

Issue 93

Preventing diabetes through lifestyle

Arbor Clinical Nutrition Updates 2001 (June);93:1-2
ISSN 1446-5450

NUTRITION RESEARCH REVIEW

Study: Lifestyle change can improve diabetes risk

Subjects: 522 middle-aged, overweight subjects (mean BMI=31) with impaired glucose tolerance.

Method: Randomised controlled intervention study in which subjects were either assigned to either the control group or the intervention group. The intervention group was given individualised counseling focused on five goals: weight reduction, dietary improvement (less total fat, less saturated fat, more fiber) and increased physical activity. Subjects were followed up with annual glucose tolerance tests for an average of 3.2 years

Results: There was a small but statistically significant weight loss in the intervention group (average of 4.2 kg after one year and 3.5 kg after two years, compared with 0.8 kg in the control group at both time periods, $p < 0.001$).

The cumulative incidence of diabetes over the follow up period was only 11% (95% CI: 6-15%) in the intervention group, compared with 23% (CI: 17-29%) in the controls. The intervention group had a reduction of risk of diabetes of 58% during the trial ($p < 0.001$).

Reference: Tuomilehto J et al. Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. *NEJM* 2001; 344:1343-50.

Comments

This is a very important study that adds to two previous studies that have looked at the impact of lifestyle change in preventing diabetes in high risk adults.

A Chinese study of 577 adults published in 1997 reported a much higher cumulative incidence of diabetes in both active and control groups, and had a longer 6 year follow-up than this Finnish study. The Chinese researchers found that lifestyle change was effective in reducing the risk of developing diabetes. They also found that this effect was not dependent on

whether the subjects were overweight or not ¹.

A Swedish study published ten years ago involved 181 subjects at high risk for developing diabetes, and also included 41 patients who already had diabetes. The Swedish researchers found that lifestyle change benefited both groups. Although weight reduction was modest (3.7% weight loss) the improvements in glucose tolerance were weakly correlated with both weight loss and increased fitness ².

So it seems clear that it is well worth while encouraging high risk patients to make these relatively simple lifestyle changes. What is still not so clear is the relative importance of exercise compared with dietary change, and whether it is important to achieve significant weight loss.

The Finnish researchers found that the subject's risk of developing diabetes was reduced more the more of the five lifestyle change goals they achieved. At the same time, the weight loss was modest. These two findings suggests that weight loss is not the primary indicator of the likely success of the lifestyle change in preventing diabetes.

This is good news, since it is well established that it is difficult for overweight people to maintain significant weight loss over many years. What remains to be seen, however, is how easy it will be for patients to make this sort of lifestyle change when they are being cared for by primary care doctors who often have less counselling resources available to their patients than did the researchers in this trial (their subjects had seven sessions with a nutritionist in the first year, and four per year thereafter).

References:

1. Pan XR et al. Effects of diet and exercise in preventing NIDDM in people with impaired glucose tolerance. The Da Qing IGT and Diabetes Study. *Diabetes Care* 1997;20:537-44
2. Eriksson KF, Lindgarde F. Prevention of type 2 (non-insulin-dependent) diabetes mellitus by diet and physical exercise. The 6-year Malmo feasibility study. *Diabetologia* 1991;34:891-8

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