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Creatine phosphokinase test

Creatine phosphokinase (CPK) is an enzyme in the body. It is found mainly in the heart, brain, and skeletal muscle. This article discusses the test to measure the amount of CPK in the blood.

How the Test is Performed

A blood sample is needed. This may be taken from a vein. The procedure is called a venipuncture.

This test may be repeated over 2 or 3 days if you are a patient in the hospital.

How to Prepare for the Test

No special preparation is needed most of the time.

Tell your health care provider about any medicines you are taking.

Drugs that can increase CPK measurements include the following:

- Alcohol
- Amphotericin B
- Certain anesthetics
- Cocaine
- Fibrate drugs
- Statins
- Steroids, such as dexamethasone

This list is not all-inclusive.

How the Test will Feel

You may feel slight pain when the needle is inserted to draw blood. Some people feel only a prick or stinging sensation. Afterward, there may be some throbbing.

Why the Test is Performed

When the total CPK level is very high, it most often means there has been injury or stress to muscle tissue, the heart, or the brain.

Muscle tissue injury is most likely. When a muscle is damaged, CPK leaks into the bloodstream. Finding which specific form of CPK is high helps determine which tissue has been damaged.

This test may be used to:

- Diagnose heart attack
- Evaluate cause of chest pain
- Determine if or how badly a muscle is damaged
- Detect dermatomyositis, polymyositis, and other muscle diseases
- Tell the difference between malignant hyperthermia and postoperative infection

The pattern and timing of a rise or fall in CPK levels can be significant in making a diagnosis. This is particularly true if a heart attack is suspected.

In most cases other tests are used instead of or with this test to diagnose a heart attack.

Normal Results

Total CPK normal values:

- 10 to 120 micrograms per liter (mcg/L)

Normal value ranges may vary slightly among different laboratories. Some labs use different measurements or test different samples. Talk to your provider about the meaning of your specific test results.

What Abnormal Results Mean

High CPK levels may be seen in people who have:

- Brain injury or stroke
- Convulsions
- Delirium tremens
- Dermatomyositis or polymyositis
- Electric shock
- Heart attack
- Inflammation of the heart muscle (myocarditis)
- Lung tissue death (pulmonary infarction)
- Muscular dystrophies
- Myopathy

- Rhabdomyolysis
- Trauma

Other conditions that may give positive test results include:

- Hypothyroidism
- Hyperthyroidism
- Pericarditis following a heart attack

Risks

Risks associated with having blood drawn are slight but may include:

- Excessive bleeding
- Fainting or feeling lightheaded
- Hematoma (blood accumulating under the skin)
- Infection (a slight risk any time the skin is broken)

Considerations

Other tests should be done to find the exact location of muscle damage.

Factors that may affect test results include cardiac catheterization, intramuscular injections, trauma to muscles, recent surgery, and heavy exercise.

Alternative Names

CPK test

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