



# Studies Probe Value of Lifestyle Changes for Preventing Type 2 Diabetes

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CHICAGO—With type 2 diabetes on the rise and sobering predictions for future adverse health effects as a result, experts are striving to find ways to slow the growing incidence of the disease. Prevention efforts have proved difficult, but researchers have discovered that significant strides can be made through programs that encourage lifestyle changes.

Encouraging findings about the potential benefits of lifestyle interventions have emerged from a project in North Carolina, as reported at the American Diabetes Association's 67th Scientific Sessions held here in June.

The project, called Diabetes Intervention Reaching and Educating Communities Together (DIRECT), a collaborative effort between North Carolina state and local health departments and the Centers for Disease Control and Prevention (CDC), involved implementing community-based health promotion, outreach, and diabetes care initiatives in Raleigh, NC—specifically diabetes management and nutrition courses, organized walking programs, and diabetes screenings. Diabetes rates were tracked over an 8-year period and compared with those of a control community 80 miles away (Greensboro), which has a similar population size and demographic and socioeconomic characteristics.

Preintervention and postintervention surveys were conducted with randomly selected adults in each community during 1996-1997 and 2003-2004. The 2311 preintervention and 3083 postintervention participants were interviewed and had health examinations. Compared with baseline, postintervention respondents reported less sedentary behavior and more attempts to lose weight in Raleigh than in Greensboro. Although the incidence of diabetes rose in both communities, "the rates of increase in the prevalence of diabetes were

significantly slowed in the intervention community," said Desmond Williams, MD, PhD, the project officer and an epidemiologist at the CDC. The rates doubled in Greensboro, from 9.3% to 18.6%, while in Raleigh, the prevalence increased from 10.5% to 16.7%.



Studies suggest that lifestyle changes in diet and exercise can help prevent type 2 diabetes.

Rates of obesity did not change in the 2 communities over the study period, but among individuals with body mass indices of more than 30, there were significantly fewer incident cases of diabetes among residents of Raleigh than among residents of Greensboro. Because the researchers found statistically significant changes in healthy behavior, weight management behavior, and diabetes prevalence in the intervention community, "we think project DIRECT can serve as a model for other community-based diabetes prevention projects," Williams said.

Investigators at the conference noted that such data confirm earlier findings on the value of lifestyle interventions for preventing the onset of type 2 diabetes. In the Finnish Diabetes Prevention Study, a randomized controlled trial of more than 500 middle-aged, overweight individuals with impaired glucose tolerance, the

cumulative incidence of diabetes after 4 years was 11% in the intervention group (which received individualized counseling aimed at reducing weight and fat intake and increasing physical activity and fiber intake) vs 23% in the control group—a 58% reduction in risk in the intervention group (Tuomilehto J et al. *N Engl J Med*. 2001;344[18]:1343-1350).

The question remained, however, whether this benefit could be maintained after the intervention was stopped. In a follow-up to the Finnish study, investigators monitored participants who remained free of diabetes after a period of active intervention (for a median of 4 years) and an additional period without the intervention (median of 3 years) and found that there is indeed a prolonged benefit of lifestyle changes (Lindström J et al. *Lancet*. 2006;368[9548]:1673-1679).

During the follow-up period, the incidence of type 2 diabetes was 4.3 and 7.4 per 100 person-years in the intervention and control groups, respectively, indicating a 43% reduction in relative risk in the intervention group. This reduction was related to continued weight loss, reduced intake of fat and increased intake of dietary fiber, and increased physical activity.

"The lifestyle intervention seemed to carry beneficial effects on the risk of diabetes over a very long time," said coauthor Jaakko Tuomilehto, MD, PhD, of the University of Helsinki, in Finland. The reduced diabetes risk was most highly correlated with weight reduction. Therefore, "weight monitoring is very, very important," said Tuomilehto.

Experts at the conference were encouraged by the findings. "The message is that an intervention like lifestyle *does* have long-term benefits, and it shows how important [lifestyle] is," said Harold Lebovitz, MD, of the State University of New York Downstate Medical Center, in Brooklyn. □