Irregular External Gastric Stimulation is Associated with Suppression of Serum Ghrelin Levels and Prolonged Decrease in Weight: A Novel Method for Sustaining Weight Loss

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Abstract

Introduction: Weight regain is a major obstacle for most dietary procedures. Gastric stimulation has been shown to affect hormone levels.

Aim: The aim of the present study was to determine the effect of irregular external gastric stimulation on long-term weight reduction.

Methods: External gastric stimulation was performed by holding a rotator device on the abdomen of mice for 5 minutes in a regular or irregular manner. Mice were assessed for body weight and serum ghrelin levels.

Results: External gastric stimulation was associated with a significant decrease in serum ghrelin levels. Irregular external gastric stimulation was associated with a prolonged effect on body weight reduction compared with regular stimulation. By the end of week 5, the body weight of untreated control mice had increased compared with a slight weight increase in mice treated with regular stimulation, while there was a significant continued decrease in the body weight of mice treated with irregular stimulation.

Conclusions: Irregular gastric stimulation is associated with a prolonged effect on weight loss and provides a method for overcoming the brain-gut axis accommodation of weight loss.

Keywords: Ghrelin; Weight regain; Gastric stimulation

Weight regain following dietary procedures is a major obstacle for long-term weight reduction [1-3]. Strategies for the maintenance of long-term weight loss are therefore needed [4]. Gastric electrical stimulation (GES) using both external and ^ St g ^ WeigD

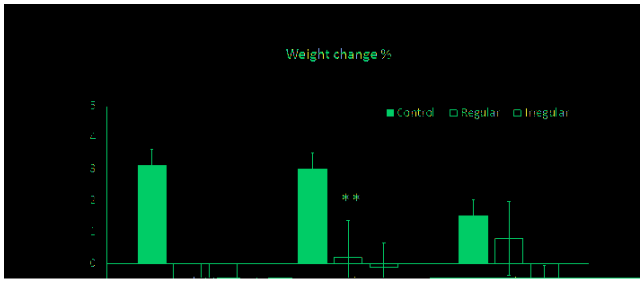

Figure 2: Effect of irregular external gastric stimulation on long-term decreases in body weight. Mice underwent regular or irregular external gastric stimulation for 5 weeks and were followed weekly for body weight.

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