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NEURO KINETICS ANNOUNCES TRANSFORMATIONAL CONCUSSION PAPER PUBLISHED ON PLOS One

PITTSBURGH, PA (November 29, 2016) — Neuro Kinetics, Inc. (NKI), the leader in clinical eye-tracking and non-invasive neuro-otologic diagnostic testing, announced today the publication of an important study in the field of concussion detection that illustrates the potential clinical utility of an integrated, multi-modal battery of oculomotor, vestibular, and reaction time (OVRT) tests. The paper, titled "Oculomotor, Vestibular, and Reaction Time Tests in Mild Traumatic Brain Injury" (http://dx.doi.org/10.1371/journal.pone.0162168), is jointly authored by investigators from the University of Pittsburgh, San Diego Naval Medical Center, Madigan Army Medical Center, NKI, and the University of Miami Miller School of Medicine.

The results of this novel study indicate the value of a clinical tool that can aid doctors in the timely and objective detection of concussive symptoms. "Objective diagnosis is vital in the management of concussion. This study will pave the way for tools that can be used at the point of injury, as well as in the emergency room or a provider's office," says Michael E. Hoffer, M.D., co-lead author and Professor of Otolaryngology at the University of Miami Miller School of Medicine.

Concussions and mild traumatic brain injuries (mTBI) are diagnosed following a head injury when the Glasgow Coma Scale is 13 or greater and the loss of consciousness and/or confusion is less than 30 minutes. Most TBIs that occur each year are mild, commonly called concussions. According to a 2016 report from the U.S. Centers for Disease Control (CDC), TBIs accounted for approximately 2.5 million emergency department (ED) visits, hospitalizations, or deaths in the U.S. in 2010. Concussions contributed to approximately 50,000 deaths in 2010. The number of mTBIs is believed to be higher than 2.5 million annually, however, given that ED visits for a TBI have trended up in recent years (CDC cites a 70% increase during the period 2001–2010), and many who are injured do not visit an ED or hospital for assessment or treatment.

Individuals with mTBI can complain of short-term or long-term cognitive problems, headaches, attention deficits, sleeping issues, and/or light sensitivity. While any one concussion may not be debilitating, multiple concussions — particularly if repeat concussions happen before the patient has recovered — can "add up," and cumulative effects can be devastating.

The 18-to-45-year-old male and female population on whom data were collected participated in a battery of OVRT tests on I-Portal® NOTC's (Neuro-Otologic Test Centers) at the University of Miami Miller School of Medicine, San Diego, and Madigan Army Medical Center. The

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researchers evaluated and compared one set of 100 controls to 50 concussions (mTBI), “Cohort 1”, and a second set of 100 controls to 50 concussions, “Cohort 2”. The subjects had all been diagnosed as concussed by an emergency room doctor. Testing occurred approximately 2.6 days post-concussive event on average.

The study results reveal promising sensitivities and specificities exceeding 97% and 89%, respectively.

“It is no surprise that no single test was able to generate results that clearly identify a concussion. Rather, successful separation of controls from concussions required a combination of tests,” says Howison Schroeder, CEO of Neuro Kinetics.

The study protocol included sixteen OVRT tests, ten of which are already cleared by the U.S. Food & Drug Administration (FDA) for vestibular and neuro-otologic evaluation. Lead author Dr. Carey Balaban, Professor of Otolaryngology, Neurobiology, Communication Sciences & Disorders, and Bioengineering at the University of Pittsburgh, states: “This study provides a basis for a new generation of objective diagnostic tools for concussion that uses traditional oculomotor and vestibular tests. It offers the considerable advantage of not requiring baseline testing.”

“We are excited by such highly sensitive and specific results, and thank the Department of Defense for supporting such a transformational study,” says Schroeder.

Majority funding for this study was provided by the Department of Defense’s U.S. Army Medical Research and Materiel Command and its Hearing Center of Excellence under Contract No. W81XWH-12-C-0205. Additional funding was awarded by the Head Health Challenge II sponsors, which include the National Football League, Under Armour, Inc., and General Electric Company.

To learn more about NKI, please visit www.neuro-kinetics.com.

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ABOUT NKI
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Neuro Kinetics, Inc. (NKI) is the leader in clinical eye-tracking and non-invasive neuro-otologic diagnostic testing. The eye is the portal to the brain and research has shown the detection of abnormal eye responses are used to diagnose more than 200 diseases and medical conditions.

With over 140 I-Portal 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 patented 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.