The Epigenetics of Health

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RESOURCES

Synopsis: Key Take-Aways from Today's Presentation

Our genes are not our fate. We have all heard this phrase before. In fact, from the perspective of epigenetics, you are ancient wisdom embodied! Epigenetics is the art and science of taking the very best of your past and improving it to confer maximum health to you and your future offspring. Essentially, we are the culmination of everyone in our family line who came before us going back hundreds of years.

The Cards We're Dealt vs. How We Play the Game

For better or worse, epigenetics shows us how we've adapted to our environments over time and how we're capable of optimizing health by understanding and accepting the primary variables that influence our trait expression.

Regardless of any lifestyle or environmental modifications we make, the genetic profile we're born with is the one we keep our entire life. Does this make some people more innately susceptible to accelerated aging than others? Yes. This is why we say, "genes load the gun; epigenetics pull the trigger."

What that means is gene expression is either silenced or amplified by the "information" to which they are exposed. Therefore, it behooves us to give the body high-quality information like clean water, healthy foods, quality sleep, supportive relationships, etc., as opposed to toxins, pollutants, discordant relationships, and so on.

A Brief Timeline of Epigenetics

1942 – Conrad Waddington coins the term 'epigenetics'
1975 – Discovery of methylation
2003 – Human Genome Project completed
2006 – Direct-to-consumer genetic tests arrive
2013 – Steve Horvath's Biological Clock debuts
2016 – Self Decode releases most comprehensive direct-to-consumer test
2020 – True Diagnostic Biological Age test released

Epigenetics 101: Genotype vs. Phenotype
Let's back up for one moment to make sure that we understand the basics of genetics. There are genotypes and phenotypes. Genotype refers to the genetic code of the individual. This is all the information that is found *inside* the individual's cells. In other words, a genotype is everything someone inherited from their parents: one brown hair cell from one parent, and one blonde hair cell from the other parent and the offspring has brown hair.

Phenotype is the expression of the genotype that is visible to others; a phenotype can be observed. In other words, the phenotype only includes information about brown hair, for example, because that's what we observe when we look at this person.

Biological Age vs. Chronological Age
Chronological age refers to a person's age as measured in years, months, and days since their birth. It is the actual amount of time that has passed since a person was born.

Biological age refers to the actual age of an individual as determined by the condition of their body and its functions. It is based on various biological markers such as physical health, organ function, and cellular aging. It is often used to assess a person's overall health and can be influenced by factors such as genetics, lifestyle choices, and the environment.

Telomeres
Telomeres are the repetitive DNA sequences located at the ends of chromosomes. You can think of these as the clear plastic covers on the ends of your shoelaces. Telomeres protect the DNA strands; however, they do degrade with age. And the degradation can accelerate or decelerate based on the aforementioned factors. The good news is that we can take action to not only keep telomeres strong, we can even lengthen them.

Telomeres:

- Prevent the loss of genetic material during DNA replication.
- Play a role in cellular aging and the lifespan of cells to prevent the uncontrolled growth of abnormal cells.

- Have been linked to increased susceptibility to certain cancers, cardiovascular diseases, and neurodegenerative disorders when shortened.

DNA Methylation
Methylation determines whether or not certain gene groups will be expressed. We rely on optimal methylation for maintaining adequate detoxification of hormones and toxins. We can hyper- and hypo-methylate—methylating too quickly or not methylating enough can both accelerate disease or slow down physiological processes responsible for preventing dis-ease states.

Methylation influences almost every essential physiological process. It's necessary for:

- The production of amino acids & antioxidants
- Neurotransmitters
- Hormones
- RBCs
- DNA & RNA

How Do I Find Out My Epigenetic Profile?
Epigenetic Tests

- Whole Genome Testing
- Methylation Testing
- Biological Age Testing

In order to begin to affect changes in methylation and thereby upgrade your epigenetics, there are tests that you can take. Each test will look at several factors: neural, brain-gut, and environmental toxicity. It’s standard protocol to test bi-annually.

A neural test will study the blood-brain barrier to see if it has been damaged and if pathogens and toxins can cross it and thereby disrupt neurocognitive signaling. A brain-gut test will look at mycotoxins, parasites, viruses, and the gut-brain-oral microbiome. An environmental toxicity test will look at the ways certain chemicals have affected the methylation status and our ability to eliminate chemicals from the body.

When reviewed, the results give a clear overall picture of your epigenetic make-up that will show you what areas in your body need attention.

What Can I Do to Optimize Methylation and Epigenetics?
There are many habits and therapies that we can start today in order to start changing the pattern of history in our genetic code. Some of these practices you are probably already doing! In addition, you can add supplements or therapies to the mix to elicit results.

- Stress Reduction
- Meditation
- NAD+ IV
- Exercise
- Peptides
- Neurofeedback
- Stem cells
- Thermodynamic Compression
- Eat organic, biodynamic longevity whole foods
- Smart-ceuticals (e.g. NMN, Resveratrol, Quercetin, Fisetin)

Resources:

Christine Dionese
https://christinedioneseconsulting.com/podcast/

Self Decode Test
https://selfdecode.com/?nab=1

TruAge Test
https://trudiagnostic.com/pages/truage-biological-test

Studying Chromatin Epigenetics with Fluorescence Microscopy:
International Journal of Molecular Science
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9409072/

Transgenerational Epigenetic Inheritance of Traumatic Experience in Mammals:
The Swiss Journal of Genes
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9859285/

Epigenetics & Lifestyle: Journal of Epigenomics
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3752894/

The Use of DNA Methylation Clock in Aging Research: Experimental Biology & Medicine
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7885055/

Twin Research in the Post-Genomic Era: Dissecting the Pathophysiological Effects of Adversity and the Social Environment:
International Journal of Molecular Sciences
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7247668/

The Role of Epigenetics in Psychological Resilience:
Lancet Psychiatry
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3752894/

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