

Title: Pre-Diabetes - Delaying progression of the metabolic syndrome

Author: Greta Liebo

Date: November 5, 2008

Key words: Pre-diabetes, Impaired Fasting Glucose, Impaired Glucose Tolerance, Metformin

Abstract: In patients with impaired fasting glucose and impaired glucose tolerance, lifestyle intervention can delay or prevent the development of diabetes by 58% over 3 years in all populations. Metformin can also delay or prevent the development of diabetes by 31% over 3 years. However, the effectiveness of metformin is limited to patients less than 60 years in age, with a BMI > 30 kg/m².

This document was created by a medical student enrolled in the Primary Care Clerkship at the University of Minnesota Medical School as part of the course project. The aim of the project is to present information on a medical topic in the format of a patient education handout. It does not necessarily reflect the views of the University of Minnesota Medical School physicians and faculty. These materials are provided for informational purposes only and are in no way intended to take the place of the advice and recommendations of your personal health care provider. The information provided may no longer be up to date since it has not been reviewed since the date of creation. The information provided should not be used to diagnose a health problem or disease, or as a means of determining treatment. In the event of a medical emergency, immediately contact a doctor or call 911

DIABETES PROGRESSION PREVENTION CHECKLIST

- Close follow-up with your primary physician.
- Yearly evaluation of FPG or OGTT to monitor development of diabetes.
- Yearly evaluation and treatment of other cardiovascular risk factors including hypertension and dyslipidemia.
- Structured Lifestyle Modification Program emphasizing physical activity for 150 min/wk, with goal weight loss of 5 - 10% of body weight.
- Dietary Modification emphasizing calorie and fat reduction.
- Dietary Modification emphasizing fiber (14 g/1,000 kcal) and foods containing whole grains (one-half of grain intake).
- Discussion of Metformin therapy with your primary physician.

FOR MORE INFORMATION

Please visit the American Diabetes Association website at www.diabetes.org.

PRE-DIABETES

Delaying progression of the metabolic syndrome

-

Your Roadmap to Risk Reduction.



PRE-DIABETES

WHAT DOES IT MEAN??

Pre-diabetes is a state that occurs when a person's blood glucose levels are higher than normal, but not high enough for a diagnosis of diabetes.

It can be categorized as Impaired Fasting Glucose (IFG) or Impaired Glucose Tolerance (IGT), depending on the type of testing involved.

	Normal	Prediabetes	Diabetes
FPG	≤100	100 - 125	≥126
OGTT	≤139	140 - 199	≥200

FPG = fasting plasma glucose

OGTT = oral glucose tolerance test

All units are in mg/dl

Both IFG and IGT are risk factors for future diabetes and cardiovascular disease.

Thus, early detection and intervention can reduce your risk of developing diabetes or diabetic complications.

WHO SHOULD BE TESTED?

Asymptomatic adults who are overweight or obese (*BMI ≥25 kg/m²) should begin testing at age 45.

Testing should be considered earlier in overweight adults with additional risk factors.

Ask your doctor if testing is right for you!

*BMI = Body Mass Index

SO WHAT CAN BE DONE??

LIFESTYLE MODIFICATION

Studies have shown that lifestyle modification is the single most effective means of delaying or preventing the onset of diabetes.



Lifestyle goals include:

- Weight loss of 5-10% of body weight, as well as increasing
- At least 150 min/wk of physical activity such as walking
- Dietary Modification emphasizing caloric and fat reduction.
- Dietary Modification emphasizing fiber (14 g/1,000 kcal) and foods containing whole grains (one-half of grain intake).

Effective lifestyle modification can decrease your risk of progression to diabetes by 58%.

Benefits from lifestyle modification can be seen in all ages, races, and genders.

WHAT ELSE CAN BE DONE??

PHARMACOTHERAPY

In addition to lifestyle changes,

Metformin may be considered in people with combined IFG and IGT and one or more of the following risk factors:

- Physical inactivity
- First-degree relative with diabetes
- Members of high-risk ethnic groups
- Women who delivered a baby weighing >9 lbs or were diagnosed with Gestational Diabetes
- Hypertension
- HDL cholesterol level <35 mg/dl and/or triglyceride level >250 mg/dl
- Women with Polycystic Ovarian Syndrome
- History of Coronary Vascular Disease

In these high risk populations, Metformin therapy may reduce the risk of progression to diabetes by 31%.

However, no significant benefit is seen with Metformin therapy in patients who are:

- Older than 60 years of age
- Obese, with a BMI <30 kg/m².

In addition, side effects of Metformin commonly include nausea, vomiting, gas, bloating, diarrhea and loss of appetite. A more serious but rare side effect called Lactic Acidosis may also occur.

Ask your doctor if Metformin is right for you.