

CREATINE KINASE, CK

1. Brief description

Creatine phosphokinase is an enzyme that catalyses creatine phosphorylation into creatinine and ATP.

Creatine phosphokinase consists of isoenzymes CKBB – predominantly located in the brain, CK-MB – in the myocardium and CK-MM – in the skeletal muscle. Muscle and nerve tissue damage results in the release of creatine kinase, and its amount in the blood increases. It is used for diagnosing skeletal muscle, heart and nerve cells (cord) damage.

2. Method – Kinetic reaction.

3. Tube labelling, blood storage time, testing material

- Labelling – red or yellow tube (without anticoagulant);
- Blood storage time:
 - At room temperature (+15° – +25° C); serum – two days;
 - In a refrigerator (+2° – +8° C); serum – seven days;
- Testing material – serum.

4. Referenced values

Newborns (up to 2 days)	< 712 U/l
Newborns (from day 2 to 6)	< 652 U/l
Infants (from 6 to 7 months)	< 295 U/l
Infants (from 7 to 12 months)	< 203 U/l
Children (from 1 to 4 years)	< 228 U/l
Children (from 4 to 7 years)	< 149 U/l
Girls (from 7 to 13 years)	< 154 U/l
Boys (from 7 to 13 years)	< 247 U/l
Girls (from 13 to 18 years)	< 123 U/l
Boys (from 13 to 18 years)	< 270 U/l
Women	< 170 U/l
Men	< 190 U/l

5. Influencing factors

↑ Ethanol, haloperidol, clofibrate, colchicine, clonidine, labetalol, lidocaine, barbiturate poisoning.

Haemolysis.

6. Deviations from the norm

↑ Mechanical muscle damage (surgery, trauma).

Necrosis or atrophy of skeletal muscles (poliomyelitis, amyotrophic lateral sclerosis, muscular dystrophy, dermatomyositis, myasthenia gravis, alcoholism). Muscle

physical overload, intramuscular injections.

Myocardial infarction (an enzyme can be detected between 4 and 6 hours after infarction (returns to normal after 72 hours).

Trichinella.

Hypothyroidism.

Myocarditis, heart failure, pulmonary artery embolism, stroke.

Brain damage.

Malignant hyperthermia, tetany.

↓ Indicates low muscle mass or lifestyle.

Sleep concentration drops by 20%.