There’s no such thing as a one-size-fits-all approach to stress urinary incontinence (SUI). The loss of bladder control is a condition with many difference causes, which means that there are many different treatments. So how do you know what’s best for you?

It starts by getting an accurate diagnosis – that way you and your physician will have a better sense of your particular health status – and then choosing follow-up therapy that’s customized to your specific situation.

In many cases, SUI can be treated effectively with behavioral and non-surgical therapies. Those with less active lifestyles and less severe problems are more likely to be satisfied with nonsurgical methods such as:

- Pelvic muscle exercises
- Physical therapy
- Biofeedback
- Pessaries (vaginal support devices)
- Urethral bulking injection therapy

These options are particularly attractive for individuals with low level, predictable incontinence – people who may only want to control leakage when exercising or dancing, or for those who aren’t good candidates for surgery. While these therapies may not always be as effective as surgery, for some patients, particularly the elderly and those who have had failed surgery in the past, the non-surgical approach is the right one. In these cases, women may also consider management options, such as absorbent products.

However, those in reasonable health who find that their SUI is a significant social problem – surgery is the preferred method.

Of course, before undergoing any procedure, you should evaluate the non-surgical alternatives first. And even when surgery is selected, don’t expect to schedule anything immediately; most physicians consider it appropriate for the patient to spend a three-month period of time in a serious effort to strengthen the pelvic floor muscles prior to surgery.

**Considering Your Options**

Here’s a different way to think about the range of options available: Imagine an athlete with an injured knee. When the injury is limited to the strained ligaments and tendons that support the knee, the athlete may be able to compensate by strengthening the surrounding muscles that stabilize the joint. This is similar to the way a woman with mild or moderate urinary incontinence might perform pelvic muscle exercises or perform Kegels to improve her condition. However, if the athlete has a more extensive injury involving tearing of tissue, surgery may be the best choice to get back into competitive shape. Similarly, women with more extensive incontinence issues may find that an operation offers them the best hope for relief.
As far as the procedure itself goes, there are a number of different options available. You should thoroughly discuss all of the alternatives with your physician, and don’t be afraid to ask questions about why a particular procedure is being recommended and how much experience your doctor has in performing it. Confirm that your doctor has practiced several different approaches, so you can be sure that the procedure chosen is in your best medical interests, rather than the only one the doctor knows.

**Anatomy**

In order to understand why Stress Urinary Incontinence occurs, a quick refresher course on the female urinary anatomy might be helpful. The bladder has two functions:

- To store urine produced by the kidneys
- To contract and push the urine through the urethra

Controlling the flow of urine out of the bladder is the sphincter muscle. The nervous system detects when the bladder is ready to be emptied and tells the sphincter to relax, allowing you to urinate. With SUI, physical stresses like exercise, coughing and sneezing put pressure on the top of the bladder. When there is any sort of abdominal stress on the pelvic organs—the bladder, vagina, uterus and rectum—SUI can occur. The urethra is unable to stay closed and urine leaks out (Diagram 1).

**Causes of Stress Urinary Incontinence**

SUI is the most common form of incontinence in women under the age of 60, accounting for more than half the cases overall.

Pregnancy and childbirth head the list for causes of SUI, but they’re not the only factors that can put you at an increased risk. Others include the loss of pelvic muscle tone (often with aging), hysterectomy, nerve and muscle damage from birthing or surgical trauma, obesity, menopause, chronic coughing due to smoking and lung disease, anatomical predisposition, repeated heavy lifting or high impact sports.

Any of these factors can individually or together result in one of two different types of urethral abnormality, and these abnormalities are what produce stress incontinence:

First, the urethra may be poorly supported, which is referred to as “urethral hypermobility.” When the body is in good form, the urethra will have strong support from the pelvic floor – that part of the pelvic region composed of ligaments, tendons and muscles that keep everything in place. That way, the urethra remains closed during exercise, coughing and straining.

However, the elements of the pelvic floor can be injured or weakened by childbirth, pelvic surgery, obesity, frequent prolonged straining and strenuous exercise such as weight lifting, jogging, jumping, long distance running and...
high impact aerobics. When this happens, the urethra drops and opens when exposed to physical stress or straining.

Loss of support like this is frequently associated with loss of support for the other pelvic organs, too (this is called “prolapse” or “dropping”), particularly the bladder – though the two conditions are independent. Stress incontinence can occur without pelvic organ prolapse and vice-versa. That is why treatments to correct one of the conditions may not necessarily correct the other (Diagram 2).

The second cause of SUI is poor urethral function, or “intrinsic sphincter deficiency” (ISD). This condition can produce incontinence even when the urethra is in a perfectly normal and well-supported position.

At one time it was thought that this was a rare problem that occurred only after nerve injuries, radiation to the pelvis or extensive pelvic surgery. We now know that this is a common condition and may be due to aging, hormonal changes, nerve injury during childbirth, pelvic surgery and other factors. In fact, it is now generally believed that many women with SUI have at least some degree of ISD.

When ISD occurs, the walls of the urethra simply are not able to create an effective seal. It’s like a faucet that needs to have a washer replaced to correct a slow drip. There are two specific tests for ISD, the leak point pressure (LPP) test and the urethral closure pressure (UCP) test, both of which can be performed during urodynamic testing.

**Evaluation of Incontinence**

When incontinence is severe enough to cause embarrassment or limit activities, it is time to talk to your doctor. To determine which treatment is best for you, the doctor should take a detailed history of your general health and your bladder symptoms. It’s very helpful if you can measure your urination activity for a full 24-hour period. This type of record can tell the doctor a great deal about your bladder function without invasive testing.

Some of the things your physician will likely discuss with you include:

- Medical history, particularly details of childbirth and any pelvic surgery
- A complete list of all medications taken
- History of bladder infections, difficulty urinating, gynecologic problems, bowel problems and neurologic problems such as back injury, stroke or other neurologic diseases.
- Prior treatment for incontinence

Some procedures your doctor may perform include:

- A physical examination
- A test of your urine for infection or other problems
- Catheterization, that is, the passing of a small tube through the urethra to drain the bladder to determine if you are emptying the bladder completely
- An examination while you cough and strain in the standing or lying positions
- X-rays or MRIs of the bladder
- Bladder function tests (urodynamic studies)
Surgery for SUI
Surgical treatment of stress urinary incontinence has been the mainstay of therapy, particularly in the United States, for many years. That’s because it’s usually recognized as the most effective treatment for stress incontinence. The word ‘surgery’ is a broad term, and it covers many different types of procedures.

That’s important because of how individualized incontinence can be. As we’ve noted, there’s no one best operation for all patients, and having a variety of procedures means that your physician has a better chance to identify one that’s right for you.

In fact, the National Institutes of Health have funded a program to study the range of surgeries available, and they’ve found that there are multiple reasonable approaches to incontinence surgery, each of which has its own risks and benefits.

The vast majority of SUI procedures today involve the placement of one of several different types of pubovaginal slings (‘pubovaginal’ refers to the region of the pubis and the vagina). The basic concept of a sling is that a piece of strong material is placed beneath the urethra as a supporting “hammock.” The sling corrects the poor anatomic support of the urethra and may also provide a degree of compression.

There are many different sling procedures, and the distinguishing features among them have important implications. The deciding factors for many patients may include the complexity of the operation, the very long-term safety of the permanent material that will be placed around the urinary tract and the risk of erosion into the bladder or urethra many years down the road.

Mesh Options
There are several types of mesh kits for the treatment of female stress urinary incontinence on the market, including:
• Retropubic transvaginal
• Transobturator (TO)
• Mini-sling (single incision)

Most people refer to these as Transvaginal Tension-Free Tape (TOT), although each of the names is widely used generically, including reference to a mini-sling.

About Surgical Mesh
Surgical mesh is a porous synthetic or biologic bonding agent used to repair weakened or damaged tissue. In urogynecologic procedures, it is permanently implanted to reinforce the vaginal wall or to support the urethra.

There is a significant body of research to support its use in sub-urethral polypropylene slings, including more than 15 years of experience in the USA and nearly 20 years of experience in Europe. Recently, the FDA issued safety communications regarding the potential for serious complications associated with vaginal mesh for pelvic organ prolapse. This mesh is different than what is used in midurethral slings. Patients are urged to educate themselves and ask their surgeons about all treatment options before reaching a decision. For more please visit at www.nafc.org.
Mid-urethral Slings – Mid-urethral sling procedures are usually easier for the patient than other forms of sling procedures, in part because they’re generally performed as an outpatient surgery with a general anesthesia, or sometimes under sedation with local anesthesia. Like all surgeries for stress incontinence, the mid-urethral sling is not as effective when patients have had prior surgery.

Bladder Neck Slings – Classic bladder neck slings may be appropriate for women who have had previous surgery for incontinence. To enhance the likelihood of success, the procedure uses the patient’s own tissue, which is usually taken through a low abdominal incision or from the thigh. However, this does make the surgery more challenging. It requires both abdominal and vaginal incisions and is technically more difficult for the surgeon than other incontinence procedures. It also requires a longer recovery period for the patient and may result in more problems passing urine, than other operations for incontinence. It is, however, successful in properly chosen patients.

Non-synthetic Slings – There are other non-synthetic materials available for sling procedures, too. These are biologic products, which means that they are natural in origin, collected either from bovine or porcine sources. This option may be beneficial for women with previous surgeries or radiation in the pelvic area.

The Operation and Post-Operative Recovery
In the vast majority of cases, surgical procedures for stress urinary incontinence are performed under either regional anesthesia (spinal or epidural) or general anesthesia, although some surgeons will perform mid-urethral slings with the patient under sedation and local anesthesia. When only an incontinence procedure is performed, hospitalization is typically minimal—outpatient surgery or an overnight stay. It is unusual for a patient to be in the hospital for more than one night after a routine operation.

At the time of discharge, the patient should be able to:
- Walk without assistance
- Go up and down short flights of stairs
- Eat a regular diet
- Manage the bladder

A catheter is occasionally required after mid-urethral sling procedures, and most patients simply urinate normally, although the stream may be a bit slower. Transient urinary retention (the inability to empty the bladder) may be expected for several days or up to two weeks, which is consistent with other bladder neck suspension procedures.

You may have an indwelling urethral catheter for several days following the operation (that is, a catheter that is left in the bladder), and you may be required to perform intermittent catheterization (passing a small straw like tube into the bladder several times a day to empty). A suprapubic tube (a small catheter exiting the bladder through the lower abdomen) may also be put in place during the operation.
In most cases, a patient who has only a simple incontinence operation will feel back to normal in two to three weeks, whereas a patient who has a major prolapse repair along with incontinence surgery may take four weeks or more to regain full strength and stamina. Your response to the stress of surgery is of course highly variable, and a person may use their response to other surgical procedures as a guideline.

**Getting Back To Normal**

- Discuss your expectations and methods of postoperative bladder drainage before surgery
- There are generally no dietary restrictions following the procedure
- Most people can usually resume light activities immediately
- It is typically recommended that patients avoid heavy lifting and strenuous exercise for two months and sexual intercourse for about one month
- Some individuals who have non-strenuous employment may be able to go back to work between one and two weeks, but it is generally advised not to plan on an early return to work or to schedule any important activities in the first two weeks
- Discomfort might interfere with potential plans

More information can be found at [http://www.nafc.org](http://www.nafc.org)

To view informative slide presentations on Surgical Treatment for Female Stress Urinary Incontinence, please visit [http://www.nafc.org](http://www.nafc.org)
SURGICAL TREATMENT FOR FEMALE STRESS URINARY INCONTINENCE

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