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MTHFR

MTHFR, short for Methylene tetrahydrofolate Reductase, is a very important *enzyme* in the body. It's necessary for methylation to occur, a metabolic process that switches genes on and off, repairs DNA and many other important things. Methylation is also essential to convert both folate and folic acid - each a form of Vitamin B9 - into its *active*, usable form called 5-MTHF. Without the enzyme activity of MTHFR, methylation of folate and folic acid cannot occur properly. Put simply, the MTHFR gene triggers the production of MTHFR enzymes.

Roughly 30-50% of us carry a mutation in the MTHFR gene, passed down from our parents. The two main functional mutations (also known as polymorphisms) of the gene are MTHFR C677T and MTHFR A1298C. Specifics aside, these genetic mutations are collectively known as MTHFR mutations. They can be like a "defect" which limits production of your MTHFR enzymes. **Most people with a mutation remain unaffected and do not experience symptoms.**

However, for some, enzyme efficiency can drop down to between 30-70% depending on the variant of mutation. Those with an MTHFR mutation are at risk for poor MTHFR enzyme efficiency. Consequently, folate and folic acid cannot be efficiently converted into their active form, known as 5-MTHF or L-methylfolate. Therefore, those nutrients can't perform one of their key functions: breaking down (recycling) Homocysteine. Elevated homocysteine levels in the blood is an independent risk factor for heart disease, stroke and other forms of cardiovascular disease. It has also been linked with a wide range of other health problems including macular degeneration, Alzheimer's disease, hearing loss, and cancer. A lack of active folic acid (alongside a low folate diet) can also lead to a Folate Deficiency, which has major health implications on its own. Therefore, those with a "bad" MTHFR mutation are at an increased risk for health problems if the issue is not addressed and their diet is not rich in folate. If you believe you may have an

MTHFR issue, there is no way to know for sure without getting tested. In saying that, there are some trending "MTHFR symptoms" among those with a defect that warrant an MTHFR test:

- **High homocysteine levels:** Caused by poor methylation. Those with potentially "severe" mutations should check homocysteine with their doctor.
- **Folate deficiency:** A deficiency in folic acid (folate) could be linked to MTHFR and is worth checking out. Common symptoms include extreme fatigue, light-headedness, and forgetfulness.
- **Had a miscarriage:** Many alternative practitioners recommend testing for MTHFR mutations if you have had one or more miscarriages.
- **Longstanding gastrointestinal issues:** Such as irritable bowel syndrome, but this is just a theory.
- **An autoimmune disease:** Such as fibromyalgia, although this is based more on anecdotes than solid science.
- **Long history of anxiety or depression:** Based more on anecdotes than solid science.

It's important to note that an MTHFR mutation itself is **not inherently dangerous...** but any form of genetic variance has the possibility to affect your health.

Active folic acid is highly protective against Neural Tube Defects. A conventional folic acid supplement is likely not protective of your child if it remains *inactivated* in your blood stream. That's why testing for and flagging an MTHFR mutation could be especially useful for women of childbearing age. A more conservative and thoughtful approach to folic acid supplementation is warranted for those with MTHFR issues. If you are planning to have a child, or less than 13 weeks after conception, **supplementing with L-methylfolate (5-MTHF) instead of folic acid is an recommended.**

If you would like to test for it, you must do a genetic test. Most service providers can mail the testing kit out to you, so it remains non-invasive and you don't have to go anywhere. Simply send back a saliva swab and await your results. The largest and most reliable companies are *23andMe* and [Ancestry.com](https://www.ancestry.com), who have millions of customers. These companies provide you with a huge amount of raw data and details about your ancestry. You can order your own kit from their websites or through Amazon. If instead you choose to use your own local lab, ensure they test for the MTHFR C677T and A1298C mutations, which are the main ones. Not all labs do so make sure you ask first.

The above info comes directly from www.dietAsdisease.org/category/genetics

What are some things I can do if I have the MTHFR gene mutation?

1. Limit ingestion of folic acid in fortified foods as you cannot process folic acid well.
2. Limit or cease taking supplements or drugs with folic acid in them.
3. Make sure you supplementing with essential nutrients, like methyl-B12, methyl-folate, TMG, N-acetylcysteine, riboflavin, curcumin, fish oil, Vitamins C, D, E, and probiotics. If you are double homozygous for MTHFR mutations, you should proceed very cautiously with methyl-B12 and methyl-folate supplementation as some people do not tolerate high doses. Introduce nutrients one by one and watching for any adverse reactions. Use extreme caution when supplementing with niacin, which can dampen methylation.
4. Avoid folic acid blocking drugs such as birth control or Methotrexate.
5. Avoid drugs which increase homocysteine such as Nitrous Oxide (most used in dentistry)
6. Avoid antacids as they block absorption of vitamin B12 and other nutrients
7. Begin understanding which of your symptoms may be related to the C677T MTHFR mutation.
8. Measure homocysteine levels - properly!
9. Inform your family members so they can also test for the MTHFR mutation
10. Find a doctor who is knowledgeable about MTHFR or is willing to learn
11. If you are pregnant, find an OB/GYN or midwife who is knowledgeable about MTHFR.
12. Eliminate Gluten from your diet - especially wheat.
13. Eliminate or reduce Dairy from your diet. If you must have dairy, use Goat milk.
14. Sauna or sweat somehow (Epsom salt baths, sports, yoga..) at least once to three times a week.
15. Limit intake of processed foods
16. Increase intake of whole foods and home-prepared meals
17. Eat hormone-free, grass-fed beef, organic pastured butter or ghee, and eggs from free-range, non-GMO fed chickens.

18. Eat the Rainbow of colors from fruits and vegetables - daily.
19. Get your daily intake of leafy_greens, like spinach, kale, swiss chard or arugula, which are loaded with natural levels of folate that your body can more easily process.
20. Castor Oil Packs over your abdomen daily during times of pain, soreness, cramps

21. Vegetable/Fruit Juice Diet with Chia Seeds during times of pain, soreness, cramps
22. Limit intake of high methionine-containing foods if homocysteine elevated
23. Coffee Enemas during times of detoxification or pain
24. Filter chlorine from your drinking water, shower and bath.
25. Drink at least two liters of filtered water daily mixed with vitamin C and electrolytes.
26. Eat smaller, but more frequent meals, throughout the day with some form of protein.
27. Limit protein intake to approximately 0.7 grams protein per kilogram of body weight.
28. Remove mercury amalgams and root canals with a trained biological dentist
29. Avoid aluminum exposure in antiperspirants or cookware. Avoiding heavy metal or other toxic exposure is important.
30. Avoid cooking, drinking, storing and heating in any type of plastic container.
31. Use an air purifier in your home and office
32. Eliminate carpets from your home and install low VOC wood or tile flooring.
33. Cook with electric stove and oven and remove gas stove and oven.

Local/online resource: <http://mthfr.net>. Dr. Ben is a local ND specializing in MTHFR.