Preventing or Delaying the Onset of Type 2 Diabetes: What Can Be Achieved?

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The NIDDK Research Mission

To support and conduct research to combat diabetes and other endocrine and metabolic diseases, liver and other digestive diseases, nutritional disorders, obesity, and kidney, urologic and hematologic diseases.

- Chronic
- Common
- Consequential
- Costly
Obesity

- Approx. 2/3 of U.S. adults overweight or obese
- Approx. 1/3 of U.S. adults obese
- Increasing in the young
- Annual cost: $147B

Type 2 Diabetes

- Approx. 25.8 million U.S. cases (8.3% of population)
- Projected to ~50 million by 2050
- Increasing in the young
- Annual cost: $174B

Chronic Kidney Disease

- Approx. 23 million U.S. cases of CKD
- Major causes: diabetes, hypertension
- ESRD annual cost: $27B
Every 24 Hours...

- 5,225 new cases of diabetes are diagnosed
- 180 non-traumatic lower limb amputations are performed
- 133 people begin treatment for end-stage renal disease
- 634 people die of diabetes or diabetes is a contributing cause of death

National Diabetes Fact Sheet, CDC, 2011.
NIH Clinical Studies: Type 2 Diabetes

Healthy

Normal ↔ Pre-diabetes ↔ Type 2 Diabetes → Complications → Disability → Death

Preclinical state
Clinical disease
Complications

79 million* 25.8 million*

Primary Prevention  Secondary Prevention  Tertiary Prevention

*BALR 2D

*Includes type 1 (5-10%) and type 2 (90-95%) diabetes; diagnosed and undiagnosed cases.
Clinical Research: Lifestyle Intervention Prevents Type 2 Diabetes and Achieves Weight Loss in High-risk Individuals

New Diabetes Cases (%)

- Placebo
- Metformin
- Lifestyle

Cumulative Incidence (%)

- Translational research
  - Examining feasibility of approaches to deliver a DPP-based lifestyle intervention to adults with pre-diabetes more cost effectively
  - Highly encouraging results reported from pilot study; expanded research ongoing
DPP Study Population

- Caucasian: 1768
- African-American: 645
- Hispanic-American: 508
- Asian-American & Pacific Islander: 142
- American Indian: 171

~67% women
20% older than age 60
Mean age 50, BMI-34
History of GDM 16%
Over 10 years, from a payer perspective, lifestyle was cost-effective and metformin was marginally cost-saving compared with placebo.

Investment in lifestyle and metformin interventions for type 2 diabetes prevention in high-risk adults provides good value for the money spent.

Cost analysis and outcomes are published in the April 2012 issue of Diabetes Care and online at http://diabetes.org/diabetescare.

The Diabetes Prevention Program: Collaborative and Transformative

Percent Reduction in Diabetes Incidence Compared to Placebo

- **Metformin**: 31%
- **Intensive Lifestyle Intervention**: 58%

**Diabetes Prevention Program (DPP)**

- 3,234 individuals at risk for type 2 diabetes

- **Lifestyle modification** lowered risk by **58%** (modest weight loss, from exercise and reduced fat and caloric intake)

- Metformin medication lowered risk by **31%**
Small Steps. Big Rewards. Prevent Type 2 Diabetes is focused on preventing or delaying the onset of type 2 diabetes.

Based on the Diabetes Prevention Program (DPP), NDEP was charged with translating findings into a campaign and messages for the public.

http://ndep.nih.gov/
History of Gestational Diabetes

It's never too early... to Prevent Diabetes

If you had gestational diabetes when you were pregnant, you and your child have a lifelong risk for getting diabetes.

Because of this risk, you need to be tested for diabetes after your baby is born, then every one to two years. Reduce your risk by taking small steps for you and your family. If you weigh too much, you can prevent or delay type 2 diabetes if you lose a small amount of weight and become more active.

Your children can lower their risk for type 2 diabetes if they don't become overweight. Serve them healthy foods and help them to be more active.

What is Gestational (jes-TAY-shun-al) Diabetes?

It is a type of diabetes that occurs when women are pregnant. Having it raises their risk for getting diabetes, mostly type 2, for the rest of their lives. African American, Hispanic/Latina, American Indian, and Alaska Native women have the highest risk.

A Lifetime of Small Steps for A Healthy Family

National Diabetes Education Program   www.niddk.nih.gov

Office of Research on Women's Health

National Institutes of Health

NIDDK NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES
Lifestyle Interventions in Overweight and Obese Pregnant Women: A New NIH Research Initiative

To test lifestyle interventions for overweight or obese pregnant women, in order to improve weight and metabolic outcomes in both the pregnant women and their offspring.
Translating Diabetes Research into Action:
National Diabetes Education Program
Mississippi Diabetes Prevention and Control Program

- Developed the **Put Diabetes on Your Mind** project urging people to get screened for diabetes or manage their diabetes.
- Administered over 3,000 NDEP diabetes risk tests and distributed a range of NDEP materials.
- Engaged partners including health care providers, Wal-Mart, and community-based organizations.
Pacific Diabetes Education Program

• Collaborated with community coalitions in Hawaii and the Pacific to implement diabetes initiatives using NDEP messages and materials.

• Developed 42 materials (19 in-language).

• Distributed over 200,000 print materials.

• Reached over 50,000 people.
Ohio Gestational Diabetes Collaborative

- Promoted NDEP messages and materials to alert women with a history of GDM to learn more about their long-term health risks.

- Adapted NDEP materials (English & Spanish) to feature women from the community who had a history of GDM.
Education Programs

- NIDDK Education Programs translate science into outreach programs and campaigns
  - National Diabetes Education Program (NDEP)
  - National Kidney Disease Education Program (NKDEP)
  - Weight-control Information Network (WIN)
  - We Can! (Ways to Enhance Children’s Activity and Nutrition)
  - Celiac Disease Awareness Campaign
Sisters Together: Move More, Eat Better Program

Celebrate the Beauty of Youth!

Why Move More and Eat Better?

Being physically active and making smart food choices are good for your health. But that is not the only reason to move more and eat better.

- You feel more energetic.
- You look good and feel better.
- You lower your risk of heart disease.
- You have more fun.
- You're less likely to develop diabetes.
- You feel better about yourself.
- You sleep better.
- You're more likely to live longer.
- You're less likely to develop cancer.
- You have more energy.

Tips on Moving More

- Physical activity can be fun! Things you enjoy like:
  - Walking
  - Swimming
  - Jogging
  - Dancing
  - Aerobics
- Join a group or find a friend to move with you.
- Set a goal and work towards it.
- Think of your activity as a way to reward yourself for meeting your goals.
- Get off the bus or subway one stop earlier and walk the rest of the way.
- Park your car farther away and walk to your destination.
- Walk to work or the mall instead of driving.

Look Good As You Get Fit

- Use a mirror to track your progress.
- Make small changes to your diet:
  - Less sugar and salt
  - More fruits and vegetables
  - Less processed foods
  - Less red meat
- Drink water instead of sugary drinks.
- Eat a healthy breakfast.
- Take a walking break at work.

Energize Yourself and your family!

WALKING...

A STEP in the RIGHT Direction!

Move More, Eat Better
Help your community take steps toward better health

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For tips on how you and your family can stay healthy, tune in to “Healthy Moments”

Can be heard on Radio One Stations and affiliates such as:
- WMMJ Majic 102.3 FM
- WWIN Magic 95.9 FM
- WKJS 105.7 FM/WKJM 99.3 FM

Your host is Dr. Griffin P. Rodgers, Director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), part of the National Institutes of Health (NIH). In these reports, Dr. Rodgers puts the latest in NIH science and research to work for you.

You’ll hear the latest on how to prevent and control diseases studied by researchers with NIDDK. Topics include diabetes, kidney and urologic diseases, digestive diseases, weight control, and more.

For more free health information, go to www.niddk.nih.gov