

What are SGLT2 inhibitors?

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Sodium-glucose co-transporter-2 or SGLT2 inhibitors as they are more commonly known are a class of medications that are commonly used to treat type 2 diabetes. You may be prescribed it to take on its own, or with other diabetes medicines. It can also be used for the treatment of heart failure and chronic kidney disease to help protect the heart and the kidneys.

There are a few different tablets in the SGLT2 inhibitor family, these include:

Generic name	Brand or trade name
Dapagliflozin	Forxiga
Canaliflozin	Invokana
Empagliflozin	Jardiance

How do SGLT2 inhibitors work?

They work by stopping the kidneys from reabsorbing glucose back into the blood. This allows the kidneys to reduce blood glucose levels as the remaining glucose is removed from the body in your urine. As you are losing glucose from your body, you are effectively losing calories so SGLT2 inhibitors can help some people lose weight.

SGLT2 inhibitors reduce the symptoms of the high blood glucose levels (such as feeling thirsty). In the long-term, good control of blood glucose levels reduces the risk of developing problems with your eyes, kidneys and feet.

They have also been shown to lower the risk of heart attacks, help people with heart failure and slow the progression of kidney disease. This class of medication may be beneficial if you already have these conditions or are at high risk of developing these in the future.

How are SGLT2 inhibitors taken?

SGLT2 inhibitors are given in a tablet form and can be taken at any time of the day, usually accompanied by a glass of water. It is important to take your medication at the same time each day and you don't need to take them with food.

Because of the way that SGLT2 inhibitors work, your urine will test positive for glucose while you are on this medication.

What other side effects do SGLT2 inhibitors cause?

Most people can take SGLT2 inhibitors without experiencing many other side effects. However, like all medications, SGLT2 inhibitors can cause side effects in some people and, very rarely, these can be serious.

Some of the side effects include:

- Higher risk of developing genital and urinary tract infections
- Urinating more frequently
- Flu like symptoms
- Nausea
- Joint pain

Germs (bacteria and fungus) like to grow in body fluids with a high sugar content. Because SGLT2 inhibitors increase the amount of glucose in your urine, they do increase the chance of urine infection and/or genital (vaginal or penile) thrush infection (sometimes known as Candida).

The risk of infection can be reduced by increasing the amount of non-sugary fluids you are drinking when you start the medication. Severe urine infection is rare, but you should see your doctor or nurse if you have any signs of infection, such as burning pain or discomfort when passing urine, obvious blood in the urine or a discharge from the penis or vagina.

There have been recent reports linking a serious genital infection called Fournier's Gangrene to SGLT2 inhibitors, although the risk is extremely low. Affected individuals usually have other severe medical conditions.

Fournier's Gangrene usually starts with an area of redness or a sore in the genital/groin area that spreads quickly. People also usually feel very unwell. You must report any such symptoms urgently to your doctor or nurse.

People with diabetes are at increased risk of getting sores or ulcers on the feet and legs. SGLT2 inhibitors can reduce the circulation to the fingers and toes and so increase the chance of a sore or ulcer developing. It can also make the fingers and toes feel colder. This can in theory increase the risk of amputation and so you should speak to your doctor or nurse if you develop a new sore or ulcer or feel that the circulation to your fingers and toes is less good.

SGLT2 inhibitors can raise the blood levels of chemicals called ketones. Very rarely, this can lead to a condition called 'diabetic ketoacidosis', which is more usually seen in people with type 1 diabetes but can occur in people with type 2 diabetes. Contact your doctor or nurse straight away if you notice a sweet smell on your breath, sweat or urine, or if you have symptoms such as: feeling sick, tummy pains, losing weight quickly, feeling very thirsty, breathing unusually quickly, confusion, tiredness or sleepiness.

You should stop taking SGLT2 inhibitors if you become very unwell, especially if you have vomiting and/or diarrhoea or are not eating and drinking. You can start taking them again once you are back to normal health. You should inform your

doctor or nurse at the earliest opportunity that you have stopped your SGLT2 medication.

SGLT2 Inhibitors and Driving

SGLT2 inhibitors should not affect your ability to drive, cycle or use machinery or tools as long as your blood glucose levels are stable.

On their own they will not cause your blood glucose level to go too low (i.e. cause hypoglycaemia, which is classed as a blood glucose level less than 4 mmol/L,) but they may increase the risk of this happening if you also take insulin or drugs called sulphonylureas (e.g. gliclazide).

If you are in any doubt about driving whilst taking SGLT2 inhibitors, then speak to your diabetes care team or have a look at the national guidelines about driving when you have diabetes.

Who should not take SGLT2 inhibitors?

SGLT2 inhibitors are usually prescribed to adults who have type 2 diabetes. They may not be suitable for some people. You should tell your doctor before starting any of this medication if you:

- Have problems with your kidneys
- You are easily hydrated or take a high dose of diuretics (water tablets)
- Are pregnant, planning a pregnancy or breastfeeding
- Have problems with repeated urine infections
- Are taking any other medicines, this includes any herbal or prescribed
- Have had an allergic reaction to a medicine

What if I forget to take my medication?

If you forget to take a dose, then take it as soon as you remember **unless** it's nearly time for your next dose. In this case, skip the missed dose and just take your next one as normal.

Do not take a double dose to make up for a missed one.

Getting the most from your SGLT2 inhibitor medication

Continue to take your medication regularly unless your doctor tells you otherwise. It is important that you keep your regular clinic appointments.

If you have been advised by your doctor or nurse about changes to your diet, stopping smoking or taking regular exercise, it is important that you follow this advice.

It is important for you to take care of the skin on your lower limbs and to report any sores or signs of infection to your doctor or nurse.