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## Pre-Diabetes is Worth Treating

by Valerie Ulene

(LosAngeles Times) Diagnosing disease is not always a black-and-white undertaking. There is often a gray zone between sickness and health -- a time when, technically speaking, people can't be classified as either diseased or well. Diabetes serves as a perfect example -- so much so that the gray zone has earned its own name: pre-diabetes.

As its name implies, pre-diabetes is essentially a precursor to diabetes. People with pre-diabetes have blood glucose levels above those considered normal but not yet high enough to qualify as diabetic.



According to the Centers for Disease Control and Prevention, nearly 57 million Americans 21 and older have the condition, roughly twice as many as have diabetes itself. Pre-diabetes is not only more common but also more treatable. If it's diagnosed early, its ill effects can often be averted. In some cases, the condition can be cured.

Pre-diabetics have problems responding to insulin, the hormone that processes glucose in the body, causing the rise in blood sugar levels -- in medical terms, this is known as insulin resistance. "As resistance goes up, more and more insulin is needed to handle the same amount of glucose," says Dr. Yehuda Handelsman, co-chairman of the American College of Endocrinology's task force on the management of pre-diabetes.

Mild elevations in glucose levels cause no obvious symptoms but carry significant consequences: A persistent buildup of glucose in the body damages blood vessels and other tissues throughout the body. "It's clear that the risks of high blood glucose levels occur earlier than those at which diabetes is currently defined," Handelsman says. Many of the complications of diabetes -- such as cardiovascular, kidney and eye disease -- actually begin during this early phase of the illness. People with pre-diabetes already have a 50% higher risk of heart disease and stroke than those with normal blood glucose levels.

Pre-diabetics are also far more likely to go on to develop full-blown diabetes. If left untreated, about 25% of individuals with pre-diabetes progress to diabetes within three to five years, and many more will develop the disease within a decade.

With appropriate treatment, however, individuals with pre-diabetes can prevent -- or at least delay -- their condition from worsening. In fact, studies suggest that simple lifestyle changes are often enough to overcome insulin resistance and return blood glucose levels to normal.

One of the most important studies, the Diabetes Prevention Program, followed more than 3,200 pre-diabetic men and women for nearly three years. Its results, published in the *New England Journal of Medicine* in 2002, revealed that those receiving intensive nutrition and exercise counseling experienced a 58% reduction in the progression to diabetes compared with those who were not counseled.

A similar, smaller study published in the same journal a year earlier produced nearly identical results. Among a population of 500 overweight men and women, Finnish researchers found that individualized instruction on weight reduction, food intake and physical activity reduced the risk that pre-diabetes would progress to diabetes by well above 50%.

Diabetes experts speculate that increasing activity levels and losing weight improve the body's ability to respond to insulin and handle glucose.

The changes required to achieve these effects are not huge: Losing just 5% to 7% of body weight appears to be sufficient. For a 220-pound man, that amounts to roughly 11 to 15 pounds; for a 160-pound woman, it's eight to 11 pounds.

The necessary physical activity changes are similarly modest. In the Diabetes Prevention Program, participants were encouraged to engage in 150 minutes a week of moderate exercise such as walking and biking.

Although several medications also have been found effective in controlling the progression of pre-diabetes, none has measured up to the use of diet and exercise. In the Diabetes Prevention Program, for example, the diabetes medication metformin reduced the onset of diabetes by 31%, making it only about half as effective as the use of lifestyle interventions.

With these data in mind, in July a joint task force of the American College of Endocrinology and the American Assn. of Clinical Endocrinologists issued new guidelines on the management of pre-diabetes that focus largely on lifestyle interventions. The task force recommends that individuals with pre-diabetes reduce their weight by 5% to 10% and engage in regular, moderate-intensity physical activity (such as brisk walking) for 30 to 60 minutes each day at least five days a week. It also advocates a diet that is low in calories and fat (to combat cardiovascular complications) and rich in fiber (fiber can help keep glucose levels in check).

The task force does believe, however, that some people with pre-diabetes should consider medications as well as lifestyle changes -- including pre-diabetics with worsening blood glucose levels and men and women with preexisting cardiovascular disease. Although the Food and Drug Administration has not yet approved any drugs for this purpose, the task force believes that metformin and another diabetes medication, acarbose, may be acceptable treatment choices. In some cases, a class of diabetes drugs called thiazolidinediones may be appropriate.

To help prevent complications related to high blood glucose levels, the task force also recommends that pre-diabetics maintain strict control of their blood pressure and cholesterol. LDL-cholesterol levels should not exceed 100 mg/dL, and blood pressure should be maintained below 130/80 mmHg. Finally, daily aspirin therapy -- to help lower the risk of heart attack and stroke -- is recommended for anyone with pre-diabetes unless there is a medical reason that they should not be taking it.

"If pre-diabetes is allowed to progress, it's very hard to treat effectively," Handelsman says. "The earlier we intervene, the better."

Part of me balks at the idea of diagnosing "pre-disease." I worry that sooner or later we'll all be "sick," if not with pre-diabetes than with pre-hypertension, pre-osteoporosis or pre-Alzheimer's. That said, when it comes to pre-diabetes, the case for early intervention is pretty convincing. Although pre-diabetes may not merit disease status, its recognition and treatment are no less important than if it did.