

Abatement of PTSD and TBI symptoms following multi-modality protocol



Delina H. Bishop, Stacy Sweeney, Michael Sweeney

ABSTRACT

A 59-year-old male Army Veteran diagnosed with post traumatic stress disorder (PTSD), traumatic brain injuries (TBI), and burn pit exposure was treated in a 12-week mixed-modality protocol of hyperbaric oxygen, red light therapies, intermittent hyperoxic/hypoxic training (IHHT), neurofeedback, NAD+ IV infusions, and oral pre/probiotic supplements.

Final results subjectively revealed marked improvements in sleep quality, mood, hypervigilance and anger. Clinical findings revealed no migraine activity since starting the protocol, as well as PTSD and depression scores decreasing below the diagnosable threshold.

Case Report

A 59-year-old male Army Veteran is diagnosed with post traumatic stress disorder, traumatic brain injuries, and burn pit exposure. His symptoms included hypervigilance, interrupted sleep, migraines, negative thought patterns, anger, poor focus, and relationship issues derived from PTSD/TBI symptoms.

The 12-Week Protocol included Hyperbaric Oxygen Therapy (HBOT), Intermittent Hyperoxic/Hypoxic Training (IHHT), photobiomodulation (red light), neurofeedback, NAD+ w/glutathione infusions, 90 days of Amare Global pre/probiotic/nootropic oral supplementation, and health coaching sessions addressing sleep, diet, and thought patterns.

Measurable Outcomes

- PCL-5 Assessment decreased from 41, 18 to 9 pre, mid and post-protocol respectively. *Scores below 35 represent <15% probability of PTSD.*
- PHQ-9 Assessment - decreased from 14, 5, to 3, respectively. *From moderate to minimal depression scores.*
- PSQI Sleep Assessment - mid-protocol 6, post-protocol 3. *Scores below 5 are associated with good sleep quality.*
- qEEG Brain Mapping - Mid-protocol 42% plasticity and 48% normalization and post-protocol 40% plasticity and 45% normalization. *Score over 30% plasticity and 35% normalization are considered outstanding.*
- Cognitive Emotional Checklist (CEC) - Pre to post protocol responses improved by 63%, 45%, 40%,

60%, and 38%, respectively. The CEC is a standardized psychological test that allows a client to rate the severity of various cognitive and emotional issues

- No migraines since starting protocol
- Veteran's wearable data:
 - ↑ Avg. deep sleep from 7 to 42 minutes.
 - ↓13.5% average RHR
 - ↑14.2% cardio fitness level

Subjective Outcomes

“Since starting the protocol, I’m sleeping better and focused more on the things that matter... this is a dramatic change for me.”

“My hypervigilance in daily activities is nearly gone. No more scanning the overpass on the highway for bad guys and looking at garbage on the roadside as potential IEDs.”

Discussion

This case report demonstrates the effectiveness of multi-modal treatment for the symptoms of post-traumatic stress and traumatic brain injuries over a 12-week period. This study followed a protocol focusing upon root-cause issues to include enhancing angiogenesis and neurogenesis in the brain through oxygen modalities ^{1,2}, enhancing ATP production through NAD+ ³ and photobiomodulation ⁴, minimizing brainwave dysregulation with qEEG neurofeedback ⁵, and diminishing gut-brain axis neurochemical imbalances through supplementation.⁶⁻⁹ This data derived from this regimen will significantly impact the treatment protocols of future Veterans and First Responders suffering from the effects of PTSD and TBI within this continuing program and beyond.

Delina Bishop, MD

Medical Director OPTI Health Lake Norman
dmbishopmd@optihealthlkn.com

Stacy Sweeney, MSPT, MS

Founder, Director Neurocognitive Services
OPTI Health Lake Norman
stacy@optihealthlkn.com

Michael Sweeney, MBA

Founder and Chief Executive Officer
OPTI Health Lake Norman
mike@optihealthlkn.com

REFERENCES

1. Tal S, Hadanny A, Sasson E, Suzin G, Efrati S. Hyperbaric Oxygen Therapy Can Induce Angiogenesis and Regeneration of Nerve Fibers in Traumatic Brain Injury Patients. *Front Hum Neurosci*. 2017 Oct 19;11:508. doi: 10.3389/fnhum.2017.00508. PMID: 29097988; PMCID: PMC5654341.
2. Bayer U, Likar R, Pinter G, et al. Intermittent hypoxic-hyperoxic training on cognitive performance in geriatric patients. *Alzheimers Dement (N Y)*. 2017;3(1):114-122. Published 2017 Feb 8. doi:10.1016/j.trci.2017.01.002
3. Radenkovic D, Reason, Verdin E. Clinical Evidence for Targeting NAD Therapeutically. *Pharmaceuticals (Basel)*. 2020;13(9):247. Published 2020 Sep 15. doi:10.3390/ph13090247
4. Hamblin MR. Photobiomodulation in the brain: low-level laser (light) therapy in neurology and neuroscience. In: Hamblin MR, ed. *Photobiomodulation in the Brain: Low-Level Laser (Light) Therapy in Neurology and Neuroscience*. Academic Press; 2019:1-630. doi:10.1016/C2017-0-02758-1.
5. Dahl MG. Neurofeedback with PTSD and traumatic brain injury (TBI). In: Kirk HW, ed. *Restoring the Brain: Neurofeedback as an Integrative Approach to Health*. Routledge; 2020:256-284. doi:10.4324/9780429275760-13.
6. Ceremuga TE, Martinson S, Washington J, et al. Effects of L-theanine on posttraumatic stress disorder induced changes in rat brain gene expression. *ScientificWorldJournal*. 2014;2014:419032. doi:10.1155/2014/419032
7. Unno K, Yamada H, Iguchi K, et al. Anti-stress Effect of Green Tea with Lowered Caffeine on Humans: A Pilot Study. *Biol Pharm Bull*. 2017;40(6):902-909. doi:10.1248/bpb.b17-00141
8. Savignac HM, Couch Y, Stratford M, et al. Prebiotic administration normalizes lipopolysaccharide (LPS)-induced anxiety and cortical 5-HT_{2A} receptor and IL1- β levels in male mice. *Brain Behav Immun*. 2016;52:120-131. doi:10.1016/j.bbi.2015.10.007
9. Messaoudi M, Violle N, Bisson JF, Desor D, Javelot H, Rougeot C. Beneficial psychological effects of a probiotic formulation (*Lactobacillus helveticus* R0052 and *Bifidobacterium longum* R0175) in healthy human volunteers. *Gut Microbes*. 2011;2(4):256-261. doi:10.4161/gmic.2.4.16108