

Worldwide audit finds testosterone replacement improves blood sugar control in men with type 2 diabetes

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Real-world data from an ongoing international audit of testosterone deficiency in men with type 2 diabetes, presented at the [Annual Meeting](#)

[of The European Association for the Study of Diabetes](#) (EASD), Hamburg (2–6 Oct), suggests that testosterone replacement therapy (TRT) improves glycemic control for up to two years.

The early data from 37 centers across eight countries who have so far joined the Association of British Clinical Diabetologists (ABCD) audit, suggest that the reason that HbA1c (a measure of average blood sugar levels over the past two to three months) continues to decrease over time is likely to be due to the ongoing effect of testosterone on [insulin resistance](#) and fat reduction.

The results provide preliminary insights into the controversial question of whether TRT could have a beneficial effect on [diabetes](#) and obesity.

Two decades ago, researchers discovered a link between low testosterone in men and the prevalence of type 2 diabetes. Estimates suggest that around 40% of men with type 2 diabetes have symptomatic testosterone deficiency. Testosterone deficiency is linked with adverse effects on [cardiovascular risk factors](#), osteoporosis, and psychological well-being, and is associated with double the risk of death in men with type 2 diabetes.

Multiple studies have shown that TRT could have benefits for men with hypogonadism (testosterone deficiency) who also have type 2 diabetes, obesity, and other cardiometabolic disorders. TRT has been shown to reduce insulin resistance, HbA1c, cholesterol, obesity, and mortality, and improve quality of life, and sexual function.

However, uptake of TRT has been slow in practice in part due to conflicting findings on cardiovascular risks. However, a recently published large, multicentre, randomized trial on the cardiovascular safety of TRT found no difference in major cardiovascular events between testosterone and placebo treated groups.

"Despite this evidence, the use of testosterone among endocrinologists remains low and many diabetologists have not even heard of the association between testosterone and diabetes," says Professor Hugh Jones from Barnsley Hospital in the UK who led the study.

"We hope that the ABCD audit will provide enough data on real-world [clinical practice](#) to determine which patients respond and those who do not in terms of quality of life, symptoms and cardiometabolic benefits."

The ABCD audit allows anonymized data input from new and retrospective patients who have commenced on TRT and also those with testosterone deficiency who are not treated.

The aim of the audit is to determine the real-world benefits and safety of TRT on symptoms, glycemic control, obesity, other cardiometabolic parameters (e.g., lipids, [blood pressure](#), BMI, and waist circumference) and on cardiovascular events and diabetes complications.

In total, 34 centers in eight countries (the UK, Germany, Canada, New Zealand, South Africa, Malaysia, and Vietnam) including 428 patients (average age 71 years) have so far joined the audit.

The testosterone formulations used by these patients are gels and long-acting testosterone undecanoate intramuscular injections. Testosterone guidelines state that after initiation of TRT patients should be reviewed at three, six, 12 months and then yearly from then on.

The researchers evaluated HbA1c on paired data after three, 12 and 24 months on patients included in the audit treated with TRT. The recommended range for most people with diabetes is to keep HbA1c under 48 mmol/mol.

After three months of treatment with TRT, average HbA1c fell by 4.9

mmol/mol from 71 mmol/mol to 66 mmol/mol (81 patients); after 12 months average HbA1c fell by 9.6 mmol/mol from 71 mmol/mol to 61.7 mmol/mol (121 patients); and after 24 months it declined by 15.4 mmol/mol from 71.2 mmol/mol to 55 mmol/mol (101 patients).

"More and longer-term data from a larger number of patients included in the audit are needed to determine whether there are any indicators as to which type of patient is like to respond to testosterone therapy," says Professor Jones.

"These findings will also form the evidence basis for [general practitioners](#) and endocrinologists to proactively ask patients with type 2 diabetes about their symptoms and investigate and diagnose testosterone deficiency appropriately and treat them with [testosterone](#) where indicated."

Provided by Diabetologia

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