

## THE "OVER-ACTIVE" BLADDER (OAB)

Passage of urine is caused by the bladder muscle contracting coordinated with the relaxation of the sphincter muscles, which is controlled by higher centers in the central nervous system. When the ability of the brain to control the bladder is lost or diminished, the bladder can contract at any time without warning and this "involuntary" bladder contraction can give rise to the symptoms of urgency, frequency, urgency incontinence, and sometimes incontinence without any associated urge.

OAB is defined as the presence of urinary urgency and frequency (both daytime and night) with or without urgency incontinence, in the absence of a urinary tract infection or other pathology. On a more practical basis, OAB is defined as a "bladder that squeezes without its owner's permission." It can be triggered by positional changes such as arising from a sitting position; hand-washing, entering the shower, exposure to running water or cold or rainy weather; and getting closer and closer to a bathroom, particularly at the time of placing the key in the door to one's home. Overactive bladder is not a disease, but is a symptom complex that generally is not a life-threatening condition.

Bladder function is clearly related to the amount and type of fluid intake. Excessive fluid intake can produce voiding patterns that mimic overactive bladder symptoms. Normal frequency of urination is typically every 3 to 4 hours, usually about six voids daily. Medications can often be related to urinary frequency, particularly the use of the diuretics.

*Nocturia*, defined as nighttime urinary frequency, is probably one of the most annoying symptoms for patients because it is often sleep-disruptive. It is usually on the basis of *nocturnal polyuria*, *low nocturnal bladder capacity*, or both. In nocturnal polyuria, nocturnal voids are frequently normal or large volume as opposed to the small volumes observed in nocturia associated with OAB. Sleep disturbances, cardiovascular disease and other medical conditions are often associated with nocturnal polyuria. Frequency that is the result of excessive fluid consumption and results in polyuria can mimic overactive bladder and can be distinguished using a voiding diary. Drinking-related frequency is self-induced and is managed with education and fluid management.

An evaluation begins with a urinalysis, a urine culture if indicated, and determination of the post-void residual volume. A voiding diary is an extremely helpful tool. Urodynamics, cystoscopy, and diagnostic renal and bladder ultrasound are used on individual basis.

The treatment of OAB is challenging yet rewarding and requires a partnership between patient and physician. Successful OAB treatment requires a willing patient who is informed and engaged in the treatment process and understands that OAB has a variable and chronic course likely requiring multiple management strategies over time with no single ideal treatment. Treatments vary in invasiveness, risk of side effects, and reversibility. Most OAB treatment improves symptoms but is unlikely to eliminate all symptoms.

Behavioral treatments are based on the idea that the patient can be educated about the condition and develop strategies to minimize or eliminate the problem. Behavioral treatments are first-line therapy: bladder training, bladder control strategies, fluid management, and pelvic floor muscle training. Behavioral therapies maybe combined with medication, which should be considered second line treatment. One problem with the commonly used medications is side effects including dry mouth, constipation, dry eyes, blurry vision, dyspepsia, urinary retention, and impaired cognitive function. Third line treatments include neuro-modulation and Botox.

The goal of the following techniques is to re-establish the brain's control of the bladder. Providing that the following recommendations are carried out with diligence and determination, the results can be extremely satisfactory with improvement of the symptoms of OAB. Having a positive attitude is a prerequisite for this form of treatment.

1. FLUID MODERATION. Symptoms of OAB will often not occur until a "critical" urinary volume is reached, and by limiting fluid intake, it will take a longer time to achieve this critical volume. Try to *sensibly* restrict your fluid intake. This will not always be possible, but a moderate fluid intake will always decrease the volume of urinary output. By the same token, overdoing fluid restriction can result in super-concentrated urine that can be an irritant to the urinary tract. Caffeine and alcohol increase urinary output and are urinary irritants, so it is best to limit intake of these beverages. Additionally, many foods—particularly fruits and vegetables—have hidden water content, so moderation applies best here as well. It is important to try to consume most of your fluid intake before 7:00 PM to improve nocturnal frequency.
2. MINIMIZE CAFFEINE. Caffeine is present in relatively high concentrations in tea, coffee, colas and chocolate and functions as a diuretic, exacerbating the symptoms of OAB.
3. MEDICATION ASSESSMENT. Diuretic medications (water pills) can contribute to your symptoms. It may be worthwhile to check with your medical doctor to see if it is conceivable to change to an alternative, non-diuretic medication. This will not always be possible, but if so, may substantially improve your symptoms.
4. URGENCY INHIBITION. Reacting to the first sense of urgency by running to the bathroom must be replaced with urgency inhibition techniques. Stop in your tracks, sit, breathe deeply and try to relax and pulse your pelvic floor muscles deeply and rhythmically (see below) to deploy your own natural reflex to resist and suppress urgency.
5. TIMED VOIDING (for incontinence). Urinating by the "clock" and not by your own sense of urgency will keep your bladder as empty as possible. By emptying the bladder before the critical volume (at which urgency incontinence occurs) is reached, the incontinence can be controlled. Voiding on a two-hour basis is usually effective, although the specific timetable has to be tailored to the individual in accordance with the bladder diary. Such "preemptive" or "defensive" voiding has been proven a very useful technique since purposeful urinary frequency is more desirable than incontinence.

6. BLADDER RETRAINING (for urgency/frequency). This is imposing a gradually increasing interval between voids to establish a more normal frequency of urination. Your own sense of urgency may not be giving you reliable information about the status of your bladder filling. Urinating by the "clock" and not by your own sense of urgency will keep your voided volumes more appropriate. Voiding on a two-hour basis is usually effective as a starting point, although the specific timetable has to be tailored to the individual, based upon the bladder diary. A gradual and progressive increase in the interval between voiding can be achieved by consciously delaying urinating. A goal of an increase in the voiding interval by 15-30 minutes per week is desirable. Eventually, a return to socially acceptable intervals is possible. The urgency inhibiting techniques mentioned above are helpful with this process. Remember to always urinate immediately prior to going to sleep.

7. BOWEL MANAGEMENT. Avoidance of constipation is an important means of helping control the symptoms of OAB. Because of the anatomical proximity of the rectum and the bladder, a rectum that is full can put unwanted pressure on the urinary bladder resulting in worsening of urgency, frequency and incontinence.

8. PELVIC FLOOR TRAINING. \*\* Access a comprehensive educational video on pelvic floor muscle (PFM) exercises at: [www.youtube.com](http://www.youtube.com) In the search box, type the following: "Andrew Siegel pelvic floor muscle exercises."

**\*ALL PATIENTS NEED TO UNDERSTAND THE IMPORTANT ROLE OF THE PELVIC FLOOR MUSCLES IN INHIBITING URGENCY AND FREQUENCY AND PREVENTING URGE LEAKAGE!**

Pelvic floor muscle training voluntarily employs the PFM to help stimulate inhibitory reflexes between the pelvic floor muscles and the bladder. Rhythmic pulsing of the PFM can inhibit an involuntary contraction once it starts and prevent an involuntary contraction before it begins.

The PFM, present in both men and women, are muscles that provide support to the bladder, vagina, and rectum. Increasing PFM strength and tone is one of the most effective and natural remedies for combating urgency and incontinence.

Initially, one must develop an awareness of the presence, location, and nature of the PFM and then exercise it to increase its strength and tone. This is *not* the muscle of the abdominal wall, thighs or buttocks.

A simple means of recognizing the PFM for a female is to insert a finger inside her vagina and squeeze the PFM until the vagina tightens around her finger. A simple means of identifying the PFM for either gender is to start urinating and when about half completed, to abruptly stop the stream. It is the PFM that allows one to do so.

Once one is fully aware of the location and nature of this muscle, it can be exercised anywhere and at any time. These exercises can be done in various positions such as lying down, sitting, or standing and can be integrated into daily activities. "Down times" including sitting in one's car at a red light or waiting in line at the market checkout are convenient times to exercise one's PFM.

For maximum benefit, three sets of these exercises should be done over the course of the day. During each set, 25 repetitions should be performed. For several seconds this muscle should be squeezed, and then for several seconds relaxed. After completion of 25 repetitions of alternating "squeeze, relax" etc., the set is completed. At first, it may be difficult to do anything more than "pulse" these muscles in a rapid but poorly sustainable contraction, but with time, one will be able to increase the amount of time that the PFM can be contracted.

Gradually, the strength and tone of the PFM will increase. Given the potential success of these exercises, they are well worth one's effort. Some soreness in the PFM may be noticed during the initial phases of performing these exercises. Do not worry about this—it is only soreness associated with increased muscle activity. The benefits of these exercises will continue only as long as one does them. "Use it or lose it" applies here. As in any muscle-conditioning program, it may take 6 to 12 weeks of exercising before one notices an improvement in OAB symptoms.

It is important to recognize the specific *triggers* that induce urgency, frequency or incontinence: hand washing, key in the door, rising from sitting, running water, entering the shower, cold or rainy weather, etc. Prior to exposure to a trigger or at the time of the perceived urgency, rhythmic pulsing of the PFM—"snapping" the PFM several times—can either preempt the abnormal bladder squeeze before it occurs or diminish or abort the bladder contraction after it begins. Thus, by actively squeezing the PFM just before and during these trigger activities, the urgency can be diminished and the urgency incontinence can often be avoided

Desensitization exercises can be very useful—after emptying the bladder, expose oneself to the trigger, and use the aforementioned tactics to try to "blunt" your typical conditioned response to the specific trigger.

9. GET INTO SHAPE! Physical activity will improve the symptoms of OAB. Weight loss is an effective treatment for OAB that also provides many other health benefits.
10. BLADDER RELAXANT MEDICATION. A variety of medications are useful to suppress OAB symptoms. It may take several trials of different medications or combinations of medications to achieve optimal results. The medications include the following: Tolterodine (Detrol LA), Oxybutynin (Ditropan XL), Transdermal Oxybutynin (Oxytrol patch), Oxybutynin gel (Gelnique), Trospium (Sanctura), Solifenacin (Vesicare), Darifenacin (Enablex) and Fesoterodine (Toviaz). The most common side effects are dry mouth and constipation. These medications cannot be used in the presence of urinary or gastric retention or uncontrolled narrow-angle glaucoma. A newer medication, Myrbetriq, has a mechanism of action unique from the aforementioned above and fewer side effects.
11. BIOFEEDBACK . This is an adjunct to PFM exercise in which electronic instrumentation is used to relay auditory and visual feedback information about your PFM contractions. This can enhance your awareness and strength of the PFM.

12. BOTOX TREATMENT Botox when injected directly into the bladder of patients with OAB can help reduce symptoms by “paralyzing” those areas of the bladder into which it is injected. The two most common side effects are urinary infection and urinary retention. The Botox generally will last for nine months or so

13. INTERSTIM THERAPY—SACRAL NERVE STIMULATION Neuro-modulation is a technique used when OAB does not respond to conservative therapy. It uses electrical pulses to stimulate and modulate sacral nerves. Stimulating the nerves may relieve the symptoms of urgency incontinence as well as urgency/frequency. A neuro-stimulator provides the mild electrical pulses, very similar to a pacemaker for the heart. A small lead, or thin wire, carries the pulses to stimulate the selected sacral nerves

Andrew Siegel M.D.  
May 2014