

[Print this page](#)[Close this window](#)

Medical Encyclopedia: Creatinine - serum

URL of this page: <http://www.nlm.nih.gov/medlineplus/ency/article/003475.htm>

Alternative names

Serum creatinine

Definition

Creatinine is a breakdown product of creatine, which is an important part of muscle. A serum creatinine test measures the amount of creatinine in the blood.

How the test is performed

Blood is drawn from a vein, usually from the inside of the elbow or the back of the hand. The puncture site is cleaned with antiseptic. An elastic band is placed around the upper arm to apply pressure and cause the vein to swell with blood.

A needle is inserted into the vein, and the blood is collected in an air-tight vial or a syringe. During the procedure, the band is removed to restore circulation. Once the blood has been collected, the needle is removed, and the puncture site is covered to stop any bleeding.

For an infant or young child:

The area is cleansed with antiseptic and punctured with a sharp needle or a lancet. The blood may be collected in a pipette (small glass tube), on a slide, onto a test strip, or into a small container. A bandage may be applied to the puncture site if there is any bleeding.

How to prepare for the test

The health care provider may tell you to stop taking certain drugs that may affect the test.

How the test will feel

When the needle is inserted to draw blood, some people feel moderate pain, while others feel only a prick or stinging sensation. Afterward, there may be some throbbing.

Why the test is performed

The test is performed to evaluate kidney function. If kidney function is abnormal, creatinine levels will increase in the blood, due to decreased excretion of creatinine in the urine. Creatinine levels also vary according to a person's size and muscle mass.

Normal Values

A normal (usual) value is 0.8 to 1.4 mg/dl. Normal value ranges may vary slightly among different laboratories.

Females have a lower creatinine than males, because they have less muscle mass.

Note: mg/dl = milligrams per deciliter

What abnormal results mean

For abnormal results, the following applies:

Higher-than-normal levels may indicate:

- Acute tubular necrosis
- Dehydration
- Diabetic nephropathy
- Eclampsia (a condition of pregnancy that includes seizures)
- Glomerulonephritis
- Muscular dystrophy
- Pre-eclampsia (pregnancy-induced hypertension)
- Pyelonephritis
- Reduced renal blood flow (shock, congestive heart failure)
- Renal failure
- Rhabdomyolysis
- Urinary tract obstruction

Lower-than-normal levels may indicate:

- Muscular dystrophy (late stage)
- Myasthenia gravis

Additional conditions under which the test may be performed:

- Acute nephritic syndrome
- Alport syndrome
- Atheroembolic renal disease
- Chronic renal failure
- Complicated UTI (pyelonephritis)
- Cushing's syndrome
- Dementia due to metabolic causes
- Dermatomyositis
- Digitalis toxicity
- Ectopic Cushing's syndrome
- End-stage renal disease
- Epilepsy
- Generalized tonic-clonic seizure
- Goodpasture's syndrome
- Hemolytic-uremic syndrome (HUS)
- Hepatorenal syndrome
- Interstitial nephritis
- Lupus nephritis
- Malignant hypertension (arteriolar nephrosclerosis)

- Medullary cystic disease
- Membranoproliferative GN I
- Membranoproliferative GN II
- Type 2 diabetes
- Polymyositis (adult)
- Prerenal azotemia
- Primary amyloid
- Rapidly progressive (crescentic) glomerulonephritis
- Secondary systemic amyloid
- Thrombotic thrombocytopenic purpura
- Wilms' tumor

What the risks are

- Excessive bleeding
- Fainting or feeling light-headed
- Hematoma (blood accumulating under the skin)
- Infection (a slight risk any time the skin is broken)
- Multiple punctures to locate veins

Why is the test performed:

A measurement of the serum creatinine level is used to evaluate kidney function.

Creatinine is a breakdown product of creatine, which is an important component of muscle. Creatinine can be converted to the ATP molecule, which is a high-energy source. The daily production of creatine and subsequently creatinine, depends on muscle mass, which fluctuates very little.

Creatinine is excreted from the body entirely by the kidneys. With normal renal excretory function, the serum creatinine level should remain constant and normal.

Special considerations

Drugs that can increase creatinine measurements include aminoglycosides (for example, gentamicin), Bactrim, cimetidine, heavy metal chemotherapeutic agents (for example, Cisplatin), and nephrotoxic drugs -- such as cephalosporins (for example, cefoxitin).

Update Date: 2/3/2006

Updated by: Charles Silberberg, DO, Private Practice specializing in Nephrology, Affiliated with New York Medical College, Division of Nephrology, Valhalla, NY. Review provided by VeriMed Healthcare Network.



A.D.A.M., Inc. is accredited by URAC, also known as the American Accreditation HealthCare Commission (www.urac.org). URAC's [accreditation program](#) is the first of its kind, requiring compliance with 53 standards of quality and accountability, verified by independent audit. A.D.A.M. is among the first to achieve this important distinction for online health information and services. Learn more about A.D.A.M.'s [editorial process](#). A.D.A.M. is also a founding member of Hi-Ethics (www.hiethics.com) and subscribes to the principles of the Health on the Net Foundation (www.hon.ch).

The information provided should not be used during any medical emergency or for the diagnosis or treatment of any medical condition. A licensed physician should be consulted for diagnosis and treatment of any and all medical conditions. Call 911 for all medical emergencies. Adam makes no representation or warranty regarding the accuracy, reliability, completeness, currentness, or timeliness of the content, text or graphics. Links to other sites are provided for information only -- they do not constitute endorsements of those other sites. Copyright 2005, A.D.A.M., Inc. Any duplication or distribution of the information contained herein is strictly prohibited.