

# Homocysteine

*This information is provided for informational purposes only and is not intended to diagnosis, treat, cure, or prevent disease. Abnormal test values falling outside the Normal Range will be printed in bold and noted in the "Flag" column. Abnormal values should be reviewed by your primary physician and a copy of all testing should be included in your medical record for future reference and comparison.*

Homocysteine is an amino acid normally found in the blood that is produced as your body digests and breaks down protein. However, high homocysteine concentrations can damage the lining of blood vessels, making them susceptible to plaque build-up and eventual blockage. Treatment with folic acid, vitamin B6, and vitamin B12 supplements can be effective in lowering homocysteine and reducing the risk of vascular disease.

Homocysteine is an amino acid produced as a normal byproduct of the breakdown of methionine, which is an essential amino acid acquired mostly from eating meat. Moderate levels of homocysteine are helpful for the growth and maintenance of healthy tissue. However, excess homocysteine levels have been shown to correlate closely to various vascular (blood vessel) damage and heart disease. With a proper nutritional balance, though, homocysteine is either converted back into methionine (an essential amino acid) or into simple amino acids (cysteine and cystathionine) that are easily flushed from the body via the urine.

This conversion of homocysteine cannot occur unless the body has enough of three B-vitamins: vitamin B-6, vitamin B-12 and folic acid (the synthetic and more easily absorbed version of folate). Without these B-vitamins, homocysteine levels will rise. In fact, about 95 percent of patients with folic acid and vitamin B-12 deficiencies have elevated homocysteine levels.

Healthy stress management has also been associated with lower homocysteine levels, which may explain the cardiovascular benefits observed from meditation.

Abnormally elevated levels are associated with early onset atherosclerosis, and have also been shown to increase with age. Homocysteine appears to be associated with thickening, narrowing and scarring along the inside of the walls of the arteries, as well as higher LDL ("bad") cholesterol levels and the formation of blood clots.