

Course: Functional Developmental Behavioral Neuroimmunology

Instructors: Dr. Robert J. Melillo and Dr. Peter Scire

Course Objective: Ultimate goal is for a healthcare professional to obtain a post graduate degree and a fellowship in Behavioral Neuroimmunology

State of Purpose: Using the most cutting-edge research and clinical expertise, to provide a detailed explanation of neurodevelopmental disorders from a complete model that's includes neurology, immunology, and behavioral health perspectives. Answers to what is happening in the brain in the most detailed way from a neurophysiological and immunological perspective, what are the proposed causes, who they affect and how they can be treated in the most comprehensive and innovative ways.

Overview of the Course: This course is meant to be an advanced introduction to Behavioral Neuroimmunology and the various conditions that are included under this heading such as ADHD, Autism, OCD, ODD, Tics and Tourette's, Schizophrenia, Bipolar Disorder, Depression, Anxiety, Dyslexia and various other Learning Disabilities and Behavioral Conditions. We discuss the epidemiology of these disorders and their prevalence in all age groups children, adolescents, and adults. This particular course is also designed to give the learner a general overview of the brain and nervous system as well as introduce the concepts of Hemisphericity and Functional Disconnection Syndrome. We review the evolution of brain Asymmetry and the driving forces that create Asymmetry of the human brain. We will review in detail a standard pediatric neurology examination of newborn and children ages 0 to 3 yrs. old. We introduce the concepts of Primitive Reflexes and dominance profiles in relationship to evolution, brain development and developmental delays. We will also review the basic development of the immune system and the connection between the immune, autonomic, and nervous systems. We will discuss the development of the gut and as well as the development of the autonomic and immune systems. The goal of this course is to reintroduce learners to the brain, nervous and immune system even if they have not reviewed neuroanatomy, neurology, or immunology for years. It is meant to be an introduction for any professional that may be relatively inexperienced in neurology, immunology, or behavioral health. It is also designed to give experienced neurology or immunology specialists a review of a basic developmental neurology exam and the developmental brain blueprint which most have never learned or have most likely forgotten. This course acts as a foundation for all the other courses in this series. We will teach this course utilizing the most cutting-edge teaching tools, live cases, video cases, guest specialist in various fields with an emphasis on hands on training which is critical when treating these patients. In this day and age most, people feel they can learn everything virtually but with this particular population of patients and this treatment you must lean live, and you must have extensive hands-on training which we will provide.

OUTLINE | MODULE 2

Title: When the Brain Can't Slow Down: What Is Attention? Hemispheric Regulation of Attention, Tics, Hyperkinetic Behavior, Autonomic and Immune System Interaction

ONLINE BEGINNING AUGUST 1, 2023

PART I

1 HOUR | Dr. Robert Melillo

Neuroanatomy of Behavior

1. Overview of anatomy of the brain
2. Introduce Brodmann areas
3. Hemispheric anatomy and function of Brodmann areas
4. Review hemispheric functions

1.5 HOURS | Dr. Robert Melillo

Hyper vs Hypokinetic Behavior

1. What is attention and what areas of the brain regulate attention?
2. What is ADHD? How is it diagnosed?
3. Hyperkinetic Disorders, OCD, Tics, Tourettes
4. Neuroanatomy of Hyperkinetic Disorders Basal Ganglia

1.25 HOURS | Dr. Peter Scire

The Brain-Immune Connection

1. Explore the role the Autonomic Nervous System plays in early development of the immune system.
2. Discuss how the Sympathetic Nervous System communicates to the immune system.
3. Discuss the Parasympathetic/Vagal efferent role on the immune response in early development.
4. Review the anatomy of the Hypothalamic-pituitary-adrenal axis.
5. Review the anatomy of the Paraventricular Nucleus.

1.5 HOURS | Dr. Robert Melillo

Video Case History

Review Case ADHD

1.75 HOURS | Dr. Peter Scire

The Brain-Endocrine Connection:

1. Discuss how early environmental stresses could alter the HPA axis.
2. Explore how the Perinatal and Postnatal periods can impact brain maturation.
3. Discuss how stress response can impact the early development of the limbic circuitry.
4. Review how environmental stresses make the male brain more vulnerable to developmental alterations.

PART II

1.5 HOURS | Dr. Robert Melillo

Examination Procedures

1. Review different levels of exam based on level of function
2. Low level examination procedure and forms
3. Basic level of exam and exam forms
4. Primitive reflex exam demonstration and hands on training

1.5 HOURS | Dr. Robert Melillo

Video Case History Review

History Form and Show Video of Taking a Proper History

1.5 HOURS | Dr. Peter Scire

Cytokines Role in Brain Architecture:

1. Define the various roles that cytokines play in synaptic plasticity, synaptic pruning, and myelination.
2. Review the anti-inflammatory and pro-inflammatory nature of key cytokines.
3. Discuss how early immune activation during pregnancy could have long term consequences.

1 HOUR | Dr. Robert Melillo

Core/Motor Examination:

1. Review the brain developmental blueprint stages, core, vestibular, oculomotor
2. Review core muscular neuroanatomy, descending motor pathways
3. Discuss Motor compartments and examination, cerebellar, pontine, mesencephalon and cortical motor/tone control
4. Hands on exam on compartments and neuro localization

1 HOUR | Dr. Robert Melillo

Core Functional Testing

1. Core testing procedures and normative data
2. Supine core testing
3. Prone core testing
4. Lateral Core testing
5. Flex/Ext ratio
6. Push ups
7. Curl Ups
8. brachiation