

Kidney Diseases

What Tests are used to Diagnose Kidney Disease?

How are serum creatinine levels used?

Creatinine is a chemical produced by normal muscle metabolism, which occurs at a constant rate in adults. Creatinine is removed from the body by the kidneys (it is eliminated in the urine). The serum creatinine level is an indication of the number of functioning units (called nephrons) in the kidney. With a normal number of functioning units (about 1 million), the amount produced is eliminated. That is called 'in balance.' If you lose functioning kidney tissue, the serum level of creatinine will rise proportionally to the rate at which the nephron units are going down. For example, if you have kidney disease that would compromise half of your kidney function, the serum creatinine level would double.

The normal level of creatinine depends on a person's muscle mass. Therefore, a professional male weight lifter will have a normal serum level of creatinine much greater than a small woman with a desk job. A serum creatinine of 1.5 mg/dl would be normal for the weight lifter, but could be almost twice the normal level for the woman. In a small woman a serum creatinine of 1.5 mg/dl could indicate as much as a 40-50% reduction in kidney function.

The concentration of creatinine in the urine reflects your state of hydration. If you drink a minimal amount of liquid each day, urine creatinine levels would be very high (possibly around 350 mg/dl). If you drink quite a lot of fluid, the concentration of creatinine might be as low as 20 mg/dl.

What does protein in the urine mean?

The filtering units of the kidney normally do not permit large molecules like proteins to go through them. The kidneys excrete

protein in the urine when the membranes of the filtering system have larger holes in them than normal. The same concept applies to blood cells appearing in the urine.

What is BUN?

Blood Urea Nitrogen, or BUN, is another common indicator of kidney function.

How are kidney biopsies performed?

There are two major ways that kidney biopsies are performed. One is using a special needle that is designed to take a small piece of tissue. The patient is sedated and the procedure is done using fluoroscopy. It takes about 30 minutes. The other method uses an open surgical approach and is done in the operating room. The patient is anaesthetized and the incision is made parallel to and just below the last rib. This requires more time and the use of the operating room staff.