LIFESTYLE

TYPE 1 DIABETES: WHAT TO DO WHEN YOU ARE ILL

WHY IS THIS LEAFLET FOR YOU?

Everyone has days when they are not well. If you have diabetes, being unwell can affect your blood glucose control so it is important that you know how to manage this. This leaflet will give you essential information on:

- **How illness affects your blood glucose levels**
- **Looking after yourself**
- **Managing your insulin**
- **What to eat and drink**
- **Being prepared**
- **When to seek help**

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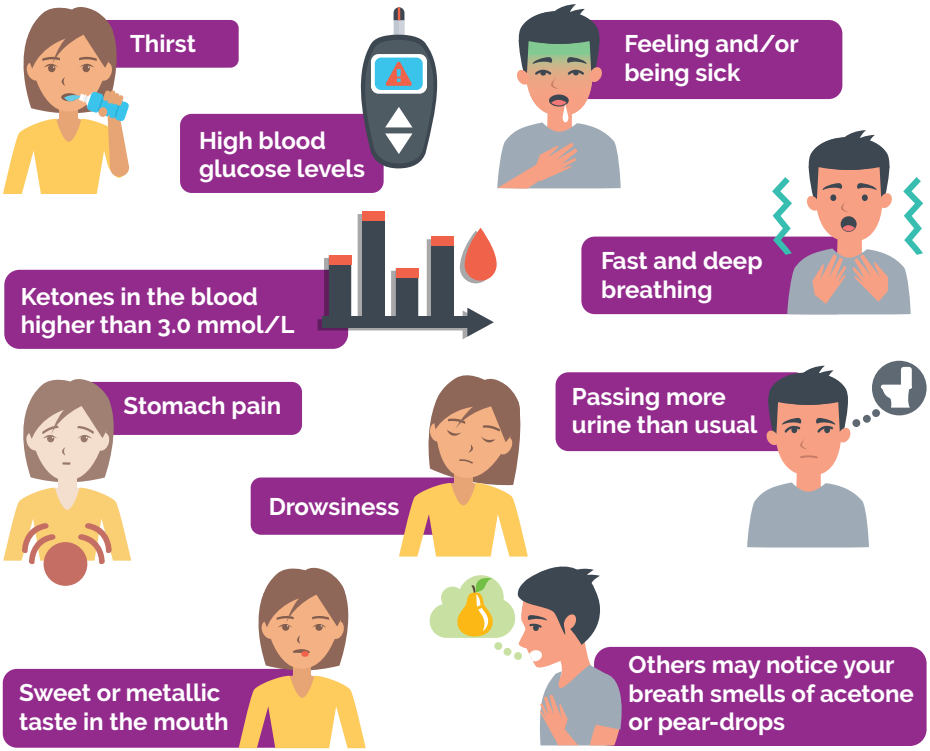
HOW DOES ILLNESS AFFECT YOUR BLOOD GLUCOSE LEVELS?

When you are ill, especially if you have an infection and high temperature, your body is less responsive to the insulin you inject. Insulin is a hormone which controls your blood glucose level. Being unwell therefore usually makes your blood glucose levels rise, even if you are eating less than usual.

You can also produce ketones when you are unwell. These are produced when the body is unable to use glucose for energy because your insulin injections are not working properly. If ketones accumulate in the blood, this can quickly lead to a serious condition called diabetic ketoacidosis (DKA).



It is possible to manage your diabetes effectively during illness, keep your blood glucose levels in or near to target, and prevent the development of ketones by following the simple advice given in this leaflet

LOOKING AFTER YOURSELF

- **Rest:** avoid strenuous exercise
- **Prevent dehydration** by drinking plenty of sugar-free fluids. Sip gently throughout the day (at least 2 ½ to 3 ½ litres or 4 to 6 pints in 24 hours)
- **Treat symptoms** such as a high temperature or a cough with basic over-the-counter medicines such as painkillers and cough syrups. These do not have to be sugar-free varieties as they contain very little glucose and are taken in small quantities. Ask your pharmacist for advice
- **See your GP** if you think you have an infection as you may need antibiotics
- **Monitor** your blood glucose at least 4 times daily while you are unwell. If your blood glucose is above 11 mmol/L, test your blood for ketones. If you do not have a meter that can do this, you should be able to get one from your diabetes team
- **Understanding your blood ketone levels:**
  - Less than 0.6 mmol/L is normal
  - 0.6 to 1.5 mmol/L means you may be at risk of developing DKA so test again after 2 hours
  - 1.6 to 2.9 mmol/L means you are at risk of DKA and should contact your diabetes team or GP as soon as possible
  - 3 mmol/L or higher means you have a very high risk of DKA and should get emergency help as soon as possible

If you are only able to do a urine ketone test, a result of 2+ means you are likely to develop DKA

You may need to adjust your insulin dose while you are ill, especially if your blood glucose level is high and you develop ketones

Seek urgent medical help if your readings remain higher than usual, or you feel very unwell and you are not sure what to do

MANAGING YOUR INSULIN DOSE WHEN YOUR BLOOD KETONES ARE LESS THAN 1.5 MMOL/L

Blood glucose more than 11 mmol/L and either no ketones or blood ketones less than 1.5 mmol/L (negative or trace of urine ketones)

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Sip sugar-free fluids, at least 100 ml/hr. Eat as normal if possible. If not, see meal replacement suggestions (page 6). **You need food containing carbohydrate (carbs), insulin and fluids to avoid dehydration and prevent diabetic ketoacidosis**

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Test blood glucose and blood ketones **every 4 to 6 hours** including during the night

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Aim to take your usual insulin dose. However, if your blood glucose is above 11 mmol/L, take additional insulin as below

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Blood glucose	Insulin dose
11 – 17 mmol/L	Add 2 extra units to each dose
17 – 22 mmol/L	Add 4 extra units to each dose
More than 22 mmol/L	Add 6 extra units to each dose

Call your GP or nurse if your blood glucose still remains higher than normal

⚠ **If you start vomiting, are unable to keep fluids down, or are unable to control your blood glucose or ketone levels, you must seek urgent medical advice. DON'T STOP TAKING YOUR INSULIN EVEN IF YOU ARE UNABLE TO EAT**

MANAGING YOUR INSULIN DOSE WHEN YOUR BLOOD KETONES ARE 1.5 MMOL/L OR HIGHER

Blood glucose more than 11 mmol/L and blood ketones 1.5 mmol/L or higher (+ or more of urine ketones)

Sip sugar-free fluids, at least 100 ml/hr. Eat as normal if possible. If not, see meal replacement suggestions (page 6). **You need food containing carbohydrate (carbs), insulin and fluids to avoid dehydration and prevent diabetic ketoacidosis**

1.5 to 3 mmol/L on blood ketone meter (+ to ++ urine ketones)

More than 3 mmol/L on blood ketone meter (+++ to ++++ urine ketones)

Give an additional 10% of your TTD as rapid-acting or mixed insulin every 2 hours	Total daily insulin dose: TDD	Give an additional 20% of your TDD as rapid-acting or mixed insulin every 2 hours
1 unit	Up to 14 units	2 units
2 units	15 to 24 units	4 units
3 units	25 to 34 units	6 units
4 units	35 to 44 units	8 units
5 units	45 to 54 units	10 units

If you take more than 54 units or if you are unsure how to alter your dose, contact your specialist team or GP

Test blood glucose and blood ketones **every 2 hours** including during the night

Blood glucose **more than 11 mmol/L and ketones present?**

YES - REPEAT PROCESS

NO

As your illness resolves, adjust your insulin dose back to normal)

If you start vomiting, are unable to keep fluids down, or are unable to control your blood glucose or ketone levels, you must seek urgent medical advice. DON'T STOP TAKING YOUR INSULIN EVEN IF YOU ARE UNABLE TO EAT

WHAT CAN YOU EAT AND DRINK?

Your body uses a lot of energy when you are unwell, even if you are resting. Try to eat as normal but if you cannot manage your usual meals, replace these with light and easily digested foods such as soups and milky puddings. See the table below for a list of alternative food options. **Each portion is equal to approximately 10 gram carbohydrate** (e.g. an egg-size potato, a small slice of bread or a tablespoon of cooked rice or pasta):

	Fruit juice 100 ml
	Milk 200 ml
	Plain vanilla ice-cream 1 large scoop
	Tomato soup 200 gram (half a large tin)
	Low fat yoghurt 150 gram (1 small pot)
	2 Rich tea or malted milk biscuits

WHEN TO SEEK HELP

Get to hospital urgently if any of these apply to you:

- If you are pregnant and have ketones
- If you vomit for the duration of 2 meals (i.e. 4 hours) and are unable to keep fluids down
- If you have persistent ketones despite increasing your insulin
- If you become drowsy and/or breathless
- If you have acute abdominal pain
- If your condition worsens despite following the advice given in this leaflet

If you need to go to hospital, remember to take a list of all your medications and insulin safety card with you

Even if you are not eating, never stop your insulin

BEING PREPARED:

- Make sure you always have plenty of insulin and blood glucose and ketone monitoring equipment available
- Make sure your ketone strips are still in date if you have not used them for a while
- Keep a few simple medicines such as painkillers and cough syrup in a safe place in the house
- Discuss how to manage your diabetes when you are unwell with your doctor or nurse so you know what to do if you become ill and know when to seek help

USEFUL RESOURCES:

TREND-UK website): www.trend-uk.org
Diabetes UK: www.diabetes.org.uk
Diabetes UK: 0345 123 2399

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