

# Causes and Mechanism of Urinary Incontinence

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## ABOUT THE STUDY

Any uncontrolled urine flow is referred to as Urinary Incontinence (UI), sometimes known as involuntary urinating. It is a frequent and upsetting issue that could significantly affect quality of life. It has been noted as a significant problem in geriatric medical treatment. Enuresis, such as nocturnal enuresis, is a term frequently used to describe urine incontinence particularly in children (bed wetting). UI is an example of a medical illness that is stigmatized, which raises obstacles to effective therapy and exacerbates the issue. People could try to self-manage the ailment in private from others because they feel too ashamed to seek medical attention.

Major risk factors include pelvic surgery, pregnancy, delivery, and menopause. Although it is underreported to healthcare professionals, urinary incontinence frequently results from an underlying medical problem. The four primary types of incontinence are as follows;

- Urge incontinence brought on by an enlarged bladder.
- Overflow incontinence caused by either weak bladder contraction or urethral obstruction.
- Stress incontinence caused by "a poorly functioning urethral sphincter muscle (intrinsic sphincter deficiency) or to hypermobility of the bladder neck or urethra."
- Mixed incontinence, which has traits from several other categories.

Training the muscles in the pelvic floor and bladder, surgery, and electrical stimulation are among the available treatments. In most cases, behavioral treatment is more effective than medicine for treating stress and urges incontinence. Medication benefits are minimal, and their long-term safety is unknown. Older women are more likely to experience urinary incontinence.

## Causes

There are urologic and non-urologic causes of urinary incontinence. Detrusor over activity, poor bladder compliance, urethral hypermobility, and intrinsic sphincter deficiencies are examples of urologic reasons that can be categorized as either bladder dysfunction or urethral sphincter incompetence. Infection, drug

usage, psychological issues, polyuria, hydrocephalus, stool impaction, and limited mobility are examples of non-urologic reasons. Although the reasons of urine incontinence are frequently sex-specific, some factors affect both men and women equally.

**Women:** Urge incontinence and stress incontinence are the two most prevalent kinds of urine incontinence in women. Urinary incontinence in women is referred to as "mixed" when there are signs of both categories. After menopause, estrogen production declines and, in certain women, the urethral tissue will atrophy, weaken, and thin, which may contribute to the emergence of urine incontinence.

Women are more likely than men to experience stress urine incontinence due to loss of urethral support, which is typically the result of damage to pelvic support structures brought on by pregnancy, childbirth, obesity, ageing, and other factors. Urinary incontinence affects roughly 33% of women after giving birth, and women who deliver vaginally are about twice as likely to develop it as those who deliver by Caesarean section. Small amounts of urine may flow during actions that increase abdominal pressure, such as coughing, sneezing, laughing, and lifting. This condition is known as stress incontinence. This occurs when the urethral sphincter cannot fully seal because of injury to the sphincter or the tissue around it. Athletes who engage in high-impact activities frequently may also develop incontinence.

**Men:** The most typical type of incontinence in men is urge incontinence. Similar to women, males with overactive bladder syndrome experience urine leakage after an extremely strong urge to urinate, leaving them with insufficient time to get to the restroom. The disorder is frequently linked to benign prostatic hyperplasia (enlarged prostate) in men, which leads to obstruction of the bladder outlet, dysfunction of the detrusor muscle (the bladder muscle), and finally overactive bladder syndrome and the related incontinence. The other prevalent type of incontinence in males is stress urinary incontinence, which most frequently develops following prostate surgery.

The urethral sphincter and surrounding tissue can be injured by prostatectomy, transurethral resection of the prostate, prostate brachytherapy, and radiotherapy, rendering them ineffective. When

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performing actions that raise the intraabdominal pressure, such as coughing, sneezing, or laughing, an ineffective urethral sphincter cannot stop the pee from leaking out of the urinary bladder.

**Both:** Age is a risk factor that raises the prevalence and severity of UI.

- Polyuria, which has four main causes- central diabetes insipidus, nephrogenic diabetes insipidus, primary polydipsia (excessive fluid consumption), and uncontrolled diabetes mellitus. Urinary urgency and frequency are typically caused by polyuria, albeit this condition does not always result in incontinence.
- The nerve function of the bladder can be affected by neurogenic conditions such multiple sclerosis, spina bifida, Parkinson's disease, strokes, and spinal cord damage. This could result in neurogenic bladder issues.
- Bladder over activity syndrome. However, as was already established, the etiology of this varies significantly between men and women.
- Smoking, coffee use, and depression are among additional indicated risk factors.

### Mechanism

**Adults:** The urinary bladder, an organ that resembles a balloon, is where the body collects urine, the water and wastes that the kidneys extract. The urethra, the tube via which urine exits the body, is connected to the bladder. A balance between urethral closure and detrusor muscle activation is necessary for continence and micturition (the muscle of the bladder). Detrusor muscles in the bladder wall contract during urination, pushing urine into the urethra from the bladder. The sphincter muscles that surround the urethra loosen at the same time, allowing urine to exit the body.

**Children:** The act of voiding, sometimes known as urinating, is complicated. The lowest region of the abdomen contains the bladder, a muscle that resembles a balloon. The urethra, the canal that transports urine to the outside of the body, receives urine from the bladder after it has been stored in the bladder. Nerves, muscles, the spinal cord, and the brain all play a role in controlling this action. The detrusor, a muscular sac that stores urine and contracts to release it, and the sphincter, a circular group of muscles at the base or neck of the bladder that automatically remain contracted to hold the urine in and automatically relax when the detrusor contracts to let the urine into the urethra, are the two types of muscles that make up the bladder.