Independent Risk Factors of Cardiovascular Disease

Achieving Healthy Homocysteine Levels

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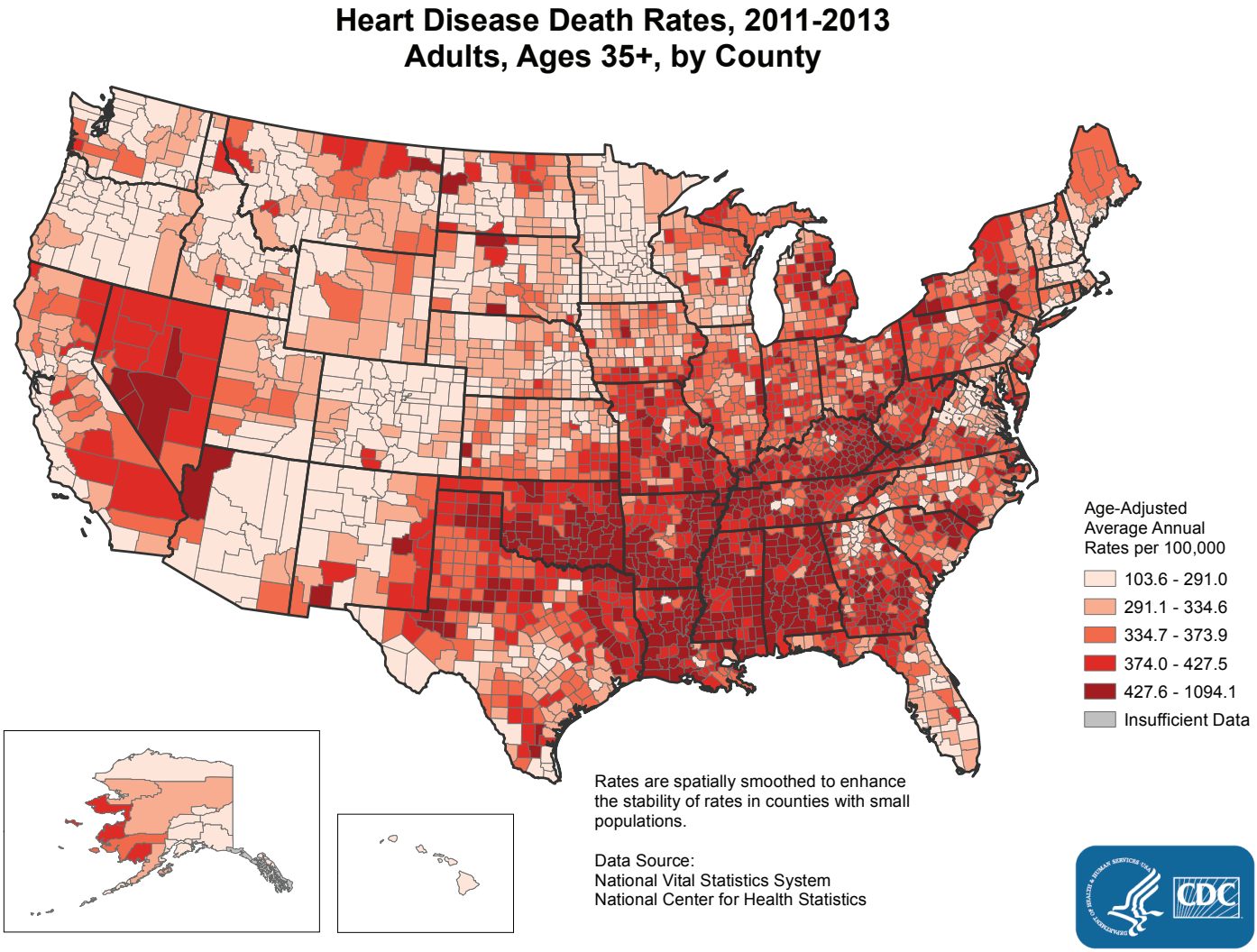
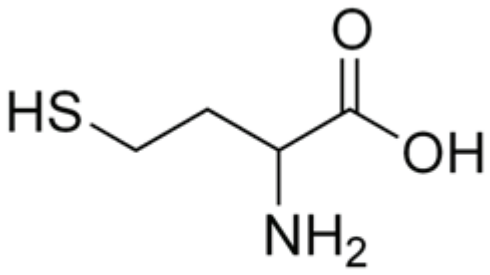


In 2014, Nearly 28 million Americans were diagnosed with heart disease (CDC, 2015).

Heart disease is the number one cause of death in the United States, killing more people than cancer, infectious diseases, and homicides combined (CDC, 2015).

A growing body of scientific research has found that an elevated level of an amino acid called homocysteine is associated with an increased risk of heart disease (Guba, 1996). Heart disease can come in many forms. A common indication of cardiovascular disease is the accumulation of atheroslerotic plaque. As plaques build, they eventually form atheromas, which can distort the artery wall and allow for calcification. When an atheroma blocks blood to the heart, it results in a heart attack. When blood flow to the brain is blocked by an atheroma, it is a stroke. Homocysteine is thought to initiate these events by causing irritation to the inner lining of the arteries and veins. High levels of homocysteine can also impair blood vessels' ability to dilate, which can result in high blood pressure.



Homocysteine

Every 39 seconds an adult dies from heart attack, stroke or other cardiovascular disease

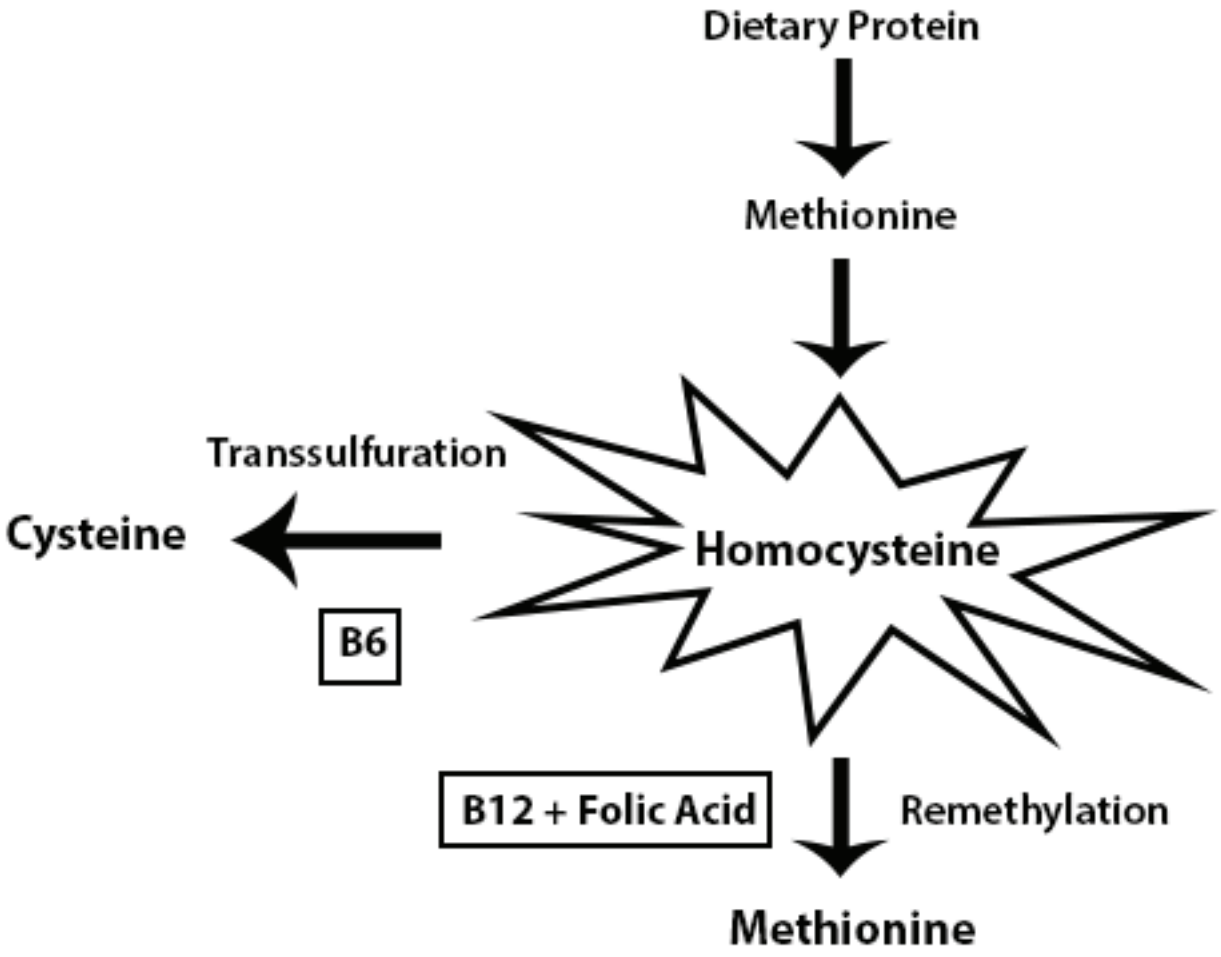
Nearly 68 million people suffer from high blood pressure

71 million US adults have high cholesterol

What is Homocysteine?

Homocysteine is introduced into the blood as a byproduct of the process which breaks down specific amino acids that are consumed as a part of our normal diet. Specifically, it is produced as a byproduct of the metabolism of methionine. Methionine is regular part of most people's diets as it is found in meat protein. Under normal metabolic conditions, homocysteine is removed from the circulatory system by recycling back to methionine through remethylation, or, it is converted to the amino acid cysteine in a reaction known as transsulforation (Guba, 1996).

Genetic or dietary factors can interfere with these metabolic processes. Disruption of this metabolism can also occur as the result of aging. In either case, inhibition of this metabolism will result in increasing levels of homocysteine, building up to toxic levels.



Dangers of High Homocysteine

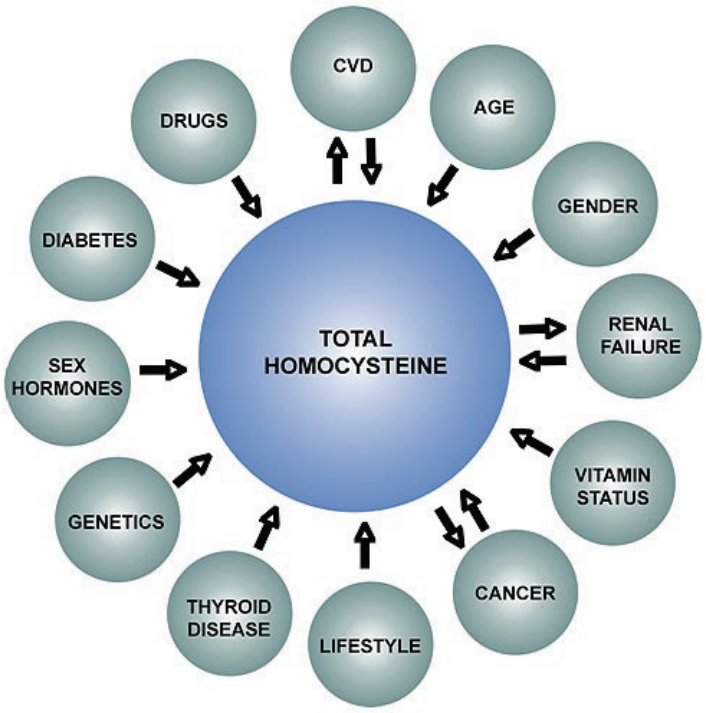
Homocysteine has been found to be an independent risk factor for nearly all forms of cardiovascular disease such as stroke, arterial thrombosis, aretiosclerosis and more.

The Physicians' Health Study was started in 1982 to test the benefits of aspirin in the prevention of cardiovascular disease (Stampfer, 1992). The participants, 22,071 male physicians between the ages of 40 and 84, were studied until 1995. During this time, many publications have used the data gathered to discover new medical conclusions about cardiovascular disease. One such conclusion involved measuring homocysteine levels in samples from 271 subjects who subsequently developed a myocardial infarction (heart attack) and paired control subjects. The results found that moderately high levels of plasma homocysteine are associated with an increased risk of myocardial infarction independent of other coronary risk factors.

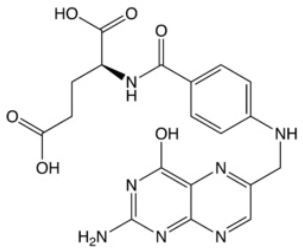
A study published in 1995 observed the difference of total homocysteine among individuals who developed coronary heart disease compared with those who did not (Arnesen, 1995). The data found that levels of homocysteine were significantly higher in the cases that developed coronary heart disease.

In 2000 data of adult males and females was analyzed to evaluate the association between serum homocysteine concentration and self-report of heart attack or stroke (Morris, 2000). After adjusting for specific variables such as age and medications, it was concluded that past events were reported 2.4 times as often by men and 2.6 times as often by women with homocysteine concentration over 12 umol/L compared to those with lower levels.

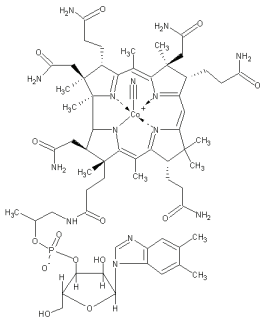
Millions of dollars are spent annually on drugs designed to reduce the risk of cardiovascular disease. However, for many people this life threatening problem could be reduced by nutrients that naturally lower homocysteine.



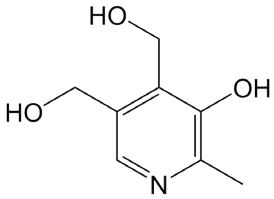
Lower Homocysteine Naturally



Folic Acid



B12



B6

Folic Acid, also referred to as folate, is an extremely important nutrient. This water-soluble B vitamin was first isolated in 1946 from spinach leaves. Because it occurs in high concentrations in green, leafy vegetables it was given a name derived from the Latin word folium, which means leaf or foliage. It is also found in chard, kale, asparagus and broccoli.

In men and women, folic acid is important in preventing cardiovascular disease ("Homocysteine Reduction," 2016). This is related to the role folic acid plays in the metabolism of homocysteine. Folic acid is essential in the remethylation process which converts homocysteine back to methionine.

Vitamin B12 is essential for normal multiplication of cells (especially red blood cells), needed for a healthy nervous system, proper metabolism and stress fighter. Increased energy enables one to properly utilize fats, carbohydrates and proteins. It relieves irritability and improves concentration, memory and balance.

Vitamin B12 is also associated to homocysteine levels ("Homocysteine Reduction," 2016). Research has shown a correlation between low levels of B12 and high homocysteine. When Vitamin B12 is supplemented, homocysteine levels decrease.

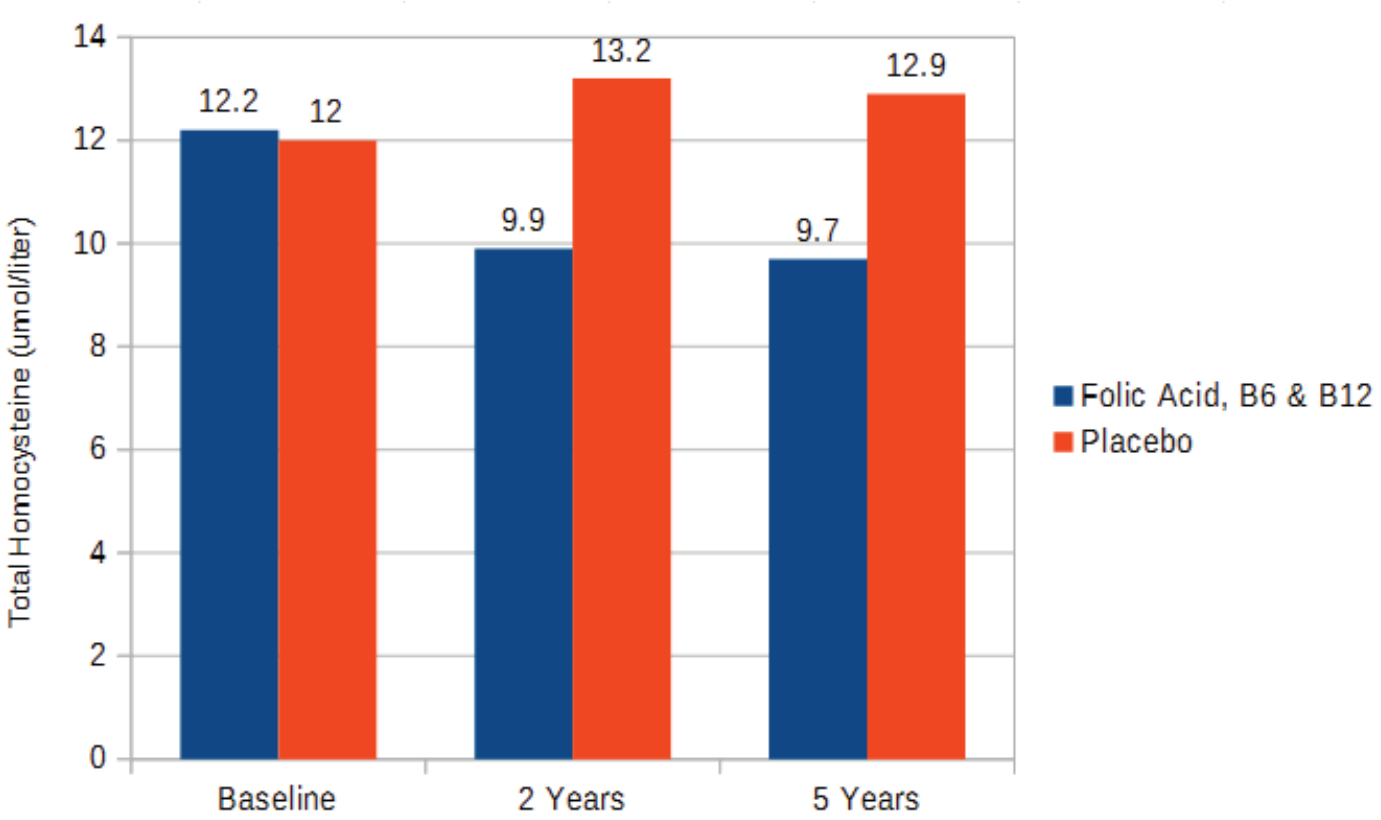
Vitamin B6 is a water soluble vitamin and functions as a coenzyme, essential in the breakdown and utilization of carbohydrates, fats and proteins. The need for B6 is directly related to protein intake. As the need for protein increases, the need for B6 increases.

Vitamin B6 is needed for the conversion of homocysteine to the harmless chemical, cysteine, thus preventing the homocysteine-induced oxidation of cholesterol ("Homocysteine Reduction," 2016). It has also been suggested that vitamin B6 inhibits the platelet aggregation which occurs in atherosclerosis. The typical American diet, however, leaves many people significantly deficient in this vital nutrient. Birth Control pills deplete vitamin B6 and raise levels of homocysteine. Subsequently, a rise in heart disease in women coincides with the use of birth control pills. Cigarette smoking can also deplete Vitamin B6 and is a known risk factor for heart disease.

The combination of B6, B12, and Folic Acid has been shown in multiple studies to aid in lowering homocysteine levels. A study published in the New England Journal of Medicine compared homocysteine levels before and after treatment with this combination, compared to a placebo, in populations with comparable baseline homocysteine levels (HOPE-2, 2006). The results found that patients using the aforementioned combination of B6, B12, and Folic Acid saw mean plasma homocysteine levels significantly decrease, whereas the placebo group saw an increase of 0.1mg per liter.

A second study published in 2002 found that treatment of B6, B12, and Folic Acid significantly decreases the incidence of adverse cardiovascular events, compared to placebo (Schnyder, 2002).

The Hordaland Homocysteine Study followed a population of over 7,000 men and women over a period of 5-7 years (Refsum, 2006). This extensive study concluded that there was a direct relationship between levels of B6, B12, and Folic Acid and reduced homocysteine levels. The study further demonstrated that an increased level of homocysteine reflects an increase in cardiovascular risk.



Rodex Forte T.D.

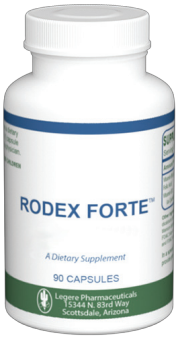
Vitamins B6, B12 and folic acid play a strong role in lowering the levels of homocysteine, however the standard western diet in combination with other genetic or age-related factors have left many deficient in these essential nutrients.

Legere Pharmaceuticals' **Rodex Forte** is a pharmaceutical grade and therapeutically dosed form of essential vitamins B6, B12, and Folic Acid. Rodex Forte was designed specifically for healthcare professionals interested in attaining therapeutic levels of these essential vitamins.

Each capsule contains:

Vitamin B6	150 mg
Vitamin B12	200 mcg
Folic Acid	800 mcg

Pharmaceutical Grade and Therapeutically Dosed



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