

TITLE:

Autism: From Static Genetic Brain Defect to Dynamic Gene-Environment Modulated Pathophysiology

AUTHOR:

Martha R. Herbert, PhD, MD

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Chapter 10 of [Genetic Explanations: Sense and Nonsense](#). Krinsky, S. and Gruber, J. eds, Harvard University Press (2012).

CHAPTER'S SECTION HEADERS:

Autism Status Quo: Genes, Brain, Behavior and Hopelessness

Anomalies Undermining the Genes-Brain-Behavior Model

Not a Static Prevalence

Not Just Genes: Environmental Contributors.

Not Just a Few High-Impact Genes: Hundreds of Mostly Lower-Impact Genes.

Not Just Inherited Genes: De Novo Mutations.

Not Even Mainly Genes: Substantial Environmental Contribution.

Not Just Brain Genes

Not Just Local, Modular Brain Disturbances: Whole Brain Involvement.

Not Just Prenatal

Not Necessarily Present at Birth

Not Just Behavior

Not Just the Brain

Not Just Deficit: Giftedness and High Intelligence.

Not a Life Sentence: Evidence of Remission and Recovery.

Dynamical Physiological Processes Implicated In Autism

Immune Dysregulation

Mitochondrial Dysfunction

Oxidative Stress

Methylation Disturbance

Disturbed Gut Microbial Ecology

Hormonal Dysregulation

Active Pathophysiology, Genes and Environment

Active Pathophysiology and the Brain

Impact on Synaptic functioning

Could Active Pathophysiology Be Impairing Connectivity?

Does Active Pathophysiology Modulate Genetic Substrate Or Could It Be a Primary Cause of Brain Dysfunction?

From Genes and Neurons to Environment and Glial Cells

Cause?

Modulating Severity by Treating Intermediary Metabolism

Obstructed Rather Than Defective

Environment: The Gift That Keeps On Giving

Hardware or Software?

From Developmental To Early Onset Chronic Pathophysiology

From a Fixed Unitary Phenomenon to Modifiable Manifestations of Complex Interacting Systems Problems

Autism as an Epiphenomenon or Emergent Property of a Challenged System

Specific Genetic Determinants or Final Common Pathways of Pathophysiology?

Time to Get a Grip

Addressing an Apparent Epidemic Through a Praxis of Environmental Pathophysiology

Beyond Autism

A version of the above material written through stories, practically oriented and readable by the general public is [THE AUTISM REVOLUTION: Whole Body Strategies For Making Life All It Can Be](#), by Martha R. Herbert with Karen Weintraub. Ballantine/Harvard Health Publications, 2012.