Bio-Nutrient Therapy:
An Evidence-Based Model For Autism Recovery

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Mensah Medical

Clinical Experience

- 10,000 ADHD & Behavior
- 4,600 Autism Spectrum Disorder
- 3,500 Schizophrenia & Bipolar Disorder
- 3,200 Depression

History of Autism

- Early 1900s – Autism referred to a range of psychological conditions (schizophrenia)
- 1940s – Autism was used to describe children with emotional or social problems. Asperger's syndrome was identified.
- 1960s and 1970s – Treatment relied on pain and punishment, i.e., LSD, electric shock and behavior change techniques.
- 1980s and 1990s – Behavior therapy and highly controlled learning environments became primary treatments.
- Today – Research and treatment focuses on genetic and environmental factors, behavioral therapy, nutrients, dietary changes and more.

Autism is treatable and recovery is possible.

The Brain is a "Biochemical Factory"

- Neurotransmitters (NT) and neurological inhibitors, such as serotonin, dopamine and GABA, are critical to brain function.

- Serotonin, dopamine, and other neurotransmitters (NT) are synthesized in the brain from vitamins, minerals and amino acids.

- A genetic or epigenetic imbalance in a nutrient can alter brain levels of key neurotransmitters and result in abnormal brain chemistry.

- By understanding biochemical imbalances in autism, advanced nutrient therapy aims to normalize a child's body-brain chemistry, reducing brain inflammation and oxidative stress.

Evidence-Based Research

ASD Patient Database

Striking biochemical differences between ASD children and non-affected children discovered by William J. Walsh, PhD, of the Walsh Research Institute

- About 90 to 150 assays of chemical factors in blood, urine or hair for each of 6,500 patients
- More than 800,000 chemical test results
- ASD patients exhibited biochemical imbalances that are more severe than in violent behavior and mental illness
- Discovery of undermethylation in more than 95% of ASD patients
- Clear evidence of oxidative stress and metallothionein depletion

Distinctive Features of Autism

- Biochemical Imbalances
- Incomplete Brain Development
- Strong Genetic Disposition
- Onset after Environmental Insult
- High Oxidative Stress
- Gut-Brain Connection

Oxidative Stress and Autism

- Excessive oxidative stress is evident throughout autism spectrum disorder.
- An oxidative stress model can explain most symptoms of autism.
- Most autism therapies have antioxidant properties.
- Oxidative stress has become a leading focus of autism research.

Biochemical Abnormalities in Autism

- Depressed Glutathione & Cysteine
- Elevated Toxic Metals
- Depressed SAMe/SAH Ratio
- High Copper and Low Ceruloplasmin
- Depleted Zinc and Metallothionein
- Elevated Pyrroles (Pyrrole Disorder)
- Low B-6, C, and Selenium
- Elevated Urine Isoprostanes

Note: Each of these imbalances is associated with severe oxidative stress.

The Critical Role of Methylation

- Excessive nutrient overloads and deficiencies disrupt methylation pathways in the brain.
- To explain: The body's methyl groups turn genes off or on by affecting interactions between DNA and the cell's protein-making machinery genes.
- Because the methylation cycle is essential for mental and physical health, basic nutrients necessary for normal function of this cycle are critical.
- Too much or too little of important methyl groups can cause a methylation imbalance.

Methylation (Cont'd)

- Methylation impacts every important organ function, i.e., balance, blood pressure, pulse, respiratory, G.I., and urinary tract function.

- Overmethylation (low blood histamine) is associated with high anxiety, depression, underachievement, upper body pain, chemical and food sensitivities.

- Undermethylation (elevated blood histamine) is associated with OCD, Oppositional Defiant Disorder, seasonal depression, perfectionism and competitiveness.

Zinc Deficiency

- Zinc (Zn) is needed for regulation of GABA in brain.
- GABA is a "calming" NT that combats overloads of norepinephrine.
- Zinc deficiency is characteristic of autism.
- Zinc deficiency is also associated with ADHD, irritability, anxiety, explosive temper, violent or aggressive behavior.

Metal Metabolism

- Genetic inability to control copper, zinc, manganese and other trace metals.
- The absence of Cu and Zn homeostasis and severe Zn deficiency are suggestive of a Metallothionein (MT) disorder.
- MT functions include neuronal development, detoxification of heavy metals, and immune response. Many classic symptoms of autism may be explained by a MT defect in infancy including G.I. tract problems, heightened sensitivity to toxic metals, and abnormal behaviors.

Why is Metallothionein Important?

- Required for development of brain cells and synaptic connections.
- Prevents Hg, and other metal toxics from passing intestinal and blood/brain barriers.
- Required for homeostasis of Cu and Zn.
- Supports immune function.

Note: MT functioning can be disabled by excessive oxidative stress.

Consequences of Oxidative Stress: Mirror Classic Symptoms of Autism

- Hypersensitivity to Hg and other toxic metals
- Hypersensitivity to certain proteins (i.e., casein, gluten)
- Poor immune function
- Disruption of the methylation cycle
- Inflammation of the brain and G.I. tract
- Depletion of glutathione and metallothionein
- Excessive amounts of "unbound" copper

Oxidative Stress Can Impair Brain Development

- Excess oxidative stress can deplete GSH, impair the one-carbon cycle, and produce undermethylation.
- Undermethylation can reduce production of GSH, cysteine, and MT, and cause excess oxidative stress.
- Ample glutathione is required for proper functioning of metallothionein.
- Metallothionein (MT) is a key factor in early brain development.

Consequences of Oxidative Stress Overload in the Gastrointestinal (GI) Tract

- Destroys digestive enzymes needed to break down casein and gluten.
- Increases candida/yeast levels.
- Diminishes Zn levels and production of stomach acid.
- Produces inflammation.
- Results in a "leaky" intestinal barrier allowing toxics to enter the bloodstream.

The Epigenetic Theory of Autism
(The Walsh Theory of Autism)

- The recipe for Autism:
  - Inborn Predisposition
  - Environmental Insult
- Environmental insults during the first month of gestation can produce abnormalities in gene expression that may persist throughout life.
- In some cases, these abnormalities can be transferred to future generations. This could result in a geometric increase in the number of autism-prone families.
- Epigenetic errors are enhanced by abnormal methylation and nearly all autism spectrum patients are undermethylated.

Walsh, William J. *Nutrient Power.* New York: Skyhorse Publishing, 2012.

Environmental and Epigenetic Influences

- Epigenetics involves the alteration in gene expression due to chemical factors in the womb and the influence of environmental factors throughout life.
- Every cell in our bodies has the potential for expressing any of the 20,000+ genes in our DNA. The production of gene proteins or "gene expression" can be switched on or off (gene silencing or "bookmarking").
- These epigenetic processes are more vulnerable to environmental factors such as radiation, temperature, dietary choices, toxic metals, viruses, stressful life events, etc.
- Attention has been focused on direct insults to the child from conception to age 3.

A Strategy for Enhanced Cognition, Speech and Socialization

- Powerful antioxidant therapy,
- Methylation protocols,
- Biochemical therapies aimed at reversing epigenetic errors,
- Behavioral therapies (ABA) that enhance brain maturation.

Metallothionein-Promotion Therapy and Biochemical Interventions

- Biochemical therapies and other interventions can either (a) adjust gene expression or (b) overcome the effect of altered gene expression.
- An epigenetic tendency for high oxidative stress can be effectively treated using Metallothionein-Promotion Therapy:
  - Directly aimed at development of brain cells
  - Potential for permanently correcting the intestinal and blood/brain barriers
  - Restores a key antioxidant system

Behavioral Therapies

- Applied Behavior Analysis (ABA)
- Stimulates organization of synaptic connections and cortex minicolumns
- Promotes brain maturation but is greatly slowed by oxidative overload and inflammation
- Especially promising when coupled with biochemical therapy

Comprehensive Evaluation

- Symptoms: Born Challenged? Or Regressed?
- Metal Regulation and Metal Dysregulation
- Environmental and Epigenetic Factors
- Gastrointestinal (GI) issues including food allergies/ sensitivities and malabsorption
- Nutrient Imbalances vs. Dietary Controls
- Testing for Methylation Disorders
- Pyrrole Disorder: Zinc/B-6 imbalances

Overview of Treatment

- Physical Examination
- Extensive Patient History
- Specialized Laboratory Testing (blood and urine)
- Prescribed *individualized*, nutrient therapy program (vitamins, minerals and amino acids) aimed at normalizing body-brain biochemistry
- Address Gastrointestinal (GI) issues including:
    - Prebiotics and probiotics
    - Digestive enzymes
    - Antifungals
    - Natural chelation (safer removal of toxic metals)
    - Avoidance of gluten, casein and other food allergies
    - Determine patient's dietary requirements based on methylation status

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U.S. Outreach Clinics:

- Fort Lauderdale, Florida

  June 23 and 24, 2015

- Garden Grove, California (near Anaheim)

  August 4 and 5, 2015

- Annapolis, Maryland

  September 15 and 16, 2015

- Burlingame, California (near San Francisco)

  November 3 and 4, 2015

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Questions & Answers

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