli = g of carbohydrate = serves.



Counting carbohydrates in recipes

To work out the amount of carbohydrates in a recipe you need to:

1. Identify all the ingredients containing carbohydrate.
2. Work out the carbohydrate content of each ingredient by reading the nutrition information panel (see page10)
3. Add up the total carbohydrates in the whole recipe
4. Divide the total carbohydrates by the number of serves the recipe makes.
5. This gives you the amount of carbohydrate per serve, see page 12 to work out how many carbohydrate serves you are having. You can see $32\text{g} = 2$ carbohydrate serves.

Example: Recipe for Banana Muffin (makes 12 muffins)

Ingredients	Carbohydrate (grams)
2 cups of self-raising flour (approx. 150g flour per cup)	215g
1/2 cup brown sugar (approx. 125g)	125g
1/3 cup vegetable oil	0g
1 cup milk (250ml)	15g
2 eggs	0g
2 ripe medium bananas	30g
Total Carbohydrates	385g
Carbohydrate per muffin (divide 385g by 12 serves)	32g

Remember:

> Limit sugar to $\frac{3}{4}$ cup total added sugar per recipe.

'Free' foods

The foods below have **very little or no carbohydrate** when eaten in normal amounts. These can be eaten freely without affecting your blood glucose levels.

- > All salads and vegetables (except potato, corn, sweet potato and legumes).
- > Fruit – lemon, lime, passionfruit, rhubarb or small serve of berries.
- > Herbs, spices and sauces used in cooking.
- > Drinks – water, soda water, small amounts of diet cordial/soft drink, tea and coffee.
- > Some vegetables contain a very little amount of carbohydrate but if concentrated may need to be counted, such as pumpkin soup / carrot juice. See page 8 for carbohydrate serve.

Remember:

- > *Avoid foods with a higher risk of listeria.*
- > *Tea, coffee and cola drinks contain caffeine. Large amounts of caffeine can harm your baby. It is best to drink no more than 2–3 cups of tea, coffee or cola drinks a day.*

Artificial sweeteners

Artificial sweeteners are found in diet food products, e.g. diet cordial/soft drink, sugar free lollies. They can be used safely in small amounts during pregnancy.

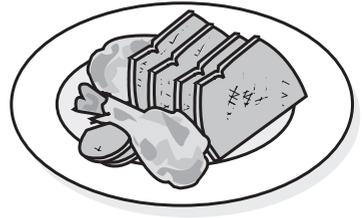
Research shows that a **small amount of table sugar** as part of a healthy eating plan should not raise your blood glucose levels too much. If using table sugar instead of artificial sweetener it is best to use a small amount only **i.e. a half to one teaspoon of sugar as part of a main meal.**

Fat

While fat does not directly affect your blood glucose levels, if eaten in large amounts it can cause extra weight gain. This may be hard to lose once the baby is born and may also make controlling your blood glucose level harder.

A few tips:

- > Limit the amount of fat you eat, in particular saturated fat (butter, fatty meats, pastries).
- > Use small amounts of 'healthy' fats such as canola, olive, or sunflower oils, and polyunsaturated margarines.
- > Choose lean meats and remove skin from chicken.
- > Choose low fat dairy products.
- > Limit takeaway food.



Protein

Protein is needed for the growth of your baby and your body's own needs. Good protein foods include lean meat, skinless chicken, fish, eggs, reduced fat cheese and nuts.

These foods will not directly affect your blood glucose levels.

Legumes are a part of this group, but they also contain carbohydrate, so they will need to be counted in your carbohydrate serves.

A little extra protein is needed in the second half of your pregnancy. Most people will eat more protein than they need, so having a protein food at lunch and dinner each day will easily meet your needs.

Remember:

- > *Avoid foods with a higher risk of listeria.*

Physical activity

Regular activity is an important part of a healthy lifestyle and healthy pregnancy.

Moderate activity (meaning a slight but noticeable increase in your breathing and heart rate) can help with your blood glucose control, e.g. walking/swimming.

Pregnancy is not the time to begin a tough new exercise regime.

Remember:

> *Always check with your doctor if you are not sure before you start an exercise program.*

Medication and insulin

Gestational diabetes is usually managed with healthy eating, regular physical activity and blood glucose monitoring. Some women's bodies require a little extra help to manage blood glucose levels. Medication, such as tablets or insulin injections, may be needed.

Your doctor will review this and let you know if this is needed.

Remember:

> *If your doctor starts you on medication, it is still important to eat a healthy diet and continue with regular physical activity.*

What happens after my baby is born?

Usually, blood glucose returns to normal within six weeks after birth. Your doctor will check your blood glucose after your baby is born to make sure it has returned to normal.

Women who have had gestational diabetes during one pregnancy have a higher chance of developing gestational diabetes in the next pregnancy. In addition, women who have had gestational diabetes are much more likely to develop type 2 diabetes later in life.

To help delay or even prevent the development of type 2 diabetes it is important for you to:

- > have regular checks for diabetes in the following years
- > maintain a healthy weight
- > encourage the whole family to enjoy a healthy diet and healthy lifestyle.

Sample meal plan

Note: this is a sample meal plan only. Use tables on pages 8–9 to develop your own meal plan.

Breakfast (all 2–3 carbohydrate serves)	
> 1 cup special K/ 2 Weetbix/ 1/2 cup muesli (2 serves) with 1 cup skim milk (1 serve)	> 2 slices wholegrain toast with toppings (2 serves)
> 1 English muffin (2 serves) with 1/2 cup baked beans (1 serve) and 1 egg	> 200g low fat yoghurt (2 serves) with 3/4 cup of tinned fruit in natural juice (drained) (1 serve)
Lunch (all 2–3 carbohydrate serves)	
> 1 wholegrain sandwich/roll/wrap (2 serves) with egg/tuna/low fat cheese + salad	> 1 cup of lentil soup (1 serve) with 2 slices of wholegrain bread (2 serves)
> 2/3 cup of basmati rice (2 serves) with 2/3 cup beans (1 serve) or 3/4 cup lentils (1 serve) or lean meat/fish/chicken (100g) and salad/vegetables (other than potato and corn)	> 4 Vita-Weats (1 serve) with 1 small tin tuna and 1 piece of fruit (1 serve)
Dinner (all 2–3 carbohydrate serves)	
> 100g lean meat/chicken/fish with 1 boiled potato (1 serve), 1/2 cup corn (1 serve) and a side of other vegetables/salad	> 1 cup cooked pasta (3 serves) with tomato based sauce and garden salad
> 1 cup basmati rice (3 serves) with stir fried lean chicken/beef/fish (100g) and vegetables (other than potato and corn)	> 2 tortillas (2 serves) with lean mince and salad followed by 1/2 cup low fat custard (1 serve)
Morning tea/ afternoon tea/ snacks (all 1–2 carbohydrate serves)	
> 1 medium piece of fruit (1 serve)	> 200g low fat yoghurt (2 serves)
> 4 Vita-Weats (1 serve) with low fat cream cheese	> 1 slice fruit toast (1 serve) with thin scrape of margerine
> 1 cup skim milk (1 serve)	> 2 Digestives biscuits (1 serve)
> 200ml skim milk with 2 tsp milo/nesquik (1 serve)	> 10 rice crackers (e.g. sakatas) with low fat dip

Make your own plan

Breakfast (2–3 carbohydrate serves)
Lunch (2–3 carbohydrate serves)
Dinner (2–3 carbohydrate serves)
Morning tea/ afternoon tea/ snacks (1–2 carbohydrate serves)

Key points

- > Good nutrition for gestational diabetes includes the same foods as with any pregnancy.
- > Be aware of your carbohydrate foods including how many serves you are eating.
- > Make sure you eat carbohydrate foods regularly throughout the day and don't skip meals.
- > Avoid high sugar foods.
- > Include low Glycemic Index (GI) foods.
- > Regular physical activity is helpful in controlling blood glucose.

More information

Carbohydrate counting resources for foods not listed

- > 'Allen Borushek's Calorie, Fat and Carbohydrate Counter'.
- > www.calorieking.com.au, the phone app is Calorie King Australia.
- > 'Australian Calorie Counter and Nutrient Tracker' by Easy Diet Diary. (iphone and ipad applications)

Women's and Children's Hospital

- > Nutrition for pregnancy and breastfeeding resource
www.wch.sa.gov.au/services/az/other/nutrition/nut_resources.html

Women's and Children's Health Network (WCHN)

- > Parenting and Child Health – Health Topics – Diabetes in pregnancy
www.cyh.com/HealthTopics/HealthTopicDetails.aspx?p=114&np=304&id=1576
- > Pregnancy – Pregnancy Topics – Gestational diabetes
www.cyh.com/HealthTopics/HealthTopicDetails.aspx?p=438&np=462&id=2784

Diabetes Australia – Phone: 1300 136 588

- > www.diabetesaustralia.com.au/en/Living-with-Diabetes/Gestational-Diabetes/
- > www.diabetesaustralia.com.au/PageFiles/1419/GLYCAEMIC_INDEX.pdf
- > www.diabetesaustralia.com.au/PageFiles/1419/HEALTHY_EATING_GESTATIONAL.pdf

Diabetes ACT

- > www.diabetes-act.com.au/UserFiles/File/fact_sheets/16_Gestational_diabetes.pdf
- > www.diabetes-act.com.au/UserFiles/File/fact_sheets/19_Healthy_eating_gestational.pdf
- > www.diabetes-act.com.au/UserFiles/File/fact_sheets/17_Glycemic_Index.pdf

Diabetes Outreach Country Health SA

- > www.diabetesoutreach.org.au

Dietitians Association of Australia (DAA)

- > www.daa.asn.au

The original nutritional and educational content of this booklet has been reviewed by specialist Dietitians at the Women's and Children's Hospital, SA Health. Information in this booklet should not be used as an alternative to professional advice.

Food product information contained in this booklet was up to date at the time of revision. If you are not sure about a food, check with the manufacturer.

Produced by

Women's and Children's Hospital
Nutrition Department
72 King William Road
North Adelaide SA 5006
Phone (08) 8161 7233

 If you require this information in an alternative language or format please contact SA Health on the details provided **Interpreter** above and they will make every effort to assist you.



www.ausgoal.gov.au/creative-commons

© Department for Health and Ageing, Government of South Australia.
All rights reserved. Revised September 2014. (Digital Media 4305A Edition 3)



**Government
of South Australia**

SA Health