VOX*NEURO*

UNLOCKING THE BRAIN

Healthcare Provider Brochure

A scientific breakthrough in brain injury management.

VoxNeuro provides the world's first objective concussion and acquired brain injury assessment that steps beyond diagnosis. We deliver quantitative insights on patients' brain function that inform, accelerate, and track recovery with unprecedented precision.

VOXNEURO's Cognitive Health Assessments™ empower healthcare providers to:

• Tailor rehab to a patient's unique needs
• Optimize treatment
• Track recovery
• Confirm when a patient is ready to return to regular activity, or inform if long-term accommodations are required

Backed by 25+ years of globally funded research

Health Canada cleared lab developed service

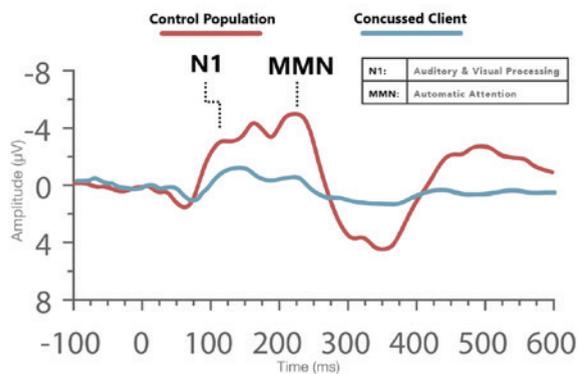**Patented protocol & proprietary algorithms**

The Science

Our proprietary methods include adapted industry-validated and novel neuropsychological tests with simultaneous electroencephalography (EEG) recording. By leveraging widely used and validated assessment methods and pairing them with EEG, we transform what would be qualitative results from traditional testing into objective, quantifiable measurements of brain function that support informed clinical decision making.

This is achieved through a series of tasks that trigger event related potentials (ERPs) in a patient's brain, captured by EEG. Different ERPs are indicative of a patient's performance in their core cognitive functions including: **executive function, language comprehension, working memory, automatic attention, reactive attention, concentration, information processing, auditory processing, and visual processing**. The integrity of these functions are essential for a patient's ability to complete daily activities, well-being and quality of life.

Our reports target the patient's performance, captured through their brain's electrical activity (example brain wave recording seen in Figure 1), in each core function by comparing their response strength and timing to our healthy control database.

Figure 1

How Cognitive Health Assessments™ are different from traditional EEG

You may have had experience with EEG in the past. Traditional EEG is commonly used, with qEEG becoming more common, to assess seizures and sleep disorders. In some cases, they may also be used to help assess severe brain injuries. EEG testing available in most clinics and hospitals is capable of capturing ongoing brain-signals and oscillations passively (e.g., alpha and beta brain waves), and is commonly known as "resting state". Clinicians typically 'read' traditional EEG scans free-form. qEEG is an improvement on traditional EEG in the way it analyses a patient's data, statistically comparing their results to healthy controls.

VoxNeuro's Cognitive Health Assessments™ use world leading FDA and Health Canada approved EEG equipment. These systems vastly expand the range of measurable brain activity by enabling direct measurement of the brain's responses to stimulation and cognitive tasks. We track a patient's active responses to a range of tasks and stimuli instead of resting state. This active engagement with stimuli throughout testing, which can be thought of as a stress-test or performance-test for the brain, is how VoxNeuro is able to provide objective data on specific brain functions that require rehabilitation.

VOX*NEURO* in the Patient Care Pathway

VoxNeuro's Cognitive Health Assessments™ are a Health Canada cleared lab developed service.

Referrals are accepted from physicians, nurse practitioners or clinical specialists such as neuropsychologists, occupational therapists and speech language pathologists, helping manage a patient's concussion or traumatic brain injury.

Our reports are to be used by the referrer as an assessment tool to assist in a patient's diagnosis and treatment. The insights provided objectively inform next steps in a patient's care plan, allowing for customization of treatment specific to the core functions identified as performing outside of the patient's healthy controls.

Follow-up assessments are recommended to help determine whether rehabilitation has been effective or if alternate methods should be tried, to inform if a patient can be medically cleared to return to regular activity, or inform if long-term accommodations are required.
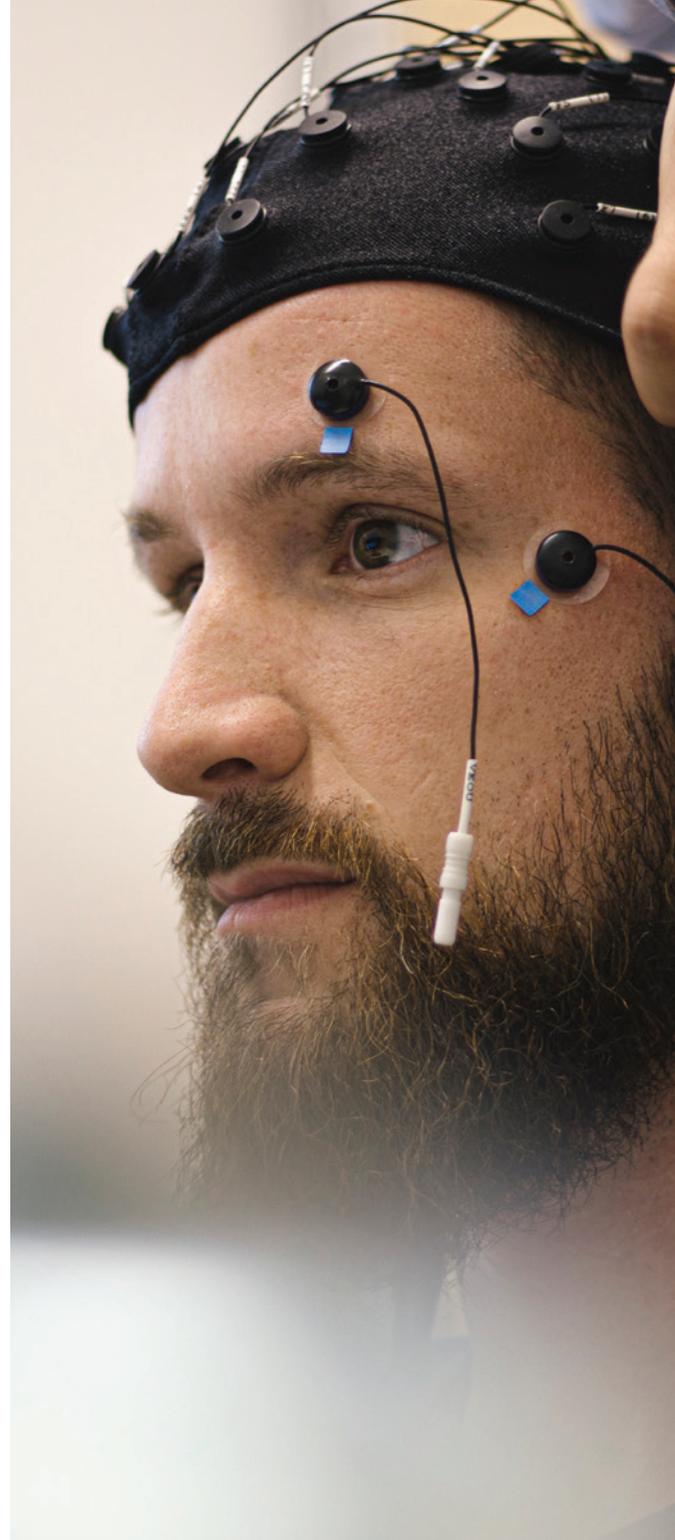
Contact us

Book a Cognitive Health Assessment™:
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Foundational Research

Dr. John F. Connolly is the Chief Science Officer and co-founder of VoxNeuro. He holds the Senator William McMaster Chair in Cognitive Neuroscience, is the founding director of the ARiEAL Research Centre, and co-directs the Language, Memory and Brain Lab. He is an author on over 330 articles, chapters, and presentations most of which involve EEG/ERP, MEG and MRI studies of cognition in health and brain pathology.

Dr. John F. Connolly

The scientific breakthrough in brain assessment

In 1999, Dr. Connolly was the first person in the world to demonstrate that a patient (mis)diagnosed as being in a vegetative state was actually in a locked-in state, meaning they were fully functioning cognitively but experiencing near-complete physical paralysis. After 9 months of successful cognitive rehabilitation efforts, the patient had regained complete motor control and was discharged, walking himself out of the hospital. This landmark case led to the development of EEG-based methods of assessing conscious states and mental functions in patient populations including autism, vegetative state, coma, and concussion. This research forms the foundation of VoxNeuro's Cognitive Health Assessments™.

Concussion is no longer the 'invisible injury'

Since 2015, a dedicated focus has been on the application of VoxNeuro's technology to assess concussions. Founded in research on one of the largest studies of living ex-football players to date, VoxNeuro's Cognitive Health Assessments™ were proven alongside traditional methods of assessments with the ability to provide objective insights on cognitive function otherwise impossible to obtain.

Visit **www.voxneuro.com** for a collection of publications and peer reviewed journals documenting the evidence based research behind the methods performed in VoxNeuro's Cognitive Health Assessments™.

Key benefits:

- No baselines required
- Provide objective proof of injury*
- Objectively inform rehabilitation
- Accelerate treatment and track recovery
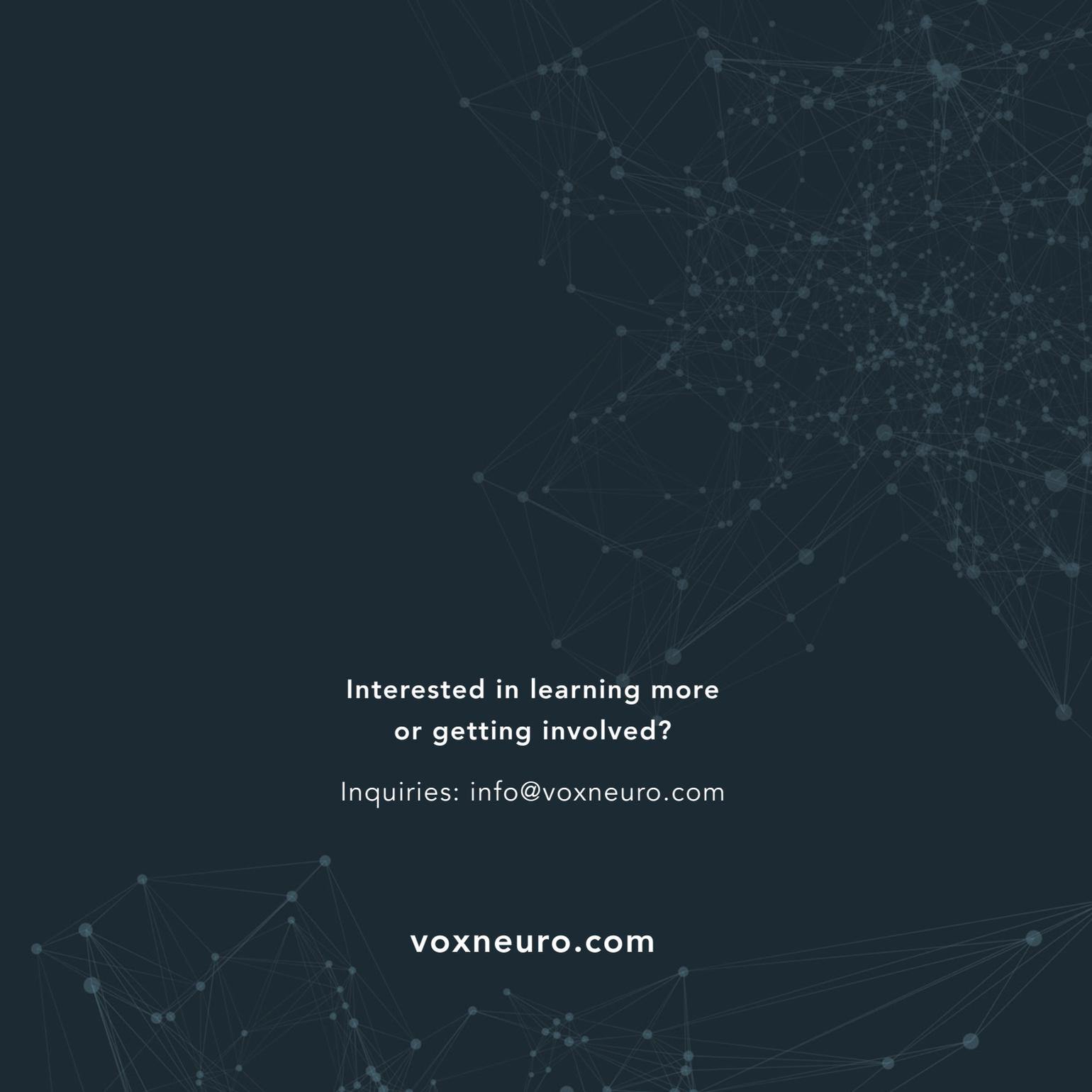- Deliver better patient outcomes
- Streamline healthcare resources
- Increase patient throughput

*VoxNeuro's Cognitive Health Assessments™ objectively confirm if cognitive deficits are present as a result of an injury. They do not confirm the cause of the injury.

**Interested in learning more
or getting involved?**

Inquiries: info@voxneuro.com

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