

# URINARY SYSTEM

The urinary system removes waste products and excess fluid, while retaining materials needed by the body. It does this by continually producing and excreting urine. Because of this, the urinary system is one part of the body that most certainly will get one's undivided attention when problems occur. The need to empty the bladder, especially if it is urgent, can overshadow any other thought in a person's mind.

## THE URINARY TRACT

Urine is made up of excess water that is secreted by the kidneys, transported by the ureters, stored by the bladder, and leaves the body through the urethra. Abnormal substances in the urine, which can be found on a urinalysis, can indicate a number of problems.

The components of the urinary system consists of:

**Kidneys** The kidneys are two bean-shaped organs in the back of the abdominal wall on either side of the spine. The main function of the kidneys is to filter the blood, removing toxins and wastes, and excrete urine. The kidneys play an important role in maintaining a constant healthy environment for the body.

**Ureters** The ureters are muscular tubes (one from each kidney) that drain the urine to the bladder.

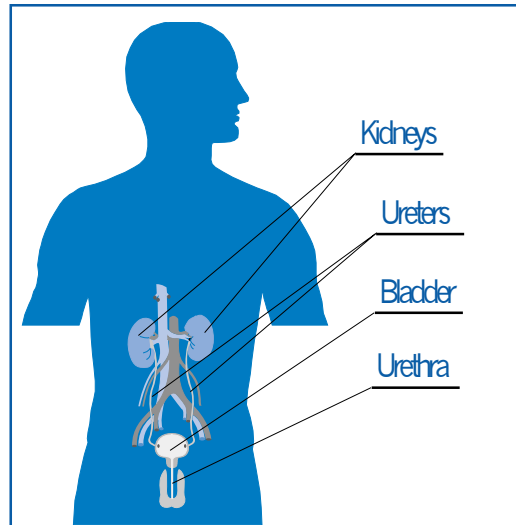
**Bladder** The bladder is a muscular bag that holds the urine (reservoir).

**Urethra** This is a narrow tube through which the urine is expelled.

**Female Bladder and Urethra** The bladder is lower in a woman's pelvis than a man's and the urethra is about one-fifth as long, which may explain more urinary tract infections in women. The uterus rests on the bladder, and its enlargement during pregnancy causes frequent urination.

**Male Bladder and Urethra** A man's urethra is about 8 inches long and is the passageway for urine and semen to pass out of the male body. The prostate gland encircles the urethra at the base of the bladder. As men get older, prostate enlargement may cause urinary tract problems.

Although each of the urinary organs has its own disorders and symptoms, a disorder of any organ can affect other parts of the system (eg, the passing of kidney stones can damage the ureters, or a urine obstruction could damage the kidneys). The urinary tract is susceptible to infections and can result in some debilitating disorders. Water is essential for good health. An adult needs to drink a minimum of two quarts of fluid a day to replace the water that has been lost in sweat, exhaled air, and passed in feces. Water works together with the kidneys to help dilute toxic substances, absorb waste products, and produce enough urine to keep the body's chemistry in balance.



## URINARY TRACT INFECTIONS

Bacteria are normally present in some parts of the body, such as the rectum, and mouth – but not in the urine. When bacteria invade a part of the urinary system, infections can occur. Women are more likely to have urinary tract infections than men because of the difference in anatomy. Since common symptoms of frequency and painful urination can occur with other urinary conditions, a diagnosis of infection cannot be made on the basis of symptoms alone. The diagnosis depends on a physical examination and a urinalysis.

### ■ CYSTITIS

Cystitis (bladder infection) is the most common urinary tract infection. Because of the proximity of the vagina and the urethra in women, bladder infections increase in frequency when a woman becomes sexually active. More than 90 percent of infections are caused by E Coli bacteria, commonly found in the colon and rectum. Men under 50 years of age rarely have cystitis.

#### SIGNS AND SYMPTOMS

Frequent and urgent urination; burning with urination; pressure in the lower abdomen; blood in urine; malodorous urine.

#### DRUG TREATMENT

Antibiotics are prescribed, typically for seven to ten days. Newer medications, however, have reduced the time of use. If the cystitis is recurrent, antibiotics may be used on a continual basis, or at the time of intercourse to prevent infection.

### ■ ACUTE PYELONEPHRITIS

Acute pyelonephritis (kidney infection) often starts with bacteria in the bladder. The bacteria travel up the ureters to the kidney and cause the infection. Other common risks are kidney stones, diabetes mellitus, and scarring of the ureters or the urethra.

#### SIGNS AND SYMPTOMS

Flank pain; high fever with shaking chills; vomiting; burning sensation with urination; frequency of urination.

#### DRUG TREATMENT

Antibiotics are prescribed.

#### SURGICAL TREATMENT

If a reflux is present (the abnormal backing up of urine) and the pyelonephritis is recurrent, a surgical procedure can be considered. If a stone is present and does not pass spontaneously, it can be treated with lithotripsy (destruction of the stone with water pressure while still in the kidney).

## ■ ACUTE INTERSTITIAL NEPHRITIS

This is an inflammation of the kidneys that may effect the glomeruli (filtering units), the tubules (urine-collecting tubes), or the space between. It is normally temporary and can be caused by a kidney disease or an allergic reaction to drugs or antibodies produced by the infection.

<b>SIGNS AND SYMPTOMS</b>	Blood in the urine; hypertension (high blood pressure); fever; rash; weight gain (retention of fluids); swelling.
<b>TREATMENT</b>	Avoidance of the drugs known to cause allergic reaction and dietary salt intake restrictions for swelling are recommended. Restriction of dietary protein may be necessary.
<b>DRUG TREATMENT</b>	A prescribed drug is given for high blood pressure, a common result from nephritis.
<b>SURGICAL TREATMENT</b>	Dialysis may be necessary until the kidneys recover and begin to function normally.

## ■ ACUTE GLOMERULONEPHRITIS

This is an inflammation of the filtering units (glomeruli) of the kidneys, most often found following a streptococci infection. Other infections implicated in glomerulonephritis are bacterial sepsis, pneumococcal pneumonia, typhoid fever, syphilis, endocarditis (inflammation of the lining of the heart chambers), and multiple virus infections. Acute glomerulonephritis results from an immune system's response stimulated by the infection.

<b>SIGNS AND SYMPTOMS</b>	Recent streptococcal or virus illness; dark colored urine; hypertension (high blood pressure); fluid retention (swelling).
<b>TREATMENT</b>	Complete bed rest is advised. The salt and water intake may be restricted. Restricted protein is also prescribed.
<b>DRUG TREATMENT</b>	Antibiotics are given if infection is present; high blood pressure medication is prescribed.
<b>SURGICAL TREATMENT</b>	Dialysis may be necessary if kidney failure occurs.

## ■ CHRONIC GLOMERULONEPHRITIS

This is a slow, progressive loss of kidney functions. Many diseases of the glomeruli (filtering units) deteriorate the kidney's ability to retain protein and red blood cells.

<b>SIGNS AND SYMPTOMS</b>	Protein and blood in the urine; hypertension (high blood pressure); fatigue; itching; nausea and vomiting; gradual kidney failure.
<b>TREATMENT</b>	A diet low in protein and salt is helpful.
<b>DRUG TREATMENT</b>	Treatment will be for the symptoms (eg, high blood pressure) while the kidney recovers.
<b>SURGICAL TREATMENT</b>	In the later stages, dialysis or kidney transplant is considered.

## DISORDERS FROM IRRITANTS AND INFLAMMATION

The symptoms of urinary frequency, urgency, and painful urination can also be caused by other types of cystitis, including irritation and inflammation of the bladder. These conditions are not caused by bacterial infections.

### ■ IRRITABLE BLADDER SYNDROME

This is an irritation of the lining of the bladder and can be caused by certain foods and beverages (eg, caffeine, carbonated beverages, spicy foods). It can also result from smoking, stress, or age (postmenopause).

#### SIGNS AND SYMPTOMS

The symptoms are similar to bacterial infections, but the urinalysis is normal.

#### TREATMENT

More water intake is the best treatment. Increase the water whenever symptoms begin.

A diary may help define the specific irritant so that it can be avoided.

Warm baths to relax the pelvic muscles are comforting.

#### DRUG TREATMENT

A prescribed dye (pheazopyridine hydrochloride) makes the inside of the bladder less sensitive and may be helpful.

Bladder relaxants (anticholinergic drugs) may also be used.

## STONES

Urinary tract stones are composed of a substance normally found in the urine (calcium, oxalate and uric acid) that have built up in high concentration. Although they are usually produced in the kidneys, stones can be found anywhere in the urinary tract. Bladder stones are not common and usually cause pain only when they enlarge, which may be severe.

### ■ KIDNEY STONES

Few who have passed a kidney stone can forget the experience. It is a common disorder and has a unique geographical and hereditary pattern. Dietary excesses or deficiencies of minerals may contribute to stone formation. Individuals with a family history of stones have an increased risk. Men are more likely to develop stones than women.

**SIGNS AND SYMPTOMS** Sudden or gradual development of pain in the flank and worsening until a narcotic drug may be needed; pain moves downward to the groin, vulva, or testicle; persistent urge to urinate; blood in the urine.

**TREATMENT** Pain management is essential. Other treatment depends on the type of stone and if there are complications. In some cases, the stones pass spontaneously.

**DRUG TREATMENT** A thiazide diuretic or a phosphate-containing preparation, allopurinol and alkaline fluids, are used to reduce recurrence.

**SURGICAL TREATMENT** Lithotripsy (shock waves) to fragment the stone so that it may pass spontaneously is often required.

Obstruction, infection, or serious bleeding may require surgery to remove the stone, either endoscopically or by surgical incision.

### ■ BLADDER STONES

Most bladder stones are the result of another urologic problem. They mostly occur in men. Urinary infection and an enlarged prostate are the most common causes.

**SIGNS AND SYMPTOMS** Bladder infection (cystitis); interruption of urinary stream; pain in the penis; blood in the urine; inability to urinate except in certain positions.

**DRUG TREATMENT** Occasionally, a prescribed medication may be used to dissolve the stone.

**SURGICAL TREATMENT** Small stones can be removed with a cystoscope (a tube inserted through the urethra to the bladder). Larger stones can be treated with lithotripsy (shock waves) that break up or dissolve the stones.

## KIDNEY FAILURE

Kidney failure is when the kidneys are unable to perform their task of filtering waste out of the blood. It may be the result of infection, injury, exposure to toxins, various kidney diseases, other diseases (eg, diabetes, systemic lupus erythematosus or sickle cell anemia), or obstruction to the flow of urine from the kidney by a stricture, cancer, or chronic obstructive disease of the prostate. There are two types of kidney failure: acute failure (a sudden loss of kidney function) and chronic failure (a slow, progressive decrease of kidney function).

### ■ ACUTE KIDNEY FAILURE

Acute kidney failure is a rapid deterioration in its ability to remove waste products from the blood. Most cases are related to surgery or trauma with severe bleeding, severe dehydration, or shock. Exposure to some toxins and obstruction to the urinary flow are other causes. The following are known to bring about acute renal failure:

**Renal Ischemia** A deficiency of blood flow as a result of obstruction or stricture in a renal blood vessel.

**Nephrotoxic Agents** Contact with heavy metals or various solvents.

**Life-threatening Infections** In persons receiving antibiotics, such as streptomycin or gentamicin, which are known to be nephrotoxic, though sometimes necessary to treat the infection.

**Extensive Traumatic Injuries** This releases a protein, myoglobin, found in muscles and may result in acute kidney failure.

**Kidney Diseases** Diseases, such as interstitial nephritis and glomerulonephritis.

**SIGNS AND SYMPTOMS** Fluid retention; gastrointestinal tract bleeding; seizures; coma.

**TREATMENT** Hospitalization with careful monitoring is required with fluid replacement and nutrition.

**SURGICAL TREATMENT** Dialysis is now used in the early stages of acute renal failure.

### ■ NEPHROTIC SYNDROME

In a nephrotic syndrome, serum proteins pass into the urine because of damage to the filtering units of the kidney. The condition is associated with swelling and abnormal laboratory test results. Along with the treatment for the specific causes of the syndrome, alterations in diet can help manage this condition. Low salt intake can help control the swelling, and the amount of protein in the diet must be increased to make up for that lost in the urine. The most common causes of nephrotic syndrome are various forms of glomerulonephritis, diabetes, lupus, and multiple myeloma (bone cancer). The diagnosis and treatment is the same for acute renal failure.

## ■ CHRONIC RENAL FAILURE (END-STAGE RENAL DISEASE)

Chronic renal failure is an insidious disease because there are no symptoms in the early stages, and often, there are no symptoms until the kidney function reaches below 25 percent of what is considered normal. When kidney function has deteriorated to between 5 and 10 percent of normal capacity, the condition is called end-stage renal disease. This means that the kidneys are incapable of sustaining life and their function must be provided by dialysis or a transplanted kidney. Currently in the United States, there are approximately 100,000 persons on dialysis, and more than 20,000 persons living with a functioning kidney transplant. A number of diseases initiate chronic kidney failure, such as glomerulonephritis, polycystic kidney disease, hypertension, pyelonephritis, vesicoureteral reflux, and the use of analgesics. The most common cause of end-stage renal disease in the United States is Type I (juvenile onset) diabetes mellitus; kidney failure occurs in 50 to 60 percent of those with insulin-dependent diabetes. In these cases, dialysis and kidney transplants are eventually necessary. When this failure occurs, there are few systems in the body that are not affected .

### SIGNS AND SYMPTOMS

Hypertension (high blood pressure); loss of weight; vomiting; malaise; headache; decreased urinary output; fatigue; decreased mental acuity; muscle twitching and cramps; gastrointestinal bleeding; yellowish-brown cast to the skin (jaundice); itching.

### TREATMENT

Treatment is focused on the symptoms and underlying disease. Hypertension, congestive heart failure, urinary tract infections, kidney stones, abnormalities of the urinary tract, or glomerulonephritis will be treated as necessary. Severe anemia may require blood transfusion.

### SURGICAL TREATMENT

It is important for the patient to be educated in preparing for dialysis or kidney transplantation because of the extended treatment and commitment to long term management.

**Kidney Dialysis** Dialysis is an artificial means of removing the waste products from the blood when the kidneys are unable to do so on their own. Most persons undergo dialysis until a suitable transplant donor is found. There are several types of dialysis:

**Hemodialysis** This type removes waste products directly from the blood. An access to the bloodstream must be created surgically, usually through the arm or leg. One form of access is a connection between an artery and a vein. After the initial wound heals, the limb appears normal. As a rule, most persons on dialysis require eight to 12 hours of dialysis per week, divided into several sessions. A dialysis machine pumps from the vascular access into the artificial kidney, which removes the waste products from the blood.

**Peritoneal Dialysis** This form of dialysis utilizes the abdominal cavity to filter the blood. The first step is implantation of a catheter leading into the abdomen. Through this catheter, dialysis solution is repeatedly infused into and drained out of the abdominal cavity. The small blood vessels in the membranes of the lining of the abdomen filter out waste products and water into the dialysis solution.

**Continuous Ambulatory Peritoneal Dialysis (CAPD)** Until the development of this method, peritoneal dialysis was not an option for those in need of ongoing dialysis. The procedure is similar to the peritoneal dialysis (described above) except the abdominal cavity is infused only four or five times a day. This can be performed by the patient at home.

**Continuous Cycling Peritoneal Dialysis** In this form, a machine automatically infuses dialysis solution into and out of the peritoneal cavity and drains several times over the course of the night while the patient sleeps.

**Kidney Transplantation** Not everyone with end-stage renal disease is a candidate for kidney transplantation. Those with an infection, active glomerulonephritis, coronary artery disease, or other severe medical problems are not considered to be in good enough condition for a major operation. People over 60 years of age are more likely to have adverse reactions than younger individuals. When successful, it provides a healthier and better quality of life. The actual operation is not a complicated procedure. What can be complicated is finding the right donor to lessen the chance of rejection of the new kidney. Compatibility is determined by blood tests that provide information about both the donor and the recipient, such as blood type and the nature of the antibodies present. A brother or sister of the recipient is most likely to have compatible tissue. When a relative is not available as a donor, tissue-typing centers throughout the country are called on to help locate acceptable donors for accident victims and others who have offered to donate their kidneys after their death (cadaver). A kidney from a recently deceased person (cadaver) must be transplanted within 48 hours. Some people have to undergo long periods on dialysis until a compatible kidney is available.

After the transplantation, the patient receives immunosuppressant drugs to keep his or her body from rejecting the “foreign” kidney. Cyclosporine and corticosteroids are two drugs commonly used. With a blood relative donor, the chances are 80 to 90 percent that by one year after transplantation, the kidney will be functioning well. With a cadaver donor, about 80 percent will have no significant rejection after one year. In cases where the transplanted kidney is rejected, a second or even third transplantation can be done.

## INHERITED KIDNEY DISEASE

There are some kidney disorders that run in families. If the disorders are found in one member of a family, the physician may wish to do tests on other members, even if they have no symptoms. Men and women are equally affected. The most common disorders are:

### ■ POLYCYSTIC KIDNEY DISEASE

The kidneys contain clusters of cysts that interfere with the function and enlarge the kidneys. It occurs in both children and adults but is more common in adults. Problems associated with this disease include high blood pressure, anemia, kidney failure, and liver disease.

SIGNS AND SYMPTOMS	Flank pain; blood in the urine; excessive urination at night; kidney stones; hypertension; anemia in children.
DRUG TREATMENT	Medication for the control of hypertension, and antibiotics for urinary infections should be given promptly to prevent kidney damage.
SURGICAL TREATMENT	Puncture of the cysts or removal of one of the kidneys is sometimes considered. Occasionally, removing one kidney can be helpful if the remaining kidney is healthy.

### ■ CYSTINURIA

This is an inherited disease of the kidney tubules with failure of reabsorbing certain amino acids. Excessive amounts of acids are excreted in the urine causing stone formation.

TREATMENT	Large amounts of fluid (water) and alkaline solutions (sodium citrate) are recommended.
DRUG TREATMENT	Daily prescribed medication is necessary, usually for life.

## TUMORS OF THE URINARY SYSTEM

### ■ KIDNEY OR URETER TUMORS

There are several varieties of kidney and ureter cancer. They all present with the same signs and symptoms, eg, blood in the urine, flank pain, abdominal mass, weight loss, fatigue, and fever.

**Renal Cell Carcinoma** This is the most common cancer of the kidneys. It begins in the cells that line the tubules. The most common age of diagnosis is between 50 and 60 years of age. It is more common in men. Smokers, (including pipes or cigars) are at greater risk than are nonsmokers. The disease can be found in entire family groups.

**Transitional Cell Carcinoma** These tumors occur in the kidney or ureter and account for about 10 percent of all kidney cancers. They may be associated with the abuse of analgesic drugs, such as phenacetin. It typically affects middle-aged women.

**Wilms' Tumor** Children with cancer of the kidney usually have Wilms' tumor. It accounts for 95 percent of kidney cancer in children up to age 14. The tumor usually has no symptoms and is found on a routine physical examination. The diagnosis is generally good if the disease has not spread.

#### SURGICAL TREATMENT

Removal of the entire kidney, and occasionally the surrounding lymph nodes, is necessary. Radiation therapy is sometimes used after surgery to prevent the spread of the cancer; however, radiation is ineffective in renal cell carcinoma.

### ■ BLADDER CANCER

Men are three times more likely to get bladder cancer than women and rarely occurs in those under 40 years of age. The disease is more prevalent among smokers and those who work in the dye, chemical, and rubber industries. If the cancer is discovered early, it is treatable with some risk of recurrence.

#### SURGICAL TREATMENT

Superficial bladder cancer is removed through a cystoscope, with follow up cystoscopies every three to six months to detect any recurrence. If the disease has spread, the bladder may be removed. In men, the prostate gland is also removed. Women with advanced cancer usually undergo removal of the uterus, ovaries, and a portion of the vagina.

Removal of the bladder makes it necessary to create an opening in the abdominal wall to drain the urine into a pouch worn against the abdomen. This is called an ileal conduit procedure. The new bladder is attached inside the body near the navel. Sometimes the conduit is sewn back to the urethra and constructed in such a way as to maintain continence. Radiation and chemotherapy may also be used.

## PROSTATE CANCER (SEE CANCER AND REPRODUCTIVE CHAPTERS)

### SYSTEMIC DISORDERS

Diabetes, high blood pressure, sickle cell disease, lupus erythematosus, and a sexually transmitted disease all affect the function of the kidneys. The treatment is to control the primary disease, which decreases the complications of kidney disease.

**Blood Vessel Disorders** Blood enters the kidney from the renal artery, a major branch of the aorta (heart). Disorders of either the renal artery or the renal vein can affect the way the kidneys function and can be a cause of hypertension (high blood pressure).

**Acute Arterial Occlusion** This is a blockage of the renal artery and may occur after an injury to the abdomen. It occasionally occurs in people known to have heart disease (primary mitral stenosis) or atrial fibrillation. There is no specific treatment and the affected kidney may cease to function. If this happens, the other kidney can take over the process of eliminating wastes. If it occurs in a person with only one kidney, renal failure may occur.

**Renal Artery Stenosis** This is a blockage of the renal artery before it enters the kidney. The result of this is hypertension. Renal artery stenosis causes one to two percent of all cases of hypertension. In the elderly, the condition is often caused by atherosclerotic disease. The condition can sometimes be treated surgically with a vascular graft or by passing a catheter into the renal artery and inflating a balloon to open the artery (angioplasty).

**Renal Vein Thrombosis** In this condition, a blood clot (thrombus) develops in the vein leaving the kidney. It may occur after a significant trauma to the abdomen or back. It may also be the result of a tumor blocking the blood flow of the renal vein. Occasionally, it is seen in nephrotic syndrome.

## URINARY INCONTINENCE

Incontinence is the involuntary loss of urine. With the aging population, incontinence is increasing. The bladder outlet consists of the urethra and the pelvic floor muscles surrounding the urethra. When the bladder contracts, it allows the urine to empty. When the bladder outlet contracts, it prevents urine from passing. To prevent urine from leaking, the bladder outlet maintains a high pressure as the bladder is filling and also at times of stress (bending, coughing). Any time the bladder's contraction exceeds those of the bladder outlet, urine leaks. The following are types of incontinence:

- ◆ **Stress incontinence** is urine loss that occurs when the pressure of the bladder outlet is exceeded. Coughing, sneezing, bending, and lifting can cause this type of incontinence.
- ◆ **Urge incontinence** is linked with having a strong and uncontrolled urge to instantly urinate.
- ◆ **Spontaneous incontinence** involves urine loss for no identifiable reason. There is no sense of urgency or specific activity associated to the leak.
- ◆ **Enuresis (bed wetting)** is common in children, but tends to resolve with age. When enuresis occurs in an adult, there is generally some neurological problem causing the loss of bladder control.

## CONTROLLING INCONTINENCE

**Keep a bladder diary** For a week, write down what you eat, what you drink, when you go to the bathroom, how often you leak, and what you are doing at the time of the leak (sneezing, exercising, having sex, lifting, etc.). This may help you or your physician find a cause.

**Diet** Avoid caffeine.

**Bladder training** Go to the bathroom on a regular schedule — whether or not there is a need to urinate. Gradually increase the interval to three or four hours.

**Pelvic floor exercises** Certain exercises for women can improve the voluntary muscles of the pelvic floor and are not harmful. These exercises can be obtained from a physician (urologist or obstetrician).

**Surgery** In women, surgery to correct a sagging or weak pelvic floor is helpful in stress incontinence. In older men, surgery for an aging prostate that is causing obstruction is helpful.

**Medications** Drugs are available to improve urinary control. Some drugs relax the bladder muscles (used in urge incontinence). Drugs are also available for men to shrink prostate enlargement.

**Estrogen** In women, hormonal replacement therapy is useful for age-related incontinence.

**Collagen implants** In women, collagen is injected to support the urethra. This is performed only for a prolapse of the bladder neck that is causing the incontinence.

**Weight loss** If overweight, losing weight is very effective in reducing the amount of intra-abdominal pressure on the bladder.

**Healthy habits** If you are a smoker, quit smoking; get treatment for chronic respiratory conditions; avoid heavy lifting if stress incontinence is a problem; avoid constipation through a healthy diet and avoid straining during bowel movements.

**Devices** Technical assistant devices are being developed that empty the bladder on command, using off and on switches that are manually triggered with a magnet. Occasionally, a catheter is used to drain through the urethra or bladder and requires wearing a bag for a reservoir.

## LIFESTYLE TIPS FOR A HEALTHY URINARY TRACT



### DRINK PLENTY OF WATER

Water plays an important role in the healthy functioning of the urinary tract. Fluids, particularly water, allow emptying of the bladder every three to four hours during the day. At least half of the fluids taken each day should be noncarbonated water (carbonation can worsen some urinary conditions). The amount of water in the body helps the urinary system determine if more electrolytes (eg, sodium) should be retained or excreted. For example, when the concentration of electrolytes is too high, the body releases a hormone that causes water retention and stimulates the feeling of thirst. The kidney then gets rid of the excess electrolytes and water through the urine. The urinary tract is usually sterile, but by washing out the system with adequate water, harmful bacteria can also be washed out.



### NUTRITIONAL BALANCE

This is important to supply the electrolytes and minerals for proper function. Cranberry juice may be helpful (particularly in older women) to help prevent recurrent urinary tract infections. Vitamin C and hippuric acid help decrease the growth of bacteria. If a person has an “irritable bladder,” coffee, tea, carbonated beverages, and acidic or spicy foods should be eliminated from the diet.



### DON'T OVERDO PAIN MEDICATIONS

Nonsteroidal anti-inflammatory drugs (NSAID) such as Motrin, Advil, etc., have been implicated with kidney problems if used excessively or over a long period of time.



### MAINTAIN GOOD HYGIENE



In women, the urethra is very close to the vagina and fairly close to the rectum. Infections can be passed from one of these openings to the other. Simply wiping from front to back will help prevent contamination. Good hygiene after intercourse is also helpful because bacteria from the vagina can enter the urethra. Cleansing the genital area and urinating after intercourse helps to flush bacteria out of the bladder and urethra before they can build up and cause an infection.



### DO NOT SMOKE TOBACCO

This increases the risk of arteriosclerosis of the vessels of the kidneys.

## WHAT TO DO

SEVERITY LEVEL	SYMPTOM	POSSIBLE DIAGNOSIS
 <p>Seek Medical Help Immediately!</p>	<p>High blood press, loss of weight, vomiting, headache, decreased urine, fatigue, decreased mental acuity, muscle twitching and cramps, gastrointestinal bleeding, , yellowish brown cast to skin, itching</p>	<p>Kidney failure</p>
 <p>Make an appointment to see your doctor</p>	<p>Frequent and urgent urination, burning with urination, blood in urine</p> <p>Flank pain, high fever with chills, vomiting, burning urination frequent urination</p> <p>Blood in urine, high blood pressure, fever, retention of fluids, swelling</p> <p>Recent infection, dark colored urine, high blood pressure, fluid retention</p> <p>Blood in urine, hypertension, fatigue, itching, nausea and vomiting, gradual kidney failure</p> <p>Sudden or gradual development of pain in flank that increases enough for pain medication, pain moves down to groin, persistent urge to urinate, blood in urine</p> <p>Bladder infection, blood in urine, interruption of urine stream, inability to urinate</p> <p>Fluid retention, gastrointestinal tract signs of bleeding, seizures, coma</p> <p>Flank pain, blood in urine, excessive urination, hypertension</p>	<p>Bladder infection</p> <p>Acute pyelonephritis</p> <p>Acute interstitial nephritis</p> <p>Acute glomerulonephritis</p> <p>Chronic glomerulonephritis</p> <p>Kidney stones</p> <p>Bladder stones</p> <p>Various kidney disease</p> <p>Polycystic kidney disease</p>