Diabetes journals

DIABETOLOGIA

Long-term lifestyle changes reduce risk of T2D

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 The Finnish Diabetes Prevention Study was a randomised trial set up in 1993 to assess the effect of an intensive lifestyle intervention on the prevention of T2D in people at high risk.

2 In this study, the authors report on follow-up to a median of 13 years from the initial lifestyle intervention.

3 Participants comprised overweight men (n=172) and women (n=350) with impaired glucose tolerance randomised to an intensive lifestyle intervention group (n=265) or a control group with general information (n=257) in 1993–1998; the primary outcome was diabetes diagnosis and secondary outcomes were changes in body weight, glycaemia, physical activity and diet.

4 After a median of 4 years of active intervention, those who wished to continue in the study and who were free from diabetes included 200 in the intervention group and 166 in the control group; these were followed up until diabetes diagnosis or end of 2009, 13 years from study initiation.

5 During the study the hazard ratio (HR) for diabetes (intervention group versus control group) was 0.614 (95% confidence interval [CI], 0.478–0.789; P<0.001); during the 9 years' follow-up after active intervention, the corresponding HR was 0.672 (95% CI, 0.477–0.947; P=0.023).

6 The intervention group sustained long-term lifestyle changes, resulting in lower body weight, glycaemia and a healthier diet.

7 Lifestyle intervention in people at high risk of type 2 diabetes can prevent diabetes progression.

Lindström J, Peltonen M, Eriksson JG et al (2013) Improved lifestyle and decreased diabetes risk over 13 years: Long-term follow-up of the randomised Finnish Diabetes Prevention Study. *Diabetologia* **56**: 284–93

The Finnish Diabetes Prevention Study: The legacy effect

Vinod Patel, Associate Professor, Warwick Medical School, University of Warwick and Honorary Consultant in Diabetes and Endocrinology, George Eliot Hospital NHS Trust, Nuneaton

The UK Prospective Diabetes Study showed that a decade or so of sustained good glycaemic control and blood pressure results in clinical benefits. Despite the end of randomisation to intensive glycaemic and blood pressure targets, there was a significant reduction in microvascular complications, myocardial infarction and all-cause mortality in the group that previously had intensive care (Holman et al, 2008).

A legacy effect is now emerging in the type 2 diabetes prevention trials; the Finnish Diabetes Prevention Study demonstrated a 58% reduction in new cases of diabetes in people with impaired glucose tolerance over a median 4 years of follow-up (using the ≥7.8 mmol/L fasting and ≥11.1 mmol/L 2-hour oral glucose tolerance test glycaemic criteria). After ending randomisation, a cohort of 366 individuals were followed up for a further median 9 years. Although lifestyle factors generally merged when comparing the original intensively treated groups and conventionally treated groups, some important differences remained: the intensively treated group had lower body weights and a healthier diet (less fat; more protein, fresh fruits and whole grains). This group had a 38% reduction in risk of diabetes overall, giving a number needed to treat of only 5.2 over the total 13 years of follow-up and an absolute risk reduction of 19.4%. The overall incidence of diabetes was 64% in the original control group and 44% in the intervention group.

"What was striking from a public health policy outcomes perspective was the benefit from achieving even a few of the five specific intervention goals: weight reduction of 5%; calories from fat <30% of daily amount; calories from saturated fat <10% of daily amount; dietary fibre 15 g/1000 calories; and physical activity >4 hours per week."

What was striking from a public health policy outcomes perspective was the benefit from achieving even a few of the five specific intervention goals: weight reduction of 5%; calories from fat <30% of daily amount; calories from saturated fat <10% of daily amount; dietary fibre 15 g/1000 calories; and physical activity >4 hours per week. In comparison with individuals achieving none of these goals, the risk reduction was 14% for one goal, 33% for two, 39% for three, 66% for four and 80% for all five goals.

I think there is room for optimism against the relentless tide of diabetes – lifestyle works! The other papers in this section attest to the same.

Holman RR, Paul SJ, Bethel MA et al (2008) 10-year follow-up of intensive glucose control in type 2 diabetes. *N Engl J Med* **359**: 1577–89

"Healthcare professionals should recommend exercise to adults with T2D, as it is effective in improving blood pressure control, lowering LDL-cholesterol and elevating HDL-cholesterol."

DIABETES RESEARCH AND CLINICAL PRACTICE

Supervised exercise improves CV parameters in people with T2D

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 Diabetes care involves a combination of glycaemic control and management of cardiovascular (CV) risk factors; exercise is a key element to optimum care, and guidelines recommend at least 150 minutes a week of moderate-intensity aerobic exercise and three sessions a week of resistance training for people with T2D.

2 The objective was to perform a review of the literature to determine the effect of supervised exercise interventions on lipid profiles and blood pressure control in adults with T2D.

3 An electronic database search identified 42 randomised controlled trials comprising 2808 participants with T2D: the mean age was 56.7 years, 51.0% were women and mean diabetes duration was 6.1 years.

4 The trials comprised aerobic exercise, resistance training and a combination of the two, and averaged 22.5 weeks with a 292 metabolic-equivalent intensity.

5 Structured exercise was associated with a reduction in systolic blood pressure of -2.42 mmHg, diastolic blood pressure of -2.23 mmHg and LDL-cholesterol of -0.16 mmol/L, and an increase in HDL-cholesterol of 0.04 mmol/L.

6 Heterogeneity was partially explained by age, dietary co-intervention and the duration and intensity of the exercise.

7 Healthcare professionals should recommend exercise to adults with T2D, as it is effective in improving blood pressure control, lowering LDL-cholesterol and elevating HDL-cholesterol.

Hayashino Y, Jackson JL, Fukumori N et al (2012) Effects of supervised exercise on lipid profiles and blood pressure control in people with type 2 diabetes mellitus. *Diabetes Res Clin Pract* **98**: 349–60

DIABETOLOGIA

PA has an inverse association with all-cause mortality

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 People with diabetes have an increased risk of cardiovascular disease (CVD)-related mortality; although it is known that physical activity (PA) decreases CVD risk in the general population, few studies have looked at the effect of PA on CVD risk in people with T1D.

2 Thus the aim of this study was to determine the association of PA with all-cause mortality and incident and prevalent CVD in people with T1D.

3 The EURODIAB Prospective Complications Study comprised 3250 people with T1D (mean age 32.7±10.2 years) from 16 European countries; of these, 1880 participated in follow-up examinations.

4 Analysis 1 looked at the association of baseline PA with all-cause mortality and incident CVD by performing a survival analysis; PA was based on reported number of hours of mild, moderate and vigorous PA per week.

5 Analysis 2 looked at the association between PA at follow-up and prevalent CVD by performing a logistic regression analysis; PA was based on data from sports, walking distance and regular bicycling.

6 In analysis 1, participation in moderate or vigorous PA at least once a week was borderline inversely associated with all-cause mortality (hazard ratio [HR], 0.66; 95% confidence interval [CI], 0.42–1.03) and incident CVD in women (HR, 0.66; 95% CI, 0.40–1.08); in analysis 2, total PA was inversely associated with prevalent CVD (odds ratio, 0.66; 95% CI 0.45–0.97).

7 Further studies with objective PA measurements are needed.

Tielemans SM, Soedamah-Muthu SS, De Neve M et al (2012) Association of physical activity with all-cause mortality and incident and prevalent cardiovascular disease. *Diabetologia* 10 Oct [Epub ahead of print]

DIABETES CARE

Modest physical activity may cancel diabetes effect on CV mortality

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 Current guidelines recommend an even higher level of physical activity for people with diabetes than for the general population; however, it is unknown whether physical activity could reduce the excess cardiovascular (CV) mortality in people with diabetes beyond the effect observed among the general population.

2 The study objective was to investigate the combined effect of leisure-time physical activity and diabetes on CV mortality, and to determine if physical activity could cancel out the adverse effect of diabetes on CV mortality.

3 The Nord-Trøndelag Health study is a large, population-based health survey from 1995–1997, comprising 53 587 participants available for follow-up on cause of death.

4 In total, 1716 participants died of CV disease during follow-up to 2008.

5 Compared with a control group of 3077 physically inactive people without diabetes, 121 inactive people with diabetes had an adjusted hazard ratio (HR) of 2.81 (95% confidence interval [CI], 1.93–4.07).

6 For those who reported ≥3 hours of light activity per week, the HR was 0.89 (95% CI, 0.48–1.63) if they had diabetes (n=403) and 0.78 (95% CI, 0.63–0.96) if they did not (n=17 714).

7 Analyses stratified by total activity level showed a gradually weaker association of diabetes with mortality with increasing activity level (P=0.003).

8 Even modest physical activity may cancel out the adverse effect of diabetes on CV mortality.

Moe B, Eilertsen E, Nilsen TI (2012) The combined effect of leisure time physical activity and diabetes on cardiovascular mortality. *Diabetes Care* 16 Nov [Epub ahead of print]