

## **New Study Shows Neuro Kinetics' I-Portal® Devices Objectively Measure and Track Concussion Signs**

**PITTSBURGH, PA. June 21, 2017:** Neuro Kinetics, Inc. (NKI), the global leader in clinical eye tracking and neural functional assessments, has co-authored a study indicating that a battery of OVRT (oculomotor, vestibular, and reaction time) tests, in combination with NKI's I-Portal® devices, can accurately measure mTBI (concussion) symptoms both initially and during convalescence. The study was conducted in conjunction with investigators from the Madigan Army Medical Center, San Diego Naval Medical Center, the University of Miami Miller School of Medicine and the University of Pittsburgh. The study is summarized in the paper, "[The Use of Oculomotor, Vestibular and Reaction Time Test to Assess Mild Traumatic Brain Injury \(mTBI\) Over Time](http://onlinelibrary.wiley.com/doi/10.1002/lio2.74/full)," <http://onlinelibrary.wiley.com/doi/10.1002/lio2.74/full>.

Co-lead author, Michael Hoffer, M.D., of the University of Miami Miller School of Medicine states, "It appears we have found a tool that may both objectively detect concussions and be used to monitor the subacute concussion recovery of those patients."

Concussions, or mTBIs, remain a growing public health concern, particularly in the absence of objective diagnostic devices. Physicians are anxious for devices that swiftly and reliably measure concussion symptoms over time. Such a tool is an important contribution to individual therapy plans because it helps physicians determine the safest time to clear patients to return to the sports field, battlefield or daily activities.

The study compared acute data on patients (average of 2.5 days post-event) to two other times during recovery (8 and 16 days, on average). The 83 patients classified as concussed in the acute setting were all initially diagnosed as being concussed by an Emergency Department doctor following military diagnostic protocols. Neuro Kinetics OVRT protocol, using their I-Portal device, was determined to have exceptionally high sensitivity and specificity, as indicated by an Area Under the Receiver Operator Characteristic Curve of .96 in this publication (comparable to the .97 AUC in Balaban, Hoffer, et al, "[Oculomotor, Vestibular, and Reaction Time Tests in Mild Traumatic Brain Injury](http://tinyurl.com/yc78jrvn)," <http://tinyurl.com/yc78jrvn>). Because these tests are based on outliers to population norms, they offer the considerable advantage of not requiring baseline testing for objective documentation.

Analysis of the study's longitudinal data suggests that a reliable, objective metric for monitoring the progression of a given concussion is now available. University of Pittsburgh professor and co-lead author Dr. Carey Balaban said, "We objectively identified a shift in the number of patients classified as 'mTBI-positive' to 'mTBI-negative' between the first and third test session." It is notable that after the third test session, 47% of the subjects initially diagnosed in the Emergency Department with a concussion still tested as mTBI positive, indicating that testing protocols may need to be extended



## The Science to See™

Other studies report a recent, steady rise in emergency department visits involving concussions. These patients are increasingly referred to physical therapy clinics for vestibular and oculomotor rehabilitation. Drs. Hoffer and Balaban both noted the utility of a reliable and objective measurement tool running a selected battery of OVRT tests to help vestibular rehabilitation specialists monitor a patient's recovery, especially if the tool is easy to use and scales to meet the needs of doctor's practices.

“There can be no greater validation or reward for this bold team of engineers and scientists,” says Howison Schroeder, CEO of Neuro Kinetics, “than seeing these transformational findings recognized and shared among medical professionals.”

The Department of Defense has played a vital role in the search for technology to solve the concussion conundrum by funding numerous mTBI studies, including this one with Neuro Kinetics. Additional funding was provided by NKI, the University of Miami, Head Health Challenge II sponsors (General Electric Corp., the National Football League and UnderArmour®, Inc.) and the US Army Medical Research and Materiel Command under Contract No. W81XWH-12-C-0205.

To learn more about NKI, please visit [www.neuro-kinetics.com](http://www.neuro-kinetics.com).

### MEDIA CONTACTS:

Susan Zelicoff  
VP Marketing and Sales  
Neuro Kinetics, Inc.  
Office: 412-963-6649  
[susan@neuro-kinetics.com](mailto:susan@neuro-kinetics.com)

Jennifer Smith  
Director of Media Relations  
University of Miami Miller School of Medicine  
Office: 305-243-3018  
[jennifer.smith@med.miami.edu](mailto:jennifer.smith@med.miami.edu)

Joseph Miksch  
Director of Media Relations  
University of Pittsburgh  
Office: 412-624-4356  
Mobile: 412-997-0314  
[jmikschr@pitt.edu](mailto:jmikschr@pitt.edu)

ABOUT NKI  
The Science to See™



### **The Science to See™**

Neuro Kinetics, Inc. (NKI) is the leader in clinical eye-tracking and non-invasive neuro-otologic diagnostic testing. Research shows that abnormal eye responses can help to diagnose more than 200 diseases and medical conditions. With 20 issued patents and over 140 installations, NKI's FDA cleared I-Portal® devices are sold to audiologists, ENT's, neurotologists, neuro-ophthalmologists and neurologists around the globe. The company's cleared diagnostic platforms include the I-Portal® NOTC (Neuro-Otologic Test Center), I-Portal® VNG, (Video Nystagmography) and I-Portal® VOG (Video Oculography), along with related accessories, software, training and support services.