



A Novel Mechanism for the Mechanical Inhibition of Stoma-Associated Borborygmi

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Prepared For: Wound, Ostomy, and Continence Nurses (WOCN) & Clinical Partners

Subject: Technical Overview and Clinical Application of Ostopaix

1. Executive Summary

For the ostomate, the fear of involuntary gas release and associated sound (borborygmi) is a primary driver of social anxiety and isolation. Current market solutions largely rely on "muffling" techniques—attempting to absorb sound waves after they have been generated.

Ostopaix represents a fundamental shift in ostomy management. It is not a sound absorber; it is a Peristomal Vibration Inhibitor. By applying a calibrated, vector-specific compression to the peristomal plane, Ostopaix increases the mechanical impedance of the tissue. This prevents the stoma from oscillating as gas passes, thereby negating the generation of audible frequencies at the source while maintaining full patency for effluent flow.

2. Problem Statement: The Physics of Stoma Noise

To understand the Ostopaix solution, one must first understand the physics of the problem.

- **The Mechanism of Sound:** Stoma noise is structurally similar to a woodwind instrument (like a reed). As gas is forced through the narrowed lumen of the stoma, the flaccid tissue vibrates (oscillates) rapidly.
 - **The Result:** It is this physical vibration of the tissue against the appliance or itself that creates the audible sound wave.
 - **The Limitation of Current Care:** Standard "silencers" or mufflers attempt to catch these sound waves after the vibration has occurred. This requires bulky material and is rarely 100% effective, as low-frequency sounds easily penetrate foam barriers.
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3. The Innovation: Prevention via Vibration Inhibition

Ostopaix does not fight the sound; it eliminates the vibration that causes it.

Mechanism of Action

The Ostopaix system utilizes a proprietary dual-disc foam interface secured by an elastic abdominal band. This system exerts a gentle, consistent perpendicular force on the peristomal environment.

- **Increased Mechanical Impedance:** The device stabilizes the tissue surrounding the stoma. In physics, "impedance" is the resistance of a structure to motion when subjected to a force.
- **Oscillation Suppression:** When gas exits the stoma, the stabilized tissue is too dense/supported to vibrate.
- **Silent Evacuation:** The gas passes through the lumen freely, but because the "reed" (the stoma tissue) cannot vibrate, no sound wave is generated.

Safety and Flow Dynamics

- **Critically,** the density of the foam and the tension of the band are unique to the individual to inhibit vibration (which requires low force to stop) without inhibiting flow (which requires high force to stop).
 - **Gas/Effluent Transit:** The pressure is insufficient to occlude the lumen. Stool and gas pass into the pouch unobstructed.
 - **Vibration Threshold:** The pressure is sufficient to raise the vibration threshold of the tissue, preventing the oscillation event entirely.
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4. Clinical Relevance for WOCNs

Integrating Ostopaix into a patient's rehabilitation plan addresses the psychosocial "Gap in Care" regarding noise anxiety.

- **Proactive vs. Reactive:** Unlike muffling (reactive), Ostopaix is preventative. The patient does not need to "catch" a noise; the system passively prevents it.
 - **Skin Health & MARSI Prevention:** The device is external and worn over the pouching system. It requires no skin adhesives and has no direct contact with the peristomal skin, eliminating the risk of Medical Adhesive-Related Skin Injury (MARSI).
 - **Psychosocial Rehabilitation:** By removing the "anticipatory anxiety" of noise, patients are more likely to return to work, social engagements, and intimacy.
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5. Conclusion

Ostopaix transforms the management of the ostomy experience. By moving from sound absorption to vibration inhibition, we provide patients with a higher degree of control and dignity. The system effectively turns a "noisy" biological event into a silent mechanical transfer.