

THE UROLOGY GROUP

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NOCTURIA

“Nocturia” is the word used to describe the need to urinate at night. To understand why one may awaken from sleep to urinate, it is necessary to understand how the urinary system works.

The urinary tract begins with the kidneys. The kidneys, one on each side, sit high in the upper abdomen partially underneath the rib cage. They filter the blood to extract excess waste products and fluid to form the urine. Urine, once formed in the kidneys, travels through a tube on each side, the ureter, down to the bladder. Urine is constantly being made by the kidneys and transported through the ureters into the bladder. The bladder stores urine until full and then empties to the outside through the urethra. The urinary system is the same in both men and women from the kidneys to the bladder. In men, the urethra is longer and encircled by the prostate which is a gland that is part of the reproductive system.

Nocturia - the need to get up at night to urinate - can develop for a variety of reasons. In broad terms, it may be due to a problem outside the urinary system or it may be caused by a problem within the urinary system related to the bladder or prostate.

In a young, healthy adult, the kidneys typically produce 8-10 ounces of urine over night. A normal bladder can usually hold about 8-12 ounces of urine. In this case, when a person voids before going to sleep, the bladder is able to hold the amount of urine made overnight by the kidneys. Problems occur when either the kidneys make more than 8-12 ounces of urine (increased urinary output) or when the bladder is unable to hold that much (inadequate storage).

Increased Urinary Output

One of the causes of nocturia is increased urinary output by the kidneys overnight. Medical conditions, such as diabetes mellitus (sugar diabetes), diabetes insipidus (lack of a hormone responsible for concentrating the urine), thyroid disorder, and congestive heart failure are some causes for increased urinary output at night by the kidneys. However, by far the most common reason for increased production of urine overnight by the kidneys is fluid mobilization that occurs once a person lays down. During the course of the day, fluid typically accumulates in a persons legs and ankles. At night, once the person lays down flat to sleep, that fluid is reabsorbed by the body. The kidneys sense this excess volume of fluid and respond appropriately by making more urine to get rid of the excess fluid. Some patients can make 40 ounces or more of urine once they lay down for the night. Because the bladder may hold only 8- 12 ounces, they may experience the need to get up four or more times to void during the night.

Inadequate Bladder Storage

Another cause of nocturia is the failure of the bladder to store urine adequately. A variety of conditions may affect the bladder and lead to reduction in its storage capacity. Overactive bladder (see [Overactive Bladder](#) newsletter) is a common cause of reduced bladder capacity which may cause nocturia. Another reason for diminished bladder storage is age-related change that develops in the bladder. The bladder loses elasticity which diminishes its ability to stretch and hold increased volumes of urine. As its storage capacity decreases, the bladder needs to empty more often. In men, another cause is the enlarged

prostate. As the prostate enlarges, it may obstruct the urethra, the tube which drains urine from the bladder. Treatment of the enlarged prostate (see [Benign Prostatic Hyperplasia](#) newsletter) may improve nocturia and reduce the number of times a man awakens at night to void.

To help determine the underlying cause of nocturia, a physician may ask the patient to keep a voiding diary. The patient records the time and amount of each void during the night. The amount voided can be measured easily by voiding into a plastic measuring cup (just like the type of measuring cup used in the kitchen). If nocturia is due to inadequate bladder storage (small voided volumes), treatment directed at the underlying bladder or prostate condition is likely to help. If nocturia is due to increased urinary output (normal voided volumes), then treatment measures directed toward reducing urinary output may help. Measures available to reduce the volume of urine produced by the kidneys overnight include evening fluid restriction and leg elevation. Leg elevation may allow some of the fluid which accumulates in the lower extremities during the course of the day to be reabsorbed while the patient is still awake and reduce the amount of urine made once the patient is asleep. For those with underlying medical conditions, such as diabetes mellitus, heart disorder or thyroid conditions, medical management of those conditions by their primary care physician may lead to improvement. It is important to understand that if nocturia is related to increased urinary output, treatment specifically directed to the bladder or prostate, although it may provide some modest improvement, is not likely to offer complete benefit.

In summary, nocturia is a common problem and, with the right approach, help may be available.