

# Cancer Association of South Africa (CANSA)



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## Nutritional Guidelines for Individuals Living with an Urostomy

### Introduction

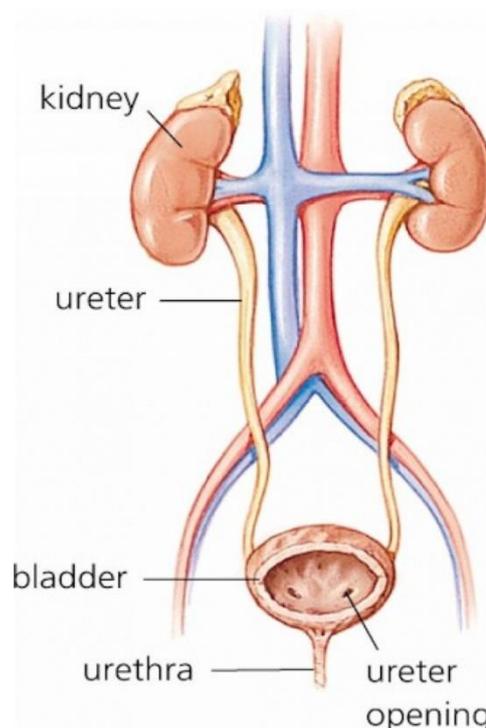
The urinary system, also known as the renal system, produces, stores, and eliminates urine - the fluid waste excreted by the kidneys. The kidneys make urine by filtering wastes and extra water from the blood. Urine travels from the kidneys through two thin tubes called ureters and fills the bladder. When the bladder is full, a person urinates through the urethra to eliminate the waste.

[Picture Credit: Urinary System]

The urinary system is susceptible to a variety of infections and other problems, including blockages, injuries and diseases like cancer. These can be treated by a urologist or another health care professional who specialises in the renal system.

The urinary system works with the lungs, skin and intestines to maintain the balance of chemicals and water in the body. Adults eliminate about 800 to 2,000 millilitres per day based on typical daily fluid intake of 2 litres. Other factors in urinary system function include fluid lost through perspiring and breathing. In addition, certain types of medications, such as diuretics that are sometimes used to treat high blood pressure, can also affect the amount of urine a person produces and eliminates. Some beverages, such as coffee and alcohol, can also cause increased urination in some people.

The primary organs of the urinary system are the kidneys, which are bean-shaped organs that are located just below the rib cage in the middle of the back. The kidneys remove urea - waste product formed by the breakdown of proteins - from the blood through small filtering units called nephrons. Each nephron consists of a ball formed of small blood capillaries, called a glomerulus, and a small tube called a renal tubule. Urea, together with water and other waste substances, forms the urine as it passes through the nephrons and down the renal tubules of the kidney.



From the kidneys, urine travels down two thin tubes, called ureters, to the bladder. The ureters are about 20 to 25cm long.

Muscles in the ureter walls continuously tighten and relax to force urine away from the kidneys. A backup of urine can cause a kidney infection. Small amounts of urine are emptied into the bladder from the ureters about every 10 to 15 seconds.

The bladder is a hollow, balloon-shaped organ that is located in the pelvis. It is held in place by ligaments attached to other organs and the pelvic bones. The bladder stores urine until the brain signals the bladder that the person is ready to empty it. A normal, healthy bladder can hold up to almost half a litre of urine comfortably for two to five hours.

To prevent leakage, circular muscles called sphincters close tightly around the opening of the bladder into the urethra, the tube that allows urine to pass outside the body. The only difference between the female and male urinary system is the length of the urethra. In females, the urethra is about 3.5cm to 5.1cm long and sits between the clitoris and the vagina. In males, it runs the length of the penis, and is about 20cm long and opens at the end of the penis. The male urethra is used to eliminate urine as well as semen during ejaculation.

(LiveScience).

### **Urinary Diversion**

Urinary diversion is a surgical procedure that reroutes the normal flow of urine out of the body when urine flow is blocked.

Urine flow may be blocked because of:

- an enlarged prostate
- injury to the urethra
- birth defects of the urinary tract
- kidney, ureter, or bladder stones
- tumours of the genitourinary tract - which includes the urinary tract and reproductive organs - or adjacent tissues and organs
- conditions causing external pressure to the urethra or one or both ureters

Bladder removal or a malfunctioning bladder may also cause blocked urine flow. When urine cannot flow out of the body, it can accumulate in the bladder, ureters, and kidneys. As a result, body wastes and extra water do not empty from the body, potentially resulting in pain, urinary tract infections, kidney failure, or, if left untreated, death. Urinary diversion can be temporary or permanent, depending on the reason for the procedure.

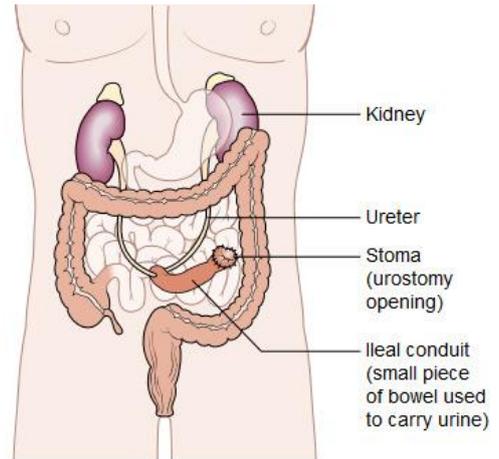
(National Institute of Diabetes and Digestive and Kidney Diseases).

### **Urostomy**

An urostomy is a surgical procedure that creates a stoma (artificial opening) for the urinary system. An urostomy is made to avail for urinary diversion in cases where drainage of urine through the bladder and urethra is not possible, e.g. after extensive surgery or in case of obstruction.

Techniques include an ileal conduit urinary diversion, in which the ureters are surgically resected from the bladder and an ureteroenteric anastomosis is made in order to drain the urine into a detached section of ileum (a part of the small intestine). The end of the ileum is then brought out through an opening (a stoma) in the abdominal wall. The urine is collected through a bag that attaches on the outside of the body over the stoma.

[Picture Credit: Urostomy]



Urostomy is most commonly performed after cystectomy (surgical removal of the bladder), such as may be necessary in, for example, bladder cancer. Other indications include severe kidney disease, accidental damage or injury to the urinary tract, surgical complications because of non-related pelvic or abdominal surgery, congenital defects that cause urine to back up into the kidneys, or urinary incontinence. (Clinimed; Wikipedia).

## Maintaining One's Physiology

### Urine pH Balance

Urine pH is defined as the fluid's degree of acidity or alkalinity. When the food one eats is burned in the body, it yields a mineral residue called "ash". This ash can be either acidic or basic (alkaline) depending on whether the food that is 'burned' contains mostly acidic or basic ions. Most fruits and vegetables actually give an alkalinised ash and tend to alkaline the urine. Meats and cereals will usually produce an acidic ash.

Acid Ash Foods	Alkaline Ash Foods	Neutral Foods
Most meats Breads & cereals Cheese Corn Crackers Cranberries Eggs Macaroni Nuts Pasta Rice Prunes Plums Fish Poultry	Milk Bananas Beans Beets Greens Spinach Most fruits (including citrus fruit) Most vegetables	Butter Coffee Cream Honey Salad oils Syrups Tapioca Tea

Unless otherwise indicated, the urine should be maintained in an acid state. To maintain an acid urine state, increase daily fluid intake. Drink cranberry juice in place of orange juice or other citrus juices which tend to make the urine more alkaline, take Vitamin C daily (if approved by one's doctor) and try to eat an acid ash diet.

### Fluid and Electrolyte Balance

Electrolytes are ionic mineral solutions that transmit electricity. Electrolyte balance refers to the combined levels of the different electrolytes found in the blood. The balance of these ions in one's body is key to regulate fluid amounts, blood acidity, muscle and nerve health, and all functions from oxygen distribution to fluid delivery to cells. Essentially, electrolytes are the chemicals needed to keep one's body working.

The following are of importance in maintaining fluid and electrolyte balance:

Problem	Symptoms	Treatment
Dehydration	Increased thirst, dry mouth, dry skin, nausea, decreased urine output, fatigue, shortness of breath, headaches, dry eyes and abdominal cramping.	Increase fluids (any type – high in potassium & sodium). Increase daily intake of fluids. All liquid counts: milk, juices, and water. Abstain from sugary drinks. They may result in osmotic diarrhoea and weight gain.
Sodium Depletion	Loss of appetite, drowsiness, headaches, feelings of faintness, particularly when standing, cold sensation in arms and/or legs, leg cramps, lethargy.	Increase intake of foods and beverages high in sodium, such as any regular soup.
Potassium Depletion	Fatigue, muscle weakness, gas, bloating, shortness of breath, decreased sensation in arms and legs, confusion, irritability, fatigue, chronic diarrhoea.	Increase intake of foods high in potassium, such as orange juice, and bananas.

### Foods high in Potassium



Black-Eyed Peas



Bouillon



Fish



Pinto Beans



Bananas



Chicken



Oranges



Raisins



Tomato or Vegetable Soup



Veal



Watermelon



Yogurt

### Foods High in Sodium



Broth



Buttermilk



Canned Soups



Canned Vegetables



Cheese



Soy Sauce



Table Salt



Tomato Juice



Pickles



Commercially Prepared Foods

Individuals that have undergone ostomy diversion surgery including colostomy, ileostomy and urostomy are more inclined to suffer electrolyte deficiencies. Especially those with an ileostomy or an urostomy, need to watch for persistent diarrhoea, vomiting, sweating, nausea and high fever. Ostomy patients' diets must ensure proper intake of fluids and foods containing potassium and sodium. The latter ingredient is important, but it does not require major efforts to acquire as it is present in most foods. As a note of caution, if dizziness or signs of dehydration appear, immediately drink an electrolyte beverage. Use sports drinks only as a boost. Electrolyte drinks may be made at home with water, salt, salt substitute for potassium, and baking soda.

(United Ostomy Association of America; StomaBags).

## **Diet**

Dietary advice:

- Eat plenty of fruits and vegetables
- Eat starchy foods (choosing wholegrain varieties most often)
- Drink/eat milk and dairy foods (choose lower-fat varieties when possible)
- Eat other sources of protein for healing such as lean meats (including fish, chicken and turkey), eggs, nuts and nut butters (if tolerated), beans and whole soy foods (tofu and tempeh)
- Eat a small amount of foods high in fat and sugar
- Drink plenty of water. One's water needs depend on many things, including one's health, how active one is and where one lives. All fluids count toward the daily total
- If one is a diabetic and blood sugar is not well managed, work with the primary care Physician or a Registered Dietitian on strategies to improve blood sugar control
- Return to normal eating habits as soon as possible. A healthy, well-balanced diet promotes healing and health
- Prevent constipation

After surgery, patients frequently experience constipation (when bowel movements are less frequent than usual or stools are so firm that they are difficult to pass). Constipation can be caused by chemotherapy, narcotic pain medications, the things one eats and drinks and lack of physical activity. Make sure to let the Doctor or Registered Dietician know if constipation becomes a problem.

- Stay hydrated
- Drink prune juice or eat prunes
- Eat whole wheat/whole grain bread
- Eat rolled or steel-cut oatmeal
- Eat bran cereals
- Eat a variety of fruits and vegetables
- Drink sufficient fluids every day
- Walk to stimulate bowel activity.

(University of Michigan Medicine).

## **Medical Disclaimer**

These Nutritional Guidelines are intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in these Guidelines. So far as permissible by law, the Cancer Association of South Africa (CANSA) does not accept any liability to any person (or his/her dependants/estate/heirs) relating to the use of any information contained in these Guidelines.

Whilst CANSA has taken every precaution in compiling these Guidelines, neither it, nor any contributor(s) to these Guidelines can be held responsible for any action (or the lack thereof) taken by any person or organisation wherever they shall be based, as a result, direct or otherwise, of information contained in, or accessed through, these Guidelines.

## **ADDITIONAL SUPPORT**

For individualised nutritional advice, consult a Registered Dietitian in your area by visiting:  
<http://www.adsa.org.za/Public/FindARegisteredDietitian.aspx>

## Sources and References

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### **StomaBags**

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### **United Ostomy Association of America**

Ostomy Nutrition Guide. [www.ostomy.org](http://www.ostomy.org) • [info@ostomy.org](mailto:info@ostomy.org)

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### **Urinary System**

<http://humananatomylesson.com/excretory-system-of-human/>

### **Urostomy**

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### **Wikipedia**

<https://en.wikipedia.org/wiki/Urostomy>