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UTAH SLANTED ELECTRODE ARRAY PUDENDAL NERVE STIMULATOR

HARDWARE, CIRCUITS, & SENSORS

Device that treats bladder dysfunction by providing push-button control of urination, while minimizing health risks and maximizing patient quality of life.

TECHNOLOGY TYPE

Biotechnology
Biosensors

STAGE OF DEVELOPMENT

- Proof of concept demonstrated in feline model studies using a bench prototype.

- Additional studies on canine models still required.

IP PROTECTION

U.S. Utility Patent Issued

Systems and Methods for Treating Disorders by Selectively Activating and/or Blocking Muscles through Intrafascicular Stimulation of the Pudendal Nerve
US8630711B1

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Reference Number:
U-4528

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TECHNOLOGY SUMMARY

Bladder dysfunction affects 17 million Americans and is particularly common in patients with spinal cord injuries and multiple sclerosis. Current treatments, while effective, have major side effects including infection, urethral damage, and loss of peripheral sensation.

The pudendal nerve stimulator treats bladder dysfunction by enabling push-button urination control. The nerve stimulator consists of a Utah Slanted Electrode Array implanted into the pudendal nerve that selectively contracts and relaxes the two major muscle groups associated with urination. A remote device signals the array to contract the bladder muscle, while restricting the urethral sphincter to facilitate urination. The device can be inserted using minimally-invasive surgery and eliminates the need for catheterization and the major side effects associated with current bladder dysfunction treatments.

FEATURES AND BENEFITS

- Enables patient-controlled urination by bladder dysfunction patients.
- Reduces side effects by eliminating the need for catheterization and sensory nerve transection.
- Facilitates long-term treatment by providing continuous micturition.

RECENT PUBLICATIONS

Wark, H.A., Black, S.R., Mathews, K.S., Cartwright, P.C., Gustafson, K.J., Normann, R.A. (2015). Restoration from acute urinary dysfunction using Utah electrode arrays implanted into the feline pudendal nerve. *Neuromodulation: Technology at the Neural Interface*. 18(4): 317-323. doi: [10.1111/ner.12259](https://doi.org/10.1111/ner.12259)

INVENTOR PROFILE

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