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"The Big Idea for a Longer Life with a Better Brain "

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Big Ideas:

- If you are sitting on a tack, it takes a lot of aspirin to feel better – Remove the tack.
- If you are sitting on two tacks, removing one does not make you 50% better - Remove all tacks.

Quality of Life and Brain:

- Quality of Life is Brain Dependent.
- Know Thy Brain.
- Love Thy Brain.

MaxWell Systems Neurology™ Recipe

- Soup
- Story
- Setting
- Spirit
- Subconscious
- Strings of DNA
- Symptoms
- Style of Life
- SPARK
- Structure

The Big Idea #1:

- Our Brains are Biased. Thus, not recognizing this makes your Brain your Jailer, not your Ally

Health as a Continuum:

- Health exists as a Continuum of Function.
 - Healing is to bring the System Back towards Wholeness
 - **Life is a battle against entropy**
- The Human is a System of Systems.
 - The best medicine treats the System, not just suppresses the Symptom.
 - This System of systems is measurable and influenceable

MaxWell Mindsets - 4 Questions to Heal a System:

- What **regenerative** substance/signal is missing, and how can I **replenish** it?
- What **degenerative** substance/signal is present, and how can I **remove** it?
- What **dysfunctional** pattern of signals is occurring, and how can I **retrain** it?
- What **damage** is present, and how can I **repair** it?

Aging= (Degeneration > Regeneration)/ Time

Measuring Aging:

- We cannot Manage what we Cannot Measure.
- Other Age Predictors: Multi-omics.
- OMICmAge – Newest Clock for measuring aging.
- OMICm Age is highly predictive of disease outcomes.

Assumptions of Biomarkers of Healthy Aging:

1. It must predict the rate of aging and be a more precise predictor of life span than chronological age.
2. Whatever is being measured should focus on the fundamental mechanism that is related to the natural aging process, rather than simply observing the outcomes/consequences of diseases that may occur with aging
3. It must have the ability to be repeatedly tested without inflicting harm on the subject such as blood testing or diagnostic imaging.

4. It should be effective in both humans and laboratory animals like mice, allowing for testing in animal models before confirming its efficacy in humans.

Epigenetic DNA Modification-Methylation

- **DNA Methylation:** a biological process by which methyl groups are added to the DNA molecule that has the ability to modify the activity of a DNA segment without changing its sequence.
- When located in a gene **promoter**, DNA methylation can repress gene **transcription** (copying of DNA template strand to RNA molecule)

Dunedin Pace Clock: Importance

- First clock to differentiate current lifestyle from overall biological age.
- Enables personalized medicine for individual patients.
- Provides an objective means to assess the impact of interventions or lifestyle changes on aging rate.
- Higher aging rate correlates with a 56% increased risk of death in the next 7 years.
- Higher aging rate also associates with a 54% increased risk of chronic disease diagnosis in the next 7 years.
- **The Big Idea:** Slowing the rate of aging is crucial to reduce the risk of age-associated diseases.

OMICm Age:

- Trained not only to phenotype, but also combined with death data sets
- First clock to control for 12 cell immune subsets
- First clock to incorporate any metabolomic data into its design
- Incorporates clinical biomarkers and protein biomarkers with more scale and resolution
- Showed the highest published precision of any clock which has previously been an issue with this clock
- Advanced aging clock showed the highest correlation to disease outcomes compared to any previous epigenetic clock

Early Signs of Dementia:

- 6 Million people in the USA currently have dementia
- Subtle short-term memory changes.
- Difficulty finding the right words.

- Changes in mood.
- Apathy.
- Difficulty completing normal tasks.
- Confusion.
- Difficulty following storylines.
- A failing sense of direction.
- Being repetitive.
- Struggling to adapt to change.

Consequences of Dementia:

- Loss of Independence
- Loss of self
- Loss of contribution
- Financial burden no matter the path of denial or action
- Burden on caregivers
- Death-1/3 seniors die of Alzheimer's or another Dementia

Understanding Alzheimer's Disease:

- All brains start to lose connections starting in the mid-20s
- 40% of neuron connections have been lost by the time of diagnosis
- Alzheimer's Disease is an End-Stage Condition of Un-Braining as a result of Multifaceted Progressive Causation.

Empowerment via changing from Noun to Verb:

- Give yourself Power by Changing from the Noun-based Medicine of Disease to the Verb-based Medicine of Multi-Causative Process.
 - Alzheimer's Disease → Alzheimering
 - Cancer → Cancering

System of Dis-Integration in Aging:

- Primary Damage:
 - Macromolecular Damage, genomic instability, telomere attrition, etc.
- Responses to Damage:
 - Barrier dysfunction, Inflammasome activation, mitochondrial dysfunction, etc.

- Phenotypic System Decline:
 - Stem cell exhaustion, atrophy, extracellular matrix stiffening, etc.

Multifactorial Causation of Dementia:

- Factors affecting Dementia, including endotoxin effects and the need to remove metaphorical "tacks."
- Genetics: Leaking Gut = Leaky Brain fatigue, social withdrawal, depression and brain injury
- Xenotoxins: If it is not good for you, it is not good for your brain
- Dementia is considered to be Diabetes Type 3
- Vasculopathy: Glycocalyx testing as evaluation of microvascular disease
- Trauma: TBI is common and contributory and progression of dementing
- Infections: Dementia is infection-influenced based
- Autoimmunity: Dementia is auto-immune mediated
- Malnourishment: Optimize your EPA/DHA to lengthen life and prevent dementia

Endogenous Ancestral Nucleotide Sequences (EANS)

- Eans are any sequence that has BLAST homologies outside of *Homo Sapiens*
 - From HERBS to Hominids
- Use Case: Differential Diagnosis → significantly with specific chronic disease
- Use Case: Monitoring: EANS show clinical utility in monitoring efficacy

Response to Therapeutic Plasma Exchange:

- Remarkable Response to therapeutic plasma exchange.
 - Before there was only a focus on the blood and large vessels (arteries and veins)
 - Now there is a new focus on the microvasculature (capillaries)
- Poor Capillary & Glycocalyx Function linked to various health issues, including COVID and Dementia.
- Red blood cells don't touch vessel wall (when healthy)
- The glycocalyx is the Teflon-lining of blood vessels
- Microglia Loose Ramifications during Aging – RESTORED WITH PLASMA EXCHANGE!
- Results of a Neuro-immune Screening Panel.
- Suggestion to rename "Alzheimer's" as Age-Related Immuno-Dementia.

Omega-3 Index and Mortality:

- The higher the Omega-3 Index, the Lower the All-Cause Mortality.
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Mitochondrial Function and Space Travel:

- NASA Funded Twin Trial: Impact of space travel on human physiology.
- Mitochondrial function significantly affected by long-duration space flight.

Holistic Mitochondrial Function Measurement:

- Healthy Mitochondria characteristics.
- Cellular platforms can measure mitochondrial function holistically.
- MeScreen - Cellular-Based Mitochondrial Testing Capabilities.

Clean Plasma Environment and Regeneration:

- A Clean Plasma Environment causes Multi-Tissue Regeneration in various body systems.
- Examples of regeneration in muscle, blood vessels, liver, brain, kidneys, immune system, skin, bone, and connective tissue.
- Accelerated DNA Repair.

MaxWell Brain™ MAP:

- MaxWell Brain™ MAP is a Technology-Enabled Clinical System for Optimizing Brain Health & Memory.
- Personalized Systems Medicine Approach.
- Dementia is deeply Connected to Aging.
- Each can teach us about the other.
- The Body Supports the Brain; The Brain Controls the Body.