Do You Pass the Asparagus Test?

Posted by Gregg Marsh Wednesday, 7 April 2010 Labels: Exercises for fat loss, homocystinuria, methylation

If your urine has a pungent smell after eating Asparagus, then this is a sure sign that you are a poor Methylator and have possible mutations in the MTHFR gene.
What is the normal function of the MTHFR gene?
(Info taken from http://ghr.nlm.nih.gov/)

The MTHFR gene provides instructions for making an enzyme called methylenetetrahydrofolate reductase. This enzyme plays a role in processing amino acids, the building blocks of proteins. Methylenetetrahydrofolate reductase is important for a chemical reaction involving forms of the vitamin folate (also called folic acid or vitamin B9). Specifically, this enzyme converts 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate. This reaction is required for the multistep process that converts the amino acid homocysteine to another amino acid, methionine. The body uses methionine to make proteins and other important compounds.

How are changes in the MTHFR gene related to health conditions?

Homocystinuria - caused by mutations in the MTHFR gene.

Homocystinuria is an inherited disorder in which the body is unable to process certain building blocks of proteins (amino acids) properly. The most common form of the condition is caused by the lack of an enzyme called cystathionine beta-synthase. This form of homocystinuria is characterized by dislocation of the lens in the eye, an increased risk of abnormal blood clots, and skeletal abnormalities. Problems with development and learning are also evident in some cases.
Less common forms of homocystinuria are caused by a lack of other enzymes involved in processing amino acids. These disorders can cause intellectual disability, seizures, problems with movement, and a blood disorder called megaloblastic anemia.

At least 24 mutations in the MTHFR gene have been identified in people with homocystinuria. Most of these mutations change single amino acids in methylenetetrahydrofolate reductase. These substitutions disrupt the function of the enzyme, and may inactivate it completely. Other mutations lead to the production of an abnormally small, nonfunctional version of the enzyme. Without methylenetetrahydrofolate reductase, homocysteine cannot be converted to methionine. As a result, homocysteine builds up in the bloodstream and methionine is depleted. Some of the excess homocysteine is excreted in urine. Researchers have not determined how altered levels of homocysteine and methionine lead to the health problems associated with homocystinuria.
other disorders - increased risk from variations of the MTHFR gene
A specific version (variant) of the MTHFR gene may increase the risk of cardiovascular disease and certain kinds of birth defects. This variant is relatively common in many populations worldwide. It replaces the nucleotide cytosine with the nucleotide thymine at position 677 in the MTHFR gene (written as C677T). (Nucleotides are the building blocks of DNA.) This change in the MTHFR gene produces a form of methylenetetrahydrofolate reductase that has reduced activity at higher temperatures (thermolabile). People with the thermolabile form of the enzyme have increased levels of homocysteine in their blood.
The C677T variant has been associated with an increased risk of cardiovascular disease, including coronary heart disease and stroke, in adults. It may also play a role in the risk of high blood pressure in pregnancy (preeclampsia). Additionally, research suggests that the variant may be a risk factor for birth defects that occur during the

development of the brain and spinal cord (neural tube defects). Many factors, however, play a part in determining the risk of these complex disorders.