

ANTECEDENTS

Methylation occurs in every cell, all of the time

Epigenetic Methylation = the placement or the removal of methylation groups on different genes to allow for the gene expression to turn 'on' or 'off'

Genes in methylation pathways include MTHFR, MTRR, CBS

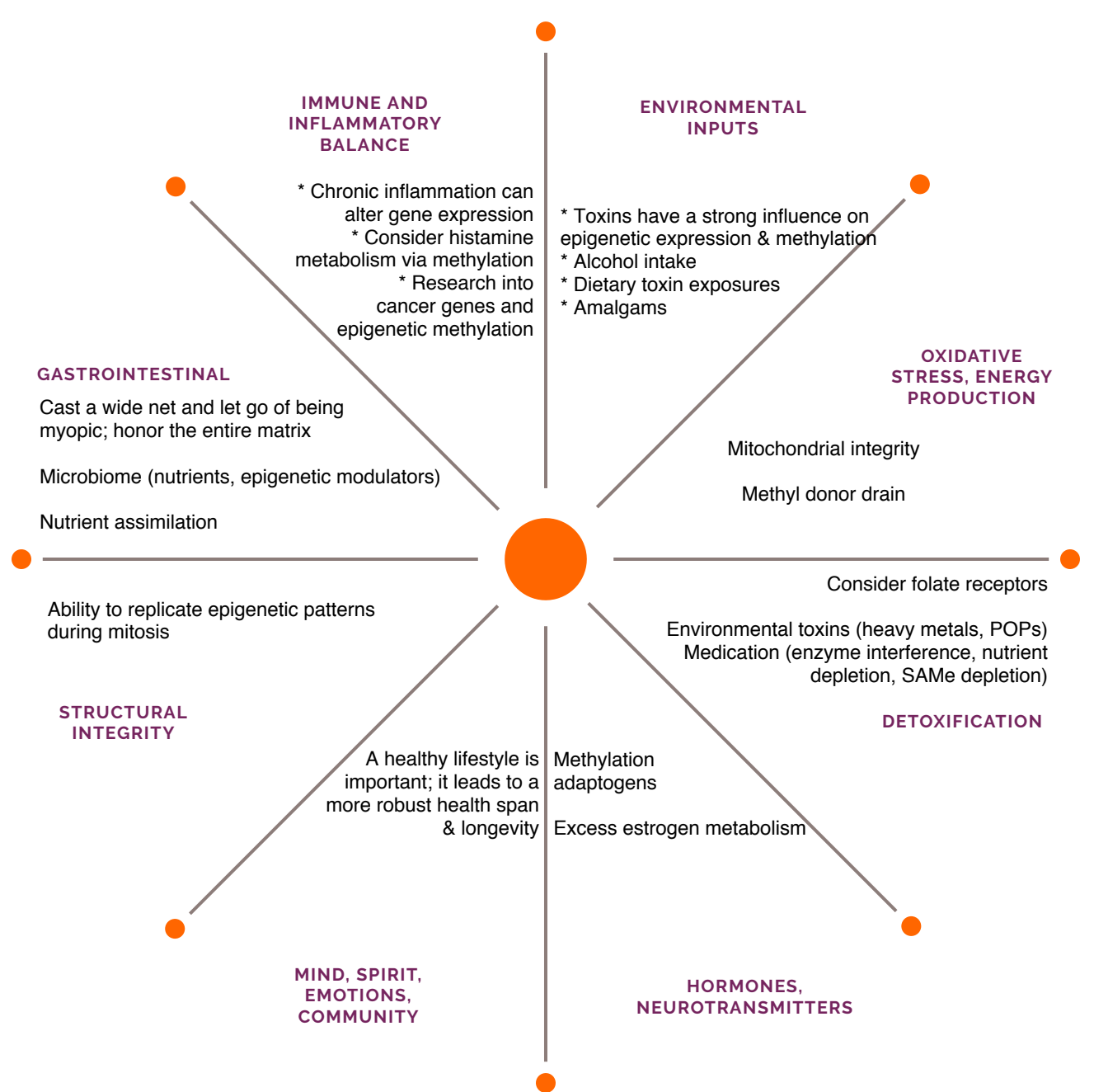
TRIGGERING EVENTS

- Life experiences alter methylation!
- gut health
 - nutrition deficiencies (esp at critical times of development)
 - exercise or lack of
 - stress
 - community, relationships
 - sleep
 - allergies
 - detox
 - medications
 - supplements
 - environmental toxins
 - methyl donor drain

MEDIATORS

- Continued exposures to trigger alters expression
- Imbalances in any areas of the matrix
- Methyl donor drain
- Creatine, choline, carnitine deficiencies
- + Niacin, selenium metabolism
- + Calorie restriction/IF

Note: even one night of poor sleep can change the epigenome expression!



Adapted from The Institute for Functional Medicine

www.functionalnutritionalliance.com

SLEEP/RELAXATION

- * Acute sleep deprivation = epigenetic alterations
- * Epigenetic clock expression

EXERCISE/MOVEMENT

- * Counters many negative methylation factors (stress, inflammation)
- * Protects aging epigenome
- * Epigenetic alterations in genes for energy metabolism, insulin

NUTRITION/HYDRATION

- * Methylation adaptogens = flavonoids that augment expression of the genes
- * Curcumin/turmeric
- Rosemary/rosmarinic acid
- Sulforaphane, Quercetin, EGCG, Resveratrol, DIM
- * Intermittent Fasting

STRESS/RESILIENCE

- * Methyl donor drain (COMT)
- * Early life stress 'primes' for later hyper-stress response
- * PTSD – DNA methylation dysregulation (including inflammation-related genes)

RELATIONSHIPS/NETWORKS

- * Cuddling babies (positive)

Nuanced relationship between methylation and epigenetics!