

CHALLENGES TO OUR HEALTH IN AN EMF-SATURATED WORLD

Assume that we have eaten as well as possible within our means, have exercised moderately and have avoided serious injury and excess stress. Assume there is no genetic block to normal detoxification or oxidative metabolism. We nevertheless face health challenges not known to prior generations. All living beings evolved without needing physiologic strategies for coping with heavy burdens of exogenous toxins. We have limited capacities to produce and recycle glutathione, the most important antioxidant, in our cells. We push our detoxification systems, including methylation -- which assists in the production of glutathione and many other critical functions -- to their limits with our chemical exposures. To this, we add EMF.

While we work to minimize our exposures to EMF sources, we can try to assist the detoxification and antioxidant functions within us.

★ **MTHFR AND EHS**

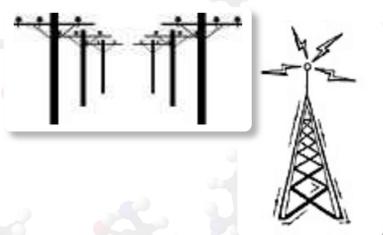
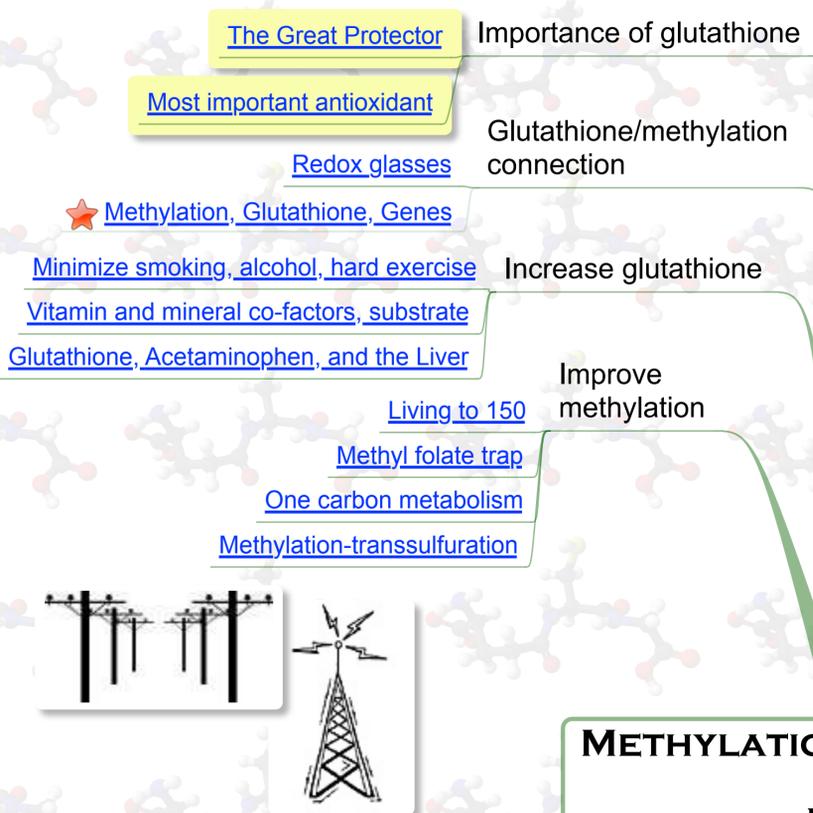
★ **DELIBERATE EMF EXPOSURE TO CREATE ANTIOX. RESPONSE**

RADIOFREQUENCY SICKNESS: TREATING METHYLATION MAY HELP

DNA METHYLATION INVOLVED WITH EPIGENETIC RESPONSE TO ENVIRONMENTAL STRESS

EMF:
 Alters sleep cycles, reducing hormonally mediated rest and repair
 Reduces melatonin release, which reduces glutathione production
 Promotes oxidation, which uses up antioxidants needed by tissues
 Decreases glutathione available to cells, increasing oxidative stress and cell damage
 Causes cells to alter signaling to increase cell proliferation and apoptosis
 Forces body to decide between methylating toxins or producing glutathione for redox
 When associated with methylation decrease, DNA is poorly repaired
 When associated with methylation decrease, glutathione synthesis is decreased

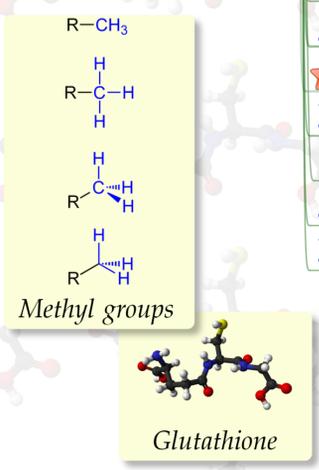
LESSONS:
 Health is determined more and more by ability to withstand insults
 Reduction of exposures is a key principle
 Eating well is required to provide glutathione substrate and methylation factors



METHYLATION, GLUTATHIONE AND EMF: LEARNING TO HELP OURSELVES

Hypothesis
 EMF, methylation cycle block
 Autism, SNPs, methylation disorders
 Deth: methylation, glutathione, oxidation, autism

Studies
 Redox, DNA, EMF
 ELF, strand breaks
 Review of early studies
 MF, DNA, chromosomal damage
 Oxidative stress, glutathione, RF
 Base station, reduced glutathione
 ELF, Oxidative stress, glutathione
 Mobile phone, sperm DNA damage
 ★ 50-Hz., aberrant DNA methylation
 ELF redox effects blunted by vitamin E
 ★ EMF, oxi. stress, neurodegeneration
 Antioxidants depleted by mobile phones
 ★ MW, oxi. stress, glutathione, seizures
 ELF-EMF, oxidative stress, DNA, apoptosis
 Oxidation, antioxidant status, mobile phones
 60 Hz, DNA double-strand breaks, apoptosis
 Mobile phone oxidative stress, propolis extract
 Gingko prevents mobile phone oxidative stress
 EMF, autism, methylation, glutathione, other factors
 ★ MW, detrimental methylation, estrogen receptors
 Vitamins E, C, protection against RF oxidative stress
 Mobile phone radiation-induced free rad. damage, NAC, EGCG
 Mobile phone oxidative stress, kidneys, melatonin, propolis extract
 Vitamin E, catalase, SOD beneficial against some MF cell proliferation



NUTRIENTS REQUIRED FOR ADEQUATE METHYLATION

Adenosyl B12
 Methylcobalamin
 Folic acid
 Pyridoxyl-5-phosphate (B6)
 S-Adenyl-Methionine (SAME)
 Trimethylglycine (TMG)

NUTRIENTS THAT INCREASE, PROTECT GLUTATHIONE

Amino acids
 l-Cysteine
 Methionine

Vitamins, co-factors
 Vitamin C
 Quercitin

Fatty acids
 DHA

Minerals
 Selenium

FOOD SOURCES OF GLUTATHIONE SUBSTRATE

Fruits
 Vegetables
 Avocados
 Walnuts
 Asparagus
 Whey
 Watermelon
 Grapefruit
 Potato
 Acorn squash
 Strawberries
 Orange
 Tomato
 Cantaloupe
 Okra
 Peaches
 Zucchini
 Spinach
 Cruciferous vegetables
 Brazil nuts

NEW MELATONIN CONNECTIONS

Melatonin, glutathione, aging
 Melatonin, glutathione, liver, kidneys
 Melatonin regulates glutathione system
 Melatonin's potent neuroprotective effect



Nutrition and EMF
 Overview article and list
 Take supplements before exposure

We cannot take glutathione as a supplement. The best we can do is help our bodies produce and recycle it and decrease the need for it.

Related maps
 Melatonin
 ★ Methylation
 EMF and Toxins
 Triage and Nutrition
 Free Radical Damage
 Rationale for Nutrition
 EMF and Mitochondria
 ★ Methylation Nutrients



Home: **Oscillatorium**
 Newest version **this map**
 Date of this update: 10-05-17

TESTING FOR GLUTATHIONE LEVELS, METHYLATION CAPACITY:

GLUTATHIONE LEVELS AND STATUS
 Serum GGT greater than AST, ALT
 Whole blood glutathione
 Genes such as GSTM1, GSTP1

METHYLATION
 Plasma homocysteine
 Urinary methyl-malonic acid
 Hormone profiles, methylation ratios
 Genomic profiles

REDOX STATUS
 Oxidative stress panels
 Urinary organic acid profile
 Urinary 8OHdG
 Urinary lipid peroxides