

THE DIABETES [RESET](#)

With the right steps, it's possible to put type 2 diabetes into remission and restore healthy blood glucose levels. But what does it take to get there?

There once was a time when a type 2 diabetes diagnosis meant learning to live with a lifelong chronic condition. But perhaps it doesn't have to be so permanent after all. In recent years, research has shown it could be possible to turn back the clock and reverse the underlying changes that cause type 2 diabetes.

The secret? Taking the pressure off our organs – allowing them to regulate our blood glucose correctly – by achieving consistent and sustained weight loss. By doing so, it is possible to put type 2 diabetes into remission and keep it there.

Losing weight, especially when diabetic, is far from an easy task. But, as you'll see, it's an achievable one.

WHAT CAUSES DIABETES

The human body's main source of energy is the glucose found in our blood, but it's a careful balance. Too much and it can cause organ damage. Too little and a person can pass out. To keep levels in the sweet spot, our bodies use a finely tuned system involving several organs and hormones.

When you eat carbohydrates, your digestive system breaks them down into glucose, which is then absorbed into the blood. When the pancreas senses this, its beta cells release insulin, the hormone that tells the body to move glucose from the blood into cells for energy. Any excess sugars are then stored in the liver and muscles. As the glucose is used, blood glucose returns to normal and insulin levels fall.

Then when you haven't eaten for a while and your blood glucose starts to drop, the pancreas releases glucagon, a hormone that tells the liver to release that stored glucose back into the blood. If fasting continues, the liver can also make new glucose to keep things topped up. Together, these processes form a feedback loop, balancing blood glucose at just the right level. There are two main types of diabetes, type 1 and type 2, which both cause high levels of glucose in the blood, but for different reasons.

Type 1 diabetes is an autoimmune condition in which the body's immune system mistakenly attacks and destroys the insulin producing beta cells in the pancreas. Without this essential hormone, glucose can't enter cells, so it builds up in the bloodstream.

People with this form of diabetes must take insulin every day, either through injections or a pump, to keep their blood glucose under control. Type 1 diabetes is, currently, irreversible. The far more common variety, however, is type 2 diabetes. This is when insulin does not work properly or there is not enough of it, causing the level of glucose in your blood to rise too high. While the exact causes of type 2 diabetes are complex, it's primarily driven by excess fat stored inside the liver and pancreas, interfering with how the organ responds to insulin.

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Dr David Cavan, consultant endocrinologist and author who specialises in the management and reversal of type 2 diabetes, explains, “Normally, insulin tells the liver to stop releasing glucose once there’s already enough in the blood. But a fatty liver becomes insulin resistant, meaning it doesn’t respond to this signal properly.

“It keeps releasing glucose and fat like as if it’s a tap stuck in the ‘on’ position, pushing blood sugar levels higher and forcing the pancreas to work overtime to produce more insulin and bring blood glucose levels back under control.”

The result is a vicious cycle. As fat builds up in the liver, insulin resistance gets worse. Blood glucose levels rise, and the pancreas produces even more insulin, which in turn promotes further fat storage.

Meanwhile, extra fat in the pancreas causes stress and harms the beta cells’ ability to produce insulin. Eventually, the beta cells become so overloaded by excess fat and glucose that they begin to fail. This causes blood glucose levels to rise steadily and type 2 diabetes to develop. The most important factor that increases the risk of insulin resistance is an unhealthy diet – one that’s high in sugars and other refined carbohydrates such as white bread, sugary drinks and pastries.

Obesity, physical inactivity, chronic stress, poor sleep and genetic predisposition can also contribute, as can long-term use of steroid medications and hormonal changes during pregnancy or menopause.

So, that’s what diabetes actually is. How do we go about reversing this process?

REVERSING DIABETES THROUGH WEIGHT LOSS

For decades, type 2 diabetes was seen as irreversible. It was a condition that would require lifelong management and never go away.

But in recent years, that view has changed, thanks to the pioneering work of Prof Roy Taylor, Emeritus Professor of medicine and metabolism at Newcastle University. His discoveries have transformed how we understand and treat the disease, showing that there is a way to put type 2 diabetes into remission.

What you need to do is get rid of the fat clogging up our organs, and the best way to do that is through significant and sustained weight loss.

“Our initial research showed that losing around 15kg (33lbs) on a very low-calorie diet rapidly reduced fat in the liver and pancreas, restored insulin sensitivity and reactivated the pancreas’s ability to produce insulin.

“This enabled blood glucose levels to return to healthy levels and people were able to achieve remission,” says Taylor.

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Of course, actually managing to achieve this 15kg goal is far from a simple matter, especially given the diabetes itself is working as part of the feedback loop causing fat to build up around the liver and pancreas.

To investigate how such changes could actually be achieved and sustained, Taylor partnered with Prof Mike Lean at the University of Glasgow to launch the landmark DiRECT (Diabetes Remission Clinical Trial) study in 2014. This large-scale, randomised trial tested whether a structured, nutritionally complete low-calorie diet, known as the ‘soups and shakes’ programme, could induce rapid weight loss and remission over a two-year period. In the study, participants consumed around 800 calories per day through meal-replacement soups and shakes, along with non-starchy vegetables, for about eight weeks or until they achieved the target weight loss of 15kg. The programme also provided regular one-to-one support from trained practice nurses.

After the initial phase, participants gradually reintroduced normal foods and received ongoing guidance to help maintain their new weight.

“Our results were remarkable,” Taylor says. “After one year, 46 per cent of participants were in remission, and 36 per cent remained in remission at two years, all without diabetes medication.”

In 2024, results from a five-year extension of the DiRECT study showed that some people could remain in remission for at least five years, provided they maintained their weight.

“Among participants who continued to receive support from their doctor, 13 per cent were still in remission at year five. Even those who regained weight experienced lasting benefits, including half the risk of serious health issues and hospitalisations than those receiving standard treatment,” says Taylor.

His findings have now transformed type 2 diabetes management in the UK. In 2024, the NHS rolled out the Type 2 Diabetes Path to Remission Programme, which now offers the DiRECT model nationwide to people with early-stage type 2 diabetes.

The important thing to remember is that achieving remission doesn’t mean you’re cured from type 2 diabetes. Remission can only last if the weight loss is maintained, so it’s important to focus on long term, sustainable life changes.

SUGAR SWAPS

Another approach to reversing type 2 diabetes takes a more focused approach by just concentrating on sugar. People can carry on eating their normal foods for the most part, provided they eliminate added sugar and reduce refined, high-glycaemic index (GI) carbohydrates, such as white bread, rice and many cereals.

These are rapidly broken down into glucose, causing sharp spikes in blood glucose and triggering big rises in insulin.

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“For people with type 2 diabetes, this is exactly what you want to avoid, as consistently high insulin keeps the body in fat-storing mode and prevents it from burning the liver fat that drives insulin resistance,” explains Cavan.

He recommends cutting out sugar in all its forms and reducing portions of starchy foods like bread, pasta, rice, and potatoes. “They’re essentially chains of sugar molecules, and to your body a bowl of white rice isn’t far off a bowl of sugar,” he says.

Cutting out added sugar and reducing refined, high-GI starches can therefore help bring insulin levels down.

Cavan recommends basing meals around protein and adding small portions of low-GI, high-fibre carbohydrates, which release glucose more slowly.

Keeping glucose, and therefore insulin, low allows the body to start burning stored liver fat, which helps restore insulin sensitivity.

GET MOVING

While these methods can help undo the damage that causes insulin resistance, there are other things people can do to improve how their bodies use insulin.

One important way of managing type 2 diabetes is exercise. When you move, your muscles take up glucose from the bloodstream and use it for energy, helping to lower blood glucose levels immediately.

Over time, regular activity trains your muscles to become even more responsive to insulin. This in turn helps burn excess fat stored around the liver and pancreas.

However, both Cavan and Taylor say that exercise should not be the first port of call when trying to reverse type 2 diabetes.

“In our programme, we actually advise people not to start a new exercise routine during the initial weight loss phase,” says Taylor. “Many people with type 2 diabetes find exercise difficult because excess weight can make movement uncomfortable, and fatigue or joint pain are common.

“Starting to exercise while still overweight can actually increase appetite, causing people to eat more and undo some of their progress. For the best results, it’s better to focus on reducing calorie intake first.”

Cavan adds, “Once you’ve lost some weight and are feeling fitter, that’s the time to introduce exercise properly.

“In the beginning, even simple movement is enough to make a real difference. Try to walk as much as you can, especially after meals. Just 10 to 15 minutes is enough to help your muscles use up glucose and prevent glucose spikes.

“If you spend a lot of time sitting, make a habit of standing up or moving around at least once an hour.”

SLEEP AND STRESS

Sleep plays a crucial but often overlooked role in reversing type 2 diabetes. During deep sleep, the body restores energy balance and resets key metabolic processes. At night, the body's demand for glucose falls, and stress hormones like cortisol are at their lowest, reducing signals that raise blood sugar and making the body more sensitive to insulin. This calm, restorative state allows insulin to work more effectively, helping cells absorb glucose from the blood.

“If you're lying awake or not sleeping well,” says Cavan, “stress hormones like cortisol stay elevated, mimicking a fight-or-flight response that tells the liver to release more glucose while making cells less responsive to insulin.

“Over time, this can contribute to insulin resistance and keeps blood glucose high.”

Sleep also affects the hormones that control hunger. When you don't get enough sleep, your body makes more of the 'hunger hormone', ghrelin, and less leptin, the hormone that helps you feel full. This can make you crave sugary or high-calorie foods and eat more the next day. Stress is another important and often forgotten factor in type 2 diabetes.

Cavan explains: “When you're stressed, your body releases cortisol, which raises blood sugar and makes your cells less responsive to insulin. Evolutionarily, that made sense, as it gave us energy to fight or flee.

“But today, stress rarely comes from physical threats, meaning that while your body prepares for action, you don't usually burn off the extra glucose released into your bloodstream.” Over time, this constant trickle of stress keeps blood glucose and insulin high, worsening insulin resistance. High cortisol can also affect appetite and food choices, making sugary or fatty foods more tempting.

We live in a world where type 2 diabetes no longer means a lifetime of medication to manage blood sugar levels. Changing diet, exercise, focusing on sleep and stress can all help to keep our blood sugar on an even keel.

However, the strongest evidence we have at the moment suggests that the main way to put type 2 diabetes into remission is by losing weight, and particularly by losing the excess fat stored around the liver and pancreas.

It can be a long and difficult path, requiring some big changes that will need to be maintained for the rest of your life, but it is possible to turn the clock back and reverse diabetes.