

Reverse Type 2 Diabetes by Losing Weight

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A large British study has shown that the majority of obese and diabetic individuals who succeed in significantly reducing their body weight can achieve a lasting reversal of type 2 diabetes.

A DISEASE OF EXCESS WEIGHT

In the very large majority of cases, type 2 diabetes is a disease which strikes overweight individuals. For example, women who are considered to be obese (BMI greater than 30) are 40 times more likely to develop type 2 diabetes compared to those who are thin (BMI of 22), an increase which actually reaches 100 times for the morbidly obese (BMI greater than 35¹). This dizzying increase in diabetes is due in large part to an abnormal accumulation of fat around the liver and pancreas which perturbs the activity of these organs and leads to the development of chronic hyperglycemia. This situation is quite catastrophic for the health of the heart and blood vessels, because excess sugar in the blood is quite toxic for the blood vessels and increases the risk of coronary diseases by a factor of 2 to 4 while increasing the risk of peripheral vascular diseases (which leads to amputation) by a factor of 10.

AN IRREVERSIBLE DISEASE?

Currently, type 2 diabetes is generally considered as an incurable disease. The therapeutic approach thus consists essentially of controlling, as much as possible, the hyperglycemic conditions with the aid of hypoglycemic agents in the first stages of the disease, or even with insulin when the diabetes has progressed to a more advanced stage.

Recent observations have, however, brought into question the irreversible nature of type 2 diabetes. The first indication of this came from bariatric surgery: in obese people treated with these procedures, a rapid normalization of blood glucose levels was seen along with a long-lasting remission in diabetes, resulting in a decrease by half of the risk for cardiovascular events². This remission was directly correlated with the loss of weight caused by the surgery, suggesting that it is the reduction in excess fat which represents the key element for reversing diabetes.

A STRICT DIET CAN REVERSE DIABETES

This concept is very well displayed in the results from the clinical DIRECT (Diabetes Remission Clinical Trial) study. In this randomized study, 306 obese volunteers (average BMI of 35), who had been diagnosed with type 2 diabetes during the previous 6 years, were randomly assigned either to a control group, treated by standard procedures, or to an intervention group which was treated by use of a specialized program designed to cause significant weight loss. These volunteers replaced their normal diet with a liquid hypocaloric diet (825-853 calories per day) for 3 to 5



months, after which foods were progressively reintroduced over a period of 2 to 8 weeks.

The results of the study were nothing less than spectacular, with 46% of the participants in the intervention group going into remission from type 2 diabetes, defined as a level of glycosylated hemoglobin (HbA1c) less than 6.5% (<48 mmol/mol) at one year after the end of all antidiabetic medications³. In the patients who had achieved a loss of 15 kg or more, the level of remission was even more impressive as it reached 86%!

These remissions seem to be long-lasting, because 35% of this group of patients do not exhibit any clinical sign of type 2 diabetes at two years following the beginning of the study, a proportion which reaches 70% in those who maintained the loss of 15 kg of weight or more⁴.

These results thus indicate that it would be wise to modify the current approach used to treat type 2 diabetes, which is exclusively based on treatment of the chronic hyperglycemia without attacking the deeper causes of this disease. In the great majority of cases, type 2 diabetes is a direct consequence of excess weight and a significant decrease in excess fat is sufficient to reverse its development and allow long-lasting remission of this disease.

- (1) Colditz GA et al. Weight gain as a risk factor for clinical diabetes mellitus in women. *Ann. Intern. Med.* 1995; 122: 481-486.
- (2) Fisher DP et al. Association between bariatric surgery and macrovascular disease outcomes in patients with type 2 diabetes and severe obesity. *JAMA* 2018; 320: 1570-1582.
- (3) Lean ME et al. Primary care-led weight management for remission of type 2 diabetes (DiRECT): an open-label, cluster-randomised trial. *Lancet* 2018; 391: 541-551.
- (4) Lean ME et al. Durability of a primary care-led weight-management intervention for remission of type 2 diabetes: 2-year results of the DiRECT open-label, cluster-randomised trial. *Lancet Diabetes Endocrinol.*, 2019; S2213-8587(19)30068-3