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**Clinical Orthopedics Unveiled**

TBI, Laser Myths, and Comprehensive Spinal Demonstrations

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2024 Syllabus

Seminar Description from Dr. Gair

From childhood through adolescence, adulthood, and into the “golden years,” there are different conditions that affect us at each stage as well as different needs and wants regarding health goals. This seminar will give you a blueprint for each phase of the Laser Lifespan, whether your practice focus is with kids, athletes, workers, retirees, or auto and work injuries. Laser techniques for common conditions of each phase will be demonstrated and research to support those methods explained. Best of all, there will be hands on workshops following the sections so you can maximize your skills. Techniques will range from simple point and shoot protocols to more advanced neuro-recalibration protocols, multiple therapy stacking protocols, and integrating nutrition and supplementation to maximize results.

Seminar Description from Dr. Brock

Overall Course Description: As doctors of chiropractic, we are providers who facilitate wellness and lifestyle changes to bring about patient recovery and restoration of health by incorporating low-level laser therapy. Low-level laser is a modality that has become contemporary in its capacity to enhance patient recovery from pain and function by enhancing the photochemical properties of cellular function. The photochemistry upregulation that occurs while using low-level laser therapy has the potential to positively influence tissue, enhance neural circuits, reduce pain, and enhance orthopedic and biomechanical factors. Applying a low-level laser to a patient can be life-changing in many clinical scenarios by optimizing systems physiology. This course will give attendees a comprehensive overview of enhancing patient recovery by stacking new low-level laser therapy (LLLT) principles and modalities for optimal health. This available modality demonstrates patient safety and FDA evaluation and has a promising current and future impact on how manual therapists, nutritionists, and medical providers offer and combine therapeutic services.

## Educational objectives relevant to the seminar:

1. Differentiate and review the various classes of low-level lasers, and outline the therapeutic effects of each as appropriate dosages obtained through calculating joules.
2. Discuss the Low-Level Laser Therapy wavelengths, the metabolic targets of various wavelengths, and the integration of wavelengths into health restoration.
3. Devise strategies for obtaining biochemical markers paramount to healthy physiology, and create a plan of action for both clinician and patient to resolve health barriers.
4. Incorporate hands-on approaches to assess mechanobiology and mechano-transduction and understand their roles in regulating cellular biochemistry, gene expression, and tissue development.
5. Understand the physiological relationship between the cranial system, spine, and cerebrospinal fluid dispersion as they relate to neurodegenerative disease.
6. Assess spinal and extremity dysfunction, determine the upper motor and lower motor neuron factors, and use a low-level laser to correct maladaptive movement patterns.
7. Discuss differences in the Autonomic, Sympathetic, Parasympathetic, and Enteric Nervous Systems, and develop strategies to facilitate synchronization of these systems using Nutrition, circadian rhythms, movement, and low-level laser therapy.
8. Identify molecular mediators in Gut-Brain Access syndromes, and develop clinical strategies, behavioral modifications, and nutritional therapies to reset physiology.
9. Recognize environmental drivers of abnormalities in inflammatory and autoimmune diseases, and create protective strategies.
10. Identify key indicators of brain imbalances, use low-level laser therapy to reduce aberrant biofeedback into the central nervous system, and utilize protective strategies for enhancing brain health and function.
11. Understand the influential roles of Nutrition, supplementation, sleep hygiene, meditation, and "stacked therapies" to overcome the most challenging clinical conditions.
12. Understand how lasers are not “experimental and new”, but supported by decades of research for multiple conditions
13. Evaluate adding lasers can help you differentiate yourself from the other doctors around you, which helps you have better tools to succeed in the face of greater competition.
14. Review the youth sports market in your area and become the go to doctor for local teams, ranging from youth sports to high school, college, and even pro.
15. Demonstrate Step by step, hands on laser techniques to quickly and easily RE-CALIBRATE the nervous system to create an instant change in function. This technique is what really gets the patients excitedly telling all their friends and raving about you on social media.
16. Apply instrument adjusting techniques to combine with your laser techniques for an even greater effect.
17. Review case studies for each injury/condition.
18. Summarize the Ancient Greeks to Modern Day to The Future: The history of light phototherapy, where it has come, and where the research is going, and how it impacts injury recovery.
19. Discover how addition of low-level laser therapy can help differentiate your office from the other practices that are in your area
20. Justify lab technique & know which blood tests are important to have and how to interpret them for optimal injury recovery and sports performance
21. Summarize traumatic Brain Injuries and Neurodegeneration
22. Complete protocol workshop for cervical and upper extremity injuries, lumbar spine and lower extremity injuries
23. Calculate impact of recalibration and resetting the nervous system with the accelerate recovery and enhance performance
24. Understand weight loss protocols and how this can have a global effect on your patient’s health
25. Explain laser to your patients, and how to help a niche market that is greatly in need of help by working with the year-round travel team athletes, local sports teams, and weekend warriors

**Program Outline:**

## Saturday 8:00-5:30pm

**7:30-8:00am Registration**

**8:00-9:00am Laser Myths and Misconceptions vs Objective Realities. Is the “Science Settled?”** (Other; Research)

* Modern Research since the 1960s, and it’s use as state standard medical care in Russia since 1974 and their findings for best wavelengths and powers.
* Lasers vs NSAIDS and Opioids and laser superiority in long term results
* What conditions peer reviewed research has shown laser to be effective for, and what are the wavelength, and frequencies with the best outcomes to create 20 FDA clearances for visible wavelength low powered lasers
* What is the difference between violet, green, red, and infrared lasers, high vs low power
* Depth of penetration vs signaling cascades and electron transport. How this can cause the violet laser to have the furthest reaching impacts on tissues and why
* The latest research on lasers, including how some wavelengths have enough energy per photon to trigger electrons to jump to higher energy states and create millions of reactions
* Where the research is going: Autism, Parkinson’s, Alzheimer’s, Low Back, etc.
* How do we know it’s not just a placebo? Case studies with fractures, athletes, and animals.

**9:00-10:00am Traumatic Brain Injuries, Neurodegeneration, and Long Covid**  (Other, Research)

* Review of current research studies showing the cellular effects to provide support for TBI and neurodegenerative conditions.
* How long Covid is affecting patient’s brain function, body pain, and quality of life
* Research showing how the spike protein triggers auto immunity in some patients, and how you can provide support with laser protocols, nutritional, and supplemental protocols to improve quality of life and function.
* Evaluation techniques and questionnaires
* Nutritional red flags for patients at risk of concussions from sports or for patients recovering from concussions
* How to recognize early signs of CTE and neurodegeneration and what to do for it.
* Research on low level laser support protocols for children with autism, dyslexia, ADHD.
* Review of case studies from Dr Gair’s patients ranging from mild TBI to severe and the treatment protocols
* Review of nutritional support protocols for brain injuries, and dysfunction like autism, Parkinson’s, Alzheimer’s, etc.
* Vagus nerve activation protocols with low tech and high tech options

**10:00-10:15am Break**

**10:15-11:15am From the Cell to the System** (Dr. Brandon Brock) (Basic Sciences)

- Wavelength and electron transport chain function

- Mitochondria, cellular respiration, and ATP production

- Neuronal Excitotoxicity

- Neuronal Plasticity

**11:15-12:15pm From the Cellular Environment to the Systems** (Dr. Brandon Brock) (Research Trends)

- Causes of inflammation

- Metabolic syndrome, obesity, and joint pain

- Review of basic labs

- Case study

**12:15-1:15pm Lunch**

**1:15-2:15pm Cervical and Upper Extremity Injuries and How to Recalibrate and Reset the nervous system with the accelerate recovery and enhance performance** (Adjustive Technique)

* Research studies on cervical spine,,shoulder injuries, elbow, and carpal tunnel and low-level laser therapy
* Muscle assessment techniques
* Pre and Post Op protocols
* Protocols for chronic pain after surgery
* Unique protocols for violet or green wavelengths
* Case studies from Dr Gair’s Patients
* How cervical movements affect muscle strength and laser protocols to recalibrate and reset
* Laser shoulder protocols, elbow, and hand protocols
* Percussor techniques and Adjustor tool techniques for these conditions

**2:15-3:15pm Lumbar spine and Lower Extremity Injuries and How To Recalibrate and Reset the nervous system to accelerate recovery and enhance sports performance** (General Clinical)

* Research studies on lumbar spine, hip, knee, and ankle injuries and low-level laser therapy
* Muscle assessment techniques
* Case studies from Dr Gair’s Patients
* How lumbar movements affect muscle strength and laser protocols to recalibrate and reset
* Laser low back, hip, knee, and ankle protocols
* Gait reset protocols
* Balance protocols
* Pre and Post Op Protocols
* Percussor techniques and Adjustor tool techniques for these conditions

**3:15-3:30pm Break**

**3:30-4:30pm A Developing Systems Approach to Treatment** (Dr. Brandon Brock) (Principles of Practice/Philosophy)
 - Creating the hierarchy of treatment
 - The joint-brain connection

**4:30-5:30pm Brain and Biomechanical Connection** (Dr. Brandon Brock) (Adjustive Technique)
- Treatment of the foot and ankle
- Demonstration of evaluation, diagnoses, and clinical concepts
- Demonstration of evaluation, diagnoses, and clinical concepts
- Case study

## Sunday 8:00-12:15pm

**8:00-9:00am Lumbar spine and Lower Extremity Injuries and How To Recalibrate and Reset the nervous system to accelerate recovery and enhance sports performance** (Continued) (General Clinical)

**9:00-10:00am How to Explain Low-Level Laser Therapy to your patients, and how to help a niche market that is greatly in need of help by working with the year-round travel team athletes, local sports teams, and weekend warriors (General Clinical)**
- Scripts that clearly explain how the laser works, and that give the patient realistic expectations based off research

* Why sports injuries are skyrocketing with today’s youth, how much it is costing per year, and how you can help reduce the costs and get the athletes back to competitive performance quicker
* How lasers can actually enhance sports performance to a level that one study from the Journal of Biophotonics said was “similar to a performance enhancing drug.”
* How lasers can be part of the solution for the Opioid Epidemic, citing current studies showing lasers effectiveness compared to pain relievers and anti inflammatories

**10:00-10:15am Break**

**10:15-11:15am Brain and Biomechanical Connection** (Dr. Brandon Brock) (Adjustive Technique)

- Treatment of the knee and lower extremity and biomechanics

- Demonstration of evaluation, diagnoses, and clinical concepts

- Demonstration of evaluation, diagnoses, and clinical concepts

- Case study

**11:15-12:15pm Brain and Biomechanical Connection** (Dr. Brandon Brock) (Adjustive Technique)

- Treatment of the shoulder and elbow

- Demonstration of evaluation, diagnoses, and clinical concepts

- Demonstration of evaluation, diagnoses, and clinical concepts

- Case study