

Primary Care-Led Weight Management for Remission of Type 2 Diabetes (DiRECT): An Open-label, Cluster-Randomised Trial.

Lean MEJ, et al. *Lancet*. 2017:Published online Dec 5, 2017. ([http://dx.doi.org/10.1016/S0140-6736\(17\)33102-1](http://dx.doi.org/10.1016/S0140-6736(17)33102-1))

Introduction:

A UK research team conducted a trial to assess whether intensive weight management with a total diet replacement (TDR) within routine primary care in the UK, would achieve remission of Type 2 diabetes (T2D). In the UK, remission is defined as HbA1c <6.5% after at least 2 months off all antidiabetes medications. It is important to note, in the US, remission is defined as normoglycemia for at least 1 year (HbA1c in normal range (<5.7%; fasting glucose <117 mg/dL) without active pharmacological therapies or procedures.* Co-primary outcomes were weight loss of 15 kg (33 lbs) or more and remission of diabetes, defined as HbA1c <6.5% after at least 2 months off all antidiabetes medications.

*Buse JB, et al. *Diabetes Care*. 2009;32:2133–2135.

Methods:

- Open-label, cluster-randomized trial
- 49 primary care centers in Scotland and England
- n=149 for intervention group (TDR)
- n=149 for active control group (best-practice care with a food-based diet)
- 20-65 years old
- Inclusion Criteria:
 - Diagnosed with T2D within the previous 6 years
 - BMI of 27-45 kg/m²
 - Not on insulin therapy
 - HbA1c ≥6% (125 mg/dL) and ≤12%. Those with HbA1c <6.5% had to be on at least 1 antidiabetes medication
- Primary Outcomes:
 - Weight loss of 15 kg (33 lbs) or more
 - Remission of diabetes, defined as an HbA1c <6.5% after at least 2 months off all antidiabetes medications, from baseline to 1 year
- Secondary Outcomes:
 - Quality of life (as measured by the EuroQol 5 Dimensions (EQ-5D) visual analog scale
 - Reflects participants judgement of their:
 1. Mobility
 2. Self-Care
 3. Usual Activities
 4. Pain and Discomfort
 5. Anxiety and Depression
 - Serum lipids
 - Physical activity

Interventions:

Intervention Group

All oral antidiabetes and antihypertension medications were discontinued on day 1 and then re-introduced following standard protocols.

- TDR formula (26% Protein, 59% CHO, 13% Fat, 2% Fiber) provided 825-853 kcal/day for 3-5 months

- Structured food reintroduction for 2-8 weeks (15% Protein, 50% CHO, 35% Fat)
- Structured monthly support for long-term weight-loss maintenance
- Participants were encouraged to continue typical physical activity level during the active-weight loss phase and to increase steps to 15,000/day during food reintroduction and weight maintenance phases

Control Group

- Best practice care as provided in each country's current diabetes guidelines and standards

Results (at 1 Year)		
Outcomes	Intervention Group	Control Group
Completed study	86% (n=128)	99% (n=147)
Achieved study weight loss goal of >15 kg (33 lbs)	24% (n=36) Mean weight loss was 10 kg (22 lbs)	0 participants Mean weight loss was 1 kg (2.2 lbs)
Achieved diabetes remission	46% (n=68)	4 (n = 6)
HbA1c	Decreased by 0.9% (21 mg/dL)	Increased by 0.1% (44 mg/dL)
Discontinued antidiabetes medication	74% (n=109) Mean HbA1c 6.4% (137 mg/dL)	18% (n=27) Mean HbA1c 7.2% (160 mg/dL)
Discontinued antihypertensive medication	48%	0
Quality of Life (EQ-5D visual analogue scale)	Improved 7.2 points	Declined -2.9 points

Conclusion

Outcomes and remission of diabetes in the UK was related to the amount of weight lost. Diabetes remission was achieved in 86% of patients with at least 15 kg weight loss and 57% of those with weight loss between 10 and 15 kg.

The DiRECT study shows that, in the UK, to achieve the degree of weight loss required for significant improvements and remission in those recently diagnosed with diabetes (<6 years), a total meal replacement program is superior to standard treatment for people with diabetes.

The investigators note that these results should pave the way for this type of intervention to be considered in the routine care of patients with Type 2 diabetes who wish to attain diabetes remission.