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## Controlling Urinary Incontinence

By Linda Bren

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Leslie Behanna can describe every rest stop, gas station, and even a few bushes in the greater Pittsburgh area where she lives. "I got to know all the bathrooms," says Behanna, adding that by the time she got the bathroom door open, it was often too late. "I've peed in every bush too."

Just the act of standing up after sitting awhile was enough to make Behanna, 53, leak urine, she says. And hearing water running was a trigger, too. "I'd go to do laundry and as soon as the washer started filling up, I'd have to run to the bathroom."

But her worst moment, she says, came during one of her son's soccer games. She was sitting on a picnic table and when she got up, she left a puddle on the table. Her son and his friends realized what had happened and tried to help her out. "The kids washed it off with their squirt guns. I was so embarrassed for myself and my kid."

The National Association For Continence (NAFC) estimates that about 25 million adults in the United States experience urinary incontinence, the involuntary leakage of urine. Women experience it twice as often as men. For Behanna and others, incontinence is frustrating, embarrassing, and debilitating. It wakes them up at night, restricts their time away from home, irritates their skin, forces them to wear bulky pads or diapers, and makes them self-consciously wonder whether others know. "I was always afraid I'd smell," says Behanna.

Despite its prevalence and its effect on quality of life, many people are reluctant to talk about incontinence or to seek treatment. A 2001 survey of U.S. adults sponsored by the NAFC indicated that only one-quarter of those who had symptoms had discussed them with a doctor. And a 2004 survey showed that women live with their symptoms for an average of six and a half years before seeking treatment; men wait an average of about four years.

A number of treatment options are available, ranging from behavioral therapies, to medications and medical devices approved by the Food and Drug Administration, to surgical remedies. About 80 percent of people with urinary incontinence can be cured or

improved, says the NAFC.

Although incontinence can occur at any age, age-related changes in the body make older people more likely to experience it. "But no matter what your age, if you feel that bladder symptoms are so burdensome that they affect your quality of life, it's time to do something," says Wendy W. Leng, M.D., assistant professor of urology at the University of Pittsburgh School of Medicine.

### **Water Works**

Certain organs, muscles, nerves, and the brain all work together to control the process of urination. The kidneys filter the blood to remove waste and water, producing urine. From the kidneys, urine travels down tubes called ureters to the bladder. The bladder expands to store urine. Urine leaves the bladder through another tube, the urethra, from which urine passes out of the body. A muscle at the top of the urethra, the sphincter, acts as a shut-off valve, opening and shutting the urethra to allow or stop the flow of urine.

During normal urination, the brain sends a signal to nerves in the spinal cord that trigger the bladder to contract, forcing urine into the urethra. The nerves also send a message to the sphincter to relax, allowing the urine to pass.

Experts say that incontinence can occur for many reasons. It is often temporary, and it always results from an underlying medical condition, according to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). Urinary tract or vaginal infections, constipation, and certain medications can cause temporary incontinence.

A variety of other problems, such as weakness of the bladder or of the muscles that support it, overactive bladder muscles, or a blockage of the urinary tract, can cause persistent incontinence. Damaged nerves that control the bladder can also cause incontinence. Nerve damage may occur with multiple sclerosis, Parkinson's disease, stroke, and other diseases. Birth defects, pelvic surgery, and spinal cord injury may cause incontinence, too.

The NIDDK lists several types of incontinence:

- Stress incontinence occurs when urine leaks during such activities as laughing, sneezing, coughing, and bending. These acts increase pressure on the abdomen, which pushes on the bladder. This is the most common type of incontinence in women. It is usually caused by a weakening of the muscles that control the bladder, which often occurs after pregnancy, childbirth, or menopause.
- Urge incontinence, also called overactive bladder, is characterized by frequent urination; a strong, sudden need to urinate; and inability to get to the bathroom in time after the urge. Nerve damage that results from certain diseases or surgeries often causes overactive bladder. The NAFC estimates that 1 in 5 adults over age 40 has symptoms of overactive bladder.
- Mixed incontinence is a combination of several types of incontinence, usually stress and urge.
- Overflow incontinence occurs when the bladder never empties completely. It becomes so full that it just overflows. This type of incontinence is more common in men, often because of an obstruction such as an enlarged prostate, the male gland that sits just below the bladder.
- Functional incontinence is leakage in a person who has difficulty reaching a bathroom in time because of a physical disability, such as arthritis, or a mental disorder, such as Alzheimer's disease.

### **Diagnosis and Treatment**

Successful treatment starts with a doctor's evaluation to determine the type of incontinence and the cause. The patient may be referred to a urologist, a doctor who specializes in treating problems of the urinary tract and bladder in both women and men, or to a urogynecologist, a gynecologist by training who focuses on women's urinary problems.

The evaluation usually includes a medical history, a physical examination, and a test to check the bladder storage and emptying functions (urodynamic testing).

Leng stresses the importance of a thorough evaluation and discussion of treatments so that "the patient and I are on the same page, and so we have the same expectations. Treatment should be very much custom-tailored to the individual patient."

"There are varying degrees of treatments," says Janine Morris, Chief of the FDA's Urology and Lithotripsy Devices Branch. "They go from conservative therapy to surgery. All are for managing symptoms, and all have benefits and drawbacks."

Treatment options fall into four broad categories: behavioral, medications, devices, and surgery.

### **Behavioral Therapy**

Behavioral therapies are noninvasive, free of side effects, and don't limit further treatment options. These therapies include "retraining" the bladder and doing exercises called Kegels.

Bladder retraining helps the bladder to hold urine for longer periods of time. The individual is instructed to empty the bladder at scheduled times during the day, and then to gradually extend the time between bathroom trips.

For stress incontinence, a doctor may recommend Kegel exercises to strengthen the muscles below the bladder (pelvic floor muscles) that hold in urine. These exercises for women and men involve repeatedly tightening, holding, and then relaxing the pelvic floor muscles.

Leng advocates Kegels for patients with mild incontinence. "And like any exercise, it's only effective as long as you continue doing it."

Some people can't tell whether they are doing the exercises correctly. "A lot of women try to do the exercises on their own and give up," says Leng, who refers patients to a physical therapist to teach them to use the proper muscles. Specialists may use biofeedback devices that indicate a muscle contraction when the correct muscle is exercised. Some biofeedback devices are sold over-the-counter for home use.

### **Medications**

Another treatment option is medication, as seen in those "gotta go" television ads. The drugs in those ads are for treating overactive bladder, or urge incontinence, says George Benson, M.D., a urologist in the FDA's Division of Reproductive and Urologic Drug Products. No drugs are approved for stress incontinence.

For many years, only two drugs were approved to treat overactive bladder: Detrol (tolterodine tartrate) and Ditropan (oxybutynin chloride). In 2004, the FDA approved three more drugs: Sanctura (trospium chloride), Enablex (darifenacin), and Vesicare (solifenacin succinate). All of these medications come in pill form, and oxybutynin is also available as a skin patch.

"All five drugs work in essentially the same way to decrease urgency, frequency, and urge incontinence," says Benson. "They block the nerve impulses to the bladder that cause it to contract and leak." Side effects of the drugs include dry mouth, constipation, headache, and blurred vision.

Other drugs called alpha-blockers and 5-alpha reductase inhibitors may be prescribed for men with incontinence problems due to an enlarged prostate. Alpha-blockers relax the prostate and bladder neck, allowing improved urine flow; 5-alpha reductase inhibitors hinder the production of a male hormone believed to be responsible for prostate enlargement.

### **Nonsurgical Devices**

Some men and women with stress or urge incontinence are helped with electrical stimulation devices, which help strengthen the pelvic floor muscles. Mild, painless electrical pulses are sent to these muscles through electrodes temporarily placed in the rectum or vagina.

Another stimulation device, available in some urology facilities, is the NeoControl Pelvic Floor Therapy System. This noninvasive treatment, developed by Neotonus Inc. of Marietta, Ga., is cleared for use in women with stress, urge, or mixed incontinence. The woman sits fully clothed in a special chair that aims magnetic pulses at the pelvic floor muscles. "It acts similar to the electrical muscle stimulators to improve muscle tone of the pelvic floor," says Morris.

Other device options for women with stress incontinence are urethral "plugs" and pessaries. A woman inserts a plug into the urethra, where it seals off the flow of urine. It's removed during routine urination, disposed of, and replaced with a new one as needed. Pessaries are synthetic or rubber devices of various shapes intended to occupy space within the vagina. A health professional fits and inserts a pessary into the vagina, where it helps support the pelvic organs to reduce leakage. Women who use urethral inserts and pessaries need to watch for possible urinary tract and vaginal infections.

Devices for men include clamps and compression rings that fit over the penis to squeeze the urethra shut. These must be removed to empty the bladder. Possible side effects are pain and tissue erosion when these devices are not used properly.

### **Implanted Devices**

When other treatments have failed, implanted devices or surgery may be effective.

In a 30-minute outpatient procedure, a thick substance--made of collagen, carbon-coated beads, or other particles suspended in a solution--can be injected into the area surrounding the opening to the bladder. The substance, called a bulking agent, helps close the bladder opening to prevent leakage. Bulking agents are approved to treat stress incontinence due to poorly functioning sphincter muscles. The collagen device is approved for both women and men; others are approved only for women.

Repeat injections of bulking agents may be needed because the body slowly eliminates the substance over time. Other potential side effects are urinary tract infection, delayed ability to urinate, painful urination, urgency, frequent urination, and blood in the urine.

When men or women with overactive bladder have failed to respond to more conservative treatments, an electrical stimulation device can be placed next to the tailbone. This "pacemaker" for the bladder is marketed as InterStim Therapy by Medtronic Inc. of Minneapolis.

The treatment requires a trial period in which a doctor surgically implants a temporary electrode in the lower back. The temporary electrode is attached by a thin wire called a lead to an external stimulation device, which patients carry with them for a few days. The device sends mild electrical pulses to the nerve that controls the bladder and surrounding muscles. Patients can try it first, says Leng. "If there's dramatic improvement, then the device is permanently implanted at a second outpatient surgery, leaving all hardware under the skin."

"In clinical studies, more than one-third of the patients did not receive the implanted device typically because they did not have significant improvement during the trial period," says Morris.

### **Other Surgical Treatments**

Most stress incontinence in women results from the bladder dropping down, which often occurs after childbirth, according to the NIDDK. Two common surgical procedures for severe stress incontinence are retropubic suspension and sling surgery. These surgeries

are usually performed in women, but can be done in men who are incontinent after removal of all or part of the prostate gland.

In retropubic suspension, the surgeon pulls the bladder up to a more normal position by sewing it to surrounding bone or tissue.

In sling surgery, the surgeon inserts a supportive strap of material (suburethral sling) to elevate the urethra and bladder neck, anchoring it to each side of the pubic bone. Slings are medical devices made from synthetic material, or they can be fashioned from donor tissue or the patient's own tissue, which is cut from the abdominal wall. Although it is a more invasive procedure, some patients prefer using their own tissue, says Roger Dmochowski, M.D., professor of urologic surgery at Vanderbilt University in Nashville, because synthetic material may erode into the urinary tract and cause infection or reduce effectiveness.

Newer techniques for sling insertion are minimally invasive, allowing for smaller incisions and shorter hospital stays. These techniques are "variations on the suburethral sling," says Leng, "and they conceptually work the same way to provide a little hammock for support to the urethra."

Another option for women with stress incontinence is the SURx Radio Frequency Bladder Neck Suspension System. This device uses electrical energy to heat and shrink stretched tissue near the bladder and urethra to tighten up the pelvic floor muscles. "It is intended to act similar to bladder suspension using slings but is less invasive," say Morris. "However, in clinical trials, it wasn't shown to be as effective as surgery."

Like any surgery, retropubic suspension and sling surgeries all have their risks, including infection, injury to the bladder or urethra, and urinary retention. "And none of these surgeries last a lifetime," says Dmochowski, adding that 10 years of effectiveness is what most treatments attempt to accomplish. "New symptoms may cause problems," he says. As a woman ages and her body changes, "pure stress incontinence may become urge incontinence."

That's what happened to Behanna.

Behanna was in her early 30s when she was diagnosed with stress incontinence. A sling surgery solved the problem for about five years, she says. Then she developed urge incontinence. Behanna tried a number of treatments, including Kegel exercises and medications, without much relief.

Desperate for a new treatment that she hadn't tried yet, Behanna sought advice from the doctors at the women's hospital where she works. "Every time a new urologist was hired, I would corner her and say, 'I've been peeing in my pants--can you help me?'"

Behanna was presented with the option of the InterStim, and in April 2005, she tried it. During the trial period before the permanent electrode and stimulator are implanted, she had some doubts. She was sore from a large incision in her upper buttock to make a pocket of tissue for the permanent stimulator to fit into. And a temporary long lead was sticking out of her body. "I had to be careful not to catch it on anything," she says.

After a week with no results, the InterStim manufacturer's representative reprogrammed the device. "The second week was better," says Behanna, and she opted for the permanent implant.

"It was all worth it," she says. "I'm so glad I did it. I feel more confident and I'm not wearing pads now." Behanna says she still has some accidents, but her condition is about 90 percent improved.

#### **Prostate-Related Incontinence**

As a man ages, the prostate typically becomes enlarged. This enlarged gland may squeeze the urethra and irritate the bladder, causing urinary problems. "Men with an enlarged prostate may have many of the same symptoms of an overactive bladder," says Benson, "with urgency, frequency, and urge incontinence."

Prostate cancer and its treatment increase the likelihood of urinary problems. Those who have had the whole prostate gland removed (radical prostatectomy) represent "probably the largest group of men who have urinary incontinence," says Judd W. Moul, M.D., professor and chief of urologic surgery at Duke University in Durham, N.C.

Increased public awareness and screening are leading to earlier treatment for prostate cancer, says Moul, "so the good news is the cure rates are going up, and the other good news is the risk of incontinence is getting less." Yet, up to 20 percent of men treated for prostate cancer have stress incontinence, he says.

Ray Walsh is one of them. After a radical prostatectomy in 1999, "I leaked the day after my operation and continued to leak for years," says the 70-year-old Annandale, Va., resident. "It was aggravating to walk around wet all the time."

Walsh tried an array of treatments--bladder retraining, Kegel exercises with biofeedback, medication, behavioral modification, and the InterStim--with no significant improvement. So in 2001, he had an "artificial sphincter" implanted.

The FDA approved the device, the AMS 800 Urinary Control System made by American Medical Systems Inc. of Minnetonka, Minn., for men who have stress urinary incontinence due to weakness of the sphincter muscles after prostate surgery. It consists of three parts connected by tubing, all surgically implanted: a fluid-filled synthetic cuff that surrounds the urethra, a pump placed in the scrotum, and a balloon reservoir implanted in the abdomen. To urinate, the man squeezes the pump in the scrotum. This action causes fluid to drain from the cuff into the reservoir, which opens the urethra and allows urine to pass. The cuff automatically refills 90 seconds later, closing the urethra.

Walsh says the device gave him "great improvement," at first. "I used 10 to 12 pads a day," says Walsh. "When they put the artificial sphincter in, it cut it down to one to two pads." But several years later, when he started having more leakage, Walsh's doctor gave him some disturbing news. "The cuff cut off some of the blood supply and the flesh under the cuff is atrophied to some degree," he says. "I'm not getting as good closure by the cuff."

Walsh is now considering another surgery to get a second cuff to assist the first one. "The downside of that," he says, "is that the flesh between the two cuffs can atrophy because the blood supply is cut off from both sides." In the meantime, Walsh is taking a bladder-relaxant medication, which is giving him "a little more control," he says. "I'm just destined--until I put that second cuff in--to using three to four pads per day."

### **Choosing a Treatment**

Experts agree that no treatment is perfect for everyone with incontinence. Treatment depends not only on the type and severity of incontinence, but on an individual's lifestyle and personal preferences.

And the success of treatment is an individual perception, says Leng. "Some patients with stress incontinence and active lifestyles expect that 'success' means no more pads. On the other hand, some patients with severe incontinence of a complex nature who have failed multiple treatment options may be thrilled with 50 percent improvement of their bladder control."

"It may not always be a reasonable expectation to be cured," adds Dmochowski. "We try to focus on improvement rate."

Some people are satisfied with the improvement that conservative measures give them.

About 70 percent of women with incontinence problems are helped by a combination of simple measures such as bladder retraining, exercises, and medication, says Dmochowski, who specializes in treating women's urology problems. Moul, who treats men, says a combination of pads, medications, and exercise is effective for many men with incontinence problems.

Although Dmochowski thinks of surgery as a last resort, not all of his patients do, he says. "Some younger women with pure stress incontinence ... are desirous of a one-step procedure, and surgery often provides that. It's an individual choice."

In any case, says Dmochowski, "people should look at the degree of their problem and their quality of life, seek a consultation, be aware of all the options, and actively participate in the decision process."

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### **For More Information**

National Kidney and Urologic Diseases Information Clearinghouse  
(800) 891-5390  
<http://kidney.niddk.nih.gov/kudiseases/topics/incontinence.asp>

National Association For Continence  
(800) BLADDER (252-3337)  
[www.nafc.org](http://www.nafc.org)

Simon Foundation for Continence  
(800) 237-4666  
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