

<b>Program Name: TBI + Concussion Summit: A Functional Neurology Approach to Publishing and Expanding Research In The Field.</b>
<b>Location: DoubleTree by Hilton Tampa Rocky Point Waterfront, 3050 North Rocky Point Drive West, Tampa FL 33607 813-888-8800</b>
<b>Date(s): May 4-5, 2024</b>
<b>Times: Saturday 8:30am - 5:15pm May 4, Sunday 8am-12noon May 5th</b>
<b>Instructor(s): Dr's. Alden, Becker MSPH, Behrendt, Boynton, Gaudet, Longyear, Melillo, Peck PT, Smith [PhD]</b>
<b>CE Hours Requested: 12 hours [Saturday 8 + Sunday 4 ]</b>
<b>Organization: IAFNR</b>
<b>Contact: Dr. Janice Hughes <a href="mailto:chirojhughes@gmail.com">chirojhughes@gmail.com</a> 303-746-2960</b>

Any first step when working with a client related to TBI or Concussion involves clinically assessing deficits and weaknesses. What specific tests give the strongest feedback and most accurate clinical diagnosis? How do you make your decisions on clinical protocols for treatment? What role does the patients subjective input play? We will provide you with a playbook from our speakers on their actual protocols and clinical strategies.

Add to this the fact that your clinical results aren't enough to create real lasting change within this field of study. It's important to write and document results - we are committed to help show you a process to do this! You will walk out of this conference with an actual case study and potential poster presentation on your own case, along with a one year license to Sallie® where you can reproduce this over and over again.

## **Saturday May 4th, 2024**

### **Saturday 8:30-9:30 am - 1 hour**

Course Instructor:  
Michael Longyear DC, DACNB, CCSP

**Course Title:**  
Importance of measurement and research to the clinical model of health care.

Course Description:  
In this course we discuss the importance of having the right measurement tools to record patient outcomes and assess patient progression. Having great clinical skills is how you make patient improvements but how do you know you are making positive changes before the obvious changes in patient quality of life?

Course Outline:  
Discussion of outcome measures in health care  
There are gold standards for the measurement of the basic physiological process, understanding what they are will help your credibility and ultimately drive your patient outcomes.

How outcome measures drive research

When we use the right thing to measure our patient success, it helps to make it easier to drive research and make it reproducible for other clinicians so that as a profession we can touch more lives.

Does research drive care...or does care drive research?

Research drives ``Best practices' ' but as a profession that lives on the leading edge of healthcare, we are unique in that we frequently challenge those best practices by beating the odds in helping our patients. Using great tools for both assessment and clinical application are important to help lend credibility to that cutting edge approach.

Learning Objectives

1. The learner will learn the basis of the gold standard for clinically applicable outcome measures.
2. The learner will understand the importance of using research to support clinical applications

### References Available

## Saturday 9:30-10:30 am - 1 hour

Dr. Rikishi T. Smith BA, MA, PhD

**Title:** Athlete Experiences with Concussion Recovery: Building a Comeback Campaign Using Sallie

**Description:** What do athletes need and want while recovering from a TBI/concussion? This research from Assistant Professor at Clemson University and former D1 Women's Soccer Student Athlete, Rikishi T. Rey PhD, helps start the conversation regarding what athletes wish they knew before sustaining their concussion from the athletes themselves. In-depth interviews address the conversations they want you to have and forward ways to improve their recovery process. Building into The Comeback Campaign and Sallie, the data will help tell the story, to truly build the 'story'.

Teaching Points:

- What do you measure when someone has an injury we can't see?
- What data can we utilize to support more subjective descriptions of pain or disability?
- Case Examples:
  - When data supports the subjective
  - When data does NOT support the subjective
  - How to dig a little deeper with the data
- Utilizing the Sallie technology to create a clinical plan for recovery

Research:

**Rey, R. T.**, Miller-Day, M., Craw, E. S., Buckley, T. M., Wozniak, T. R., Hopfer, S. (Online Advanced Publication).

Engagement with and persuasiveness of HPV vaccination promotion videos: An examination of narrative engagement theory. *Atlantic Journal of Communication*.

**Rey, R. T.**, & Pezalla, A. E. (2023). Parents, pain, and over-the-counter medicine: Athletes' perceived alternatives to prescription opioid misuse. *Healthcare*. <https://doi.org/10.3390/healthcare11192671>

Janicke-Bowles, S. H., Buckley, T. M., **Rey, R. T.**, Wozniak, T. R., Meier, A., & Lomanowska, A. (2023). Conceptualizing and assessing digital flourishing: Developing a scale to measure positive mediated social interactions. *Journal of Happiness Studies*. <https://doi.org/10.1007/s10902-023-00619-5>

Cranmer, G. A., **Rey, R. T.**, Capra, J., Browning, B., Sollitto, M. (2023). Task & social determinants of coaches' reports of leader-member exchange. *Communication & Sport*. <https://doi.org/10.1177/21674795231155592>

**Rey, R. T.**, Capra, J. (2023). "Shut up and dribble": Fans' perceptions of professional athletes' roles in standing up against racial injustices. *Communication Research Reports*. <https://doi.org/10.1080/08824096.2023.2165488>

**Rey, R. T.**, Cranmer, G. A., Browning, B., Sanderson, J. (2022). Sport knowledge: The effects of Division I coach communication on student-athlete learning indicators. *International Journal of Sport Communication*. <https://doi.org/10.1123/ijsc.2021-0062>

Leader, A., Miller-Day, M., **Rey, R. T.**, Selvan, P., Pezalla, A., Hecht, M. L. (2022). The impact of HPV vaccine narratives on social media: Testing narrative engagement theory with a diverse sample of young adults. *Preventative Medicine Reports*. <https://doi.org/10.1016/j.pmedr.2022.101920>

Cranmer, G. A., **Rey, R. T.**, Tallapragada, M. (2021). Exploring the role of parents' sport orientations in the efficacy of concussion intervention materials. *Communication Research Reports*. <https://doi.org/10.1080/08824096.2021.1936480>

**Rey, R. T.**, Johnson, Z. D. (2021). "Detrimental to the team dynamic": Exploring college student-athlete dissent. *Communication and Sport*. <https://doi.org/10.1177/21674795211001938>

## **Saturday 11-12 noon - 1 hour**

Robert Melillo MS, DC, PhD, DABCN, FACFN, FABCDD, FIBFN-CND

**Title:** The new research in functional neurology and translating this into outstanding clinical outcomes.

Creating evidence-based standards in functional neurology through outstanding clinical outcomes. Then turning these clinical outcomes into standardized neurological rehab through evidence-based practice. This is how we then create new standards of care. This also means that over time we must revisit and modify the 'way' we focus on our protocols within the practice we have established, to continue to evolve this to allow for changes based on this research and refinement. Novel evidence based therapeutic practice continues to expand and shift thanks to clinical case studies that impact how we utilize tools and technology, but more importantly how we understand the brain pathways and general functional developmental behavioral neuro-immunology.

Teaching Points:

- We will review brand new research papers published in the field
- We will discuss the updates that this research has led to in clinical treatment protocols.
- We will then translate that into the impact on Functional Developmental Behavioral Neuroimmunology and the new therapy and treatment protocols

- Why current certification, or fellowship holders need to continue to update their knowledge and skills with research
- How do you identify the objective measures you can use consistently for clinical reporting?
- What has the research already identified as acceptable measurable findings?
- The importance of measuring objective findings consistently so they are easily able to be recreated/repeated, and don't end up being just anecdotal findings, but rather gain traction/recognition by the research community.

### **References Available - including presenters newest published papers**

## **Saturday 12 noon - 1pm - 1 hour**

Sharik Peck PT

**Title:** Resonance Effects in Headache & Dysmenorrhea Management – The Scientific Scrutiny Process

Seven years into creating and improving resonance tools and techniques for the functional neurologist, reviewing the methods and results of two double-blind placebo-controlled trials in 2023. A review of the process and lessons learned will be provided for all attendees. Upcoming research in resonance will be shared.

Key Teaching or learning points:

- Finding and engaging a research team
- Critical questions
- Apples to Apples - Comparing results
- Blinding and scrutiny – The scientific process

### **References Available**

## **Saturday 1-2pm - 1 hour**

Course Instructor:

Michael Longyear DC, DACNB, CCSP

**Course Title:**

Applications for the utilization of laser therapy with Chiropractic care to improve neuroplastic change in patients

Course Description:

In this course we discuss the application and range for the utilization of laser therapy to help improve patient outcomes. Case studies will cover the application for utilization of laser protocols for a wide range of cases to aid in creating neuroplastic change.

Course Outline:

Laser and the brain

We will discuss the application of laser on the brain and talk about the science that supports laser therapy and the application for cell health and efficiency

#### Case studies in Functional Neurology

We will share cases from our clinic in the application of laser protocols.

Case one- Depression

Case two- Concussion

Case three- PTSD

Case four- Neurodevelopmental

Let's get weird...With the science to back it

Discussions on frequencies and the brain

Discussions on frequencies and cell health

Numbers and the Brain

#### Learning Objectives

1. The attendee will understand the current trends in research on photobiomodulation
2. The attendee will learn current treatment strategies to affect the brain using chiropractic care, photobiomodulation and functional neurology
3. The attendee will leave with an understanding of the current science that supports how chiropractic and photobiomodulation affects the brain and what else can be done to support it.

#### References Available

### **Saturday 2-3pm - 1 hour**

Dr. David Boynton DC, FIBFN-FN

#### **Title:** Functional Neurology and Athletes: Strategies for Rehab and Performance

In this presentation Dr. Boynton will discuss the use of various modalities that assist the functional neurologist in care of athletes. To begin we will build a framework on how to reach an accurate mTBI diagnosis. Next we look at how to monitor progress through the return to play decision. To complete the discussion we will look at how the same modalities can be used to optimize performance in the athletic setting. Balance, vision, vestibular and cognitive metrics will be discussed.

#### Key teaching points:

- mTBI assessment: how much is enough
- the critical role of vision and balance in creating optimal performance
- using EEGs to track performance outcomes

#### References Available

## **Saturday 3:15-4:15 pm - 1 hour**

Dr. Scharlene Gaudet DC, MSC, DACNB, CCN

### **Title:** Effective Therapy for Veterans with TBI

Estimates suggest that between 9-28% of service members, across all branches of the US Military, experienced a TBI during training or service contract. This doesn't even include the statistics from the DOD related to non combat MSK's [non combat musculoskeletal injuries], or those that wash out of each branch's boot camp training. Obviously this is a dire situation not just for the military, but more importantly for the individual themselves. We also know the major challenges related to PTSD post service and the complications for individuals throughout the rest of their lives. Many organizations have stepped in to realize it's imperative to address these injuries and neuro rehabilitation differently. This is where, as Functional Neurologists, we step into the picture related to working with the 'after effects' for these individuals trying to find answers to help themselves.

I. Introduction A. Brief Overview of Veteran TBI B. Importance of Effective Therapy for Veterans with TBI

II. Current Landscape of TBI Therapy for Veterans A. Existing Therapeutic Approaches through the VA

B. Successes and Limitations

III. Promising Advances in TBI Therapy A. Emerging Technologies and Innovations

B. Collaborations and Partnerships in TBI Treatment

IV. The Role of Rehabilitation A. Rehabilitation Programs Tailored for Veterans

B. Family and Community Involvement in the Healing Process

V. Personal Stories and Testimonials A. Sharing Success Stories of Veterans in TBI Therapy

VI. Q&A Session A. Inviting Questions and Comments from the Audience

### **References Available**

## **Saturday 4:15-5:15 pm - 1 hour**

Dr. Michael Alden DC

**Title:** "Predict, Prevent and Prevail Over Chronic Traumatic Encephalopathy"

Biomarker Testing and Nutritional Treatment Strategies following Traumatic Brain Injury and for the Prevention of Neurodegenerative diseases related to CTE through enhancing neuroplasticity.

### **Outline for 1 hour presentation:**

0:00-0:10 Overview – understanding the role of the blood-brain barrier in health and disease

The blood brain barrier (BBB) is a physical barrier between the brain and the circulating blood, formed by the arrangement of endothelial cells and tight junctions that line the capillaries, which supply blood to the

brain. It is a highly selective barrier that restricts the movement of all soluble proteins greater than 400 Da from the blood across to the brain. Acting like a filter, the BBB protects the brain from infections, the products of infections such as lipopolysaccharides (LPS), and toxic chemicals, etc., that circulate in the blood. The BBB naturally permits the passage of essential metabolites, small hydrophobic (lipid soluble) molecules like oxygen, carbon-dioxide, hormones, etc. When the BBB is damaged it provides a gateway for environmental triggers to infiltrate the brain and nervous system. Due to the similarity between some of these triggers and neurological tissues, neuro-reactive antibodies can be formed. Neuronal autoantibodies contribute to the onset of neurological diseases. BBB dysregulation plays a role in many neurological disorders, for example:

- faulty BBB clearance of potential brain toxins in Alzheimer's disease and Parkinson's disease
- inefficient clearance of excitotoxins across the BBB after an ischemic insult or TBI
- increased transport of leukocytes across the activated BBB in multiple sclerosis, AIDS dementia, and Alzheimer's disease, and during neuroinflammatory CNS responses
- BBB breakdown in amyotrophic lateral sclerosis, Alzheimer's disease, epilepsy and multiple Sclerosis. BBB breakdown may precede, accelerate, exacerbate or contribute to chronic disease processes in neurodegenerative disorders of the adult and aging nervous system.

#### 0:10-0:20 Food as trigger of neuroautoimmunity

During traumatic brain injury (TBI), the BBB fails and allows for the invasion of neuronal tissue-binding food proteins and cross-reactive food protein antibodies into the once protected nervous system. Specific proteins, such as gliadin and milk butyrophilin share homology with human asialoganglioside, myelin, cerebellum, synapsin. Corn, soy, spinach and tomato aquaporins share homology with the aquaporin, in the astrocytic foot process. When a patient eats these foods and generates antibodies to the food proteins, in some patients with a broken BBB, these infiltrating food antibodies can mistake neurological tissue as the food protein and therefore tag it for destruction. Upon the destruction of neurological structures, neurological tissue protein waste in circulation will spur the production of antibodies against self-tissue. Which can be measured with serum biomarkers for autoreactive neurological antibody testing. Other foods can bind to BBB proteins and myelin. Wheat germ agglutinin (WGA), lentil lectin and bean agglutinins bind to myelin tissue, while WGA can also bind to sialic acid and N-acetylglucosamine, which induces vesicle-mediated internalization of WGA by brain endothelial cells, a process called adsorptive endocytosis. Upon binding to tissues, the tissues can become damaged. Neurological tissue protein waste in circulation can trigger the development of autoantibodies. This can be followed by neurological disease and neurodegeneration.

#### 0:20-0:30 Modern assessment for broken BBB

A broken BBB can be assessed by clinical judgment of case presentation, GABA challenge, SCAT or through blood antibody measurements. "The blood doesn't lie." With advanced serologic testing now available, quantitative assessments can be obtained at baseline and during treatment to verify treatment protocols are effective and/or when the barrier is healed.

#### 0:30-0:40 TBI diet and BBB healing protocols for the purpose of enhancing neuroplasticity

The cascade of physiological events that occur immediately following the disruption of the BBB create neuroinflammation, cytotoxic and chemotoxic reactions along with the destruction of neural tissues and local supporting structures. It is important to quench the inflammatory process and modulate the immune reactions as quickly and efficiently as possible following a TBI. The immune response of TH1, TH17 and Cytokine Inducible Nitric Oxide Synthase can all be modulated through specific botanicals, compounds and cofactors that have been proven effective in both research and clinical practice. Dietarily, it is possible to strengthen the BBB by promoting a healthy intestinal barrier, thus reducing the possibility of lipopolysaccharides (LPS) to be present in the blood. LPS have been shown to cause a weakened BBB,

which further illustrates the gut-brain/brain-gut connection. Baseline testing for intestinal barrier permeability could be instrumental in helping to prevent BBB disruption during contact sports if the intestinal barrier is maintained as healthy.

0:40-1:00 Case Study Presentations

Case presentations to show the effectiveness of using nutrition and treatment protocols on persons with TBI/PCS/CTE.

#### **References:**

1. Ballabh P, Braun A, Nedergaard M. The blood-brain barrier: an overview structure, regulation and clinical implications. *Neurobiol Dis*, 2004; 16:1-13.
2. Banks WA and Broadwell RD. Blood to brain and brain to blood passage of native horseradish peroxidase, wheat germ agglutinin and albumin: pharmacokinetic and morphological assessments. *J Neurochem*, 1994; 62:2404-2419.
3. Blyth BJ, Farhavar A, Gee C, et al. Validation of serum markers for blood-brain barrier disruption in traumatic brain injury. *J Neurotrauma*, 2009; 26:1497-1507.
4. Broadwell RD, Balin BJ, Salzman M. Transcytotic pathway for blood-borne protein through the blood-brain barrier. *Proc Natl Acad Sci. USA*, 1988; 85:632-636.
5. Freed DLJ. Chapter 34: Dietary lectins and disease. In *Food Allergy and Intolerance*, 2nd Edition, Brostoff J and Challacombe SJ, eds, Saunders Ltd, London, 2002 pp 479-488.
6. Marchi N, Bazarian JJ, Puvenna V, et al. Consequences of repeated blood-brain barrier disruption in football players. *PLoS ONE*, 2013; 8(3):e56805. doi:10.1371.
7. Vaishnav R, Liu R, Chapman J, et al. Aquaporin-4 molecular mimicry and implication for neuromyelitis optica. *J Neuroimmunol*, 2013; 260(1-2):92-98.
8. Vojdani A. Brain-reactive antibodies in traumatic brain injury. *Funct Neurol Rehabil Ergon*, 2013; 3(2-3):173-181.
9. Vojdani A and Tarash I. Cross-reaction between gliadin and different food and tissue antigens. *Food Nutri Sci*, 2013; 4:20-32.
10. Vojdani A, O'Bryan T, Green JA, et al. Immune response to dietary proteins, gliadin and cerebellar peptides in children with autism. *Nutr Neurosci*, 2004; 7(3):151-161.
11. Zlokovic BV. The blood-brain barrier in health and chronic neurodegenerative disorders. *Neuron*, 2008; 57:178-201.

**Sunday May 5th, 2024**

**Sunday 8am - 11am - 3 hours**

Lynne Becker, MSPH

**TITLE: Learn how to use a virtual therapy dog, Sallie<sup>®</sup>, to capture real-time patient data and create a case study for your patients with traumatic brain injuries (TBI)**

DESCRIPTION:

We know that brains can change, this is the basis of neuroplasticity. Some patients experience faster [or slower] changes over time. Discerning which patient will fall into the fast versus slow bucket is a challenge for most practitioners and frustration for all patients and caregivers.



Learn how you can use patient or caregiver data to seamlessly track and manage the progress of your patient's neuroplasticity and begin to develop real-world data trends. These trends can be used to create a case study for publication.

As brains change and adapt to new stimuli, practitioners need to be able to isolate what interventions made an impact and how much impact was achieved. Brain injuries present an enormous challenge because external stimuli that were previously not thought to be impacting a person's recovery are now being measured and tools are being designed to help patients manage these situations better. But it all boils down to adherence and a cooperative relationship patients have with the providers. This is engagement. When patients "see" their change over time this is the encouragement that helps patients continue with their care.

Using a virtual therapy dog Sallie®, practitioners will be able to isolate these anomalies or unique and create a case study for publication.

#### TEACHING POINTS:

##### Introduction Hour – 1 hour

1. Introduction to Lynne Becker, MSPH –
    - a. Caregiver turned entrepreneur
    - b. Experience in research & DoD
  2. Overview of Research Process – and specific to TBI
  3. Overview of Case Studies
- Examples of How Sallie created 3 different posters [NORA, ASNR, NIH]

##### Case Study Preparations – 2 hours

1. Hour 1
  - a. Demonstration of Sallie technology
    - i. Patient, Care Manager Provider Views
  - b. Setting up docs with real accounts
    - i. Can use phone or a tablet or a laptop
  - c. Entering patient data - specific case examples. Helps to understand the system and the data.
2. Hour 2
  - a. Review a previously published Case study
  - b. Distribute paper for a Case Study template
  - c. Use template for fill-in-the-blanks – extract data from Sallie
  - d. Show where they find the information to populate onto template
  - e. Present findings [1-2 specific case studies reviewed]
  - f. Discuss findings as a group – ways to generate your discussion section of the template
  - g. Discuss submission guidelines and publications - where to publish - resources presented

#### **References Available**

## **Sunday 11am - 12 noon - 1 hour**

Benjamin Behrendt, DC, DACNB

**Title:** TBI Centers of America - Clinical Case Planning in the personal injury climate

It takes meticulous planning and strategic decision-making to ensure the cases that come into our clinics in the personal injury space are well managed. Often these cases have a diverse background, severity, and timelines post injury. Excellence in patient care is always the first priority. There are multiple factors influencing a typical PI case; severity of injury, duration of care required, medical interventions procedures

and therapies, as well as legal considerations which is always a major stress. All of these impact the actual clinical case management.

Key Teaching Points of Effective strategies include:

- Evidence based practices - implementing proven medical practices and healthcare protocols to optimize resources
- Utilization REview - regularly assessing the necessity and appropriateness of medical services and procedures to ensure effectiveness
- Collaborative Partnerships - Establishing strategic alliances with healthcare providers and legal professionals to streamline services
- Importance of early intervention and proactive management
  - Timely diagnosis
  - Preventative measures
  - Care coordination
- Case Studies showcasing successful management in personal injury cases
  - Case 1
  - Case 2
  - Case 3

**References Available**