MTHFR Gene: The missing link for Depression, Fibromyalgia, IBS and more.

MTHFR is shorthand for a specific gene that codes for an enzyme called "Methyl Tetra Hydro Folate Reductase". The web of biochemical reactions in the body is dense and complex, but there are a few spots that are what I would call "bottlenecks" where a single "wrench" shuts down many "engines". This particular enzyme (MTHFR), is responsible for a process called "methylation". It is most well known for changing homocysteine into methionine. The MTHFR enzyme is also involved indirectly in the production of many neurotransmitters (serotonin, dopamine, norepinephrine, etc), as well as SAMe and glutathione (a pivotal anti-oxidant molecule involved in the body's natural detoxification process).
There are 31 currently known variations of this gene. The two most common are known as the 677 and the 1298 (which makes reference to the specific location on the gene where the abnormality is). These variants produce a MTHFR enzyme that is 30-60% less active than normal.
As with all genes, MTHFR comes in pairs. You get one from each parent (often the corresponding symptoms run in families). So it is possible to have:

- Two normally functioning genes
- One normal gene, and one gene that is a lower functioning variant
- Two genes that are the same low functioning variant
- Two genes that are different low functioning variants.

Having one or two of the lower functioning variants can contribute to symptoms of:

- Cardiovascular risks associated with high Homocysteine:
  - Cardiovascular disease, Atherosclerosis, Stroke, Deep Vein Thrombosis (clots)
- Folate deficiency related pregnancy and development problems
  - Still Births / miscarriage
  - Pre-Eclampsia
  - Neural tube defects (cleft lip, cleft palate, etc)
- Neurotransmitter issues
  - Depression / Anxiety
  - Insomnia
  - Dementia
  - Schizophrenia
  - Parkinson's
  - Addictions
- Significant decrease in ability to eliminate toxins, especially heavy metals
  - High oxidative stress in all body systems

    - Contributes to: immune disorders, allergies, autoimmune issues, fatigue, headaches, insomnia, mood issues, thyroid and menstrual disorders, kidney damage, neurological symptoms, cancer risk.
- Complex disorders that usually cascade from a combination of the issues above:
    - Fibromyalgia
    - Chronic Fatigue
    - Irritable Bowel Syndrome
    - Autism Spectrum Disorders
    - Peripheral Neuropathy
- Other Associated diseases (not caused by MTHFR, but significantly complicated by it)
    - Diabetes
        - Peripheral Neuropathy due to diabetes usually much more severe in patients with MTHFR deficiency
    - Lymphoma
    - Leiden Factor V

Testing requires a simple blood test, and is covered by most health insurance. The good news is that the enzyme deficiency is correctable using a special form of folate in very high doses (available by prescription). Many patients that have these less-than-optimal genes experience significant (and sometimes dramatic) improvement once beginning the "MTHF Repletion" protocol. The protocol is simple and affordable.

Here are some links about for MTHFR:
http://www.renewashoe.com/medical/
http://nwhealthcare.net/index.php?id=40
http://www.mindmeister.com/12694596