

Continued reduction in development of diabetes shown in 16-year study

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Increasing physical activity has effectively prevented (or delayed) the development of Type 2 diabetes in the 16 years since the beginning of the Hawai'i Diabetes Prevention Program Outcomes Study.

The successful interventions in the study included people who changed their lifestyles to reduce weight and increase [physical activity](#) (the intensive lifestyle, or ILS group) and the group that took the diabetes drug Metformin (the Metformin Lifestyle, or MLS group). The Hawai'i findings were presented on Monday, July 28, in a news conference in Honolulu by the John A. Burns School of Medicine.

There was a 27% reduced risk of diabetes in the intensive lifestyle group; and a 17% reduced risk of diabetes in the Metformin group. After 16 years, participants in the intensive lifestyle (ILS) group and Metformin Lifestyle (MLS) group have lower weights on average compared with a placebo group.

The intensive lifestyle group has experienced weight regain, but overall, they are still lighter than when they began—in fact, 60% of the ILS group remains below their Diabetes Prevention Program start weight. The University of Hawai'i John A. Burns School of Medicine (JABSOM) was one of 27 clinical centers across the U.S. participating in this trial. There were 72 participants enrolled in the original group. The Hawai'i site contributed a number of at-risk ethnic groups – including Native Hawaiians and Pacific Islanders, and Asians – important to better

represent the nation's population.

"The results in Hawai'i and elsewhere across the country provide real hope that acting early and preventing diabetes can have lasting effects," said Dr. Richard Arakaki, an expert in Diabetes and Endocrinology and Principal Investigator leading the Hawai'i trial.

Personal Success Stories

Four participants in the long-term study wanted to share their enthusiasm about the clinical trial with the news media.

Sam Miyasato was at high risk for diabetes when he was enrolled into the trial. That was 18 years ago, and Sam is still active in the study and he would like to see the study continue. He swims three days a week, walks on the treadmill and tends a fruitful garden. He attends every health education and lifestyle class given by the study team.

Joy Gold was randomized to the Placebo group. Like others in the study, her work schedule has been full, yet she has remained an active and loyal participant in the program.

"It's harder as an adult now to get more engaged, even if it's walking five days a week for half an hour; doing some physical activity. So for the young people, I would say, continue to be active," said Gold.

Al Batungbacal attained his weight goal, and has never "gone back". He's attended just about all of the lifestyle sessions since the beginning of the trial. He's a former Army photographer, who still enjoys being behind the lens. He believes he's in terrific shape, and proudly added, "Especially for my age. I'm 84."

Leroy Piiohia also was randomized to the lifestyle group. He's been a

great influence on his family – he truly understands the importance of having family support when making healthy lifestyle changes. Piiohia said what helped him the most during the study was when the dietician showed vials containing lard, each vial representing a gram of fat in various food. There would be 25 vials by the end of a regular day's eating.

"It's good when you see what's going into your body. Eat healthy, folks," Piiohia said.

All treatment groups have lowered their heart disease risk factors of blood pressure, cholesterol and triglycerides. Lifestyle participants have lower blood pressure and lipid levels than other participants, consistent with DPP data. Metformin participants are using the least amount of anti-diabetic medication aside from their study metformin.

The Beginning

In 2001, the initial Diabetes Prevention Program (DPP) study results were released. The study was ended early because the research question was answered far ahead of time. Compared to placebo, diabetes was prevented or delayed by 58% with the intensive lifestyle (weight loss and physical activity) intervention (ILS), and by 31% with the metformin intervention (MLS), in a high risk, multi-ethnic cohort.

The Path Forward

The goals of The Diabetes Prevention Program Outcomes Study are to continue to follow the delay and prevention of diabetes from the original study treatments. Since half of study participants have developed diabetes, researchers also have the goal of following the study treatment effect on the prevention of the complications of diabetes, such as heart

disease and kidney, eye and nerve problems.

The Costs

The cost of diabetes is rising faster than any other disease – \$245 billion in 2012. Diabetes medications cost 30 billion in 2012, with a projected cost of 50 billion dollars in 2018.

Dr. Arakaki, the leader of the Hawai'i study, said that of the participants who have developed diabetes, most have had fewer medical complications, such as problems with the eyes, kidneys or muscle weakness or numbness (neuropathy), which can accompany diabetes. The intervention of physical activity and education about healthier eating also is far less costly than treating [diabetes](#) complications.

"What we found was that the lifestyle intervention cost \$1,700 per participant over 10 years, compared to the [placebo group](#). That would be a cost-effective intervention, because it would offer them a little bit of cost, but it would improve their quality of life," said Dr. Arakaki.

The \$1,700 over 10 years he refers to represented the cost of dietician and activity coaches, printed materials, etc, for the study participants.

Provided by University of Hawaii at Manoa

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