

# Insulin cells determine weight-loss surgery success rate

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Danish researchers have found that the ability to produce insulin is pivotal to the success of weight loss surgery in patients with type 2-diabetes. The study provides a better point of departure for advise and determining which patients will benefit from surgery.

Type 2-diabetes is a serious complication for people with obesity. Obesity affects the economy as well as the individual's quality of life and it is a central challenge to [healthy aging](#). In Denmark, approx. 250,000 people are diagnosed with type 2-diabetes, and currently, [weight loss surgery](#) constitute the most [effective treatment](#) completely eliminating diabetes in up to two thirds of the [patients](#).

## The production of insulin determines success

"Our study shows that the patients' ability to produce insulin is decisive for whether or not the procedure eliminates diabetes. Measuring the insulin cells' performance before surgery can thus provide us with a much better basis from which to predict who will actually benefit from the surgery. This type of measurement is not currently included in doctors' assessments," says Professor Flemming Dela from the Center for Healthy Aging at the University of Copenhagen, Denmark.

In the study, researchers measured the insulin-producing cells' ability to produce insulin twice prior to and twice following the surgery. Four months after the surgery, 57% of the patients with the best insulin-producing cells prior to the procedure no longer had diabetes, while there was no change in the group of patients with poor insulin-producing cells. 18 months after the surgery, 71% of those in the group with the best insulin-producing cells no longer had diabetes as opposed to 38% in the group with the poorest [insulin-producing cells](#).

## **Early procedures are important**

A weight loss surgery constitutes a substantial surgical procedure and the doctors' ability to predict which patients will actually benefit from a weight loss surgery is thus important, not only to the patients but also to the economy. Researchers have long known that the weight loss that accompanies a weight loss surgery also improves the effectiveness of insulin. Up until now, they believed that improved insulin sensitivity was a prerequisite for the elimination of diabetes. However, this new study reveals that the decisive factor is in fact the capacity to produce insulin.

"The ability to produce sufficient amounts of insulin is inversely related to duration of the disease. The longer the patient has had diabetes, the poorer the ability to produce insulin". Thus, these new results also point to the importance of undergoing an operating at an early stage, before the patients lose their ability to produce insulin," Flemming Dala

explains.

However, more studies are needed before the test can be included in the preliminary examinations of patients awaiting a [weight loss](#) surgery and help determine the amount of insulin needed to ensure a successful procedure. Measuring [insulin](#) is not standardized across laboratories, and this is a prerequisite for the test to be included in preliminary examinations.

These results have been published in the scientific *Journal of Physiology*, and the article was presented as the "Editor's Choice" and it received great praise in the accompanying editorial.

**More information:** *Journal of Physiology*,  
[onlinelibrary.wiley.com/doi/10 ... 13/JP270486/abstract](https://onlinelibrary.wiley.com/doi/10.1111/jphysiol.2015.298.13)

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