

MTHFR **MethylTetraHydroFolate Reductase Deficiency**

A video presentation is at <https://www.kadlec.org/location-directory/n/neurological-resource-center/resources/mthfr>

New approach to medical problems from the Human Genome project

The goal of the project was to identify genetic disorders that cause disease and then treat the cause--not just the symptoms. MTHFR is the first one to have an FDA reviewed treatment. There are two common variants that can be tested (677, 1298) but there are as many as 70+ variants. If both genes are defective, the pathway functions on about 10-15% at best.

Treatments reviewed by the FDA are:

Anxiety, Depression	Deplin
Memory Loss	Cerefolin
Diabetic neuropathy (nerve Pain)	Meta NX
High Risk Pregnancy	Neevo, Neevo DHA, Prenate Elite, Thorne

Other conditions treated by this pathway but have not gone through FDA review are: Fibromyalgia, Chronic Fatigue, Irritable Bowel, Migraines, Alzheimers, Chronic Pain, Bipolar, Schizophrenia, Parkinson's, as well as prevention of Congenital anomalies, and Down's Syndrome. Without treatment, people are more prone to viral infections because the Methylation process is critical in shutting off viral replication as in the pathway that clears heavy metals and other environmental toxins.

Who Benefits?

30% of the US population have both genes defective, 40% have one gene defective. 100% are exposed to environmental toxins that affect this pathway (e.g. BPA).

Effects of low Methylfolate

Low Serotonin, Dopamine, Norepinephrine (nerve communication)
Low Glutathione. Needed for toxin removal and Memory
Low Tetrahydrobiopterin. Critical in nerve protection, psychiatric problems

Things that aggravate the genetic disorder

- Heavy Metal load (fish, water, food) (mercury, lead, aluminum)
- Poor diet (highly processed foods)
- Medications (Glucophage, Birth Control, Levodopa)
- Other enzyme defects (B6 conversion, Methionine synthase and reductase)
- Other diseases (diabetes, Lymphoma, ulcerative colitis)

MEASURES THAT IMPROVE SYMPTOMS:

- Dietary, vegetables, berries, fruits (better if fresh) Berries have the active form of folic acid already
- Mathematics, Accounting, Piano, Classical music - Suppress the overactive areas of the Brain
- Exercise

Nutritional protocol for MTHFR (revised 1/2/2018)

Using the Human Genome information there are several of the B vitamins that require activation before they are useful to the body. By taking the active forms of these vitamins you are able to bypass metabolic glitches and compensate for genetic and environmental problems. This protocol is designed to help treat these problems with nutritional therapy. It is not designed to replace your medications; however, you may be able to, over time, decrease the medications that you require to manage these problems. ***The Supplements should be added one at a time rather than start them all at once. The larger font is for the things I usually start with. The common ones to start are numbered 1, 2 and 3 in that order.***

METHYL FOLATE (Prescription) (these are variations of the same vitamin)

There are two manufactures (Merck and Gnosis) Merck is the one that has been studied the longest.

1. Methylfolate. Three common well absorbed brands:

1. Deplin 7.5, 15 mg a day. Methylfolate tends to increase energy. Take up to 15 mg at a time. Taking ½ of the 15 mg in the am and ½ at noon helps with fatigue. Needs a prescription. About \$130-140/ 3mo with GOODRx coupon

2. Methyl-Life brand Methylfolate 15mg. It is available at Malley's pharmacy and Methyl-life.com. Usually is the least expensive at those two places. About \$76/ 3 months

3. EBM medical. Made by the same team that made the original Deplin. Needs a prescription. About \$140-150/3 mo (Doesnt have dyes or dairy)

Combination options

MetaNX 1-2 tablets/day Methylfolate (B9), Vit B6 (Pyridoxyl 5 Phosphate), Methyl B 12 Methylcobalamin. This works well 6 months to 1 year. In a small percent of the population the Vit B6 builds up and creates a tight band type headache. Great for nerve and surgical wound healing.

CerefolinNAC. One tablet a day. This is for Methylfolate, Methyl B12 and N-acetyl cysteine (NAC) that helps form Glutathione (which is important in memory and clearing toxins).

Neevo Prenatal, Prenate Elite, Thorne Prenatal These prenatals contain Methylfolate.

OVER THE COUNTER OPTIONS (most options are made by Gnosis which tends not to work as well as the Deplin or the Methyl-life)

Thorne Methylfolate (MTHF) 1mg, 5mg available at Malley's Pharmacy, Solgar Metafolin 400 and 800mcg. Available at Super Supplements

NEXT ITEM METHYL B 12

You may require additional supplementation to support this pathway.

2. Methyl B-12 5000mcg. Oral dissolving tablets every day (usually 1 but up to 4x/day) **Jarrow Brand** seems to be a well absorbed option

Methyl B12 oral drops This works well for infants and children. Available at Malley's Pharmacy

Methyl B-12 (15 or 25mg/ml). This is the most expensive but also the most effective 0.1-0.5ml sub-cutaneous injection every 1-3 days

The injection has to be compounded, needs a prescription and be refrigerated. Regular compounding pharmacies do not have the special equipment to do this. One pharmacy that does is

Hopewell Pharmacy NJ 800-792-6670.

Other supplements that help with this particular metabolic pathway include:

3. N Acetyl Cysteine 1000-1200 mg (2 capsules), Once a day. This helps make glutathione (which clears toxins) and helps with memory. It has also helps with addictions, ADHD, Bipolar, PTSD, OCD, Skin Picking Brands like Thorne, NOW and Pure work well

BH4 (tetrahydrobiopterin) Compounded at Malley's 509-943-9173. 1-2 capsules/day. Only a few studies are available, but helps with ADD/ADHD, fatigue and difficult to treat depression. Also has been helpful for intrusive thoughts (thoughts of hurting yourself)

Full Spectrum Minerals Mineral supplement. Take one a day. NOW brand and heavy Metal support are common ones that work well.

Vit B6 (Pyridoxyl 5 Phosphate or P5P), 25 mg This helps with healing. Important in Diabetics, This can cause drowsiness and can build up in some people and cause headaches that feel like a tight band. If it does take only part of the month.

Vitamin C 1,000-3000 mg up to 3 times a day. This helps with regenerating glutathione as well as helping to have 2-5 Bowel movements a day.

Epsom Salt bath Soak feet or body with ½ -1 cup of salts 2/3 times/week – The magnesium absorbs directly. It helps with improving the mineral balance. It also adds the sulfate that is critical in clearing toxins. It is not well absorbed orally.

DMG-Dimethylglycine. (another option in TMG) 100-250mg/day Start with one/day This adds methyl groups to the amino acid that your body uses.

Zinc 20 -50 mg/ day Especially important in eye sensitivity which is common.

Omega 3 (Flax seed or Fish oil that has mercury removed) 1-2 tablets per day *Some fish oil tablets don't have the mercury removed.* Helpful with brain/nerve healing.

Vitamin D 1000-5000IU/day

Silymarin (milk weed Thistle) 150 mg 1-2 tabs/day. Boosts glutathione.

Simple Detoxification options:

a. Zeolite. I start with 1 tsp twice a day. It is a volcanic rock that helps clear toxins (like activated charcoal).

b. Glutathione Options

a. Glutathione SR (Thorne pharmaceuticals). 1-2 tablets/day This may give symptoms as the toxins come out so it may be useful to do on a 3 days on, 4-11 days off. Available at Malley's Pharmacy (most glutathione preparations are destroyed by the stomach. This sustained relief product is well absorbed)

b. SafeCell from TessMed. Usually one capsule a day

c. Infrared Sauna. These have been studied and help with Heart failure, Pain, toxin removal.

There are many other detoxification protocols. These are very safe and cause very few side effects.