

Healthy Eating in Pregnancy with Pre-existing Diabetes

Introduction

If you have diabetes you can have a safe pregnancy and give birth to a healthy baby.

You will be supported in managing your diabetes by the multi-disciplinary obstetric and diabetes team in the East Sussex Healthcare NHS Trust.

It is important to keep blood glucose levels within recommended limits to reduce any risks to baby or mother, including:

- Excessive growth of the baby.
- Production of large amounts of fluid around the baby, which can result in early labour and delivery.
- Difficulties during delivery (due to a large baby) and an increased possibility that delivery might need to be by caesarean section.
- Increased likelihood of hypertension diseases in pregnancy.
- Potential diabetes complications, such as problems with your eyes or kidneys could be exacerbated during pregnancy.
- Miscarriage (loss of baby before 23 weeks) and stillbirth.
 - If you have experienced the loss of a baby before, there is support and useful information, including contact information for midwives you can speak to, on the charity Tommy's website: <https://www.tommys.org/baby-loss-support/miscarriage-information-and-support>
<https://www.tommys.org/baby-loss-support>

These risks can be minimised by keeping your blood sugar level as close to the following targets as possible:

Fasting	Less than 5.3mmol/l
1 hour after meals	Less than 7.8mmol/l

You will be asked to test your blood glucose level seven times per day or use a continuous glucose monitor (CGM) to ensure you are achieving levels as close to the above targets as possible. If you need to take insulin, you will be given support to reduce the risk of and treat a low blood glucose level (under 4 mmol/l).

What is the treatment?

- **Medication:** Insulin injections and a tablet called Metformin are safe and effective to continue during pregnancy. If you were taking any other diabetes medications before pregnancy, these will need to be stopped. It is likely your insulin requirements will increase as your pregnancy progresses (although you may notice an initial drop during the first trimester), so Metformin and insulin doses will need to be regularly reviewed and adjusted accordingly. Once baby and placenta are born, your insulin requirements may revert to pre-pregnancy levels and your medications will therefore need adjusting again. It is therefore very important to continue monitoring glucose levels after pregnancy too.
- **Healthy eating and lifestyle:** Eating healthy food and having regular meals can promote optimal blood glucose levels. Physical activity may contribute to lowering glucose levels too.

- **Additional supplements:** A prescribed high dose of **Folic Acid** (5 mg) is associated with a reduced risk of neural tube defects, such as spina bifida. It is advised to start this at least 12 weeks before conceiving your baby and continue daily until at least 12 weeks of pregnancy. **Vitamin D** is also important, as it helps to absorb calcium and promote your baby's bone development. A daily supplement of 10 micrograms / 400 units is recommended, including when breastfeeding. You may be advised to take more if you are at higher risk of deficiency.
- **Additional medication:** You may also discuss starting **Aspirin** with your Consultant. This decreases the risk of hypertension in pregnancy.
- **Regular monitoring:**
 - You will be reviewed in the joint diabetes antenatal clinic every 1-2 weeks throughout your whole pregnancy. Some of these appointments may be via telephone/video. The team includes obstetric and diabetes doctors, diabetes specialist nurses, midwives, dietitians and support workers. These appointments are in addition to the regular midwife appointments and observations, as would be done during a pregnancy that doesn't involve diabetes.
 - A blood test to check your HbA1c should be done in each trimester.
 - Eye screening should take place during each trimester.
 - Your kidneys will be checked regularly too.

What should I be eating?

It is important to choose healthy foods in pregnancy to ensure you and your baby receive all the essential nutrients to support healthy growth and development. Over-restricting your intake or cutting out whole food groups from the diet is not recommended. You should have the opportunity to speak to a dietitian when you attend the hospital antenatal clinic.

Foods and drinks that contain **carbohydrates** are broken down to glucose in the body, and this can cause blood glucose levels to rise. However, this does not mean you need to stop having carbohydrates, as they also make up part of a healthy balanced diet and avoiding them could adversely impact on baby's growth.

Carbohydrates can either be **starchy** or **sugary**. **See page 4 for more examples**. You can optimise your blood glucose levels by altering the **amount** and **type** you eat.

There are several important aspects of the diet to consider:

- **Regular meals** - to keep blood glucose steady throughout the day it is important to eat regularly. For some people 3 regular meals a day works well, whereas others may prefer 3 smaller meals with healthy snacks in between and possibly before bed too.
- **Avoid large meals** - aim to spread your food intake as evenly as possible over the day. Try to avoid missing meals, especially breakfast. If you find it difficult to eat in the morning try fruit, yoghurt or a milky drink. **Aim to have no more than a fist-size portion of starchy food with a meal**, as larger portions could cause elevated blood glucose.
- **Include a low glycaemic index (GI) starchy food at each meal** - these foods are broken down into sugar more slowly and are particularly good at helping to control blood sugar. High GI foods tend to cause larger spikes in blood glucose, so are better to have less often and in smaller quantities.

If you inject insulin, you may find you have to change the timing of your mealtime injections to allow for the differing times of absorption of meals.

See page 4 of examples of low, medium and high GI foods.

- **Adding protein can help lower the GI of a meal or snack** - consider combining your carbohydrate with lean meat/ fish (oily fish is recommended 1-2 times per week and white fish at least once a week, as beneficial for baby development)/ eggs/ cheese/ tofu/ meat alternatives/ peanut butter/ etc. E.g. swap jam on toast for eggs or peanut butter on toast.
- **Sugary foods & drinks** - foods that contain natural sugar (fruit, milk and yoghurts) do not need to be avoided but portion sizes should be managed. **See below for recommended portion sizes of fruit.** Foods and drinks containing added sugars should be limited more:

Avoid	Instead try
Sugary drinks (e.g. fizzy drinks, sweet squashes) and sweets	Diet fizzy drinks, no added sugar squash, small glass pure juice diluted with fizzy water or fruit smoothies, low fat milk, water.
Reduce	Instead try
Sweet puddings, tinned fruit in syrup	Baked apple, summer pudding, diet / lite / light yogurt or fromage frais with puréed fruit, sugar free jelly or milk puddings made with a little sugar or an artificial sweetener, tinned fruit in juice.
Sweet biscuits, cakes and chocolate	Fresh fruit, dried fruit, nuts, seeds, plain biscuits (e.g. rich tea or oatcakes), plain cakes without cream or icing (e.g. fruit loaf, malt loaf, banana cake, teacake, wholemeal scone).

Try to avoid adding sugar and syrup to drinks, cereals and puddings, or replace with **sweeteners** e.g. Canderel, Splenda, Hermesetas, Sweetex, Stevia. *Even though they taste sweet they won't affect your blood glucose.*

Avoid confectionary labelled 'Sugar free'

Food manufacturers are unable to label foods as 'diabetic' or 'suitable for diabetics', however they can label items as 'sugar-free'. Apart from sugar-free drinks or sugar-free jelly, it is not recommended that you need to buy sugar-free products as they are often expensive and offer no advantage over the regular product.

Fresh fruit

Fruit contains many vitamins, minerals and fibre, making it a nutritious snack. It does contain natural sugar, so aim to spread your portions out during the day to avoid causing blood glucose to spike.

A portion of fruit is what would fit in the palm of your hand (or 80g), e.g.:

- 1 apple, pear, orange, peach, nectarine or a small banana
- 2 smaller fruits e.g. plums or satsumas
- A handful of small fruits e.g. grapes, strawberries, cherries
- Half a larger fruit e.g. mango or grapefruit
- A slice of a large fruit e.g. melon or pineapple
- A tablespoon of dried fruit e.g. raisins, sultanas
- Limit pure unsweetened fruit juice to a 150ml serving per day

Examples of quick and slow release carbohydrate foods are:

Low GI (slowly digested)	Intermediate GI	High GI (quickly digested)
<u>Bread</u> Wholegrain seeded breads (granary/multigrain) Soda bread Sourdough bread Fruit loaf Chapatti Mixed grain wrap	Raisin bread Pitta bread Malt loaf Naan bread	White/brown/wholemeal High fibre white Bagel French stick Gluten free bread Crumpets English muffins
<u>Breakfast cereals</u> Rolled porridge oats Allbran Natural muesli (no added sugar)	Shredded wheat Oat bran Quaker instant oats Swiss style muesli (original)	Weetabix Rice krispies Cornflakes Bran flakes Crunchy nut cornflakes* Sultana bran Cheerios Puffed wheat Instant porridge oats (Ready Brek)
<u>Biscuits and Crackers</u> Oatcakes Oat biscuits Rich tea biscuits Seeded rye crispbread	Digestive biscuits Arrowroot biscuits Cream crackers Original rye crispbread	Rice crackers Rice cakes Water biscuits Melba toast Pretzels
<u>Grains and Pulses</u> Pasta, white and wholemeal (wheat based) Gluten free Pasta (not rice and corn based pasta) Noodles Basmati rice Brown rice Quinoa Barley Buckwheat Baked beans Soya beans Chick peas Lentils Kidney beans Butter beans	Easy cook Basmati rice Arborio (risotto) rice Black, Red or Wild rice Taco shells Cous cous Gnocchi	Corn and rice based pasta Instant noodles/pasta White rice Jasmine rice Tapioca Polenta
<u>Starchy Vegetables</u> Sweet potato Yam	New potatoes Tinned potatoes Jacket potato (with skin)	Instant potato Mashed potatoes Jacket potato (without skin) French fries / chips*
<u>Snacks</u> Corn chip (Doritos)* Most chocolate* Peanuts Cashew nuts Hummus Dry roasted chickpeas Reduced fat yoghurt Dried fruit	Mars bar* Crisps* Ice cream*	Popcorn Jelly babies* Jam / Plain doughnut* Jams, honey and chutneys

Please note that foods with an * next to them are usually high in fat, Calories, and sugar. They should not be eaten regularly to help prevent excessive weight gain during pregnancy.

Snacking:

You do not have to eat snacks; however, some people find that eating a small healthy snack between meals can help to regulate blood glucose levels and keep hunger at bay – helping to avoid large portions at meal times.

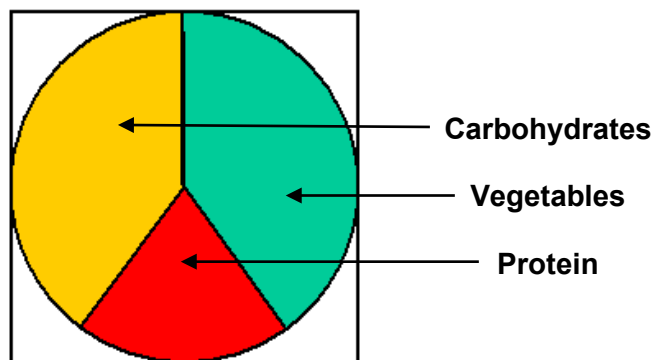
Depending on how your blood glucose levels are responding to snacks, you may wish to choose low GI options or even low carb options.

Low GI snack ideas	Low carb snacks ideas
A portion of fruit +/- peanut butter	Vegetable sticks with low fat dip (e.g. carrot sticks and low fat houmous)
Small handful dried fruit and nuts	A handful of plain or toasted nuts and seeds
Low fat yoghurt (plain or no added sugar)	Sugar-free jelly
Oatcakes with hard cheese / low fat cheese spread with tinned tuna or salmon / ham	Homemade ice lolly using sugar-free fluid (e.g. no added sugar squash / diet cola / etc.)
1 small wholegrain pitta bread with houmous	A handful of olives
1 slice granary toast with peanut butter	Avocado with cottage cheese or a boiled / poached egg
Corn chips with salsa	A small piece of cheese
Seeded crisp breads with low fat cheese spread	Tuna salad
Three prunes or dried apricots	Asparagus spears with a dippy soft boiled egg (must have the Lion Code to be safe to eat a runny yolk)
1 small chapatti or a mini vegetable samosa / vegetable pakora	A cheese, ham or *hot smoked salmon omelette (*ensure smoked salmon is cooked until steaming hot to kill any bacteria that may be present)

Maintaining a healthy weight during pregnancy

If you have gained a lot of weight during pregnancy, or were overweight at the start, it is important that you try to keep further weight gain to a minimum.

Portion sizes



- Aim for between $\frac{1}{4}$ - $\frac{1}{3}$ of your plate to be starchy slow release carbohydrates
- Aim for at least $\frac{1}{3}$ - $\frac{1}{2}$ of your plate to be vegetables. Choose a variety of colours.
- Aim for $\frac{1}{4}$ - $\frac{1}{3}$ of your plate to be protein foods i.e. lean meat, fish, eggs, cheese, vegetarian and vegan alternatives.

Reduce your fat intake

- Choose a low fat spread and use it sparingly. Use a spray oil or use pouring oils (olive, rapeseed or vegetable) sparingly, try measuring it with a teaspoon.
- Grill, bake, steam, microwave or boil food instead of frying.
- Choose semi-skimmed (green top) or skimmed (red top) milk. Aim for 3 portions of dairy food per day for calcium (e.g. glass of milk, pot of yoghurt, matchbox sized piece of cheese). Ensure dairy alternatives are fortified with calcium.
- Use vinegar, lemon juice, fat free salad dressing, or extra light salad creams and mayonnaises instead of regular and light mayonnaise.
- Minimise intake of pies and pastries.
- Choose lean meat and trim off all the fat and skin before cooking.
Consider meat free days and using more meat alternatives (e.g. soya or other plant-based products, such as mince).

Remember

Still observe the general health rules that apply in pregnancy:

<p>Avoid some raw or partially cooked eggs.</p> <p>➤ <i>Eggs with a red lion stamped on their shell are safe to eat raw or partially cooked, as the hens have been vaccinated against Salmonella.</i></p>	<p>Avoid soft and blue cheeses.</p> <p>➤ <i>Soft cheeses may be eaten if thoroughly cooked until steaming hot.</i></p>	<p>Daily supplements, as per page 2, are important to achieve sufficient folic acid and vitamin D intakes. Some people may need additional vitamins and minerals so speak to your dietitian, doctor or midwife if you think you may need something extra.</p>
<p>Whilst oily fish is beneficial in pregnancy, limit it to no more than twice a week (salmon, sardines, mackerel). Smoked salmon should be cooked so steaming hot. Limit tuna to 4 medium cans or 2 tuna steaks per week. Avoid shark, marlin and swordfish.</p>	<p>Limit caffeine to no more than 200mg per day.</p> <p>➤ <i>E.g. 2 mugs of instant coffee (1 mug filter coffee) or 3 cups of tea. You may wish to choose decaffeinated drinks. Cola, energy drinks, some herbal teas and chocolate also contain caffeine.</i></p>	
<p>Always observe good hygiene rules to avoid food-borne disease.</p>		<p>Avoid all types of pâté (including vegetarian options) and liver products.</p>
<p>Avoid alcohol as no level of alcohol is deemed safe during pregnancy.</p>		

Exercise during pregnancy

NHS Choices states: The more active and fit you are during pregnancy, the easier it will be for you to adapt to your changing shape and weight gain. It will also help you to cope with labour and get back into shape after the birth.

Keep up your normal daily physical activity or exercise (sport, running, yoga, dancing, or even walking to the shops and back) for as long as you feel comfortable.

Exercise is not dangerous for your baby – there is some evidence that those who are active are less likely to experience problems in later pregnancy and labour.

Physical activity can also help to lower blood glucose. Try going for a short walk after a meal to see if this helps to bring your level down. If you are taking insulin, then ensure you have hypo treatment and snacks with you in case required.

If you are struggling to manage your blood glucose levels around exercise, then speak to your diabetes antenatal team for more support.

Exercise tips:

- Don't exhaust yourself. You may need to slow down as your pregnancy progresses or if your maternity team advises you to. If in doubt, consult your maternity team.
- As a general rule, you should be able to hold a conversation when you exercise during pregnancy. If you become breathless as you talk, then you're probably exercising too strenuously.
- If you weren't active before pregnancy, don't suddenly take up strenuous exercise. If you start an aerobic exercise programme (such as running, swimming, walking or aerobics classes), tell the instructor that you're pregnant and begin with no more than 15 minutes of continuous exercise, three times a week. Increase this gradually to at least four 30-minute sessions a week.
- Learn how your blood glucose responds to physical activity, and you can manipulate your diet and/or insulin treatment to help manage glucose levels.
- See **WEPP** for a free programme including safe and effective exercise videos and useful resources during and after pregnancy: <https://sussexlmns.org/>

What happens after the baby is born?

If you are taking insulin, your requirements may change significantly especially if you are breast feeding. Monitor your glucose levels and adjust your treatment as necessary.

To keep yourself healthy, consider permanent lifestyle changes: choose healthy foods, keep active, avoid being overweight, drink alcohol in moderation and avoid smoking.

It is important you have a follow up appointment with the diabetes team post-delivery.

What about breastfeeding?

There are numerous benefits of breastfeeding, including protecting your baby against infections and the need to visit hospital, health benefits to you (e.g. lower risk of certain cancers), it can help develop your relationship with your baby, and of course it's also free and readily available. It may also reduce the chance of your baby developing diabetes later in life.

People with diabetes are encouraged to breast feed their babies if they want to. Even if your baby is in a Special Care Baby Unit, milk can be expressed and fed to your baby.

Breast feeding can lower your blood glucose level so be prepared with suitable snacks and/or reduce your insulin if you experience hypoglycaemia (low blood sugar).

If you have any queries or problems with breast feeding, speak to your midwife or health visitor. You can also contact the National Breastfeeding Helpline on 0300 100 0212 (9:30 a.m. to 9:30 p.m. daily) or National Childbirth Trust on 0300 330 0700.

Breastfeeding support options:

Websites/helplines/free webinars

- <https://www.nhs.uk/start-for-life/baby/feeding-your-baby/breastfeeding/breastfeeding-help-and-support/>
- <https://www.nhs.uk/conditions/baby/breastfeeding-and-bottle-feeding/breastfeeding/help-and-support/>

Peer support

- <https://www.escis.org.uk/advice-and-support/breastfeeding-peer-support-service/>

Further sources of information

Nutrition and Dietetic department - Tel: 0300 13 14 532

Diabetes Specialist Nurses -

Conquest Tel: 07768027121, email: esht.diabetesnursesconquest@nhs.net

Eastbourne Tel: 07812983149, email: esht.diabetesnursesedgh@nhs.net

Maple Team Cross-site: esht.mapleteammidwives@nhs.net

British Dietetic Association: Food Facts - <https://www.bda.uk.com/food-health/food-facts.html>

Diabetes UK - <https://www.diabetes.org.uk/>

NHS choices - <https://www.nhs.uk/>

Important information

This patient information is for guidance purposes only and is not provided to replace professional clinical advice from a qualified practitioner.

Your comments

We are always interested to hear your views about our leaflets. If you have any comments, please contact the patient experience team on 0300 131 4784 or esh-tr.patientexperience@nhs.net.

Hand hygiene

We are committed to maintaining a clean, safe environment. Hand hygiene is very important in controlling infection. Alcohol gel is widely available at the patient bedside for staff use and at the entrance of each clinical area for visitors to clean their hands before and after entering.

Other formats

If you require any of our leaflets in alternative formats, such as large print or alternative languages, please contact the Equality and Human Rights Department on 0300 131 4434 or esh-tr.AccessibleInformation@nhs.net

After reading this information are there any questions you would like to ask? Please list below and ask your nurse or doctor.

Reference

The Clinical Specialty/Unit that have agreed this patient information leaflet:

The ESHT Nutrition and Dietetic Department, the ESHT Diabetes Department & the ESHT Obstetric Department

The directorate group that has agreed this patient information leaflet:

Medicine Division - Diabetes

Next review date: February 2026

Responsible Clinician: Janet Jackson, Diabetes Specialist Dietitian