

# Applying Sacral Neuromodulation for Urinary Dysfunction

By Thomas T. Easter, MD

According to the National Overactive Bladder Evaluation Program, an estimated thirty million people in the United States experience significant urinary frequency (with and without the presence of pelvic pain), loss of urinary control, and /or non-obstructive, idiopathic urinary retention. These symptoms can severely lower the quality of life for patients, especially those who do not respond to medication or traditional surgical treatments.

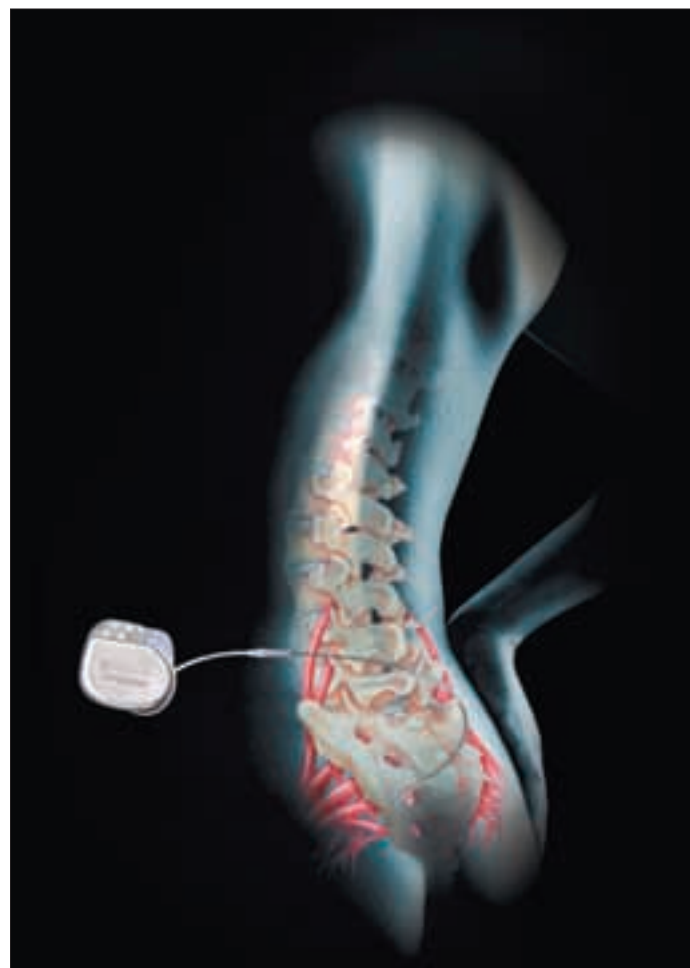
While I continue to offer anticholinergic and behavioral therapies to my patients as the first-line treatment, I am finding that those who are refractory have had very satisfying results with neuromodulation of the sacral nerves or "InterStim" therapy. In the past, these patients may have had no other options but to manage their symptoms through pad usage, bathroom "mapping", or simply living with the disruption of urgency and frequency issues. After realizing the InterStim therapy can help these patients, it has become a more integral part of how we treat the condition.

I have offered InterStim therapy for the past two years. The ability to improve or eliminate the symptoms for patients is made possible by restoring the function of the bladder and pelvic floor through safe, painless modulation of the sacral nerve root responsible for bladder and pelvic floor activity.

Our practice has achieved an estimated 70-75% success rate in significantly improving our patients' functioning and quality of life using this safe, FDA-approved therapy. According to Medtronic, Inc., over 50,000 patients have been treated to date.

## WHAT IS SACRAL NEUROMODULATION?

Medical researchers have known for over 30 years that the sacral nerves control all the function of the pelvis and its organs. Electrical impulses travel from the brain to the organs and muscles in the pelvis via the sacral nerves. These impulses are responsible for urinary and fecal elimination, muscle coordination, and function of the reproductive organs.



InterStim Therapy is the introduction of gentle, stimulation or pulsing just below the surface of the skin over the sacrum where the sacral nerves reside. The stimulation is provided by an implanted unit the size of a stop watch. The unit is placed underneath the skin to minimize any limitations on the activities of daily living, sports, and recreation activities for the patient.

## HOW DOES IT WORK?

Scientists have discovered that the exquisite coordination of organs and muscles in the pelvis necessary for normal pain-free function can become disrupted by any number of events. These include bladder infections, childbirth, pelvic, bowel and bladder surgeries, genetic predispositions, or almost any other pelvic event that can be an insult to sacral nerves. The insult may lead to faulty nerve impulses

The unit is placed underneath the skin to minimize any limitations on the activities of daily living.

traversing the nerves causing pelvic floor dysfunction, urgency frequency, and pelvic pain.

The mild stimulation provided by InterStim serves to correct the communication signals to the sacral nerves which may help to improve urinary frequency, urge incontinence, urinary retention, interstitial cystitis, irritable bowel syndrome, and several other ailments.

## IS IT SAFE?

Patients are reminded that all aspects of the therapy are fully reversible if they feel they are not benefiting as time moves on. The stimulation required to correct faulty sacral nerve communication is introduced in the tissues just under the skin over the sacrum (above the tailbone) through a small lead. The lead is not actually touching the nerves and is not anywhere near the spinal cord, but is placed near a sacral nerve root. The technology is similar to cardiac pacemakers and has been proven safe during the last 15 years of use on an international scale. It is non-destructive to the tissues, and poses minimal risk.

## STAGE I: TEST STIMULATION

InterStim Therapy is unique in that test stimulation is performed to assess the effectiveness of the therapy prior to placing the permanent implant. This can be done with a simple office-based test or as an outpatient procedure at the hospital. Local anesthesia is required. Two small incisions are made in the skin. A lead wire is placed just under the skin through a very small incision over the sacrum, just to the side of the sacrum's midline. In the outpatient option, a temporary lead extension is placed just under the skin through a second slightly larger incision over the upper buttock. The temporary lead



Stage 1 hospital-based trial procedure.

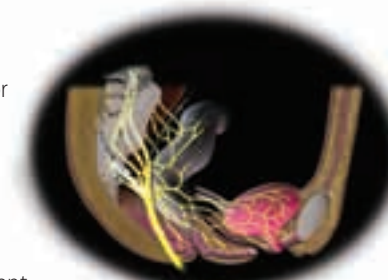
extension connects to an externalized wire that is plugged into a temporary test stimulator that can be worn on the waistband either inside or outside of the clothing. The temporary stimulator is used for one to two weeks to assess the results of the stimulation.

## STAGE II: IMPLANTATION OR REMOVAL

After approximately one to two weeks, the patient will return to my office with a voiding diary. The pre and post-test diaries are compared and results reviewed with the patient. If the test was a success, most patients elect to have the implanted stimulator placed in the same incision created to place the temporary lead extension (it will not be necessary to disturb the incision that was made over the sacrum).

The patient receives a programmer to take home, with instructions for activating the stimulator, including how to increase and decrease the intensity of the stimulation desired.

If the test is deemed unsuccessful, or if the patient elects not to move forward with the implanted stimulator, the test lead will be removed. The removal is approximately a fifteen-minute procedure and is done under local anesthetic at the hospital.



Neuromodulation of S3 nerves.

## CONCLUSION

While the treatment of over-active bladder conditions and the symptoms associated requires multiple approaches, sacral neuromodulation does have its place. Many patients have become dissatisfied with the side-effects or lack of efficacy with more traditional approaches. Insurance companies often mandate these less invasive approaches as first-line, but due to the frequent failure of conservative therapy, InterStim serves our practice as an attractive option for those refractory patients.



## CONTRIBUTING PHYSICIAN

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