

## January 29, 2016 NYCNEN Meeting Notes for Janet Zarowitz Presentation

- **Janet Zarowitz, MS, RD, CDN**

*Nutrigenomics in the Patient Care Process:*

- *Nutrigenomics builds on nutrition science as we know it.*
  - *Figure out the puzzle*
- *Certain nutr supporting DNA replication*
- *Family History*
- *Mapping a person's DNA*
- *Nature v. nurture debate [they're more interrelated than strict interpretation of Darwinian genetics of inheritance suggests]*
  - *in utero*
  - *breast versus bottle feeding—(GI microbial mixture)*
  - *exercise, lifestyle*
- *Intergenerational transmission of epigenetics, not just what's in the world now but...*
  - *Our genes are changed not just by genetic selection but by impact of events on genetic structure*
  - *Stable changes may be passed on to future generations (theory is still controversial)*
- *Two main kinds*
  - *Histone modification*
  - *DNA methylation*

*Isolating compounds & epigenetics*

- *Diet and supplements*
  - *dietary fiber*
  - *phytochemicals*
  - *minerals*
  - *probiotics*
- *Is epigenetics the key to personalized nutrition?*
  - *23andMe process (order from **23andMe.com**)*
    - saliva test*
    - won't ship to NY—have to go to Connecticut or NJ*
    - can upload the data*

*SNPs—single nucleotide polymorphisms*

- *Genome and SNPs don't change but genetic expression does*
- *Altered DNA methylation associated with its decrease in*
- *older age BUT, in early life it is particularly consequential due to the rapid expansion and dynamic differentiation of cell populations necessary for growth*
- *See Dr. Benjamin Lynch-Larks at **MTHFR.net***
- *Wheel barrel metaphor: that protein is genetic*
  - *Cracked handle—can still do work but harder*
  - *Deflated front tire...can still function*
  - *Hole in front barrel can result in loss...*
- *Some SNPs make things better (bigger capacity)...*
  - + = *SNP*
  - = *no SNP*

- *Methylation has a vital role in basically every process in body, its systems, enzymes, proteins*  
*May present as...*
  - *digestive (more than one)*
  - *Mood disorders, endocrine imbalance, neural tube damage*
- *Yasko Methylation Pathway\**
  - *different pathways code for different substrates*
  - *Many genes code for enzymes*
  - *Amy Yasko, works with autistic children on where some [pathways] may be blocked*
  - *heavy metals*
  - *Converting inactive form of folate to the active (methylated)*
  - *elevated homocysteine may indicate B12 deficiency; need for suppl*
  - *Drugs that affect availability of folate and/or environmental stressors and client's need for detoxification*

#### *Treatment*

- *Recommends **Pure Genomics**-supplements brand ([pureencapsulations.com](http://pureencapsulations.com))*
- *Nutrigenomics can help find the underlying cause that specialist may overlook*
  - *Also symptoms are qualitative which can be a hard to treat*
  - *get the activated forms and co-factors (of supplements?)*
  - *Is artificial [folic acid?]*
  - *If assimilation is compromised have to address whether or not to include supplements...*
  - *[Introduce gradually, starting with probiotic?]*
  - *Janet may work with /Drs. with regard to mood disorders, detox reactions, tracking biomarkers*
- *Slide—neurotranscribe....*
- *COMT Gene (related to behavioral disorders)*
  - *B12, cruciferous vegetables, eat as clear as possible, DIM, relax, sleeping, Mg,*
- *Celiac Disease Genes*

#### *Nutrigenomics-Best practices*

- *When there's homozygous SNP*
  - *Keeping in perspective—all SNPs may not be significant but multiple SNPs in a gene does not mean it will be expressed*
  - *Multiple function*
  - *Body has back-up systems*
  - *Compensatory genes*
  - *Recommend increased dietary fiber intake*
  - *Butyric Acid created by microbiome's effects epigenetics*
- *May help personalize nutr and match diet with /lifestyle*
- *Purpose of Nutrigenomics is "to optimize health, not just treat symptoms"*
- *Wheel barrel metaphor: that protein is genetic*
  - *Cracked Genome and SNPs don't change but genetic expression does*
- ***Jeffrey Bland, PhD**, leader in functional medicine field*
  - *Present and Future Research*
  - *Prevent things before disease presents*
  - *Eat less, exercise more*

- See Janet's website for more: [www.mysupplementRD.com](http://www.mysupplementRD.com)
  - She did it for herself originally
- If client doesn't have 23andme report: small amounts of B12 and folate
- Case example: Client with high histamine
  - lots of digestive issues
  - SNPs in enzyme DAO which transcribes for histamine
- Coverage: Medicare is starting to cover for tests which indicate genes which impact medicine metabolism
  - 23 and me is \$199
  - Test is self-ordered—no prescription needed.

## QUESTIONS

- 1) Does microbiome come first?
  - gut health is number one
  - treat, then retest
  - (related question) Can fecal matter transplant be a preventative treatment
  - this is new field
  - “need a good donor”
  - not jumping the gun—first do no harm
- 2) Success rate:
  - can take a few years to address
  - re bone broths (for gut issues?)
- 3)Dr. asked about adding B12-crossing the placenta, artificial versus natural source...
- 4)Artificial versus natural source (for B12)
  - Injections—B12 shots
- 5)What kind of supplements does she use and how does she choose them?

“A little bit of science and a little bit of an art”

\*Amy Yasko's diagrams of biochemical pathways available at:

<http://www.dramyyasko.com/methylation-diagram/>

<http://www.dramyyasko.com/diagrams-listing/>