

Public release date: 28-Oct-2009

[Print | E-mail |  Share] [Close Window]



Contact: Joan Chamberlain

niddkmedia@mail.nih.gov

301-496-3583

[NIH/National Institute of Diabetes and Digestive and Kidney Diseases](#)

A decade later, lifestyle changes or metformin still lower type 2 diabetes risk

Study reports on persistence of benefits seen in the Diabetes Prevention Program

Intensive lifestyle changes aimed at modest weight loss reduced the rate of developing type 2 diabetes by 34 percent compared with placebo in people at high risk for the disease, researchers conclude based on 10 years of data.

Participants randomly assigned to make lifestyle changes also had more favorable cardiovascular risk factors, including lower blood pressure and triglyceride levels, despite taking fewer drugs to control their heart disease risk, according to the study.

Treatment with the oral diabetes drug metformin reduced the rate of developing diabetes by 18 percent after 10 years compared with placebo. Results of the Diabetes Prevention Program Outcomes Study (DPPOS), which examines the persistence of the interventions tested in the Diabetes Prevention Program (DPP), appear online in the *Lancet* on Oct. 29, 2009.

"In 10 years, participants in the lifestyle changes group delayed type 2 diabetes by about four years compared with placebo, and those in the metformin group delayed it by two years. The benefits of intensive lifestyle changes were especially pronounced in the elderly. People age 60 and older lowered their rate of developing type 2 diabetes in the next 10 years by about half," said study chair David M. Nathan, M.D., of Massachusetts General Hospital.

In the United States, about 11 percent of adults--24 million people--have diabetes, and up to 95 percent of them have type 2 diabetes. An additional 57 million overweight adults have glucose levels that are higher than normal but not yet in the diabetic range, a condition that substantially raises the risk of a heart attack or stroke and of developing type 2 diabetes in the next 10 years. "The spiraling epidemics of obesity and type 2 diabetes in United States and worldwide show no signs of abating," said Griffin P. Rodgers, M.D., director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), part of the National Institutes of Health. "Millions of people could delay diabetes for years and possibly prevent the disease altogether if they lost a modest amount of weight through diet and increased physical activity."

The DPPOS is a continuation of the DPP, a large, randomized trial in 3,234 overweight or obese adults with elevated blood glucose levels. Researchers announced the initial findings of the DPP in 2001, a year earlier than scheduled because results were so clear: after three years, intensive lifestyle changes reduced the development of type 2 diabetes by 58 percent compared with placebo. Metformin (850 milligrams twice a day) reduced it by 31 percent compared with placebo.

Striking as the findings were, the researchers could not say how long the benefit would endure, since the results were based on just three years of data. After a bridge period from January to July 2002, when all participants learned the results and were offered a 16-session program explaining how to make intensive lifestyle changes, the DPPOS began, with 88 percent of DPP volunteers taking part.

Intensive lifestyle changes consisted of lowering fat and calories in the diet and increasing regular physical activity to 150 minutes per week. Participants received training in diet, exercise (most chose walking), and behavior modification skills. In the first year of the DPP, this group lost 15 lbs. on average but regained all but about 5 pounds over 10 years. The metformin group has maintained a loss of about 5 pounds, and the placebo group lost less than 2 pounds over the decade.

About 5 to 6 percent of those in the lifestyle intervention group developed type 2 diabetes annually, an incidence rate that remained steady throughout the DPPOS. When the DPP ended in 2001, the metformin and placebo groups were developing diabetes at the rate of 8 and 11 percent a year, respectively. In 10 years, however, the yearly diabetes incidence rates for the drug and placebo groups had also fallen to about 5 to 6 percent, and the lifestyle intervention group's rate remained at this lower level.

The researchers are looking at a number of explanations for the convergence of diabetes incidence rates for the three groups. One may be that lifestyle changes adopted by the drug and placebo groups after the DPP ended may have lowered their rate of type 2 diabetes over time.

"Sustaining even modest weight loss with lifestyle changes is highly challenging, but it produced major long-term health rewards by lowering the risk of type 2 diabetes and reducing other cardiovascular risk factors in people at high risk of developing diabetes," said lead author and a principal investigator for the study, William Knowler, M.D., Dr.P.H., of the NIDDK in Phoenix. "Once we learned how dramatically this intervention reduced diabetes onset in the DPP, we offered modified training in lifestyle changes to all participants, which probably contributed to the falling diabetes rates in the placebo and metformin groups."

At enrollment in the DPP, participants ranged from age 25 to 85 years, with an average age of 51. Their average body mass index (BMI) was 34, which is in the obese range. BMI measures weight in relation to height. Forty-five percent of participants were from minority groups disproportionately affected by type 2 diabetes: African-Americans, Hispanic/Latino Americans, American Indians, and Asian-Americans and Pacific Islanders. The trial also recruited other groups at higher risk for type 2 diabetes, including people age 60 years and older, women with a history of gestational diabetes, and people with a first-degree relative with type 2 diabetes.

Other studies have shown that diet and exercise delay type 2 diabetes in at-risk people. However, the DPP, conducted at 27 centers nationwide (www.bsc.gwu.edu/dpp/clinics.htmlvdoc), was the first major trial to show that lifestyle changes can effectively delay diabetes in a diverse population of overweight American adults at high risk of diabetes. Questions and Answers about the DPP/DPPOS will be available at www2.niddk.nih.gov/Research/ClinicalResearch/DPPOS.

About 24 million people in the United States have diabetes. It is the main cause of kidney failure, limb amputations, and new onset blindness in adults and a major cause of heart disease and stroke. Type 2 diabetes, which accounts for up to 95 percent of all diabetes cases, becomes more common with increasing age. It is strongly associated with obesity, inactivity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, and racial or ethnic background. The prevalence of diagnosed diabetes has more than doubled in the last 30 years, due in large part to the upsurge in obesity.

###

For Broadcast Media: A bites/b-roll package with sound bites from Dr. David Nathan, DPP/DPPOS study chair, Dr. Griffin P. Rodgers, NIDDK Director, and study participants will be available at <http://multivu.prnewswire.com/broadcast/36430/press.html> and fed via satellite as follows:

Wednesday, October 28th, 2009
1:00 PM - 1:15 PM ET
AMC 3
C-Band
Transponder 3
Downlink Freq: 3760 Horizontal

Wednesday, October 28th, 2009
6:30 PM - 6:45 PM ET
Galaxy 19
C-Band
Transponder 8
Downlink Freq: 3860 Horizontal

For general questions regarding the newsfeed, contact MultiVu's Media Relations Office at 800-653-5313 x3.

The National Diabetes Education Program, jointly sponsored by the NIH, the Centers for Disease Control and Prevention, and 200 partner organizations, provides diabetes education to improve the treatment and outcomes for people with diabetes, promote early diagnosis, and prevent or delay the onset of diabetes. In its "Small Steps. Big Rewards. Prevent Type 2 Diabetes" campaign, the NDEP (www.ndep.nih.gov) explains how people at risk can take steps to turn the tide against this disease.

The DPP is registered as NCT00004992, and the DPPOS is registered as NCT00038727 in clinicaltrials.gov. The studies have been funded by the National Institute of Diabetes and Digestive and Kidney Diseases; Eunice Kennedy Shriver National Institute of Child Health and Human Development; National Institute on Aging; National Eye Institute; National Heart, Lung, and Blood Institute; National Center on Minority Health and Health Disparities; National Center for Research Resources; and Office of Research on Women's Health within the NIH. Additional funding came from the Indian Health Service, the Centers for Disease Control and Prevention, and the American Diabetes Association. Lipha (Merck-Sante) provided medication. LifeScan Inc.; Merck-Medco Managed Care, Inc.; and Merck and Co. donated materials, equipment, or medicines.

NIDDK, part of the NIH, conducts and supports basic and clinical research and research training on some of the most common, severe and disabling conditions affecting Americans. The Institute's research interests include diabetes and other endocrine and metabolic diseases; digestive diseases, nutrition, and obesity; and kidney, urologic and hematologic diseases. For more information, visit www.niddk.nih.gov.

The National Institutes of Health (NIH) — The Nation's Medical Research Agency — includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.

Note to Media: To interview David M. Nathan, M.D., DPP/DPPOS Study Chair, contact Sue McGreevey, 617-724-2764, SMcgreevey@partners.org. To interview lead author William Knowler, M.D., Dr.P.H., NIDDK, contact the NIDDK Office of Communications and Public Liaison, 301-496-3583, niddkmedia@mail.nih.gov.

[Print | E-mail |  Share] [Close Window]

