

# Pacemaker in stomach helps against vomiting

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People with severe stomach disorders can sometimes suffer from chronic vomiting. This symptom can be treated with electrical impulses from a pacemaker in the stomach. A new method enables patients who could benefit from this treatment to be identified, and electrical stimulation leads to reduced nausea and fewer days in hospital, shows a study from the Sahlgrenska Academy at the University of Gothenburg, Sweden.

Gastric [electrical stimulation](#) has previously been shown to be effective in most diabetics who suffer from severe vomiting due to the disease. New research shows that people with other severe stomach disorders could also benefit from this treatment.

27 patients were included in a study testing electrical stimulation of the stomach. 22 had fewer symptoms as a result of initial temporary stimulation, and 20 of these then had a permanent [pacemaker](#) surgically inserted into the stomach. Of the patients who responded well to temporary stimulation, 90% also had good results in a long-term follow-up of the surgically inserted pacemaker. The treatment led to reduced nausea and vomiting. In another study of 16 patients, electrical stimulation led to fewer days in hospital in the year following treatment.

Simple temporary stimulation through the skin can be used to identify the patients who could benefit from the treatment.

"We insert gastric [electrodes](#) into the patient under local anaesthesia through a small [incision](#) in the skin, and these are then connected to an

external pacemaker," explains junior doctor Stina Andersson, a doctoral student at the Department of Internal Medicine. "If the results are positive, we can be relatively certain that treatment with a surgically inserted pacemaker will work for that patient. The next step is to insert a pacemaker using [keyhole surgery](#)."

Based on these studies and previous research, gastric electrical stimulation does not seem to affect the stomach locally.

"We believe instead that the stimulation somehow acts on the brain's centre for nausea and vomiting by activating the neural pathways running from the stomach to the [brain](#)," says Andersson.

Some diabetics with severe symptoms are already being treated clinically with a gastric pacemaker. Other patients with hard-to-treat gastrointestinal disorders could also now receive the treatment following careful examination and successful temporary stimulation of the stomach.

"The treatment could, for example, work on intractable nausea following chemotherapy or extreme nausea during pregnancy," says Andersson. "No studies have yet been performed in these areas, however."

## **Stomach disorders**

Severe vomiting and nausea may be caused by a condition known as gastroparesis, where the stomach empties very slowly without there being any blockage. The causes of gastroparesis can include diabetes and gastric surgery. In addition, around 20% of the Swedish population is believed to have functional dyspepsia, or gastric catarrh. Here, the stomach empties normally but symptoms such as chronic nausea and vomiting can occur in more severe cases.

Provided by University of Gothenburg

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