

Healthy Eating With Gestational Diabetes

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Introduction

What is Gestational Diabetes?

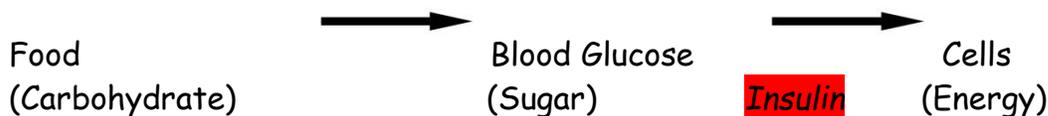
During pregnancy, some women develop a type of diabetes called gestational diabetes. This is usually picked up in the second and third trimester of pregnancy. It is one of the most common health problems for pregnant women. With gestational diabetes the glucose (often referred to as sugar) in the blood is higher than normal.

Why does this happen?

In the normal situation much of the food you eat is broken down in the stomach and intestine and passes into the blood as glucose.

Glucose is the main source of energy used by the body cells.

But in order to get the glucose into our cells we need a hormone called insulin. Insulin produced in the pancreas opens our cells so that glucose can get in.



During pregnancy there is an increased need for insulin due to pregnancy hormones released by the placenta. These hormones work against your insulin so your body needs to make more insulin than normal to manage your blood glucose levels.

Some women cannot make the extra insulin required and blood glucose levels become too high. High blood glucose levels can lead to complications for both you and your baby.

The good news is that gestational diabetes can be treated, and you can have a perfectly healthy pregnancy.

Treatment

Why is treatment important?

It is important to control the level of glucose in the blood during pregnancy.

- If there is too much glucose in your blood it passes across the placenta to the baby. This can make the baby grow larger than normal making delivery more difficult and may cause injury to both you and the baby.
- Also the baby's body starts to make extra insulin to cope with the high sugars. This can result in the baby having low blood glucose when born. There is also a risk that the baby may be jaundiced (yellowing of the skin), have breathing problems and/or have low calcium and magnesium in the blood.
- Having gestational diabetes makes you more at risk of developing high blood pressure and pre-eclampsia. This is when you have very high blood pressure, protein in your urine and water retention. It may mean you will have to deliver the baby early.

What does the treatment involve?

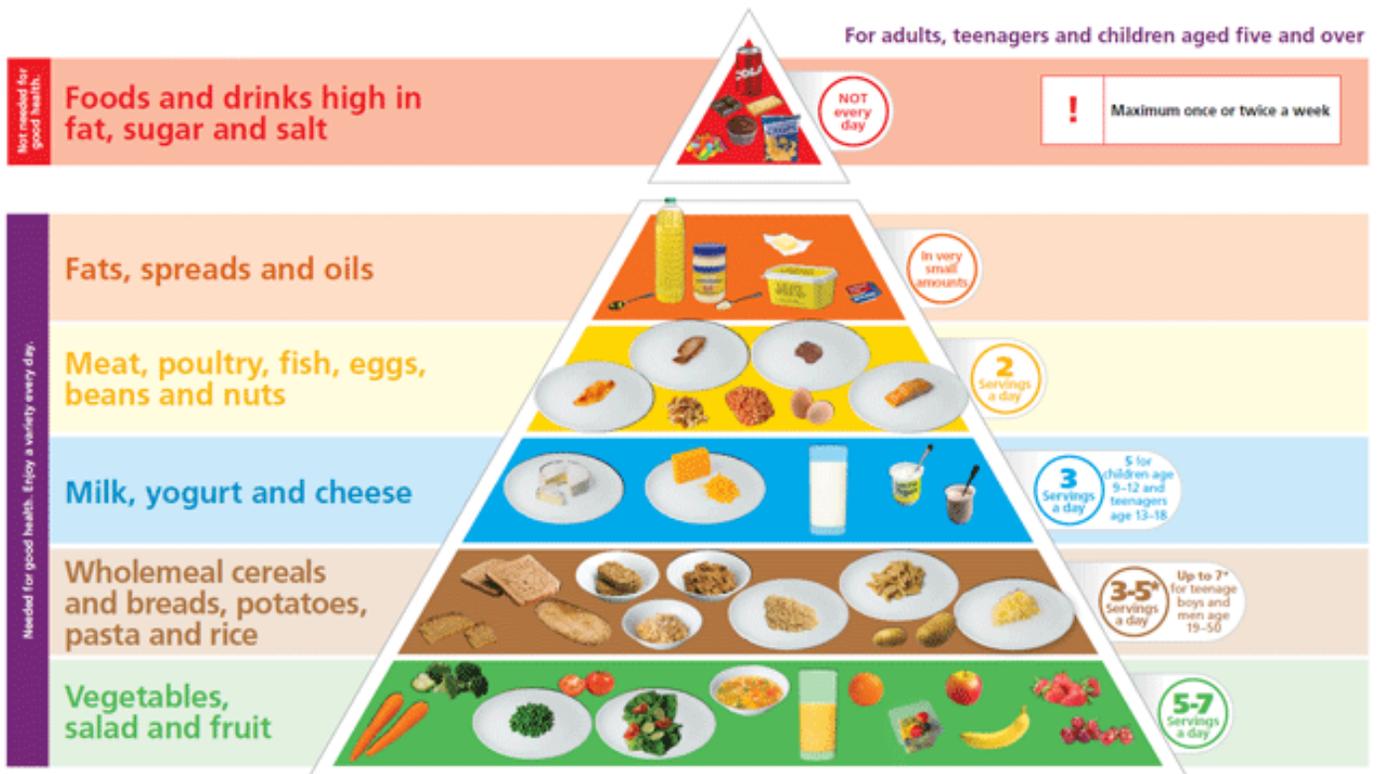
Treatment of gestational diabetes involves the following:

- ❖ **Eating a healthy diet**
- ❖ **Regular physical activity**
- ❖ **Measuring your blood sugars and keeping them within target**
 - Under 5 before meals/fasting
 - Under 7 two hours after mealsYour diabetic nurse specialist will discuss this with you
- ❖ **Taking insulin and /or other medications if needed**
- ❖ **Maintaining a healthy weight gain**
- ❖ **Keeping daily records of your blood sugars, food intake and activity**
- ❖ **Regular appointments**

A balanced diet

The diet for gestational diabetes is a healthy one and includes a balance of foods from all the food groups. This will provide all the nutrients, vitamins and minerals needed for a healthy pregnancy.

Try using the food pyramid to plan your meals:



There are three main food groups Carbohydrate, Protein and Fat.

Carbohydrates-

Carbohydrates have the biggest effect on your blood glucose level.

During digestion your body breaks down carbohydrate into glucose, which your body then uses for energy. You need to eat carbohydrates regularly throughout the day to ensure that you and your baby have enough energy.

The quantity of carbohydrate you eat will have an impact on your blood glucose levels. A meal plan will be designed for you showing you how to best distribute your carbohydrate.

There are two main types of carbohydrate starches and sugars.

Starchy foods are plant based foods, such as breakfast cereal, crackers, bread, potato, yam, pasta and rice. Choose **high fiber** options from this group. High fiber will help to control blood glucose but will also help to prevent constipation. Choose wholegrain, rye or granary bread, wholegrain crackers, wholegrain cereals, wholegrain rice, wholemeal pasta and boiled potatoes.

Different carbohydrate foods raise blood glucose at different rates. Glycemic Index (GI) is used as a measure of how quickly carbohydrate foods raise blood glucose levels. Food with low GI raise blood glucose levels more slowly than foods with a higher GI.

E.g. porridge will give you a more gradual release of blood glucose and keep you filled for much longer than a bowl of rice krispies

Starchy foods with a lower GI include sweet potatoes, pasta, wholegrain rice, pulses and oats. Starchy foods with a high GI include cereals like cornflakes, rice krispies, white bread, long-grain white rice, and ricecakes.

Good Choices	
Bread	Wholegrain, multiseed, stoneground, granary or 'low GI' e.g. McCambridge®`
Grains	Whole wheat pasta, wholegrain or basmati rice, quinoa, wholemeal couscous, egg noodles
Potato	Boiled new or baby potatoes, sweet potatoes, yam, cassava
Breakfast cereals	All Bran® (sticks), Jumbo/ Rolled porridge oats, Shredded Wheat®
Crackers	Wholegrain crackers, oatcakes, rye crispbread (Ryvita) - seeded good option

Sugars- there are two types

- Those which have sugar added to food such as cakes, biscuits, confectionary and sugary drinks.

- Those found naturally as part of a foods such as lactose sugar found in milk and yoghurts and fructose sugar found in fruit and fruit juices

Fruit is a good source of vitamins and fibre but contains natural sugar. You should eat fruit every day. Spread fruit throughout the day only eating one portion at a time.

A portion of fruit is:

- 1 apple, pear, orange, peach or nectarine
- 2 smaller fruits e.g. plums, nectarines, satsumas, clementines, kiwis, fresh figs
- One cup berries e.g. blueberries, strawberries, raspberries, blackberries

Some fruits raise your blood glucose levels more than others, so it is best to avoid: fruit tinned in syrup, bananas, grapes, pineapple, pomegranate, mangoes and watermelons.

Dried fruit such as raisins, sultanas, dates, figs and apricots are a concentrated source of sugar and are best avoided.

Fruit juice even if it is unsweetened is very high in carbohydrate and can make your blood glucose rise. It is better to eat one portion of fruit than to drink it.

Smoothies can contain up to 3 portions of fruit in combination with yoghurt or ice-cream and are better avoided.

Dairy foods like milk and yoghurts contain lactose which is also broken down to glucose. Cheese does not contain lactose as it is removed in the processing. Dairy foods are important during pregnancy as they provide you with calcium and protein. It is important to choose diet or low fat natural yoghurts and it is best to choose low fat milk. Remember to spread your milk throughout the day and aim not to drink more than three glasses (200mls) a day.

It is important to avoid sugary foods and sugary drinks as these can cause blood glucose levels to rise very quickly. Try replacing them with low sugar or sugar free alternatives. The table below should help you to make some suitable alternative choices.

Foods to Avoid	Foods you can eat
Brown or white sugar, honey, syrup, treacle, fructose, glucose, sucrose, maltodextrin (Calogran)	Moderate amounts of artificial sweeteners (Canderel®, Hermesetes®, Nutrasweet®, Natrena®, Splenda®, Sweetex®).
Jam and marmalade, chocolate spreads	Nut butters e.g. Peanut butter or hummus, cream cheese, hummus
Squashes, fruit juices, smoothies	Low calorie, diet or sugar free squashes e.g. Robinsons No Added Sugar®, Miwadi No Added Sugar®, Tesco No Added Sugar®
Regular fizzy drinks	Sparkling water, Diet, slim line, light or sugar free drinks e.g. 7Up Free, Sprite zero®, Diet Coke®, Pepsi max®. Soda water, flavored mineral waters with no added sugar
Drinking chocolate, Horlicks®, Horlicks light®, Ovaltine®, Ovaltine light®, milkshakes	Cocoa made with semi skimmed milk and sweetener, low calorie hot chocolate e.g. Highlights® or Options®
Chocolate or creamed filled biscuits	Plain biscuits e.g. Rich Tea, Marietta, Gingernut, Oatcakes, Rye or wholegrain crackers or crispbreads
Sugar coated cereals e.g. Frosties®, Crunchy Nut Cornflakes®, Sugar Puffs®	Shredded Wheat®, All Bran®, Porridge
Ordinary yoghurts, yoghurt drinks	Natural yoghurt, 0% Greek yoghurt, diet yoghurt e.g. Danone Vitalinea®, Danone Light & Free, Danone Activia 0%, Yoplait 0%®, Actimel 0 %®, Irish Yoghurts 'Diet'®, Glenisk Fat- free Greek Style Natural yoghurt®, Activia 0%®, Alpro plain yoghurt®
Puddings	Angel Delight No Added Sugar®, Tesco Delight No Added Sugar®, sugar free jelly, fresh fruit, stewed fruit (with sweetener)
Sweets and Chocolate	Sugar free Polo mints®, Extra Mints®, sugar free gum (excessive quantities can have a laxative effect)
Throat sweets, antacid tablets	Fisherman's friend Sugar Free®, Halls Sugar Free®, RENNIE® Sugar Free

Tips with Carbohydrate:

- ❖ Spread carbohydrate out across the day: rather than eating a large amount of carbohydrate at a single meal, it is better to spread out your carbohydrate over three small meals and two to four snacks. Eating small amount of carbohydrate through the day will help keep your blood sugar from rising too high after a meal.
- ❖ Eat a small breakfast every day. Blood glucose tends to be higher in the morning so try to limit the amount of carbohydrate at breakfast and avoid added sugars.
- ❖ Include starchy carbohydrates at each meal. Choose wholegrain varieties.
- ❖ Spread fruit and dairy products across the day as part of meals or as snacks.
- ❖ It is important to include a bedtime snack- you need to add a snack of one to two servings of carbohydrate before bed to keep your blood glucose at a healthy level overnight. It is important to add some protein e.g a slice of cheese or nut butter.
- ❖ Some medications, like medicines for heartburn and constipation contain sugar. Make sure all medications you take are sugar-free. Always speak to your pharmacist about sugar-free options which are safe for you to take while pregnant.

Protein:

Protein is essential for your baby's development. Foods rich in protein include meat, poultry, fish, eggs, cheese, nuts, nut butters, seeds and soya products. Protein foods will not elevate your blood glucose. **You should aim to include a protein food with every meal and snack. This can help to control blood glucose levels and stop you becoming hungry**

Fats:

Foods high in fat include butter, margarine and oil. Fat is high in calories. In large amounts, fat can affect blood glucose levels by making it harder for your insulin to work. You should avoid deep fried or very high fat foods.

It is better to choose foods which are low in fat. Use small amounts of vegetable oil e.g. rapeseed or olive oil instead of hard fats.

Choose healthy cooking methods e.g. boiling, grilling, roasting, steaming without added fat/oil.

One special fat (omega-3) should be increased in your diet. Omega-3 fats have been shown to improve babies' brain development and are important to heart health. The best source is oily fish e.g. salmon, trout, mackerel, sardines, kippers and herring. Aim for 1 portion of oily fish per week. Vegetarian sources of omega-3s include soya, walnuts, rapeseed oil and green leafy vegetables.

Foods containing mainly water:

Foods in this group include vegetables (except potato and sweet-corn) and salads. These include cauliflower, green beans, aubergines, lettuce, mushrooms, peppers, cucumber, cabbage, broccoli, leeks, rhubarb, radish, brussel sprouts, celery, asparagus, spinach, tomatoes, courgettes, onions. These foods can be eaten in normal servings without elevating blood glucose.

Vegetables such as beans, corn, green peas and mushy peas may raise blood glucose if eaten in large portions- limit to a few spoons at a time. Aim to eat no more than $\frac{1}{2}$ cup at one time. Choose reduced-sugar baked beans.

Free Foods:

These are foods which are considered to contain no carbohydrate and will not effect blood sugars e.g. include sugar free or diet minerals/drinks, sugar free jelly, sugar free squash, flavoured unsweetened waters, de-caffeinated tea/coffee, sugar free chewing gum, sugar free mints.

Special precautions:

- ❖ Alcohol is best avoided while pregnant. Alcohol can affect your blood glucose and your baby's development.

- ❖ Avoid foods labeled 'diabetic' (sweets, chocolate, jams) or foods that are made with sugar alcohols such as sorbitol, malitol or xylitol. They can cause wind, bloating and diarrhoea.
- ❖ Caffeine: too much caffeine may decrease the baby's growth or increase the risk of miscarriage. Limit your intake of caffeine to no more than 200mg/day. That's 2 cups of regular brewed coffee or 2-4 cups of tea. One single espresso contains approx 80mg caffeine. Cola and energy drinks also contain caffeine. One can of diet coke contains approx 50mg caffeine. Check the labels for more information.

Other Nutrients:

Multivitamin

During pregnancy there is a high risk of becoming deficient in a number of nutrients e.g. iron, iodine and vitamin B12. It is recommended that you take a pregnancy multivitamin to ensure an adequate supply of these nutrients throughout your pregnancy

Vitamin D

During pregnancy and breastfeeding it is important for you and your baby's health to have good stores of vitamin D. Vitamin D is found in oily fish, eggs, meat, margarine and fortified cereals. We also get vitamin D from sunlight. It is advised that you take a supplement of 10micrograms of vitamin D. This can be found in all pregnancy multivitamins.

Food	Serving size (g)	Vitamin D (μ g)
Herring, grilled	120	13.1
Mackerel, grilled	120	10.5
Tinned salmon	70	9.1
Tinned sardines	70	5.6
Salmon steak, grilled	120	8.4
Tinned tuna	70	2.3
Egg (vitamin D is found in yolk)	1 average	1.6
Fortified milk (Super Milk)	250ml glass	5
Fortified Cereal (Kellogg's All Bran)	35g	1.5

Folic Acid

It is advised that all women who may become pregnant should take Folic Acid as a supplement before conception. Following this pregnancy if you think you may become pregnant again ensure that you are taking the recommended 400µg Folic Acid supplement daily- this is available from your pharmacy. **Some women may require higher doses of Folic Acid pre-pregnancy and you should discuss this with your Doctor/ Midwife/ Dietitian**

Calcium

Calcium plays an important role during pregnancy. For example, in the development of your baby's bones and teeth. Ensuring an adequate calcium intake during pregnancy may also reduce your risk of developing high blood pressure in pregnancy and protect your bone health in later life. Aim to eat 3-5 servings/ day of dairy or fortified milk alternatives

Physical activity:

Women with gestational diabetes need regular, moderate physical activity such as walking or swimming to control blood sugar levels. Physical activity helps insulin to work better, which helps keep blood sugars under control. Many women with gestational diabetes benefit from 30 minutes of activity each day. Often having a 10 or 15 minute walk after meals can be beneficial in keeping blood glucose levels in target.

Doing 2-3 light sessions of resistance exercise every week (e.g., dumbbells, resistance band and pregnancy Pilates) may also be beneficial in improving your body's sensitivity to insulin. Exercise isn't advisable for everyone though, so ask your doctor what level of activity would benefit you.

If you are unable to engage in regular aerobic physical activity (e.g. if you have Pelvic Girdle Pain), alternative forms of exercise may be possible. For example, many women find they may be able to do regular upper-arm exercises. If you are attending a physiotherapist, discuss this with them.

Maintaining a healthy weight:

The amount of weight gain that is healthy for you depends on how much you weighed before you were pregnant. When you have gestational diabetes, if you gain too much weight, gain weight too quickly or begin to lose weight, your body may be telling you something is wrong.

The average weight gain during pregnancy is 11.5 to 15.9kg (25-35lbs). Most of the weight gain will take place in the second half of the pregnancy. If you are underweight you may need to gain more weight than outlined above. If you are overweight you may need to gain less (your dietitian will discuss this).

It is a good idea to keep track of how much weight you gain from the time you learn you are pregnant to the time you have the baby.

IF BEFORE PREGNANCY, YOU WERE...	YOU SHOULD GAIN...	RATE OF WEIGHT GAIN 2ND AND 3 RD TRIMESTER (LBS/KG WK)
Underweight BMI less than 18.5	28-40 pounds (12-18kg)	1 (0.5kg)
Normal Weight BMI 18.5-24.9	25-35 pounds (11-16kg)	1 (0.5kg)
Overweight BMI 25.0-29.9	15-25 pounds (6-11kg)	0.6 (0.3kg)
Obese BMI greater than or equal to 30.0	11- 20 pounds (5-9kg)	0.5 (0.2kg)

Some weeks you may gain weight, other weeks you won't.

It is a good idea to keep track of your weight gain as excessive weight gain in pregnancy can lead to complications.

You should not be going hungry or losing weight just to get your blood sugars under control. **The best time to lose weight is before or after pregnancy.** **If you are concerned about your weight after your baby is born, ask your GP to refer you to the free community dietitian service.**

Frequently asked questions:

What should I do after my baby is born?

After the baby is born you should check your blood sugars a few times. For most women, blood sugar levels go back to normal after having the baby. Six weeks after your baby is born, you should have a glucose tolerance test to find out whether your blood sugar level is back to normal. If the test is:

- Normal- get checked for diabetes every year.
- Impaired fasting glucose- get checked for diabetes every year, make lifestyle changes to lower your risk of developing diabetes.
- Impaired glucose tolerance- get checked for diabetes every year. Make lifestyle changes to lower your risk of developing diabetes.
- Diabetic- Work with the diabetes team to development the best treatment for you

Women who have had gestational diabetes have a 50% risk of developing Type 2 diabetes within 10 years of the pregnancy. This risk can be lowered by continuing the positive lifestyle changes you made in pregnancy.

Can I breastfeed even though I have gestational diabetes?

Like all mothers, women with gestational diabetes should breastfeed their babies, if possible. Breastfeeding provides a number of benefits for your baby, including the right balance of nutrients and protection against certain illnesses. Breastfeeding can also reduce the risk of you and your baby developing diabetes, obesity and other diseases in the future.

Breastfeeding support and information is here:

<http://www.breastfeeding.ie/>

Will I get gestational diabetes in my next pregnancy?

Yes you are more likely to develop gestational diabetes in a future pregnancy. But being the right weight for your height, maintaining a healthy diet and taking regular physical activity may cut your risk. If you know you want to get pregnant in the future get your blood sugar tested about three months before pregnancy to make sure you have normal blood sugar levels and have not developed type 2 diabetes. Ensure you are on the correct dose of folic acid before you become pregnant. If you do get pregnant again make sure your GP knows that you had gestational diabetes in your last pregnancy.

Start the diet as soon as you know you are pregnant and maintain your physical activity.

Suggested Meal Plan:

Breakfast

Choose **one** option from the following list:

Wholegrain Bread	2 slices	Ryvita	4 ryvita
Wholegrain Crackers	6 crackers	Porridge Oats	40g oats
Shredded Wheat®	2 biscuits	All Bran®	40g

You should include:

Protein Foods:	Egg/ Rasher (lean) /Low Fat Cheese/ Nut butter/ Nuts & Seeds
Vegetables:	Tomato/Mushrooms/Avocado/Salad
Dairy:	Low Fat/ Skimmed milk (200mls)/ 1 portion yoghurt
Drinks:	Tea/coffee (de-caffeinated)/diet minerals/ sugar free squash.

Snack

1 item from list at back

Light Meal

Choose **one** option from the following list:

Wholegrain Bread	2 slices	Ryvita	4 ryvita
Wholemeal Pitta	1 pitta (60g)	Seeded Wrap	1 wrap (65g)
Wholegrain Crackers	6 crackers	Wholegrain Rice	100g cooked
Wholemeal Pasta	90g cooked	Potatoes	2 medium
Bulgar Wheat	150g cooked	Cous-Cous	120g cooked

Please include the following foods also

Protein Foods:	Meat/ chicken/ low fat cheese/ fish/ egg
Vegetables:	Vegetables/ Salad/ Vegetable Soup (not potato)
Drinks:	Tea/coffee (de-caffeinated)/diet minerals/ sugar free squash
Snack:	1 Fruit portion/ 1 diet yoghurt/ 200mls semi-skimmed/ skimmed milk

Snack

1 item from list at back

Main Meal

Choose **one** option from the following list:

Boiled new/ baby potatoes	2 medium/ 4 small		
Wholegrain Rice	100g cooked	Wholemeal Pasta	100g
Yams	90g boiled	Plantain	100g boiled
Chapatti	1 medium	Wholegrain Bread	2 slices

Please include the following foods also

Protein Foods:	Meat/ chicken/ low fat cheese/ fish/ egg
Vegetables:	Vegetables/ Salad/ Vegetable Soup (not potato)
Drinks:	Tea/coffee (de-caffeinated)/ diet minerals/ sugar free squash
Snack:	1 Fruit portion/ 1 diet yoghurt/ 200mls semi-skimmed/ skimmed milk

Bed time snack

Wholegrain Bread 1 slice or Wholegrain Crackers 3 crackers **PLUS**
 Protein Foods: Egg/ meat /low fat cheese/ peanut butter

Snacks:

Between meal snacks should only contain small amounts of carbohydrate

- Bread brown (1 slice) with meat/cheese/egg/fish and salad with light spread/mayo
- Wholegrain crackers (2)/ Ryvita(2)/Tuc (2)/Ritz (2)/ Carrs water crackers(4)/ Cracottes (2) with low fat cheese and tomato/ peanut butter
- Apple(1)/ Nectarine (1)/Peach (1)/ Kiwi(2)/Orange(1)/Pear(1)/ Berries (1 cup)/ Plums (2)/ Satsumas (2) with a protein food e.g. unsalted nuts & seeds/ cheese
- 1 x 100g pot of 0% Natural Yoghurt e.g. Glenisk Fat Greek Protein Yogurt with 10 blueberries/ raspberries
- Milk (200ml glass)/Diet, low fat, natural yoghurt (125g pot)
- Hobnob(1)/Digestive(1)/Figroll (1)/Bourbon (1)/Jaffa cake (1)/Gingersnap(1)/Rich tea(2)/Polo(2)/Lincoln(2) with a protein food e.g. nuts, nut butter, seeds, cheese
- Home-made vegetable soup (not potato) and 2 wholegrain crackers
- 1 boiled egg and 1 slice of wholegrain bread
- Handful of unsalted nuts (almond/walnuts) and 1 piece of fruit
- Hummus (2 tablespoons/30g) with raw vegetables to dip (celery/ peppers/ carrot) or 2 cream crackers

Main Points:

- Eat regular meals and snacks-with small amounts of carbohydrate. It is important to avoid long fasts.
- Include starchy carbohydrate at each meal in moderate amounts
- Avoid sweet foods and sugary drinks
- Reduce your fat intake- avoid fried foods and choose low fat dairy
- Exercise regularly : 30 minutes/day

The following foods are low in carbohydrate and can be added to agreed snacks/ meals if you are hungry:

- Small mixed salad - e.g. lettuce, tomato, cucumber, onion (try dressing with balsamic vinegar)
- 8 olives
- Cucumber sticks/Carrot sticks/ Celery sticks (try using 1 tablespoon of Tzatziki/Natural Yoghurt/ Hummus as a dip)
- Broccoli florets/ asparagus/ cauliflower florets
- $\frac{1}{2}$ avocado
- Sundried tomatoes
- 10 Pepper sticks
- 5 Cherry tomatoes / 1 average tomato
- 1 cup of sugar snap peas/ mangetout/ edamame beans
- Hard boiled egg/scrambled egg/ poached egg
- 1 small omelette with turkey/ham/cheese/mushroom/peppers/spinach
- No added sugar ice pops(make your own with No Added Sugar squash)
- Stuffed mushrooms or peppers (no breadcrumbs)
- Low fat cheese pieces/ Babybel/edam/gouda/cottage cheese/ light cream cheese
- Unsalted Pistachio/ Brazil/pecan nuts/ almonds/ peanuts (No more than 30g i.e. approx 2 tablespoons)
- Pieces of chicken/Ham/turkey slices
- Tofu
- 1 cup mushroom soup
- 1 bowl of sugar free jelly



Try combining a few snack items e.g.:

- Mixed salad with cottage cheese and turkey on wholegrain crackers
- Poached egg with ham and asparagus tips on 1 slice wholegrain bread
- Baked pepper stuffed with spinach, mushrooms, onions, turkey and wholegrain couscous
- Spinach and mushroom omelette with 1 slice wholegrain bread

The diabetes organisations' websites are also very helpful for recipes and ideas:

You can paste these links into your browser to find useful recipes.

The Diabetes Federation of Ireland: www.diabetes.ie

<https://www.diabetes.ie/living-with-diabetes/living-with-type-2/food-diabetes/recipes/>

Diabetes UK: www.diabetes.org.uk

http://www.diabetes.org.uk/Guide-to-diabetes/Food_and_recipes/Recipes/

It is a good idea to keep a food and activity diary, particularly when you are 1st starting to monitor your blood glucose levels.

Remember, it is important not to over-restrict your intake to control your blood glucose levels. This can actually make it more difficult to control your blood glucose levels and can compromise your nutritional intake. If you feel hungry or are worried about your intake discuss this with your dietitian.