

# 2023 Fellowship

in Functional & Integrative Psychiatry

*Summer Cohort (July 2023 – June 2024)*

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Group Supervision Dates .....	page 2
Helpful Tips .....	page 3
Monthly Overviews .....	pages 4-15
<i>(Topics, Curriculum &amp; Recommended Readings)</i>	
Supplemental Curriculum .....	page 16

**PSYCHIATRY  
REDEFINED**

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Continuing Online Education to  
Transform Mental Health Care

# 2023 Group Supervision Dates

## *Summer Cohort*

*Session dates may change; we apologize for any inconvenience. Any/all changes will be communicated to Fellows via email with as much advance notice as possible.*

### **Discussion Topic**

Suicide Prevention

Depression

Anxiety

ADHD

Addiction

Metabolic Psychiatry & Ketogenic Diets

Infections

Bipolar Disorder

Self-Injury & Aggression

Cognitive Decline

Schizophrenia & Psychosis

Eating Disorders

### **Supervision Dates**

July 13 & 19

August 16 & 30

September 13 & 27

October 18 & November 1

November 15 & 30

December 13 & 27

January 17 & 31, 2024

February 7 & 21

March 6 & 20

April 10 & 24

May 8 & 22

June 12 & 26

# Helpful Tips & Notes

## CURRICULUM

- All curriculum and material (courses, webinars, conferences, supervisions, readings, etc) can be found on your student dashboard (My Dashboard) with a corresponding title, course image and course progress indicator.
  - **Locating a Course:** *If you have trouble locating a course in the learning system, please enter a course title or keyword in the search bar on your dashboard. Given the number of courses in this training, you may also need to use the arrows at the very bottom of your dashboard to navigate through all material.*
- All recommended readings can be found in the LMS system (your student dashboard) as:  
**2023 Fellowship: Recommended Readings & Resources**
- CME and CE certification components are available as a separate "course" in the learning system. These certification components are not included with the respective educational content (lectures, modules, etc). Certification instructions are available at the end (final chapter) of each accredited course. Once enrolled in the certification course, it will appear on your dashboard for future access.
- If a new educational course is released, it will be added to your Fellowship curriculum (student dashboard) automatically when available.

## GROUP SUPERVISIONS

- Group supervision recordings and special lectures can be found in the system as:  
**2023 Fellowship: Group Supervisions & Special Lectures**
- Group supervision recordings are added as quickly as possible to the system, but we may experience occasional post-production delays of 7-10 days. We appreciate your patience!

## WEBINARS

- (\*) Designates webinars that are exclusive to Fellows. These will not be available in the public Webinar Bundles (2023, 2022, 2021), so please refer to your dashboard to locate these webinars.
- All public webinars (supplemental webinars) are housed within the Webinar Bundles 2023, 2022, 2021.

## EDUCATIONAL EVENTS & RECORDINGS

- If you are interested in attending an upcoming educational event and you are still in your first year of study, please email Heather Getz at [hgetz@psychiatryredefined.org](mailto:hgetz@psychiatryredefined.org) to obtain your complimentary event pass/coupon. If you are in your second year of study, Fellows often receive an event discount as well. Please email Heather for more information.
- Lecture recordings from live seminars, conferences and events will be added to said event packages as soon as post-production is complete (approx. 3-4 weeks post-event).
- Event recordings/packages are released regularly and will be added to your Fellowship curriculum (student dashboard) as soon as they become available.

## Topic: Biological Models for Suicide Prevention

Research aimed at uncovering biologic susceptibilities to mental illness has exploded over the last decade. Genetic mutations, nutrient deficiencies, immune dysregulation... these and many other biologic variables have been identified as distinct factors that can cause or contribute to psychiatric disease, i.e., biomarkers.

An objective evaluation of this approach to disease detection, prevention, and management would presumably leave little to debate. If medicine has within its arsenal tools capable of identifying underlying biologic abnormalities *before* those abnormalities trigger a pathologic cascade, why wouldn't it use them? Are there biomarkers for suicide? Yes. Can we test for many of them? Yes. Are these biomarkers routinely screened in patients at high risk of suicide? No.

It is here, at the intersection between status quo and scientific innovation that we encounter not only the most room for change but also the most urgent of public health initiatives. Current suicide prevention approaches are inadequate, but the medical and scientific communities do not lack for viable options. We know there are biomarkers capable of identifying at-risk patients and, more importantly, distinguishing those at-risk patients who more likely than others to cross whatever invisible threshold separates ideation from attempt. We have the means to test for these biomarkers and evidence-based strategies that can simply and effectively address biologic imbalances that such testing may reveal. The time to enact positive, evidence-based change is now.

This month introduces a model of suicide prevention inclusive not only of psychosocial factors but also biological factors - biomarkers linked to an increased risk of suicide. It explores new research supporting the legitimacy and potential clinical utility of biomarkers such as deficiencies of essential lipids, vitamins, and minerals well as blood-based markers of inflammation – all of which are robustly associated with increased risk.

Bridging research, concept, and application, this month seeks to redefine our suicide prevention efforts, and reshape those systems meant to provide a lifeline to those in most critical need of our attention, care, and support.

### Curriculum

- Course: Biological Models for Suicide Prevention
- Webinar: Functional Medicine for Suicide Prevention - APA Caucus on Complementary & Alternative Medicine (Greenblatt)\*
- Webinar: The Fats of Life - Cholesterol and Mental Health (Greenblatt)\*

### Recommended Readings

- Greenblatt J. Suicide prevention redefined: opportunities for change. *Mad In America*.
- Memon A, et al. Association between naturally occurring lithium in drinking water and suicide rates: systematic review and meta-analysis of ecological studies. *Br J Psychiatry*. 2020;217(6):667-678.
- Chen S, et al. Serum cholesterol levels preceding to suicide death in Japanese workers: a nested case-control study. *Acta Neuropsychiatrica*. 2019;31:266-269.
- Brundin L, Bryleva EY, Thirtamara Rajamani K. Role of Inflammation in Suicide: From Mechanisms to Treatment. *Neuropsychopharmacology*. 2017;42(1):271-283..



## Topic: Functional & Integrative Medicine for Depression

Depression accounts for more disability than any other health condition and is linked to the highest global suicide rate in history. Labeling this phenomenon a “crisis” is congruent with the body of research demonstrating that rates of depressive illness are increasing worldwide. Of equal concern, rates are increasing in spite of the fact that traditional psychiatry possesses a well-established treatment model – one based on symptomatic suppression and heavily reliant upon pharmaceutical intervention.

It is clear the traditional treatment model is inadequate. Depression remission rates, even with the newest medications, remain poor, and a significant percentage of patients taking medication suffer from unresolved symptoms. *We can do better.*

Research confirms that depression etiology is highly complex. Powerful evidence supports that depression is moderated by underlying metabolic abnormalities, genetic susceptibilities, and psychosocial factors, all of which can impact neurologic health through a variety of biologic pathways. Similarly, imbalances of essential micronutrients can alter brain function, and have been linked to a variety of psychiatric pathologies... including depression. Depression thus invites an integrated approach that encompasses psychology and biology, coalescing a complete paradigm of care.

This month presents a Functional Medicine model in which the concept of depression as the result of underlying biochemical, genetic, and environmental factors is explored. Fact will be separated from fiction as the month's curriculum shines an objective spotlight on mental healthcare today – the good, the bad, and the opportunities for change.

Research revealing robust associations between metabolic disturbances, nutrient deficiencies, and psychosocial influences will be reviewed. Additional research illustrating the benefits of nutritional augmentation to optimize brain function will be explored; evidence-based interventions will be described; and a treatment approach centered upon objective biologic measurement and biochemical individuality will be presented.

### Curriculum

- Course: Functional & Integrative Medicine for Depression
- Course: Functional & Integrative Medicine for Managing Medication Side Effects
- Webinar: Functional Medicine for Adolescent Depression (Greenblatt)\*

### Recommended Readings

- Greenblatt J. Psychiatry Redefined: integrative medicine for depression. Townsend Letter.
- Vellekkatt F, Menon V. Efficacy of vitamin D supplementation in major depression: A meta-analysis of randomized controlled trials. *J Postgrad Med.* 2019;65(2):74-80.
- Laird E, et al. Low vitamin B12 but not folate is associated with incident depressive symptoms in community-dwelling older adults: a 4 year longitudinal study. *Br J Nutr.* 2021;1-22.
- Wang J, Um P, Dickerman BA, Liu J. Zinc, Magnesium, Selenium and Depression: A Review of the Evidence, Potential Mechanisms and Implications. *Nutrients.* 2018;10(5):584.
- Liao Y, et al. Efficacy of omega-3 PUFAs in depression: A meta-analysis. *Transl Psychiatry.* 2019;9(1):190.

## **Topic: Functional & Integrative Medicine for Anxiety**

This month provides a comprehensive introduction to a Functional Medicine model for the treatment of anxiety disorders. Following an empirically substantiated rationale for the deprioritization of symptom classification, and a step away from psychopharmacology, the viability of a Functional approach will be elucidated through reviews of studies showing anxiety to be associated with nutritional deficiencies, neurotransmitter dysfunction, inflammation, and other endogenous factors. The mechanisms through which these factors impact cognition and behavior will be explored, with an emphasis on the practical ramifications of biochemical individuality.

In addition to generalized anxiety, the month will also shine a focused spotlight on obsessive compulsive disorder (OCD) – a potentially debilitating illness for which the mainstream therapeutic arsenal is limited, often administered per a traditional “trial & error” model, and associated with high rates of treatment failure. Considerations of biologic etiology are typically absent from such models, too, despite growing evidence of discrete contributors such as genetics, inflammation, gut dysbiosis, and – notably – serotonergic dysfunction.

In line with a Functional Medicine model, this month will review research evidence corroborating biological contributors to OCD that open novel avenues for targeted treatment. This approach joins the latest in biomedical analysis with personalized medicine to address the biological, psychological, and environmental factors that contribute to the emergence or entrenchment of OCD. By implementing personalized Functional Psychiatry interventions designed to target such underlying causes, it moves patients beyond symptom suppression and into recovery with confidence... setting them along a stable path towards lasting healing.

### **Curriculum**

- Course: Integrative Medicine for Anxiety
- Course: The Integrative Management of Stress and Anxiety (Prousky)
- Conference Presentation – Well Woman Conference: GABA for Anxiety (Scott)
- Webinar: Herbal Anxiolytics in Psychiatry (Izakson)

### **Recommended Readings**

- Greenblatt J. Integrative therapies for obsessive compulsive disorder. 2019.
- Noah L, et al. Effect of magnesium and vitamin B6 supplementation on mental health and quality of life in stressed healthy adults: post-hoc analysis of a randomised controlled trial. *Stress Health*. 2021;37(5):1000-1009.
- Aylett E, et al. Exercise in the treatment of clinical anxiety in general practice - a systematic review and meta-analysis. *BMC Health Serv Res*. 2018;18(1):559.
- Ooi SL, Green R, Pak SC. N-Acetylcysteine for the Treatment of Psychiatric Disorders: A Review of Current Evidence. *Biomed Res Int*. 2018;2018:2469486.
- Kayser RR, et al. Acute effects of cannabinoids on symptoms of obsessive-compulsive disorder: A human laboratory study. *Depress Anxiety*. 2020;37(8):801-811.

## Topic: Functional & Integrative Medicine for ADHD

Scientific evidence confirms ADHD to be a neurologic, brain-based disorder represented by numerous biological abnormalities. What is observable as atypical behavior is merely the tip of an iceberg that extends down to an individual's unique biochemical makeup. Certain nutritional imbalances, which can profoundly impact cognition and behavior, are significantly correlated with this common disorder. Diet, micronutrient status, and individual biochemistry, however, are frequently overlooked or excluded from "typical" ADHD assessment and treatment protocols.

Fortunately, addressing nutritional imbalances with a Functional Medicine approach has proven effective in treating ADHD.

This month introduces the Plus/Minus Plan for ADHD and provides a comprehensive overview of the biochemistry "beneath" the disorder. Dietary interventions and augmentation strategies for the mitigation of specific nutrient deficiencies will be reviewed, as well as recommendations for going "beyond biochemistry" to enhance treatment outcomes.

### Curriculum

- Course: Integrative Medicine for ADHD
- Conference: New England Conference on ADHD
  - Evidence-based Integrative Strategies for ADHD (Greenblatt)
  - Mastering Balance: Effective Non-Medical Solutions for ADHD in Adults (Greenblatt)
  - Genetic Testing and Personalized Medications for ADHD (Lombard)
  - Strength-Based Treatment: What I Have Learned About ADHD in 67 Years (Hallowell)
  - Environmental Toxins, ADHD, and Behavioral Problems (Shaw)
- Symposium: Child & Adolescent Psychiatry Redefined
  - The Emerging Role of B Vitamin & Micronutrient Coenzymes in Pediatric Depression & ADD (Farah)
  - Finally Focused: A Functional Medicine Approach to ADHD (Greenblatt)
  - Broad Spectrum Micronutrients: Evidence & Applications for ADHD (Villagomez)
  - Disruptive Behavior Disorder in Children and Adolescents – (Greenblatt)

### Recommended Readings

- Greenblatt J. Finally Focused - Mineral Imbalances and ADHD. Parts I and II. 2017.
- Greenblatt et al. OPCs for the treatment of Attention-Deficit Hyperactivity Disorder. The Neuropsychotherapist. <https://www.thescienceofpsychotherapy.com/theneuropsychotherapist-issue-5-volume-5/>. Published 2017.
- Arbuckle TE, Davis K, Boylan K, Fisher M, Fu J. Bisphenol A, phthalates and lead and learning and behavioral problems in Canadian children 6-11 years of age: CHMS 2007- 2009. Neurotoxicology. 2016;54:89-98.
- El Baza et al. Magnesium supplementation in children with attention deficit hyperactivity disorder. Egypt J Med Hum Gen. 2016;17(1):63-70.
- Harding KL, et al. Outcome-Based Comparison of Ritalin® versus Food-Supplement Treated Children with ADHD. Altern Med Rev. 2003 Aug;8(3):319-30.

## **Topic: Functional & Integrative Medicine for Addiction**

This month's curriculum elucidates a comprehensive Functional Medicine approach to the treatment of substance use disorders (SUDs), targeting reward-pathway dysregulation and the many nutritional deficiencies associated with addiction that can alter brain function and further entrench or amplify addiction.

Integrating mainstream approaches such as MAT and psychotherapy with evidence-based Functional Medicine approaches such as nutrient therapy, acupuncture, and mindfulness, this month provides clinicians with a roadmap for navigating disorders of addiction and bringing patients into balance.

### **Curriculum**

- Course: Integrative Medicine for Addiction
- Webinar: Functional Medicine for Alcoholism (Greenblatt)\*

### **Recommended Readings**

- Blum K et al. Neuronutrient amino-acid therapy protects against reward deficiency syndrome: dopaminergic key to homeostasis and neuroplasticity. *Curr Pharm Des.* 2016;22(38):5837- 5854.
- Ham BJ, Choi IG. Psychiatric implications of nutritional deficiencies in alcoholism. *Psychiatry Investig.* 2005;2(2):44-59.
- Meckel KR, Kiraly DD. A potential role for the gut microbiome in substance use disorders. *Psychopharmacology (Berl).* 2019 May;236(5):1513-1530.
- Narasimha VL et al. Pellagra and alcohol dependence syndrome: findings from a tertiary care addiction treatment centre in India. *Alcohol Alcohol.* 2019 Mar 1;54(2):148-151.
- Chang CT, Hsieh PJ, Lee HC, Lo CH, Tam KW, Loh EW. Effectiveness of Nacetylcysteine in Treating Clinical Symptoms of Substance Abuse and Dependence: A Meta-analysis of Randomized Controlled Trials. *Clin Psychopharmacol Neurosci.* 2021;19(2):282-293.



## Topic: Metabolic Psychiatry and Ketogenic Diets

Metabolic psychiatry is a new and growing field exploring the overlap of mental health issues with metabolic dysfunction, including insulin resistance, excess inflammation, metabolic syndrome and obesity. In treatment, metabolic psychiatry focuses on the removal of processed foods and refined carbohydrates, often implementing a ketogenic diet for the metabolic benefits. If dietary approaches are too challenging for patients, they may also include medications to help achieve therapeutic metabolic effects.

Why do ketogenic diets improve mental health? Because the mind and body are connected! By consuming a ketogenic diet, the brain switches from utilizing glucose for fuel to ketones from fat. Ketones provide a number of different potential benefits for mental health. Ketones affect neurotransmitter signaling and inhibit excess brain cell excitability. They also support energy production while reducing the generation of reactive oxygen species or free radicals. Other evidence points to direct anti-inflammatory and neuroprotective effects from ketones.

We will review the scientific rationale for the use of ketogenic diets in psychiatric practice and potential benefits for those with cognitive decline, mood disorders, schizophrenia, neuroregeneration, and beyond. We will address common safety concerns, describe how these diets may be applied as either an adjunctive or a standalone therapy, and summarize where the clinical science in the field currently stands. We'll cover how this root cause intervention can help some patients avoid, reduce, or eliminate the need for psychiatric medications.

### Curriculum

- Course: Ketogenic Diets for Psychiatric Disorders (Ede)
- Webinar: Treating Mental Health Conditions with the Ketogenic Diet (Ivantu)
- Conference: Ketogenic Diets in Psychiatry (6 lectures)

### Recommended Readings

- Sethi S, Ford JM. The Role of Ketogenic Metabolic Therapy on the Brain in Serious Mental Illness: A Review. *J Psychiatr Brain Sci.* 2022;7(5):e220009. doi:10.20900/jpbs.20220009
- Dietch DM, Kerr-Gaffney J, Hockey M, et al. Efficacy of low carbohydrate and ketogenic diets in treating mood and anxiety disorders: systematic review and implications for clinical practice. *BJPsych Open.* 2023;9(3):e70. Published 2023 Apr 17. doi:10.1192/bjo.2023.36
- Omori NE, Malys MK, Woo G, Mansor L. Exploring the role of ketone bodies in the diagnosis and treatment of psychiatric disorders. *Front Psychiatry.* 2023;14:1142682. Published 2023 Apr 17. doi:10.3389/fpsy.2023.1142682
- Chmiel I. Ketogenic diet in therapy of bipolar affective disorder - case report and literature review. *Dieta ketogenicna w terapii zaburzenia afektywnego dwubiegunowego - opis przypadku i przegląd literatury.* *Psychiatr Pol.* 2022;56(6):1345-1363.

## Topic: Infections in Psychiatry

Functional Medicine holds that the sum total of human health is the product of an ongoing and dynamic negotiation between biology, psychology, and environment. Factors from each of these categories have the potential to impact mind and/or body, as well as the myriad processes and mechanisms underlying mental and physical homeostasis.

Environmental factors have long been recognized as robust determinants of mental health. Traditionally, analyses of such factors have largely focused on sociocultural and psychosocial influences. More recently, however, environmental factors that influence discrete neurobiologic processes have gained the attentions of the scientific community.

Studies investigating immune- and inflammation-related dysfunction have brought infection-mediated psychopathology into a novel limelight. Epidemiologic analyses have yielded stunning insights as to the prevalence of infectious cascades in mental illness, as well as robust evidence linking specific pathogens to diagnoses. Terms such as *B. burgdorferi*, *T. gondii*, *Streptococcus*, *C. difficile*, *C. albicans*, and more now appear throughout the literature; as this list grows, so does the impetus for clinicians to develop familiarity with infection-mediated psychiatric dysregulation.

Curriculum will explore involvements of infection-related autoimmune, inflammatory, and neurologic cascades in mental illness. It will introduce empirical evidence linking specific pathogens with discrete diagnoses, focusing heavily on the neurologic sequelae of *Clostridia* and *Candida* overgrowth, presentations of PANS/PANDAS, and Lyme neuroborreliosis. Monthly content will focus heavily on methodology and clinical application, endowing Fellows with a working understanding of the laboratory evaluations, and treatment protocols indicated for patients with infection-mediated neuropsychiatric dysfunction.

### Curriculum

- Course: Microbes & Mental Illness: What Every Mental Health Professional Should Know About Lyme Disease (Kinderlehrer)
- Course: PANS - Infection, Autoimmunity & Mental Illness (Kinderlehrer)
- Course: Laboratory Testing - Mycotoxins, Organic Acids, Heavy Metals, and Genetic Testing (Shaw)
- Webinar: A Functional Medicine Review of Kryptopyrrole Testing (Greenblatt)\*
- Webinar: An Integrative Approach to PANS/PANDAS (Song)
- Webinar: The Neuropsychiatric Effects of Mold (Ackerley)

### Recommended Readings

- Swedo SE, et al. Overview of Treatment of Pediatric Acute-Onset Neuropsychiatric Syndrome. *J Child Adolesc Psychopharmacol*. 2017;27(7):562-565.
- Hommer RE, Swedo SE. Anorexia and Autoimmunity: Challenging the Etiologic Constructs of Disordered Eating. *Pediatrics*. 2017;140(6):e20173060.
- Sutterland AL, et al. Beyond the association. *Toxoplasma gondii* in schizophrenia, bipolar disorder, and addiction: systematic review and meta-analysis. *Acta Psychiatr Scand*. 2015;132(3):161-179.
- Maxwell SP, et al. Neurological Pain, Psychological Symptoms, and Diagnostic Struggles among Patients with Tick-Borne Diseases. *Healthcare (Basel)*. 2022;10(7):1178



## **Topic: Functional & Integrative Medicine for Bipolar Disorder**

Known to the ancient Greeks and Romans as a distinct psychiatric ailment characterized by cyclic extremes of mood and behavior, bipolar disorder remains today one of the most challenging mental illnesses for clinicians to address – challenging to identify, challenging to treat.

Mainstream interventions adhering solely to psychopharmaceutical approaches are incomplete, and do not account for biologic factors that so often influence the trajectory of this complex disorder. Through a functional and integrative approach, it becomes possible to address etiologic factors that contribute to bipolar disorder (BD), and formulate targeted, personalized interventions for patient health.

Discover a novel functional medicine model for the treatment of BD, of which medication is just one of several therapeutic pillars. Approved pharmaceuticals for mania, depression, mixed-episodes, and maintenance will be reviewed in detail, and we'll explore biochemical abnormalities associated with BD that open the doors to functional interventions. Genetics, nutritional deficiencies that impact neurotransmission and signaling cascades, mitochondrial dysfunction, and other factors will be examined, as will evidence-based interventions that address intrinsic imbalances, support balanced neurochemical signaling, and optimize affective regulation. Clinical pearls and multiple therapeutic tiers, including medication, nutritional interventions, and natural therapies will be addressed. Concept-to-application bridges are offered throughout the month, supporting a collaborative, patient-provider paradigm that make balance possible.

### **Curriculum**

- Course: Functional & Integrative Medicine for Bipolar Disorder

## **Topic: Functional & Integrative Medicine for Irritability, Anger & NSSI**

This month examines the etiology and pathophysiology of chronic irritability, anger, aggression, and non-suicidal self-injury (NSSI) – prognostic of long-term treatment outcomes and thus key targets of Functional interventions.

Abundant research has confirmed psychiatric disorders involving heightened rage, suicidality, and self-injury to be associated with specific metabolic and neurologic abnormalities. By exploring biologic pathways that give rise to behavior and cognition, and how disruptions in such pathways can trigger pathology, Functional Medicine presents us with a complete paradigm for understanding the processes from which health and illness arise. And, thanks to advances in neuro-imaging and nutritional biochemistry, implementing such a paradigm to promote balanced physical and mental health is possible.

This month's curriculum will introduce an integrated biopsychiatric model of irritability, anger, and rage, elucidating mechanisms through which nutritional, metabolic, and biochemical factors can elicit behavioral pathology. Research supporting associations between metabolic disturbances; amino acid, lithium, and essential fatty acid deficiencies; low cholesterol; psychotropic medications; and irritability will be objectively reviewed. Finally, evidence-based recommendations comprising a Functional Medicine approach to the treatment of anger and aggression will be described, providing Fellows with information that can be incorporated into existing therapeutic protocols.

### **Curriculum**

- Course: Integrative Medicine for Irritability, Anger & NSSI
- Course: Low Dose Nutritional Lithium
- Webinar: Turbulent Minds - A Functional Approach to Irritability, Anger and Rage (Greenblatt)\*
- Symposium: Low Dose Lithium - The Mineral as Medicine
  - Impulsivity and Lithium Deficiency (Giotakos)
  - Irritability, Anger, and Rage: Syndromes of Lithium Deficiency (Greenblatt)
- Seminar: Lithium Orotate – A Comprehensive Review for Prescribing (Greenblatt)

### **Recommended Readings**

- Mazza M, Marano G, Lai C, Janiri L, Sani G. Danger in danger: Interpersonal violence during COVID-19 quarantine. *Psychiatry Res.* 2020;289:113046.
- Elbert T, et al. Lust for violence: Appetitive aggression as a fundamental part of human nature. *Neuroforum.* 2017; 23(2): A77–A84.
- Marchant A, et al. A systematic review of the relationship between internet use, self-harm and suicidal behaviour in young people: The good, the bad and the unknown [published correction appears in *PLoS One*. 2018 Mar 1;13(3):e0193937]. *PLoS One.* 2017;12(8):e0181722.
- Vilibić M, et al. Association between total serum cholesterol and depression, aggression, and suicidal ideations in war veterans with posttraumatic stress disorder: a cross-sectional study.
- *Croat Med J.* 2014;55(5):520-529.

## **Topic: Functional & Integrative Medicine for Cognitive Decline & Alzheimer's**

The global burden of Alzheimer's disease and other neurodegenerative disorders is massive. Attempts to find viable pharmaceutical cures have, thus far, failed, and the tolls borne by victims and family members remain incalculable.

Research has confirmed Alzheimer's to have a substantial prodrome, which is cause for hope. A prodrome represents an opportunity to steer neurologic aging towards health, and to modify certain etiologic factors while they remain modifiable. Such factors are tools that can be wielded to potentially significant effect in a Functional Medicine model centered upon prevention.

This month presents a novel Functional Medicine paradigm for the prevention of Alzheimer's and cognitive decline. It examines the pathophysiology of neurodegenerative illness from a systems biology framework, focusing on biochemical abnormalities contributing to neuronal dysfunction that are modifiable at prodromal stages and are, accordingly, viable treatment targets. Research supporting the use of evidence-based nutritional interventions as part of a preventative approach will be reviewed, and the mechanisms through which these interventions confer neuroprotection elucidated.

### **Curriculum**

- Course: Integrative Medicine for Alzheimer's Disease and Cognitive Decline
- Webinar: Why Medicine Ignores the Science Behind Lithium for Preventing Cognitive Decline (Greenblatt)\*
- Webinar: An Integrative Model for the Prevention of Alzheimer's Disease Using Microdose Lithium (Greenblatt)\*

### **Recommended Readings**

- Marino A, et al. Natural Antioxidant Compounds as Potential Pharmaceutical Tools against Neurodegenerative Diseases. *ACS Omega*. 2022;7(30):25974-25990. doi:10.1021/acsomega.2c03291
- Jayedi A et al. Vitamin D status and risk of dementia and Alzheimer's disease: a meta-analysis of dose-response†. *Nutr Neurosci*. 2019 Nov;22(11):750- 759.
- Smith AD, et al. Homocysteine and dementia: an international consensus statement. *J Alzheimers Dis*. 2018;62(2):561-570.
- Greenblatt J. Alzheimer's redefined: nutritional lithium as the foundation for prevention. Excerpted from: Greenblatt J. *Integrative medicine for Alzheimer's*. Victoria, BC: FriesenPress; 2018.
- Hara Y et al. Evaluation of the neuroprotective potential of N-Acetylcysteine for prevention and treatment of cognitive aging and dementia. *J Prev Alzheimers Dis*. 2017;4(3):201-206.

## Topic: Functional & Integrative Medicine for Schizophrenia and Psychosis

Schizophrenia is a multifactorial psychiatric disorder producing a spectrum of symptoms that range from odd-but-harmless behavioral abnormalities to full clinical psychosis. Such variable symptomatic presentations, in tandem with research supporting a biologic model of schizophrenia pathogenesis, invite Functional Medicine approaches to treatment that emphasize biochemical individuality and the mitigation of etiologic risk factors.

This month incorporates the classical theories of orthomolecular medicine into modern nutritional psychiatry, presenting decades of research evidence supporting the efficacy of Functional approaches to the treatment of schizophrenia. Micronutrient deficiencies, toxic neurochemical aggregations, systemic inflammation, and other etiologic factors will be elucidated in regard to the mechanisms through which they precipitate neurologic dysfunction, and addressed through comprehensive Functional protocols that can be applied in clinical practice.

### Curriculum

- Course: Integrative Medicine for Schizophrenia and Psychosis
- Webinar: Schizophrenia Redefined - Exploring Gluten Intolerance, Celiac and Keto Diets (Greenblatt)
- Webinar: Folate Receptor Alpha Autoantibodies - Novel Biomarkers in Autism, Miscarriage & Schizophrenia (Dawson)

### Recommended Readings

- Harrow M, et al. Does treatment of schizophrenia with antipsychotic medications eliminate or reduce psychosis? A 20-year multi-follow-up study. *Psychol Med*. 2014;44(14):3007-3016.
- Amminger GP, et al. Long-chain omega-3 fatty acids for indicated prevention of psychotic disorders: a randomized, placebo-controlled trial. *Arch Gen Psychiatry*. 2010;67(2):146-154.
- Greenblatt J. A functional perspective on gluten, psychosis, and schizophrenia. Psychiatryredefined.org. <https://www.psychiatryredefined.org/a-functional-perspective-on-gluten-psychosis-and-schizophrenia/>. Published October 14, 2019.
- Włodarczyk A, et al. Ketogenic diet for schizophrenia: Nutritional approach to antipsychotic treatment. *Med Hypotheses*. 2018;118:74-77.
- Tsamakis K, et al. Gut Microbiome: A Brief Review on Its Role in Schizophrenia and First Episode of Psychosis. *Microorganisms*. 2022;10(6):1121.

## Topic: Functional & Integrative Medicine for Eating Disorders

With a combined mortality rate exceeding that of any other mental illness, eating disorders (EDs) represent a serious challenge to today's clinicians. Whether pharmaceutical or psychologic, interventions comprising mainstream psychiatry's therapeutic arsenal for the treatment of anorexia nervosa, bulimia nervosa, and binge eating disorder are, together, inadequate, as evidenced by consistently high rates of relapse across diagnoses. We can do better.

Instead of focusing exclusively on psychologic factors, we can examine the body as well as the mind – for biologic testing reveals EDs to be characterized by a host of physiologic abnormalities that affect brain function and contribute to the emergence of a disease state. While EDs initially present as preoccupation with food and weight, they ultimately become brain-based disorders marked by profound malnutrition.

Curriculum this month will review current ED models and presents an evidence-based Functional Medicine approach to treatment. New research illustrating the benefits of nutritional supplementation – with a special emphasis on zinc and essential fatty acids – to enhance patient outcomes and support relapse prevention will be explored, proving clinicians with a well-rounded therapeutic arsenal with which to face the challenges of eating disorder treatment with confidence.

### Curriculum

- Course: Integrative Medicine for Binge-Eating Disorder
- Course: Integrative Medicine for Anorexia Nervosa
- Symposium: New Hope for Binge-Eating Disorder and Food Addiction (8 presentations)
- Webinar: A Functional Medicine Approach to BED & Food Addiction - Is there a Place for the Ketogenic Diet? (Greenblatt)\*
- Nutritional Psychiatry for Anorexia Nervosa Seminar

### Recommended Readings

- Greenblatt J. Answers to anorexia: nourishing the brain and nurturing the mind. Excerpted from: Greenblatt J, et al. *Answers to anorexia (2nd ed.)*. Victoria, BC: FriesenPress; 2021.
- Shih PB. Integrating multi-omics biomarkers and postprandial metabolism to develop personalized treatment for anorexia nervosa. *Prostaglandins Other Lipid Mediat*. 2017;132:69.
- Parra-Fernández ML, et al. Pathological Preoccupation with Healthy Eating (Orthorexia Nervosa) in a Spanish Sample with Vegetarian, Vegan, and Non-Vegetarian Dietary Patterns. *Nutrients*. 2020;12(12):3907.
- Reed KK, Abbaspour A, Bulik CM, Carroll IM. The intestinal microbiota and anorexia nervosa: cause or consequence of nutrient deprivation. *Curr Opin Endocr Metab Res*. 2021;19:46-51.
- Valbrun LP. The Opioid System and Food Intake: Use of Opiate Antagonists in Treatment of Binge Eating Disorder and Abnormal Eating Behavior. *J Clin Med Res*. 2020;12(2):41-63.
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# Supplemental Curriculum

## *Summer Cohort*

### **COURSES**

- Adaptogens in Psychiatry
- The Amuse System: Utilizing Laughter in Therapy
- The Brainstem Control of Headaches & Sleep
- Broad Spectrum Micronutrients
- The Endocannabinoid System, CBD & Women
- Hormones & Mental Health
- The Impact of Menopause on the Brain: A Focus on Mood
- The Neuroscience of Happiness: Providing Hope for Recovery from Disordered Eating
- Optimizing Sleep as an Antidote for Trauma: Exploring an Underutilized Treatment Opportunity
- The Oxytocin Paradox: Miracle Cure or Extraordinary Hype?
- The Science of Sleep: How Much Snooze Can You Afford to Lose
- S.H.I.N.E.® Protocol for CFS & Fibromyalgia

### **EVENTS**

- Effective Supplement Protocols for Clinical Practice Seminar
- Functional Medicine for Psychiatry Conference
- Genetic Testing in Psychiatry Symposium
- Nutritional Psychiatry for Borderline Personality Seminar
- Well Woman Conference: Strategies for Optimizing Women's Mental Health

### **WEBINARS & LECTURES**

- HRV & Biofeedback (Crawford)\*
- Sleep Interventions (Crawford)\*
- Webinar: Amino Acids for Neurotransmitter Synthesis (Greenblatt)\*
- Webinar: Enzymes - More than Just Digestive Support (Greenblatt)\*
- Lecture: The Organic Acid Test: Basics and Biochemistry (Perley)\*
- Lecture: Organic Acid Test (OAT) Refresher and Q&A (Perley)\*
- Webinar: Hair Mineral Analysis (Perley)\*
- *Webinar Bundles 2023, 2022, and 2021 (all publicly available webinars)*