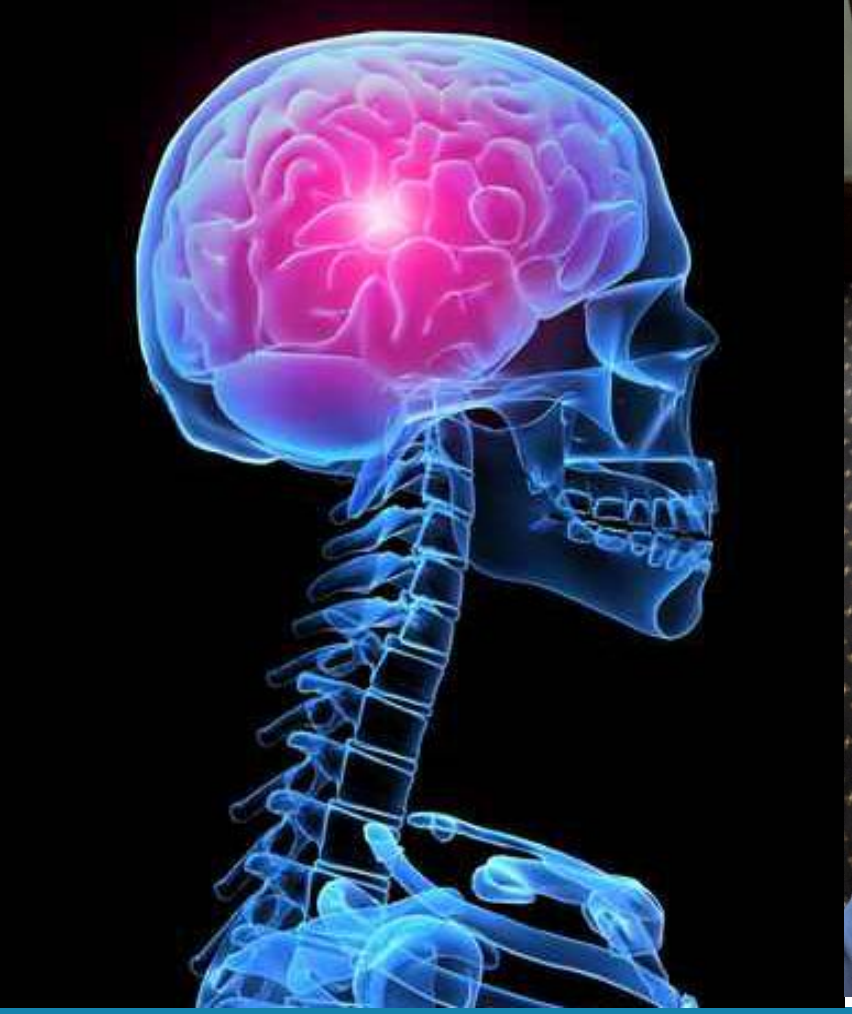
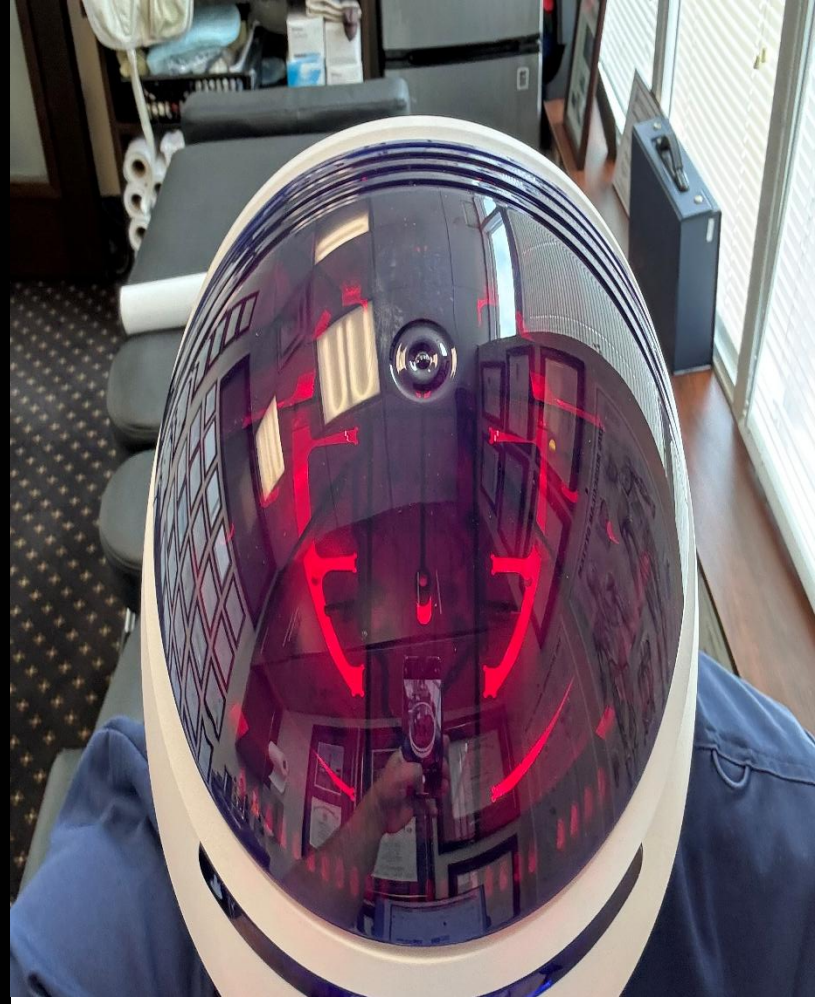




CONCUSSION ISN'T "INVISIBLE" — IT'S FUNCTIONAL.

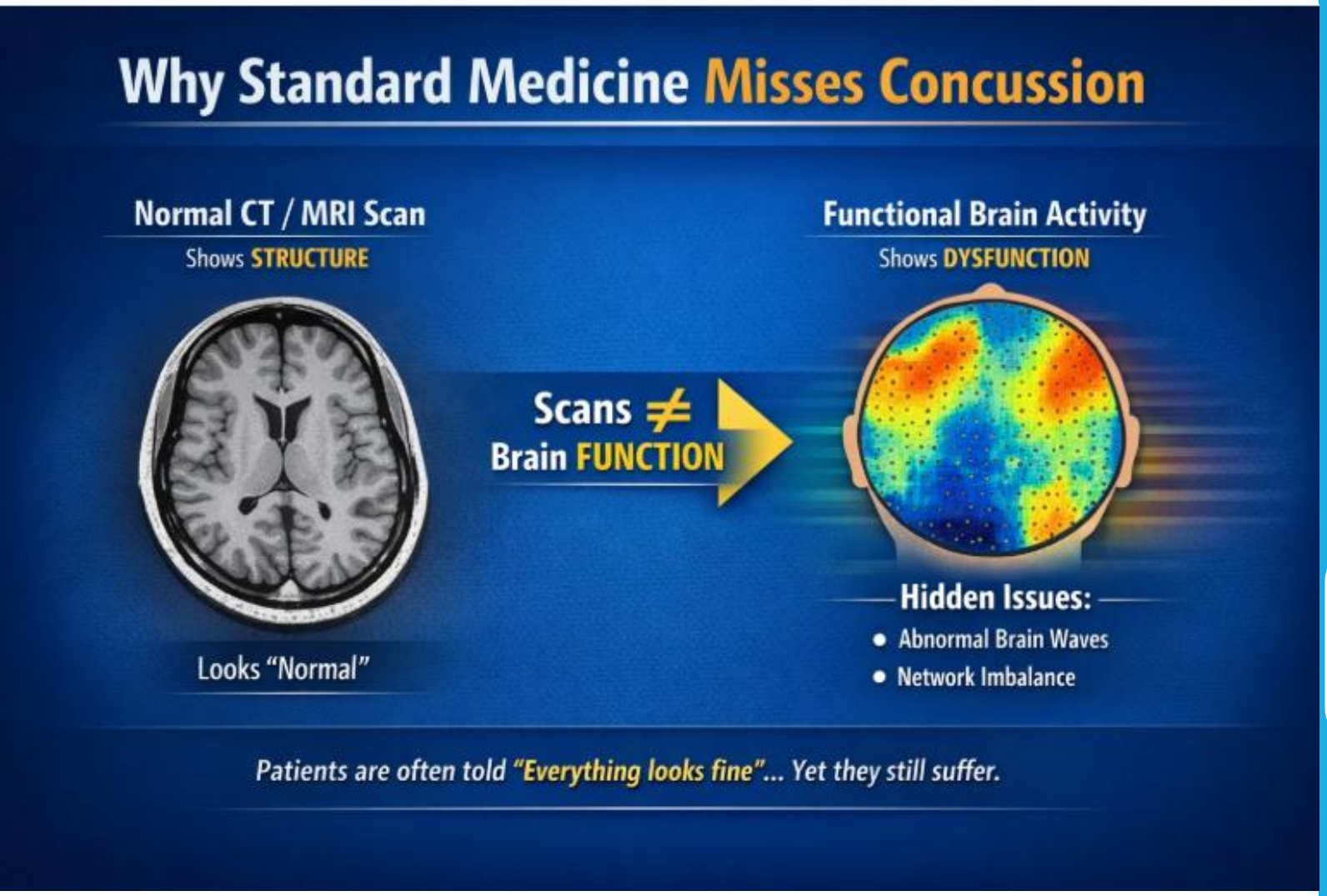
WHY MANY PATIENTS SUFFER LONG-TERM SYMPTOMS EVEN WHEN SCANS LOOK "NORMAL."

COMMON CONCUSSION SYMPTOMS

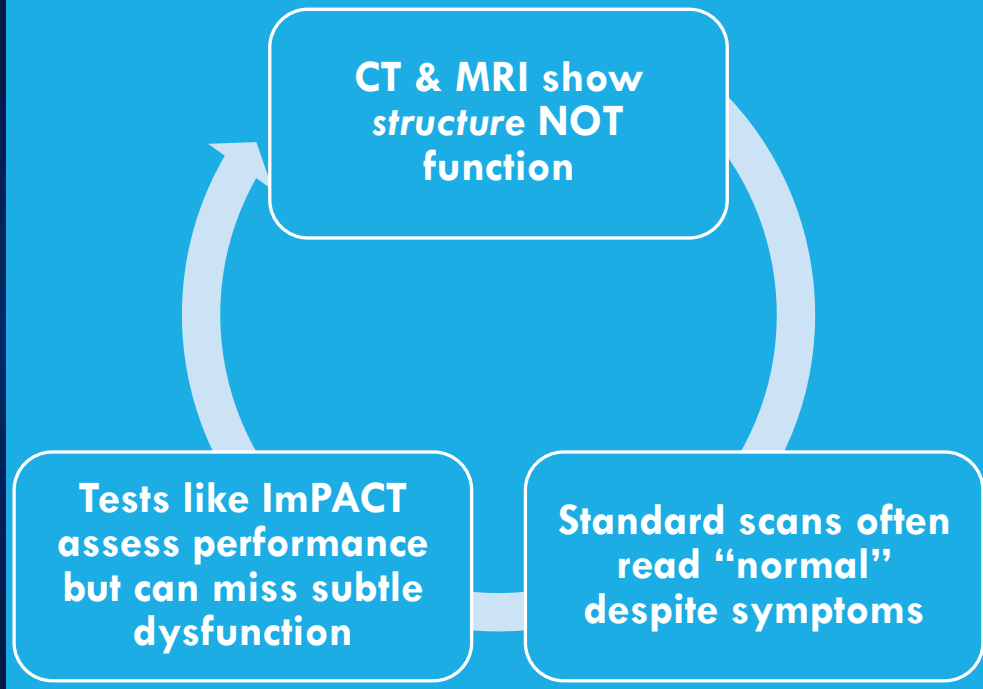
- Brain Fog
- Memory & Forgetfulness
- Persistent Headaches
- Dizziness & Balance Problems
- Light / Noise Sensitivity
- Mood Changes / Fatigue

Many patients don't look "sick" on routine scans — but functionally the brain is dysregulated.

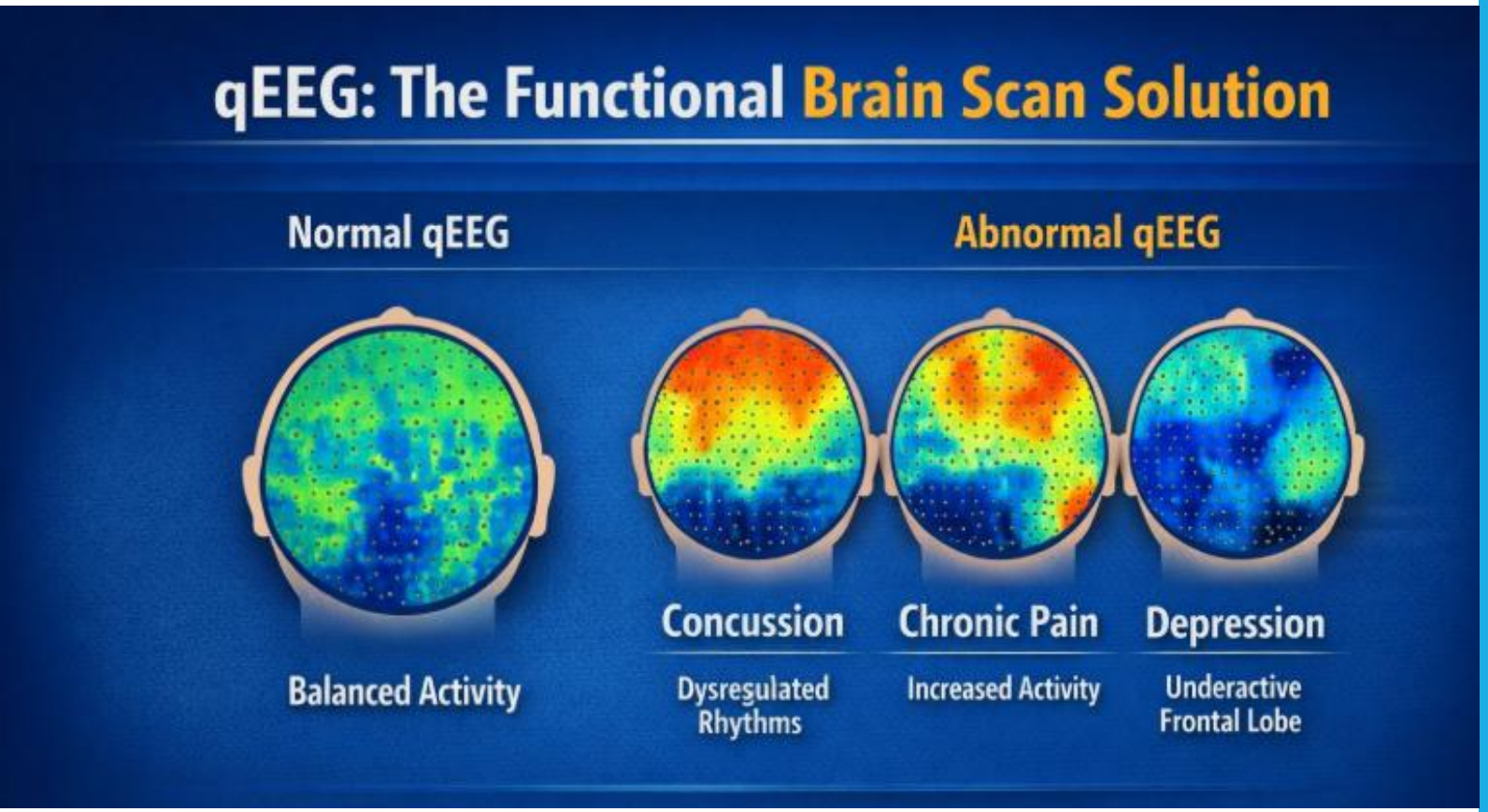
Why Standard Medicine Sometimes Misses Concussion.



This is why some patients are told "everything looks fine" yet they still suffer.



QEEG: THE FUNCTIONAL BRAIN SCAN SOLUTION



qEEG uncovers patterns standard imaging can't especially in persistent post-concussion symptoms (PPCS).

Quantitative EEG (qEEG)

Maps electrical activity of the brain

Reveals dysregulated rhythms linked to symptoms

Helps tailor targeted treatment

SIDNEY CROSBY: A REAL-WORLD EXAMPLE

- Sidney Crosby suffered a prolonged concussion in 2011 and struggled with ongoing symptoms that **standard medical care did not fully resolve.**
- After months of limited progress with conventional care, Crosby sought treatment with Dr. Ted Carrick, a specialist in chiropractic neurology and functional approaches
- He made **substantial progress,** particularly with motion and balance training, under this functional neurology care and was able to return to professional hockey at a very high level.

Sidney Crosby's recovery to include more treatment from chiropractor

CONCUSSION REHABILITATION: STRUCTURE VS FUNCTION

Concussion Structure Approach

Standard Medical

1. Structural imaging
2. Symptom management (Medications)
3. Rest & return protocols

Concussion Functional Approach

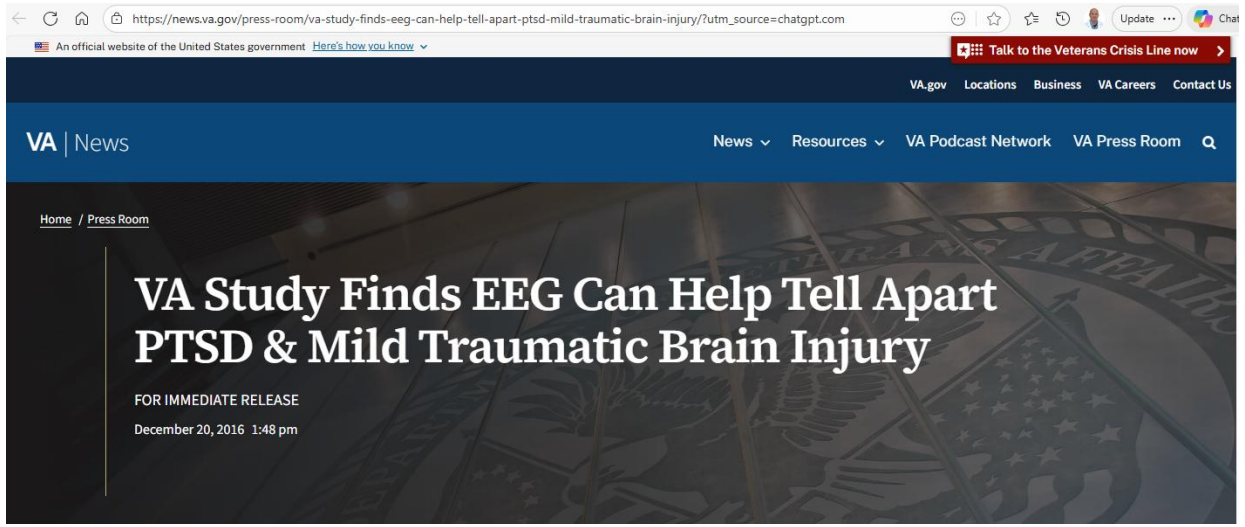
Functional Chiropractic Neurology

1. Functional brain mapping (qEEG)
2. Targeted brain network rehabilitation
3. Neuroplasticity-driven therapies

STEP 1: ADVANCED DIAGNOSIS

Functional Evaluation Includes:

- ✓ qEEG brain wave mapping
- ✓ Vestibular / balance testing
- ✓ Oculomotor (eye movement) assessment
- ✓ Autonomic nervous system evaluation



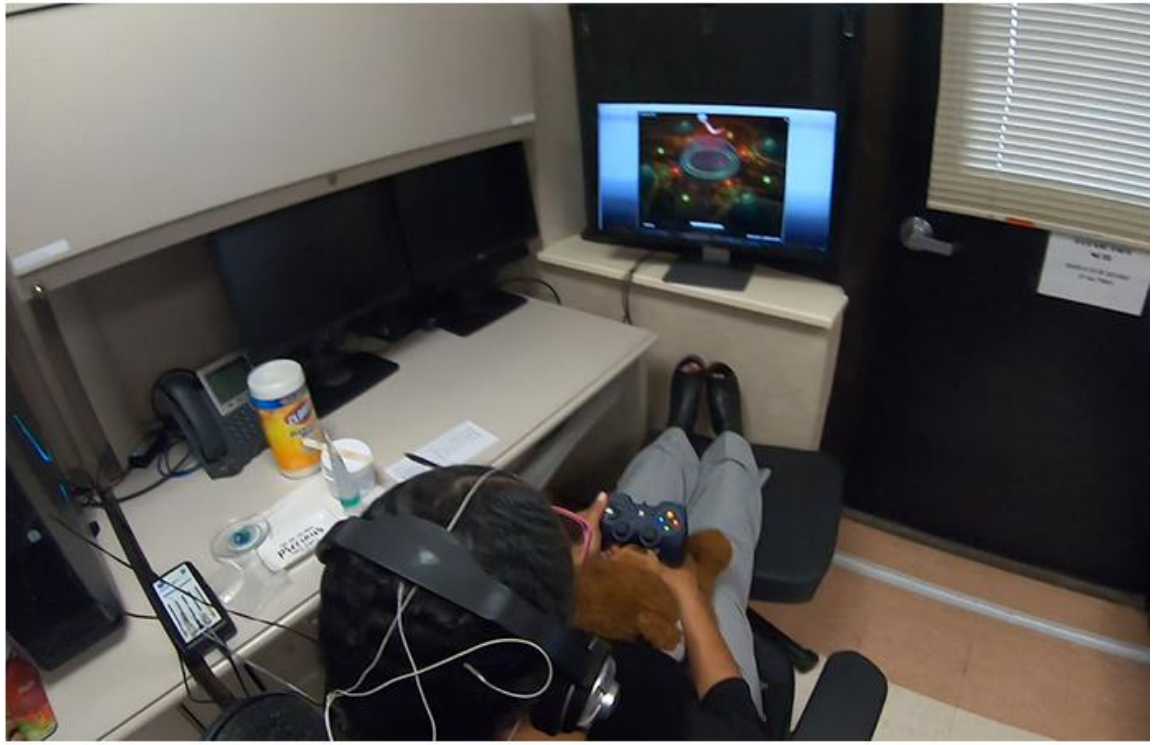
"That's the holy grail," said Franke. "We want to use the EEG to differentiate the problems, but also to predict recovery and be able to measure how people are doing in a more biological way than just measuring symptoms, although those are still relevant. But symptoms are also problematic because they're influenced by so many things that aren't the disease that we're interested in."

→ Precision diagnostics reveal *where the brain isn't communicating properly, which allows for* guiding treatment.

STEP 2: TARGETED TREATMENT MODALITIES

- **Neurofeedback:**
- Re-programs brainwave patterns through real-time feedback.
- Research shows protocols like ILF neurofeedback can improve post-concussion symptoms vs standard care alone.

VA RESEARCH CURRENTS
Research News from the U.S. Department of Veterans Affairs



Specialized equipment translates brainwaves into sensory input the brain can use to self-regulate.
(Photo by Judy Carlson)

Individualized neurofeedback relieves concussion symptoms

STEP 2: TARGETED TREATMENT MODALITIES

Low-Level Laser / Photobiomodulation

Helps reduce neuroinflammation & support cellular energy/metabolism

REVIEW article

Front. Neurol., 13 May 2025

Sec. Neurotrauma

Volume 16 - 2025 | https://doi.org/10.3389/fneur.2025.1560777

Non-invasive therapeutics for neurotrauma: a mechanistic overview

STEP 2: TARGETED TREATMENT MODALITIES

Vagus Nerve Stimulation (VNS)

Modulates brain network communication and autonomic balance.

Clinical reports link non-invasive VNS with symptom improvement in post-concussion patients.

frontiers in Neurology

Front Neurol. 2025 Aug 26;16:1642034. doi: 10.3389/fneur.2025.1642034

Non-invasive vagus nerve stimulation is associated with the reduction in persistent post-concussion symptoms: an observational study

Michael Ament [1], Emily Leonard [1], Peter S Staats [2], Norianne T Ingram [3,*]

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PMCID: PMC12420837 PMID: 40937177

STEP 2: TARGETED TREATMENT MODALITIES

Light & Sound Entrainment

Shifts brain states (relaxation → focus) through rhythmic sensory stimulation and complements neurofeedback.

ELSEVIER

Ageing Research Reviews

Volume 101, November 2024, 102547

Review article

Harnessing Brainwave Entrainment: A Non-invasive Strategy To Alleviate Neurological Disorder Symptoms

Mehar Sahu [a], Rashmi K. Ambasta [b], Suman R. Das [b], Manoj K. Mishra [c], Anil Shanker [d], Pravir Kumar [a 1 2]

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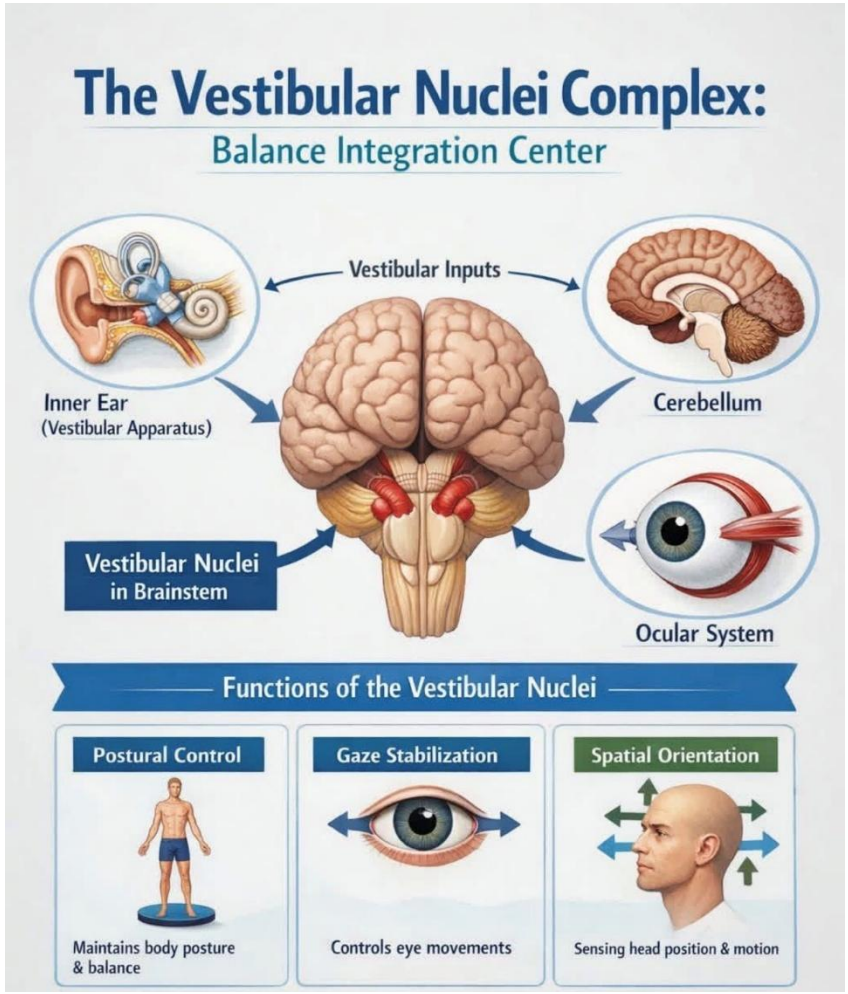
STEP 2: TARGETED TREATMENT MODALITIES



Vestibular & Eye Movement Rehab

Targets balance, motion sensitivity, and visual tracking dysfunction common after concussion.

Clin Sports Med. Author manuscript; available in PMC: 2016 Apr 1.

Published in final edited form as: Clin Sports Med. 2015 Jan 24;34(2):213–231. doi: 10.1016/j.csm.2014.12.005

Current and emerging rehabilitation for concussion: A review of the evidence

Steven P Broglio [1,2], Michael W Collins [3], Richelle M Williams [1], Anne Mucha [3,4], Anthony Kontos [3]

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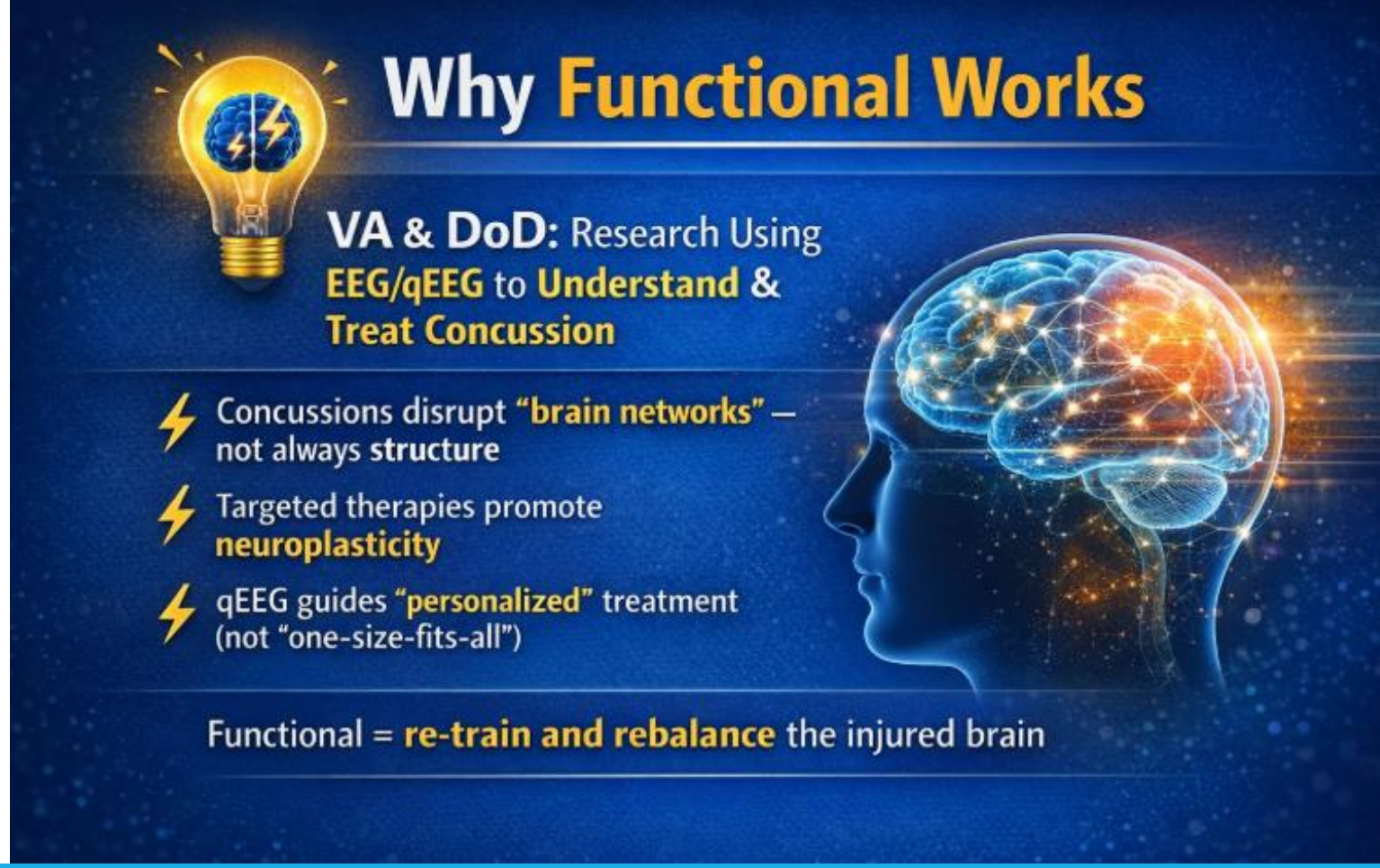
PMCID: PMC4387881 NIHMSID: NIHMS650269 PMID: 25818710

- Concussions disrupt *brain networks* not always structure
- Targeted therapies promote neuroplasticity
- qEEG guides *personalized* treatment (not “one-size-fits-all”)



WHY FUNCTIONAL WORKS

YOU DON'T HAVE TO SETTLE FOR "NORMAL SCANS, NORMAL REPORTS AND JUST REST". YOU HAVE OPTIONS!

Functional brain evaluation → Precise care → Measurable recovery!

Take control of your health!

McMaster University

Continuing Professional Development (CPD) Office

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Web: [redacted]er.ca/events/chse

November 17, 2021

Dr. Jason Mazzarella
28 Finch Avenue West, Suite 212
Toronto, Ontario M2N2G7

RE: Whiplash Traumatology and Treatment: Injury Mechanisms, Neurophysiology, Pain, Special Testing and Treatment

Dear Dr. Mazzarella,

We have reviewed the application for the Whiplash Traumatology and Treatment: Injury Mechanisms, Neurophysiology, Pain, Special Testing and Treatment Program to commence as of March 5, 2022. We are pleased to inform you that this program has received endorsement for the period from December 1, 2021 – November 30, 2023.

The Whiplash Traumatology and Treatment Program meets the standards, polices and ethical guidelines outlined in the McMaster CPD Guidebook for Planning, Developing and Delivering Continuing Health Sciences Education Activities. As per the Faculty of Health Sciences Policy you can use the McMaster University/Faculty of Health Sciences name and/or logo in indicating the Office of CPD endorsement with the Whiplash Traumatology and Treatment Program.

YOU DON'T HAVE TO SETTLE FOR "NORMAL SCANS, NORMAL REPORTS AND JUST REST". YOU HAVE OPTIONS!

Functional brain evaluation → Precise care → Measurable recovery!

Take control of your health!

College of Osteopathic Medicine
MICHIGAN STATE UNIVERSITY

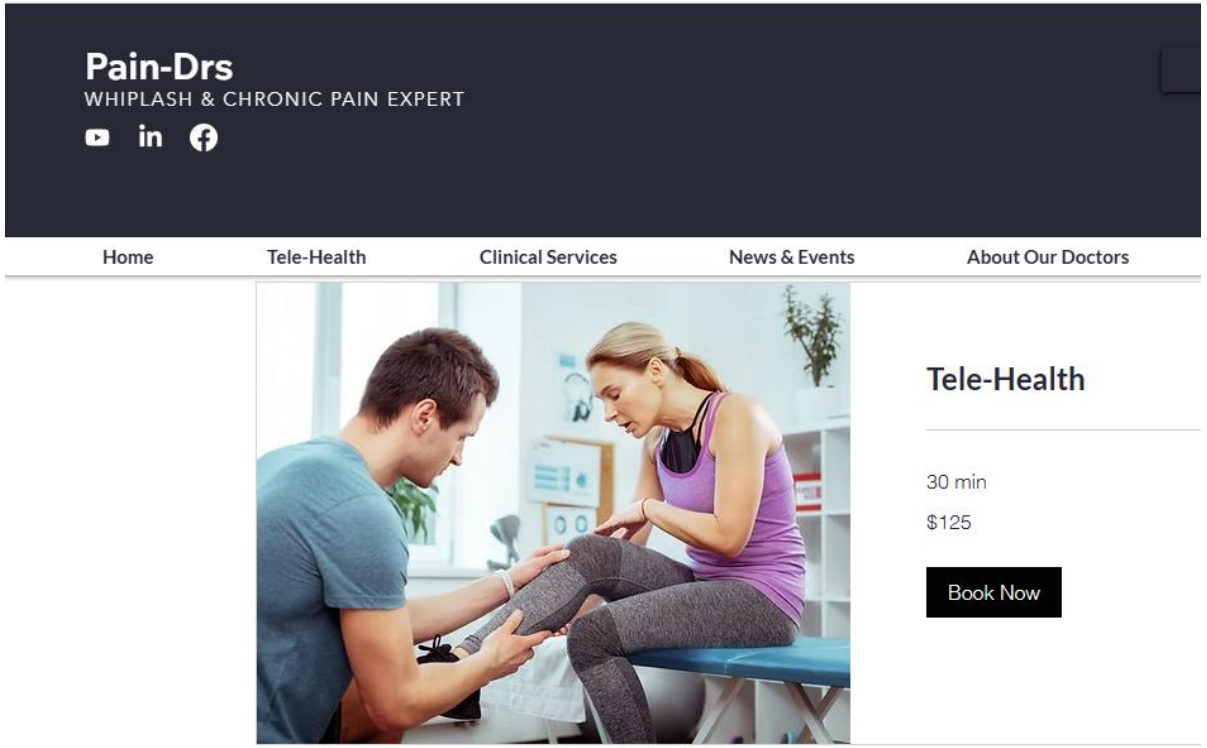
August 12, 2021

Jason Mazzarella, DC
28 Finch Avenue West, Suite 212
Toronto, Ontario M2N2G7

Dr. Mazzarella,

Your request for accreditation of the "**Whiplash Traumatology and Treatment**" series which begins **March 5, 2022**, has been approved by the Michigan State University College of Osteopathic Medicine Office of Continuing Medical Education, for up to ***31.75 AMA PRA Category 1 Credit(s)™***.

Please use the following statement for all advertising. If you are advertising the entire series, you will use the 31.75 credit count in the statement. If you are advertising the individual modules, please change the statement to reflect the actual module hours/credits (i.e., each module is 3 hours/credits).



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