

by David C. Nieman, Dr.PH, FACSM

**Q:** My doctor just informed me that I have pre-diabetes and am at high risk of developing type 2 diabetes. Is there anything I can do to turn this around and prevent future diabetes?

**A:** Yes, the good news is that the progression from pre-diabetes to type 2 diabetes can be prevented or at least delayed. Several major studies have shown that if people with pre-diabetes lose weight, exercise on a regular basis, and improve their diets, most can avoid being diagnosed with type 2 diabetes in the future.

As I am sure you are now well aware, pre-diabetes is diagnosed when the fasting plasma glucose is 100 to 125 mg/dL, with diabetes indicated when levels rise above 125 mg/dL (1). The American Diabetes Association and the U.S. Centers for Disease Control and Prevention report that 40% of people in the United States aged 40 to 74 years have pre-diabetes, with diabetes diagnosed in 8.7% of all adults (1). As summarized in the Figure, diabetes is especially prevalent in the elderly population and in certain racial/ethnic groups (1). Most adults

who have pre-diabetes and diabetes are overweight and physically inactive (2). The good news is that 70% to 90% of type 2 diabetes can be prevented by staying lean and fit and consuming a healthy diet. Pre-diabetes is a wake-up call to get one's lifestyle in order before type 2 diabetes strikes.

In studies of individuals diagnosed with pre-diabetes, prevention of type 2 diabetes was experienced even in those losing a modest amount of body weight and engaging in moderate exercise such as walking (3–5). In other words, you don't have to become a marathon runner to fight off type 2 diabetes.

For example, in the Diabetes Prevention Program study, subjects with pre-diabetes who prevented slipping into a type 2 diabetes classification lost approximately 6% to 7% of their weight and maintained at least 150 minutes per week of

moderately intense physical activity (3). This lifestyle modification was more powerful than using medications such as metformin (Glucophage). Thus a change in lifestyle should be the first choice to prevent or delay diabetes. Lifestyle interventions also have a variety of other health benefits, such as reduction in heart disease risk. When all factors are considered, there is insufficient evidence to support the use of drug therapy as a substitute for, or routinely used in addition to, lifestyle modification to prevent diabetes.

Other studies show the singular importance of regular physical activity in preventing type 2 diabetes. In a report from Finland, those individuals with pre-diabetes who increased their physical activity the most were 65% less likely to develop type 2 diabetes when compared with those largely avoiding physical activity (6).

Based upon the results of these studies, the American Diabetes Association has made the following recommendations regarding the prevention or delay of type 2 diabetes (1, 2):

- Individuals at high risk for developing diabetes need to become aware through their doctors of the benefits of modest weight loss (goal of 5%–10%) and participating in regular physical activity (goal of 30 minutes or more daily).
- Drug therapy should not be routinely used to prevent diabetes until more information is known about its cost effectiveness.

The American Diabetes Association also recommends that blood testing for diabetes should be conducted in all individuals aged 45 years and older, especially in those who are overweight and obese (*i.e.*, 30 lbs or more above



## YOU ASKED FOR IT

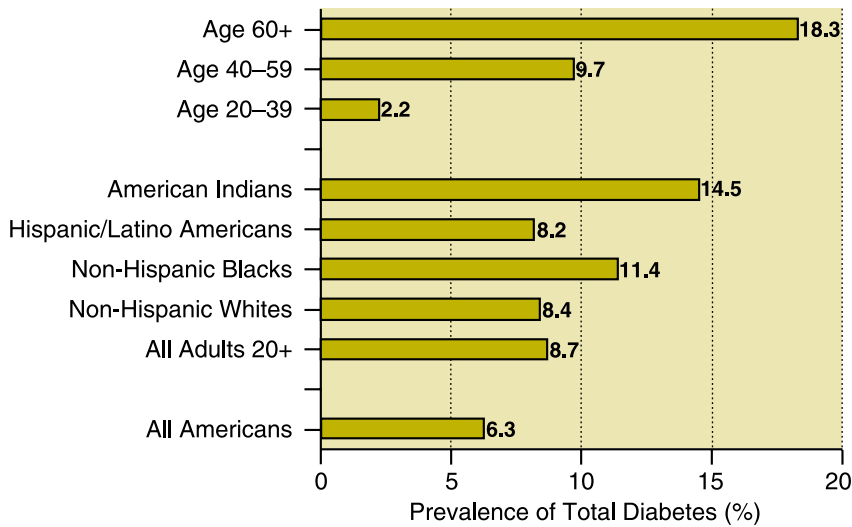


Figure. Prevalence of diabetes.

a healthy weight) (1). Testing should be considered at a younger age in overweight people who also have other risk factors, such as the following:

- Are habitually physically inactive
- Have a parent or sibling with diabetes or a personal history of pre-diabetes
- Are a member of a high-risk ethnic population, such as African American, Latino, Native American, Asian American, or Pacific Islander.
- Have delivered a baby weighing more than 9 lbs or have been diagnosed with gestational diabetes mellitus
- Have high blood pressure, low HDL cholesterol, high blood fats, or a history of heart disease

I am sure that your doctor explained the multiple health problems that come with diabetes. Use this as your primary motivation to start a regular brisk walking program while keeping your food intake under control to achieve a 1 to 2 lb weight loss per

week. Work on these lifestyle changes, and chances are you will avoid type 2 diabetes. Even if you develop type 2 diabetes, do all you can to exercise 30 to 60 minutes a day. In two recent studies, individuals with type 2 diabetes who engaged in moderate to high levels of physical activity had far lower rates of cardiovascular disease than in those avoiding activity (7, 8). All types of physical activity were beneficial in this regard, including activity during leisure or work or while commuting to work (8).

The good news is that physical activity is a potent weapon against type 2 diabetes and is effective in preventing type 2 diabetes, in delaying or preventing the progress of pre-diabetes to type 2 diabetes, and in treating type 2 diabetes and lessening medical problems. Even more potency is gained by combining physical activity with weight reduction and healthful eating.



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