

PHYSIOLOGY OF THE ACT OF URINATION. STRESS INCONTINENCE IN WOMEN

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Abstract. *The anatomic structures that forestall stress incontinence, urinary incontinence during elevations in belly pressure, can be divided into two systems: a sphincteric system and a supportive system. The motion of the vesical neck and urethral sphincteric mechanisms at rest constrict the urethral lumen and hold urethral closure strain greater than bladder pressure.*

Keywords: *urethral closure; urination; vascular tissues; incontinence.*

The striated urogenital sphincter, the easy muscle sphincter in the vesical neck, and the circular and longitudinal smooth muscle of the urethra all make a contribution to closure pressure. The mucosal and vascular tissues that encompass the lumen furnish a hermetic seal, and the connective tissues in the urethral wall additionally aid coaptation. Decreases in striated muscle sphincter fibers take place with age and parity, but the other tissues are no longer properly understood. The supportive hammock under the urethra and vesical neck offers a company backstop towards which the urethra is compressed during increases in stomach strain to hold urethral closure pressures above rapidly increasing bladder pressure. The stiffness of this supportive layer is presumed to be essential to the degree to which compression occurs. This aiding layer consists of the anterior vaginal wall and the connective tissue that attaches it to the pelvic bones thru the pubovaginal element of the levator ani muscle and additionally the tendinous arch of the pelvic fascia. Activation of the levator muscle at some point of stomach pressurization is essential to this stabilization process. The integrity of the connection between the vaginal wall and tendinous arch also plays an essential role. Urinary incontinence is a common situation in women, with occurrence ranging from 8.5% to 38% relying on age, parity, and definition.^{1, 2} Most ladies with incontinence have stress incontinence,³ which is handled the use of conservative remedy or surgery. Despite the common incidence of this problem, there have been few advances in our appreciation of its motive in the previous 40 years. Most of the many surgical procedures for alleviating stress incontinence contain the precept of improving bladder neck support.⁴ five Treatment determination primarily based on specific anatomic abnormalities has awaited identification in each case of the muscular, neural, and connective tissues involved.

Understanding how the pelvic ground structure/function relationships supply bladder neck guide can help information remedy choice and effect. For example, if for the duration of a vaginal start a girl has misplaced the parts of her pelvic muscles that impact continence, then pelvic muscle workouts are unlikely to be effective. This report therefore critiques purposeful anatomy and the outcomes of age on urethral support and the urethral sphincter and clarify what is known about the extraordinary constructions that have an effect on stress continence. This mechanistic data should assist information research into pathophysiology, therapy selection, and prevention. Urethral closure strain must be increased than bladder pressure, each at relaxation and all through will increase in belly pressure, to hold urine in the bladder. The resting tone of the urethral muscle mass maintains a favorable stress relative to the bladder when urethral strain exceeds bladder pressure. During things to do such as coughing, when bladder strain increases a number of times higher than

urethral pressure, a dynamic process increases urethral closure pressure to enhance urethral closure and hold continence. Both the magnitude of the resting stress in the urethra and the make bigger in strain generated in the course of a cough determine the strain at which leakage of urine occurs. Although evaluation of the diploma of resting closure stress and pressure transmission offers beneficial theoretical insights, it does not exhibit how specific accidents to the man or woman element structures affect the passive or active factors of urethral closure. A distinctive examination of the sphincteric closure and the urethral assist subsystems is required to understand these relationships. The dominant element in the urethral sphincter is the striated urogenital sphincter muscle, which incorporates a striated muscle in a round configuration in the center of the urethra and strap-like muscle mass distally. In its sphincteric portion, the urogenital sphincter muscle is intermixed with a few circular clean muscle cells and surrounds a well-developed layer of longitudinal muscle and the mucosal vascular core. Support of the urethra and vesical neck is decided by using the endopelvic fascia of the anterior vaginal wall thru their fascial connections to the arcus tendinous fascia pelvis and connection to the medial component of the levator ani muscle.

It is our working hypothesis that each of these factors contributes to continence. Constriction of the urethral sphincter keeps urine in the bladder at rest. During increases in abdominal pressure, the vesical neck and urethra are compressed to a closed position when abdominal stress exceeds urethral pressure. The stiffness of the supportive layer under the vesical neck offers a backstop against which stomach pressure compresses the urethra. This anatomic division mirrors the 2 aspects of pelvic flooring function relevant to stress incontinence: urethral closure strain at relaxation and the amplify in urethral closure brought about through the impact of stomach pressure. Urinary incontinence symptoms are enormously everyday among women, have a great effect on health-related high-quality of existence and are associated with big private and societal expenditure. Two most important types are described: stress urinary incontinence, in which urine leaks in association with bodily exertion, and urgency urinary incontinence, in which urine leaks in association with a unexpected compelling want to void.

Women who journey each signs and symptoms are regarded as having blended urinary incontinence. Research has revealed overlapping viable causes of incontinence, which includes dysfunction of the detrusor muscle or muscles of the pelvic floor, dysfunction of the neural controls of storage and voiding, and perturbation of the nearby surroundings within the bladder. A full diagnostic contrast of urinary incontinence requires a clinical history, physical examination, urinalysis, assessment of pleasant of lifestyles and, when preliminary treatments fail, invasive urodynamics. Interventions can encompass non-surgical preferences (such as way of life modifications, pelvic ground muscle coaching and drugs) and surgical alternatives to support the urethra or increase bladder capacity. Future instructions in lookup may also increasingly goal foremost prevention via understanding of environmental and genetic dangers for incontinence. Urinary incontinence is the grievance of involuntary loss (leakage) of urine¹. The condition takes place in both sexes, but is a whole lot greater normal in women. Although some overlap in pathophysiology is evident between sexes, incontinence in guys is frequently a consequence of prostatic expansion or from damage to continence mechanisms at some point of surgical procedure or radiotherapy for prostate cancer. By contrast, incontinence in women is typically associated to dysfunction of the bladder or pelvic ground muscles, with such dysfunction frequently bobbing up

at some stage in being pregnant or childbirth, or at the time of menopause. This Primer focuses on girl urinary incontinence because of its greater incidence and special pathophysiology.

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