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SGLT2 Inhibitors

How these diabetes pills protect the heart and kidneys, even without diabetes, and what to watch for.

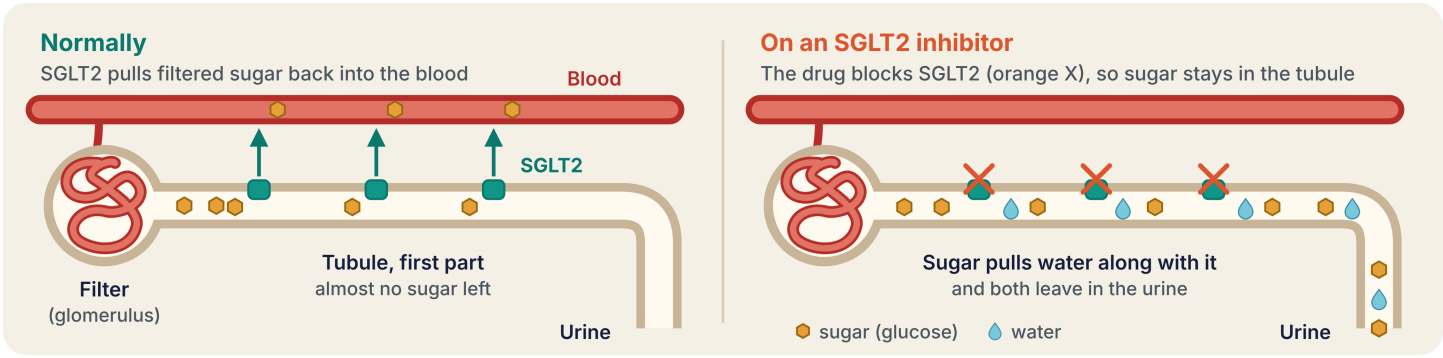
26%
lower risk of heart death or a heart failure hospitalization in DAPA-HF

39%
lower risk of severe kidney decline or kidney or heart death in DAPA-CKD

4 weeks
is how soon the benefit showed up in the heart failure trial DAPA-HF

HOW THEY WORK

Sugar leaves in the urine and takes water with it



The sugar pulls water with it, so you lose a little fluid and the heart works against lower filling pressure. The kidney responds by lowering the pressure in its filters, so less protein leaks out and slow kidney damage eases.

WHO THEY HELP

Heart failure, kidney disease and type 2 diabetes

Heart failure with a weak pump
Reduced ejection fraction, where less blood leaves the heart with each beat. It has the strongest evidence of any group.

Heart failure with normal pumping
Preserved ejection fraction, roughly half of all heart failure. The benefit is smaller, mostly from fewer hospital stays.

Chronic kidney disease
Slower loss of kidney function, and sometimes 30 to 50% less protein in the urine, with or without diabetes.

Type 2 diabetes with heart risk
Added heart protection with known artery disease, a past heart attack or several risk factors.

Common choices, each taken once a day, are empagliflozin (Jardiance), dapagliflozin (Farxiga), canagliflozin (Invokana) and ertugliflozin (Steglatro).

Keep taking it

The protection lasts only while you take the pill and goes away if you stop. Feeling better is a sign the drug is working. Talk to your cardiologist before making any change.

TAKING IT SAFELY

Side effects, sick days and surgery

COMMON AND MANAGEABLE

Genital yeast infections	The most common side effect, since sugar in the urine feeds yeast. In trials, typically 10 to 20% of women got vaginal yeast infections, and men can get balanitis, an infection of the head of the penis. Report it early. An antifungal cream or a fluconazole pill treats it, and you don't have to stop the SGLT2 inhibitor.
Preventing yeast	Wipe front to back, and change out of damp clothes soon after exercise.
Lightheadedness	Mild fluid loss can make you dizzy when you stand, especially with water pills or blood pressure medicines. Those doses may be lowered a little, and it usually settles after a week or two.
Blood sugar	If you take insulin or a sulfonylurea pill for diabetes, check your sugar more often, since your doctor may lower those doses. If you take no diabetes medicine, you don't need extra checks.

SICK DAYS AND SURGERY

When you're sick	Stay well hydrated. On a sick day, meaning a sudden illness or a long stretch without eating, the drug is held, and it can restart once you're eating again. Kidney injury is uncommon and has been reported in people who are badly dehydrated, taking anti-inflammatory pain relievers (NSAIDs) or taking ACE inhibitors during an illness.
Before surgery	Tell your surgeon and cardiologist well ahead of time. The FDA label says to stop these drugs at least 3 days before a planned surgery, or 4 days for ertugliflozin. Otherwise, don't stop it on your own.

GET CARE RIGHT AWAY

Ketoacidosis	A rare, serious acid buildup in the blood (euglycemic DKA) that can happen even when blood sugar isn't very high. Watch for nausea, vomiting, shortness of breath, fatigue or belly pain, and tell the treating clinician you take an SGLT2 inhibitor. Risk is higher with insulin use, pregnancy or recent delivery, critical illness or upcoming surgery.
Fournier's gangrene	An extremely rare but life-threatening infection of the area between the genitals and the anus. Get care right away for any pain, swelling, redness or drainage there.

NOT FOR EVERYONE

Usually avoided	Type 1 diabetes, a past episode of diabetic ketoacidosis, very low kidney function or dialysis, and a sudden, severe flare of heart failure in the hospital.
Active yeast infection	Treated first, before starting the drug.
Canagliflozin	Carries an FDA warning about lower-leg amputation and has been linked to a small rise in leg fractures. It's used more cautiously with nerve damage (neuropathy), a past amputation or severe leg artery disease.

IF COST IS A BARRIER

Brand-name empagliflozin or dapagliflozin runs roughly $300 to $400 a month at retail, and coverage varies. Ask about manufacturer assistance programs, discount programs like GoodRx, and a 90-day mail-order supply through insurance, which is often cheaper than retail.

READ THE FULL ARTICLE

damianrasch.com/sglt2-inhibitors

For education only, and not a substitute for advice from your own physician. Sources include EMPA-REG OUTCOME, DAPA-HF, EMPEROR-Reduced, EMPEROR-Preserved, DELIVER, DAPA-CKD, EMPA-KIDNEY, CREDENCE, CANVAS, DECLARE-TIMI 58 and the 2022 AHA/ACC/HFSA heart failure guideline.

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