

# Diabetes remission provides lasting cardiorenal benefits

## Remission from diabetes through weight loss is associated with reduced risk of renal and cardiovascular disease.

New findings from the landmark Look AHEAD study have revealed that achieving remission from type 2 diabetes through weight loss is associated with large reductions in rates of both chronic kidney disease (CKD) and cardiovascular disease (CVD).

Increasingly, remission from type 2 diabetes is being seen as a goal that many people can attain. While previously associated with bariatric surgery, the Look AHEAD and DiRECT studies demonstrated that lifestyle interventions can also be effective in achieving remission from diabetes and prediabetes. The impact of remission through such interventions on long-term health outcomes, however, has not been examined.

Look AHEAD was a 12-year, multicentre, randomised control trial that compared the effects of an intensive lifestyle intervention with that of diabetes support and education. Researchers conducted observational *post hoc* analyses of the study data to establish whether achieving remission resulted in a reduction in the incidence

of diabetes-related CKD and CVD.

The analytical sample size was 4488 (58% female; mean age, 59 years; mean diabetes duration, 6 years; and mean BMI, 35.8 kg/m<sup>2</sup>). Diabetes remission (defined as taking no diabetes medication and an HbA<sub>1c</sub> <48 mmol/mol) was recorded during at least one follow-up visit in 12.7% of participants. Most remissions were relatively short-lived, with the percentage of participants with remission decreasing to 4% by the eighth year of the study.

Those with any evidence of remission had a 33% lower rate of CKD (HR, 0.67 [95% CI, 0.52–0.87]) and a 40% lower rate of CVD (HR, 0.60 [95% CI, 0.47–0.79]) in adjusted analyses, compared to those without remission. The magnitude of the risk reduction was greatest for those with evidence of longer-term remission.

The authors conclude that these associations may be affected by post-baseline improvements in weight, fitness, HbA<sub>1c</sub> and LDL-cholesterol. While this study demonstrates the promise of lifestyle-based remission,


they caution that the long-term sustainability of such intensive interventions is unclear and emphasise the need for continued follow-up in remission studies.

The full study findings can be read [here](#). ■

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ARTICLE

**Impact of remission from type 2 diabetes on long-term health outcomes: findings from the Look AHEAD study**

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**Abstract**  
**AIMS/Background:** We examined the association of attainment of diabetes remission in the context of a 12-year intensive lifestyle intervention with subsequent incidence of chronic kidney disease (CKD) and CVD.  
**Methods:** The Look AHEAD study was a multi-centre RCT comparing the effect of a 12-year intensive lifestyle intervention with that of diabetes support and education on CVD and other long-term health conditions. We compared the incidence of CVD and CKD among 4402 and 4132 participants, respectively, based on achievement and duration of diabetes remission. Participants were 58% female, one had a mean age of 59 years, a duration of diabetes of 6 years and BMI of 35.8 kg/m<sup>2</sup>. We applied an epidemiological definition of remission: taking no diabetes medication and having HbA<sub>1c</sub> <48 mmol/mol (6.5%) at a single point in time. We defined high-risk or very high-risk CKD based on the Kidney Disease Improving Global Outcomes (KDIGO) criteria, and CVD incidence as any occurrence of non-fatal acute myocardial infarction, stroke, admission for angina or CVD death.  
**Results:** Participants with evidence of any remission during follow-up had a 33% lower rate of CKD (HR 0.67; 95% CI 0.52, 0.87) and a 40% lower rate of the composite CVD measure (HR 0.60; 95% CI 0.47, 0.79) in multivariate analyses adjusting for HbA<sub>1c</sub>, BP, lipid levels, CVD history, diabetes duration and intervention arm, compared with participants without remission. The magnitude of risk reduction was greatest for participants with evidence of longer-term remission.  
**Conclusions/interpretation:** Participants with type 2 diabetes with evidence of remission had a substantially lower incidence of CKD and CVD, respectively, compared with participants who did not achieve remission. This association may be affected by post-baseline improvements in weight, fitness, HbA<sub>1c</sub>, and LDL-cholesterol.  
**Trial registration:** ClinicalTrials.gov: NCT00179532  
**Data availability:** <https://repository.niddk.nih.gov/studies/look-ahead/>

**Keywords:** Cardiovascular disease · Chronic kidney disease · Diabetes · Lifestyle intervention · Remission · Weight loss

See the Electronic Supplementary Material (ESM) for a list of members of the Look AHEAD Study Group.

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