

## How to Prevent Kidney Failure Part 1

Written by U.S Immigration News  
Thursday, 06 January 2011 21:15 -

---

Happy New Year to all our readers, may you prosper in health this year in Jesus name, Amen.



The body has two kidneys located just below the ribs in the mid back on either side. The kidneys are the waste eliminating organs in the body. They remove materials that are breakdown of various processes in the tissues and from food. They are highly active organs that filter about two hundred quarts of blood per day just to get rid of two quarts of waste. The waste is eliminated via the urine. If the wastes are not removed from the body, they can accumulate and become toxic to body cells. Apart from eliminating waste, the kidney also ensures that salts useful to the body are returned without being lost in urine. Hence the kidney helps us to get rid of bad products that can damage body cells while preventing the good salts from being wasted in urine. This makes it easy to understand the consequences of kidney failure: toxic substances accumulate, good salts are lost and excess water is retained in the body.

Each kidney is made up of about a million of small super coiled units called nephrons, basked in a rich supply of blood vessels. The exchanges occur via filtration in and out of the nephrons. Water follows the movement of salts. Different portions of the kidney permit certain substances to pass through, while preventing some others from going through.

### Functions of the kidney:

#### Waste removal

## How to Prevent Kidney Failure Part 1

Written by U.S Immigration News  
Thursday, 06 January 2011 21:15 -

---

Hormonal functions, which are the production of:

Erythropoetin, which acts on the bone marrow to produce red blood cells

Renin, which along with other hormones affect Blood pressure

Active form of Vitamin D (calcitriol) that maintains bone health via calcium regulation

It's also the active site of the hormone vasopressin or antidiuretic hormone which is involved with water balance in the body.

### Types of Renal Failure

**Acute:** This occurs in people who otherwise had a good kidney function, but an acute infection, illness or injury to the kidney takes place. Most times the kidneys recover.

**Chronic:** It occurs in people who have underlying diseases that either directly involve the kidney as part of the disease process or affect the kidney as complication.

## How to Prevent Kidney Failure Part 1

Written by U.S Immigration News  
Thursday, 06 January 2011 21:15 -

---

Chronic renal failure will be addressed in the second part of this article.

### What causes Acute Renal failure?

To understand causes of renal failure, it is better to think the following way:

- Problems occurring before getting to the kidney (Pre renal causes) which mainly relates to blood supply to the kidney
- Problems within the kidney (Renal causes), which directly affect the structure and ability of the kidney to function.
- Problems occurring after urine leaves the kidney (post renal causes), preventing proper elimination of waste, would be a main obstruction to the adequate flow of urine.

#### Prerenal causes (before the kidney causes)

Decrease blood supply: You would recall that the kidney gets to filter about two hundred quarts of blood on a daily basis. Significant decreases in this blood supply will affect how much the kidney can filter.

Sudden heavy blood loss: Injury, bleeding from the intestinal tract, pregnancy related bleeding

Dehydration: Loss from vomiting and diarrhea, decreased water intake

Medication induced water loss: Water pills (diuretics)

## How to Prevent Kidney Failure Part 1

Written by U.S Immigration News  
Thursday, 06 January 2011 21:15 -

---

Obstruction to renal vessels: From blood clots

Low blood pressure (Hypotension): Shock from overwhelming infection (sepsis), blood loss

### Renal Causes (within the kidney causes)

Obstruction to fine capillary networks within the kidney: From cholesterol plaques, clogging from abnormally shaped cells like in sickle cell disease

Sepsis: Overwhelming infection leads to stimulation of the immune system causing inflammation that directly damages the kidney

Immune mediated injury to fine capillary network (glomeruli- glomerulonephritis): Occurs in diseases like Systemic Lupus Erythematosus

Toxic injury: From heavy metals, cocaine, and alcohol

Medications: Allergic reactions to certain medications can cause damage in the spaces between the nephron and glomeruli (interstitial nephritis). Antibiotics like gentamicin and streptomycin are examples. Analgesics (pain killers) also damage the kidney when used in excessive amounts like Tylenol so called analgesic nephropathy. Even moderate uses in people with underlying disease of Non Steroidal Anti Inflammatory drugs like ibuprofen, Aleve, and naproxen.

Iodine based contrast used in radiological tests can also cause kidney damage in certain individuals.

## **How to Prevent Kidney Failure Part 1**

Written by U.S Immigration News  
Thursday, 06 January 2011 21:15 -

---

**Rhabdomyolysis:** Muscle breakdown produces myoglobin. When a lot of muscle is broken down and myoglobin accumulates it damages the renal tubules.

**Multiple Myeloma:** Produces abnormal proteins that damage the kidneys.

### **Post Renal Causes (beyond the kidney causes)**

Obstruction to outflow tract either at the level of the urethra or bladder will cause a back up of urine. Obstruction can occur from stones, tumors. In men enlarged prostate can cause obstruction at the final outlet in the urethral.

### **How does Acute Kidney failure present?**

Understanding the functions of the kidney makes it easier to know the symptoms:

**Failure to make enough urine:** Decreased urine output, may be absent with obstruction if it is complete, rarely does it remain the same.

**Symptoms associated with failure to clear waste products:**

## How to Prevent Kidney Failure Part 1

Written by U.S Immigration News  
Thursday, 06 January 2011 21:15 -

---

### Tiredness

Urea the major waste in urine builds up causing depression of functions of the brain – confusion, change in mental status and lately unconscious state (coma).

Potassium accumulates (hyperkalemia): Which can affect the heart causing abnormality in rate and rhythm (arrhythmias), fatal ones can cause death

Acids from breakdown products accumulate leading to acidosis, which affects breathing and mental functions.

Nausea and vomiting is common

Fluid overload: Leads to swelling of ankles, fluid in the lungs (pleural effusion), and heart failure

Symptoms of the underlying cause of acute renal failure will also be present.

Hormonal dysfunction: This takes time to develop so the symptoms are more likely with chronic renal failure

Diagnosis, treatment and prevention will be addressed in Part 2 of the article.

## How to Prevent Kidney Failure Part 1

Written by U.S Immigration News  
Thursday, 06 January 2011 21:15 -

---

### Take Home Message

Acute renal failure can kill so if you have any complaints about urine output do not delay. Seek immediate attention.

Don't abuse painkillers. It can damage the kidney!