

Wetting Accidents and Dysfunctional Elimination

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Few things are more distressing to a family than having a child who is continuously wet. The child suffers ridicule from his or her classmates, the odors are offensive, laundry mounts, and parents agonize over their inability to bring an end to what seems to be an endless problem. Wetting accidents can occur during the day or night, or both day and night. Very often, wetting accidents are also associated with stooling accidents. Families can take comfort in the fact that the problem is common and children can be helped. As all of these conditions have slightly different patterns and causes, each may require a slightly different treatment approach.

Most typically, children who experience wetting accidents (incontinence) do so because of a combination of factors: delayed toileting, incomplete bladder emptying, and uncoordinated musculature of urination. However, one of the most important underlying reasons for wetting accidents is unrecognized constipation. Whatever the cause, children can experience lowered self-esteem as a result of wetting, recurrent bladder infections, and although rare, can actually go on to damage their urinary tract unless the condition is corrected. Therefore, there are legitimate reasons to bring the condition under control.

In some rare occasions child may wet due to abnormal structure of their urinary tract. However, the majority of children affected by wetting do so because they have acquired abnormal patterns of urination or stooling. We hope that this handout will help parents better understand normal and abnormal elimination (urination and stooling), help them understand ways that we determine what is normal or abnormal, and help parents understand the aims of prescribed treatment.

How urination works (physiology)

Urination may seem straightforward, but it is actually a complex event. The bladder of an infant empties by reflex action. Studies have shown that infants do not empty their bladders to completion which is thought to be due to the fact that there is not full coordination between the bladder and the urinary sphincter. Once the bladder reaches a certain level of fullness, the bladder contracts and bladder emptying (partial or complete) occurs.

Once toilet training is achieved, urination involves the coordination of three seemingly completely separate systems: the bladder, the urinary sphincter, and the pelvic floor muscles. The bladder, a hollow, balloon-like organ stores urine and is composed of smooth muscle over which an individual has no control (like the muscles of the intestine). The urinary sphincter is a doughnut shaped muscle which surrounds the urethra. It is controlled by voluntary efforts. When tightened, flow of urine through the urethra is stopped. When relaxed, or open, urine flows through the urethra.

The bladder is able to hold a large volume of urine under very little pressure. By adulthood, the bladder is able to hold 500-600 milliliters (15-20 ounces) of urine. Children have smaller bladder capacities than adults. The bladder volume of children gradually increases after the age of 3 years until it reaches adult capacity sometime in adolescence. As the

bladder fills with urine, the bladder muscle wall relaxes to accommodate a larger volume while keeping the storage pressures low.

Once to a state of fullness, the bladder muscle begins to contract. This muscle contraction signals the brain (conscious sensation) that emptying is desired (“need to go”). However, the brain can suppress the “need to go” signal for a period of time until the individual can find a bathroom. The urinary sphincter remains in its tightened state and the flow of urine from the bladder is prevented. When voluntary urination is begun, the pelvic floor muscles relax, the urinary sphincter relaxes, the bladder muscle contracts, and urine is emptied from the bladder. However, if the bladder is filled beyond its holding capacity, stronger and stronger bladder muscle contractions will occur (“really have to go”) which eventually cannot be overcome by the sphincter muscle (“can’t hold it”) and involuntary emptying of the bladder will occur (wetting accident/ incontinence).

Abnormal Urination

The Infrequent Voider

These children tend to stall toileting until the last minute. They are either distracted by events while they are playing and ignore the early signs of a full bladder or they simply do not sense the signals of a full bladder. It is more common in girls. Once the child’s bladder has exceeded its capacity, a powerful bladder contraction will occur which the child is unable to suppress. These children are best treated by placing them on a structured schedule of toileting every 2-3 hours while at home and at school. They should be encouraged to not rush toileting, meaning that they sit on the toilet at least 2 minutes and empty their bladder completely.

Difficulty in suppressing a bladder contraction

These children are unable to send a message to their brain to stop the bladder contraction when the bladder reaches its point of fullness. They tighten their urinary sphincter to help overcome the urge but the sphincter is unable to prevent leakage with strong bladder contractions. Damp pants, leaking, and full soaking accidents may occur. These children are sometimes easily identified by their fidgeting, squatting or sitting on her heel, “doing the pee-pee dance”, or the little boy who grabs his genitalia. Often, these children, if asked if they need to go to the bathroom, state “no”, reflecting the fact that they don’t understand what is happening in their body at that time. They are using various means to overcome a bladder contraction. This is called voiding dysfunction.

Children who rely on chronic sphincter tightening and pelvic floor contraction to overcome bladder contractions tend to “over-condition” their pelvic floor muscles. When it is time to relax their pelvic floor muscles as normally should occur during voluntary urination, they are unable to fully relax them. This can result in a “start-stop urine stream”, a slow urine stream, or incomplete bladder emptying. This makes these children susceptible to repeat bladder infections. Also, tightened pelvic floor muscles can lead to infrequent bowel movements and constipation. Constipation, in turn, worsens wetting accidents and leads to frequent bladder infections.

Failure to empty the bladder

This is usually a result of the unintentional over tightening of the pelvic floor muscles and urinary sphincter. This tends to occur in children who have had a history of suppressing bladder contractions either consciously or unconsciously. The failure to urinate to completion can be confirmed by listening to the child void. If the urinary stream does not have a gradual tapering in the force of the urine stream at the end of urination, but stops abruptly, then one is likely to have a child who has unintentionally tightened the sphincter and has not voided completely. This can be

remedied by having the child remain on the toilet for 1-2 minutes, “double void” (waiting a minute after emptying and try to empty again), and encourage relaxation in order to empty the bladder completely. It is important that children be comfortably seated on the toilet with their feet supported by a small stool that keeps the hips flexed at 45 degrees to the body. This helps relaxation of the pelvic floor muscles and facilitates bladder emptying.

Constipation and Incontinence

A child who has trouble relaxing the pelvic floor muscles frequently has problems producing both good bladder and bowel emptying. Children who are unable to relax during bowel movements often are not emptying their bowels completely. This can lead to distention of the intestines, chronic constipation and stool incontinence (encopresis). While both constipation and voiding problems are often the result of poor pelvic floor muscle relaxation, constipation is also the underlying cause of some voiding problems.

Many children who come to the Children’s Continence Program for urinary incontinence (day, night, or both) actually have some significant degree of constipation. Many parents are unaware of their child’s constipation because after children reach a certain age, parents are not aware of their child’s bowel habits. Even when it appears that children are having “regular” movements, when x-rays are obtained, they often reveal stool retention.

Retention of stool in the intestine causes the intestine to stretch. The stretched intestine has decreased sensation of fullness and muscle contractions which normally help propel stool forward through the intestine are less effective. Sometimes stool is so compacted in the intestine that it cannot be moved forward and watery stool above the compacted bolus of stool leaks around it leading to stool accidents.

Importantly, the large mass of stool in the intestine presses on the bladder, leads to decreased bladder storage, and increase bladder contractions. This leads to a vicious cycle of constipation, urine incontinence, stool incontinence, and bladder infections. It is most important to address the issue of constipation before correction of wetting can be accomplished.