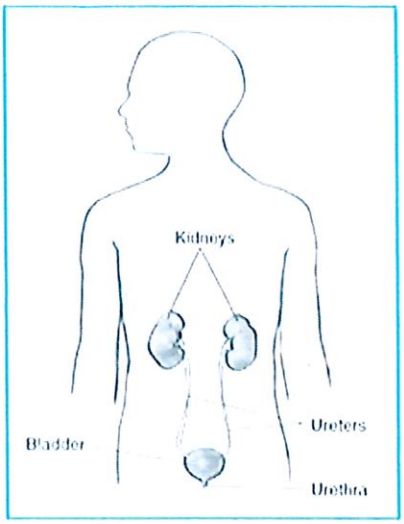
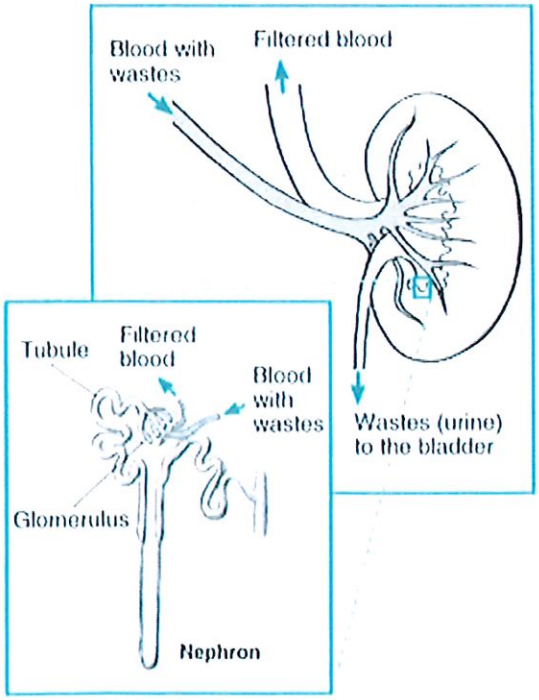
What do the kidneys do?



1. Prevent the buildup of wastes and extra fluid in the body
2. Keep levels of electrolytes stable, such as sodium, potassium and phosphorous
3. Make hormones that help regulate blood pressure, make red blood cells, and help the bones to stay strong



This is a picture of a kidney. The kidney contains multiple small filters called nephrons. When the nephron functions properly, it filters your blood allowing fluid & waste products to be made into urine. Other things such as electrolytes also pass through the nephron. A healthy nephron keeps your electrolytes balanced by deciding what to return to the blood stream and what to dispose of in your urine.

What is kidney disease?

Kidney disease is the decreased ability of your kidneys to perform their normal functions.

What causes kidney disease?

Kidney disease can be chronic or acute. Conditions that cause chronic kidney disease include diabetes, high blood pressure, congenital abnormalities (problems you are born with like polycystic kidneys), poor heart function, chronic NSAID use and autoimmune disorders. A family history also increases your chances of having chronic kidney disease. Some people may experience a sudden illness or emergent situation that causes their kidney disease and they do not recover. Kidney disease is progressive. This means that it worsens over time.

How do we determine the progression of kidney disease?

Your kidney doctor monitors your condition and lab work to determine the progression of your disease. The measurement used to determine this is the glomerular filtration rate or GFR. A normal GFR is greater than 90mL/minute. Patients in stage 4 kidney disease have a GFR of 15-29mL/minute. Those in stage 5 kidney disease have a GFR of less than 15mL/minute and are considered to be in kidney failure. At stage 5, the kidneys are no longer able to perform their functions and either dialysis or kidney transplant is required to maintain your health. Your doctor will begin discussing your options for treatment of end stage renal disease when you reach stage 4 kidney disease.

Stages of Kidney Disease

STAGE	DESCRIPTION	Glomerular Filtration Rate (GFR)
1	Kidney damage (e.g., protein in the urine)with normal GFR	90 or above
2	Kidney damage with mild decrease in GFR	60-89
3A	Kidney Damage with mild to moderate decrease in GFR	45-59
3B	Kidney Damage with moderate to severe decrease in GFR	30-44
4	Kidney Damage with severe reduction in GFR	15-29
5	Kidney Failure	Less than 15 (or dialysis)

**Kidney damage = abnormal labs or urine analysis or abnormal imaging of the kidneys.

Physical signs of stage 4 and stage 5 kidney disease are listed below:

Stage 4	Stage 5 (Stage 4 symptoms plus the following)
Feeling tired	Headaches
Swelling	Itching
Shortness of breath	Decreased or no urine output
Changes in the color or amount of urine : orange, brown, tea colored, foamy	Changes in skin color, increased pigmentation
Kidney pain	
Muscle cramps or restless legs	
Nausea and vomiting	
Decreased appetite	
Metallic taste in the mouth	
Decreased concentration	
Numbness and tingling in fingers or toes	

Is there treatment available for Kidney disease?

Yes, you can be treated for kidney disease. Your doctor may ask you to follow a special diet and take new medications to treat conditions related to kidney disease (anemia, bone mineral abnormalities, high blood pressure etc). In addition, once your kidneys can no longer remove wastes and fluids from your blood at a rate fast enough to keep you healthy you will need to make a decision about beginning dialysis, receiving a kidney transplant, or medically managing your kidney disease.