

Lifestyle Interventions Prevent Diabetes

A 20-year follow-up study from China

Lifestyle factors continue to be a pivotal point for health. In May 2008, a 20-year follow-up study from China appeared in the *Lancet*, taking a closer look at the impact long-term, intensive lifestyle interventions had on diabetes, diabetes-related macrovascular and microvascular complications and mortality.

According to the study, major clinical trials in the USA, China, India, Finland and Japan already reveal how lifestyle interventions reduce diabetes incidence in people with impaired glucose tolerance. Moderate weight loss and positive behavioral changes proved effective across the board. Interventions included reduced food consumption, less saturated fat, increased dietary fiber and exercise.

The Finnish Diabetes Prevention Study reported the incidence of diabetes was diminished for three years after a four-year active intervention. Yet, the breadth of that prevention wasn't clear when it came to reducing the complications of the disease, namely myocardial infarction, stroke and mortality.

The first of large-scale trials, the China Da Qing Diabetes Prevention Study² (CDQDPS) stated it examined the effect of different lifestyle interventions in a group setting among Chinese people from 33 clinics who had impaired glucose tolerance and reassessed 98% of their 577 study subjects to determine effects lifestyle intervention has on diabetes and other related health outcomes in high-risk individuals.

Study subjects were randomly assigned to either a control group or one of three lifestyle intervention groups—diet, exercise or diet/exercise. This “active intervention,” as termed by the study, went on for six years until 1992. Follow-ups occurred in 2006 with primary outcomes being diabetes incidence, cardiovascular disease incidence/mortality and all-cause mortality.

The study was partially funded by the US Centers for Disease Control and Prevention and the World Health Organization.

What they found.

- Group-based lifestyle interventions (exercise and better nutrition) over 6 years can prevent or delay diabetes for up to 14 years after beginning the active intervention.
- Subjects in the intervention group had 3.6 fewer years of diabetes on average than their counterparts in the control group.
- Subjects engaging in an active intervention lifestyle had a 51% lower incidence of diabetes compared to those in the control group, after controlling for age and clustering by clinic.
- Subjects in the intervention group had a 43% lower incidence for the 20-year period.

- The average annual incidence of diabetes in the active intervention group was 7% compared with 11% in control participants. The 20-year cumulative incidence was 80% in the intervention group vs. 93% in the control group.

Creating your lifestyle intervention.

You can do a great deal to prevent diabetes. Nutritionally, it takes knowing how to rightly combine foods and eating smaller meals more frequently to keep blood glucose down.

A low-glycemic nutritional plan is a solid foundation for staying in the “safe” zone. You'll want to monitor carbohydrate intake to minimize the effect insulin has on hormone levels. Stick with natural carbohydrates from fruits and vegetables—but adjust refined carbs (whole or natural grain) to your daily exercise intensity/energy needs. Some healthy whole grain choices are rye, pumpernickel and oats.

Includes healthy fats in your recipes or menu choices, such as extra virgin olive oil, avocado, seeds, fish oil, raw/unsalted nuts such as almonds, walnuts, pistachios, cashews, macadamias, etc. And have one or two servings daily of raw/unsalted legumes (variety of beans, peas, lentils, etc.), which are rich in omega 3s and 9s.

You'll also want to choose from natural, complete proteins, including eggs, chicken, turkey, fish and, occasionally, red meats.

continued on page 2



Be sure to eat every three to four hours to stimulate metabolism. Snack between main meals, having low-glycemic fruits or vegetables combined with healthy proteins or good fat: apples with peanut butter, smoked salmon and cucumbers, full-fat Greek yogurt with strawberries.

With exercise, it's about raising your heart rate and staying active. Get off the couch, away from the computer and put the DS and other game toys away. Live.

The American Diabetes Association recommends creating a comprehensive exercise program with these three activities:

- **Aerobic** – cardio workouts get that heart pumping. Studies suggest it lengthens your health span, reduces body fat, lowers heart attack risk, strengthens heart muscles, lowers blood pressure, reduces stress, increases endurance, improves quality of sleep. Do 30 minutes a day, 5 days a week. You can start slow if you're out of shape, but then work up to more time as you become more conditioned. Mix it up with brisk walking, dancing, racquetball, tennis, skating, swimming, exercise bikes, etc.
- **Strength** – resistance training reduces mortality risk, per a 2008 study. It reduces body fat, lowers cholesterol, increases bone density and body strength, reduces injuries and enhances mood. Try it in many forms, from weight machines and free weights to stretch tubing and swimming pool activities. Body weight can add resistance in exercises such as push-ups, standing squats and crunches.
- **Flexibility** – get up in the morning and stretch with gentle movements. A de-stressor, flexibility exercises help increase the length of connective tissues and muscles, improving range of motion and posture, helping with lower back pain and enhancing muscular strength. Start by stretching major muscle groups when you wake up and move on to yoga, pilates or tai chi. Make it part of your routine three to seven days per week.

Cenegenics: Proactive, preventive, healthy aging.

For over ten years, Cenegenics has helped thousands of patients optimize health and delay or prevent the onset of disease. The science behind our age management medicine program helps us identify and meet criteria, which places you in the lowest possible risk category for disease—particularly diabetes, metabolic syndrome, heart disease, cancer, stroke and Alzheimer's disease. And that ultimately extends your health span.

The path to your having a higher-quality life begins with our intensive evaluation process, which goes far beyond your annual checkups. A comprehensive, preliminary blood panel and lifestyle questionnaire coupled with a seven-hour evaluation day of diagnostics and consultation with your Cenegenics medical team deliver a complete picture of your health strengths and weakest links.

Your Cenegenics medical team—certified age-management physician, nutritionist and exercise physiologist—partner with you to design a full-faceted program that targets your short- and long-term health goals: low-glycemic nutrition, appropriate exercise, nutraceuticals (even a healthy diet needs vitamins, minerals, essential fatty acids and antioxidants) and hormone optimization (if clinically indicated).

Cenegenics has pioneered the field of age management medicine and is the leading authority in our medical specialty. After all, 15,000 patients worldwide—1,500 are physicians and their families—can't be all wrong.

**Start your active intervention for healthier living now.
Call Cenegenics today.**



Call 866.953.1510.

Discussions are always confidential and without obligation.