

# InterStim<sup>®</sup> Therapy for Overactive Bladder



## Neuromodulation therapy for OAB

**By Bradley G. Orris, M.D.  
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**I**nterStim Neuromodulation (Medtronic, Inc) is a unique therapy for overactive bladder (OAB), and also for non-obstructive urinary retention. It involves stimulation of the sacral nerve roots with an implantable electrode and neurostimulator. Millions of Americans suffer from overactive bladder symptoms. These symptoms include urinary urgency, urinary frequency and also urge incontinence and are often highly distressing for the affected individuals. The underlying cause of OAB is not always identified and is classified idiopathic. Some

patients develop OAB symptoms following a TIA, stroke or other illness or injury. The mainstay of treatment for OAB includes behavioral modifications including timed voiding, fluid limitation and caffeine restriction as well as pelvic floor exercises and medical therapy. Medical therapy includes many new anticholinergic agents, which are effective in 60%-70% of patients. Side effects, however, such as dry mouth, constipation and confusion can occur requiring discontinuation of the medicine. Patients who do not respond to medication or who have bothersome side effects are candidates for InterStim Therapy. InterStim is also indicated in non-obstructive urinary retention.

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restriction as well as pelvic floor exercises and medical therapy. Medical therapy includes many new anticholinergic agents, which are effective in 60%-70% of patients. Side effects, however, such as dry mouth, constipation and confusion can occur requiring discontinuation of the medicine. Patients who do not respond to medication or who have bothersome side effects are candidates for InterStim Therapy. InterStim is also indicated in non-obstructive urinary retention.

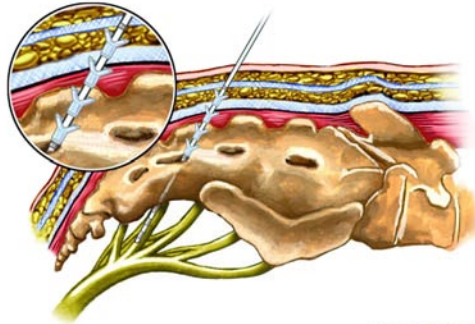
The exact mechanism of action for InterStim is unknown. It is thought that activation of somatic sensory afferent pathways through mild electrical stimulation alters voiding reflexes to modulate bladder and pelvic floor function.

InterStim is performed as a staged procedure. The initial test phase can be done with a temporary lead placed in a brief office based procedure. The test phase can also be done by placing the actual InterStim lead into its permanent position in a short outpatient procedure done under intravenous sedation (Stage 1). Typically the lead is placed in the third

sacral foramen (S3). S3 is identified by palpable and fluoroscopically identified bony landmarks. The patient is monitored for sensation typical of S3 stimulation. The pelvic floor and lower extremities are also monitored for signs of reflex activity. The test lead is attached to an external stimulator device for a test phase of two to four weeks. During this time bladder diaries are completed. The patient can control the amplitude of the stimulation and other stimulation parameters can be altered by the physician.



After the 2 to 4 week trial the bladder diary is reviewed and the response to stimulation is assessed. An improvement of 50% or greater is required to proceed with neurostimulator implantation (Stage 2). Approximately 80% of patients undergoing a Stage 1 test will have a successful response and proceed with Stage 2. The UroPoint Bladder Control Centers at Urology of Indiana have treated nearly 1,000 patients with InterStim since FDA approval in 1997 and remains one of the leading treatment



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centers in the United States today. The bladder control team performs pre-implant urodynamic testing and implant procedures at several Urology of Indiana locations through the metropolitan Indianapolis area.

InterStim is a well-tolerated procedure and complications are few. Infection of the lead or neurostimulator occurs in less than 5% of patients. It should be noted that battery replacement will be required after several years of treatment, and MRI is contraindicated in patients with an electrode in place.

InterStim Neuromodulation Therapy can be a bladder control solution for many patients with OAB or urinary retention who do not respond to other behavior modification or medical therapies. InterStim therapy can be truly life changing for patients who suffer from bladder control problems, including frequency, urgency, incontinence and urinary retention, enabling them to return to an active, healthy lifestyle.



**Peter M. Knapp, Jr., M.D.** is a graduate of Indiana University and the Indiana University School of Medicine. He completed his general surgery internship and urology residency at the University of Michigan Hospitals in Ann Arbor, Michigan. He entered private practice in July of 1985.

Dr. Knapp is certified by the American Board of Urology. He is a Fellow of the American College of Surgeons and a Clinical Associate Professor of Urology at Indiana University School of Medicine. He is a member of the American Urological Association, the Society for Urodynamics and Female Urology, the Endourologic Society, and the Society of Laparoscopic Surgeons.

Dr. Knapp has a special interest in female urology, urinary incontinence, and other bladder control problems in men, women, and children. He is a Medical Director of UroPoint Bladder Control Centers and is an instructor in the Female Medicine and Pelvic Reconstructive Surgery Fellowship at Indiana University School of Medicine.



**Bradley G. Orris, M.D.** is a native of Indianapolis. He is a graduate of Purdue University, in West Lafayette, Indiana, where he received his BS in Electrical Engineering with a Biomedical emphasis. He earned his medical degree from the Indiana University School of Medicine, Indianapolis, and completed his General Surgery residency and Urology residency at Loyola University Medical Center, in Chicago, Illinois.

Dr. Orris is a member of the American Urological Association, the American Medical Association, and the AOA Medical Honor Society. His areas of special interest include kidney stones, laparoscopic techniques in urology, minimally invasive treatment of prostate conditions, and general urology.