

Early type 2 diabetes: Is remission the new normal for young adults?

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Type 2 diabetes diagnosed before age 45 progresses faster and cuts life expectancy more than the disease diagnosed later, and it is becoming more common. The RESET for Remission trial, published in The Lancet Regional Health Americas, tested a low-energy diet combined with structured exercise against usual care in exactly this population, and it produced remission rates rarely seen for any diabetes intervention.¹

KEY TAKEAWAYS

- **The Pivot:** A structured low-energy diet combined with supervised exercise achieved diabetes remission in over half of adults with early-onset type 2 diabetes, a rate at the top end of anything previously reported for a trial of this length.
- **The Data:** Remission occurred in 54% of intervention participants versus 4% on usual care (21-fold higher odds after adjustment), with the intervention group losing 7.5kg more weight, 6.6kg of it fat mass.
- **The Action:** Consider structured diet-plus-exercise remission programmes as a first-line option for adults under 45 with new or recent type 2 diabetes and obesity, not insulin-dependent, given the scale of benefit relative to usual care.

Early-onset type 2 diabetes carries a distinct clinical profile: faster deterioration in blood sugar control, earlier complications and shorter life expectancy compared with diabetes diagnosed later in life. Low-energy diets alone can push glucose below the diagnostic threshold for remission, but adding structured exercise was hypothesised to add fitness, muscle preservation and reduced insulin resistance on top.¹

Researchers at the University of Leicester, McGill University and the University of Alberta randomised 96 adults aged 18 to 45 with early-onset type 2 diabetes and obesity, not on insulin, to usual care or to a structured intervention: an 800 to 900 kcal per day diet for 12 weeks alongside twice-weekly supervised aerobic and resistance exercise, followed by a 12-week weight-maintenance phase with independent exercise. All glucose- and blood-pressure-lowering medication was stopped at the start of the diet, barring albuminuria.¹

The Numbers

At 24 weeks, remission, defined as HbA1c below 6.5% with no glucose-lowering medication for at least 12 weeks, occurred in 54% of intervention participants (27 of 50) against 4% of controls (2 of 46).¹ After statistical adjustment, intervention participants were 21 times more likely to achieve remission than those on usual care, a result the authors describe as sitting at the upper end of remission rates reported for trials of comparable duration.

Weight change followed the same pattern. Intervention participants lost a mean 8.4kg over 24 weeks, from 100.7kg to 92.3kg; control participants lost 1.2kg, from 103.2kg to 102.0kg. After adjustment, the intervention group lost 7.5kg more than controls, of which 6.6kg was fat mass, a detail that matters because it implies the resistance-training component did its intended job of protecting lean tissue rather than letting the deficit strip muscle along with fat.

Adverse events were common in the intervention arm, 43 of 50 participants had at least one, against 6 of 46 on usual care, but they were overwhelmingly the expected early effects of a very-low-energy diet: constipation, headache, dizziness and fatigue, all of which resolved. No severe adverse events were reported in either arm.

The study's findings underscore the potent impact of a structured, multi-component intervention on early-onset type 2 diabetes remission. The high remission rate of 54% in the intervention group, significantly exceeding the 4% in controls, positions this approach as a highly effective strategy for reversing the disease in this specific patient demographic. The emphasis on fat mass reduction, rather than just overall weight loss, is particularly noteworthy. By demonstrating a preservation of lean muscle mass through the inclusion of resistance training, the intervention addresses a critical concern with very-low-energy diets, which can sometimes lead to undesirable muscle catabolism. This specific detail provides a strong physiological rationale for the combined dietary and exercise approach, suggesting a more metabolically favorable weight loss that could contribute to sustained glycemic control and improved long-term outcomes.

Clinical Implications and Future Directions

The results of this trial offer compelling evidence that remission should be considered a primary treatment goal for young adults with early-onset type 2 diabetes and obesity, moving beyond the traditional focus on mere glycemic control. The 21-fold increased likelihood of remission in the intervention group suggests that a proactive, intensive lifestyle modification program can fundamentally alter the disease trajectory in these patients. For healthcare professionals, this implies a need to re-evaluate current treatment paradigms, potentially integrating structured very-low-energy diets combined with supervised exercise as a first-line or early-stage intervention, particularly in patients who meet the study's inclusion criteria (age 18-45, early-onset T2D, obesity, not on insulin). The observed adverse events, predominantly mild and transient, are consistent with the known side effects of very-low-energy diets and can be managed with appropriate patient education and monitoring.

However, it is crucial to acknowledge the limitations of the study. The 24-week duration, while sufficient to demonstrate short-term remission, does not provide insights into the long-term sustainability of these effects. Type 2 diabetes is a chronic condition, and maintaining remission often requires ongoing lifestyle adherence. Future research must focus on longer-term follow-up to assess the durability of remission and identify factors that predict sustained success. Additionally, the study population was relatively homogenous, consisting of individuals with early-onset type 2 diabetes and obesity who were not on insulin. This limits the generalizability of the findings to other patient groups, such as those with longer disease duration, higher HbA1c levels, or those already on insulin therapy. Further trials are needed to explore the efficacy and safety of this intervention in a broader range of patients with type 2 diabetes.

Another important consideration is the practical implementation of such an intensive intervention within real-world

clinical settings. The study involved twice-weekly supervised exercise sessions and a highly structured dietary plan, which may require significant resources and patient commitment. While the benefits are clear, the scalability of this model needs to be carefully evaluated. Exploring alternative delivery methods, such as group-based interventions, digital health platforms, or stepped-care approaches, could help make such programs more accessible. Furthermore, understanding the psychological and behavioral factors that contribute to successful adherence and long-term maintenance of lifestyle changes will be critical for translating these research findings into widespread clinical practice. Tailored support systems and behavioral counseling may be essential components of any successful long-term remission strategy.

Ultimately, this study provides a robust foundation for advocating for intensive lifestyle interventions as a powerful tool in the management of early-onset type 2 diabetes. By demonstrating high rates of remission and favorable changes in body composition, it challenges the notion that type 2 diabetes is an inexorably progressive disease. Clinicians should discuss the potential for remission with eligible patients, emphasizing the benefits of a structured, multi-component approach. While further research is needed to address long-term outcomes and broader applicability, the immediate implication is clear: for young adults with early-onset type 2 diabetes and obesity, remission is not just a possibility, but a tangible and achievable goal with significant clinical benefits.

CLINICAL IMPLICATIONS

A 21-fold difference in remission odds is a large enough effect that it is worth being precise about what the trial actually tested: a supervised, resourced programme with twice-weekly exercise sessions and a structured meal-replacement diet, not a diet handout and a gym membership recommendation. The result says this specific, intensive package works remarkably well in early-onset disease. It does not say a looser version of the same idea will produce anything close to a 54% remission rate.

The fat-mass-versus-lean-mass breakdown is the detail that separates this trial from a simple low-calorie-diet result. Losing 6.6 of 7.5 additional kilograms as fat, rather than a mix that erodes muscle along with it, is exactly the outcome the resistance-training component was designed to produce, and it did. That distinction matters directly for a population already facing decades of elevated cardiovascular risk from an early diagnosis.

The authors are candid that most weight-loss interventions, including this one, are followed by some degree of regain, and that regained weight tends to skew toward fat displacing preserved lean mass over time, a genuine long-term concern this 24-week trial cannot answer. Longer follow-up will need to establish whether the remission holds and whether the preserved muscle mass translates into durable functional and metabolic benefit.

For a condition defined by faster progression and worse long-term outcomes than diabetes diagnosed later, a first-line option with a 54% remission rate at 24 weeks is a genuinely different offer than the medication-management pathway most of these patients are currently on. The scalability question, delivering twice-weekly supervised exercise sessions at a population level, is the real barrier between this result and

routine practice, not the biology.

The trial ran across three centres on two continents and still needed four years to enrol 96 participants, a reminder that early onset type 2 diabetes, while growing in prevalence, remains a narrower recruitment pool than the broader disease. Confirming this result at scale will likely require a similarly patient, multi-site design rather than a single large trial run quickly.

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