# Classical Homocystinuria

## What is Classical Homocystinuria?

It is one of the amino acids disorders due to the deficiency in one of the enzymes that are involved in the catabolism of homocysteine and methionine. This enzyme is called Cystathionine beta-synthase. This leads to the accumulation of homocysteine, methionine and other harmful substances in the blood and urine. This disorder takes its name from the high amounts of homocysteine in the urine.

## What causes the disease?

Mutations in *CBS* genes are a potential cause of the Cystathionine beta-synthase enzyme deficiency.

## What are the clinical features of the disease?

The affected babies are usually normal at birth, however, they present symptoms at childhood with skeletal abnormalities mainly Marfanoid" habitus by having long arms, legs, and fingers. They often have scoliosis, osteoporosis and joint contractures. They develop eye problems such as nearsightedness and dislocation of the lens. Furthermore, they have haematological abnormalities with a higher chance to develop blood clots. Several patients had first presentations as ischemic stroke and heart disease due to thrombophilia, which can be life-threatening. Significant percentage of patients has developmental delay and behavioral abnormalities.

## How is the diagnosis confirmed?

The diagnosis of classical homocystinuria is confirmed by finding specific plasma aminoacids profile and elevated total homocysteine levels. DNA molecular testing of *CBS* gene as well as enzymatic studies may help also in confirming the diagnosis.

## What is the treatment of the disease?

A low methionine diet, special metabolic formula, vitamin B12, Btaine, vitamin B6, vitamin C, aspirin and folic acid are often recommended in children with classical homocystinuria.
A Biochemical genetics specialist and a Metabolic Genetics dietitian should coordinate the treatment.