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IBC Oxford Oral Abstract 6 - Non-invasive vibrational gastric stimulation for obesity: results from a 3-month pilot human study

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Background: Obesity remains a leading cause of morbidity and mortality. A recent 2-week swine study by Srinivasan et al., *Science Advances* 2023 showed that internal vibrational stimulation via a vibrating pill at 80 HZ induced gastric stretch receptor-mediated distention, reducing food intake by 40% and increasing GLP-1, PYY, insulin, and c-peptide levels postprandially. Thus, gastric vibrational therapy (GVT) mimics natural gastric distension and activates satiety-related neural pathways without altering preexisting anatomy and physiology. **Methods:** Ten patients aged 47–60 with BMIs 31.9–54.0 applied external 200 Hz vibrational stimulations during meals (Buzzy Personal, MMJ Labs), previously shown to attenuate to 50–100 Hz at gastric depth. All followed a structured diet plan for ten weeks. Seven patients completed the study (70% retention); three withdrew due to device noise or public use concerns. A matched control group of 7 patients followed the same diet without vibrational therapy. **Results:** The GVT group showed an average weight loss of 8.67 lbs at six weeks, increasing to 11.9 ± 7.60 lbs after ten weeks ($P = 0.0061$, Cohen's $d = 1.56$), versus a 1.37 ± 4.3 lbs gain in controls. **Conclusion:** This proof-of-concept study suggests external GVT may be an effective non-invasive intervention for weight loss. Its long-term utility may be enhanced with ergonomic improvements and integration with a bidirectional behavioral app. If validated in larger trials, GVT could offer a scalable, low-cost adjunct between diet-based therapies and bariatric surgery.