



COGSPEED™

“CONTINUAL COGNITIVE RISK ASSESSMENT FOR HEAD TRAUMA”

THE NEED

CONCUSSION SCREENING ON THE ATHLETIC FIELD:

The risk of concussion at all levels, from Little League to high school, from college to professional sports is finally being recognized as major threat to the health of athletes of any age. More and more research is alerting the public the long-term health effects of sports-related Traumatic Brain Injury, or TBI. Some studies suggest that females are twice as likely to sustain a concussion as males. The sport with the highest risk of concussion is not football, soccer, gymnastics, or boxing, but synchronized swimming. But the point is that almost all sports, not just contact sports, carry a risk of head injury and that a quick and easy mechanism to screen for a potential concussion is vitally needed.

Whenever a strong blow to the head is suspected, the athlete must be immediately evaluated before being allowed to return to the game. But all athletes should be quickly and rapidly screened before the game and rechecked again at the conclusion of the game. Most athletes are reluctant to report mild head trauma because they want to continue to play. However, over time, even a small number of blows to the head can eventually cause long-term harm.

Studies show most head injuries occur during practice simply because athletes spend much more time in practice, and in addition, they may not have yet learned the protective skills needed to protect against head trauma. However, during practice, unlike most actual competitions, there is usually no trained staff available for concussion diagnosis. A simple means of rapidly screening the cognitive integrity of each athlete during and after practice could potentially identify that he is at risk of permanent damage. A method to rapidly notify medical staff to conduct further evaluation is required. Parents may also want to be notified immediately if their child fails a screening test.

CONCUSSION SCREENING ON THE BATTLEFIELD FIELD AND ACCIDENTS

Head trauma to soldiers is not always evident and is often overlooked when other injuries are present. There is currently no reliable way to screen for mild concussion on the battlefield. There is no way to tell if disorientation from a blast is temporary or caused by TBI that will need further medical attention. Similar problems can occur in the civilian population from car accidents and the like.

FOLLOW UP RECOVERY DURING REHABILITATION

For TBI requiring a recovery phase, rehabilitation, or physical therapy, continual evaluation of cognitive performance is required. A patient should be tested quickly several times every day for possible improvement or deterioration, especially for a decision about when to allow the athlete to return to play. It is usually impractical for a patient requiring long-term recovery to visit a doctor's office day after day, much less several times a day for cognitive evaluation. Most cognitive evaluation tests take about thirty minutes to administer and could make some conditions worse. They require trained personnel using desk-top computers to administer and aren't suitable for repeated administration over a long periods at home. The doctor should receive the results of cognitive testing immediately, and summarized trend data should be clearly presented. In addition, the effects of pharmaceuticals should be frequently monitored for causing excessive drowsiness, and the dosage adjusted as necessary.

THE CUTTING EDGE SOLUTION: *CogSpeed*

A revolutionary technology is now under development to help in screening for anyone suffering a concussion or TBI. Functioning like a “speedometer for the brain,” *CogSpeed* quickly and accurately measures instantaneous information processing speed, which is closely associated with how well one can perform complicated real-world tasks. If cognitive processing speed is below normal, it indicates a high risk of performance impairment that can be caused by a number of factors, including traumatic brain injury.



FIVE INTEGRATED COMPONENTS:

- **CogSpeed Cognitive Performance Test** - Download to any mobile device
- **E-mail Alerting System.** - instant notification of cognitive impairment to appropriate individuals
- **Gray Matter Metrics Database** - permanent, secure data storage, including geo-location
- **Human Risk Assessment Monitor** - Immediate display of cognitive status for entire group
- **Control Portal** - Efficient user enrollment and account management

SOPHISTICATED HUMAN FACTORS DESIGN PRINCIPLES

- Specifically developed for real-time monitoring in everyday environments
- Minimal intrusion - fast results in about 45-90 sec
- Easy to learn to achieve a stable baseline
- Countless world-wide applications - no language requirement
- Works on any mobile device, anywhere
- Repeat testing as often as the situation demands
- Computer-based adaptive algorithm detects faking
- Password-protected login
- Supervisors take real-time corrective action



BENEFITS AND COST SAVINGS

- Immediate assessment of suspected head injury
- Assistance in return-to-play decisions
- Routine screening of every player immediately after the event
- Expedited medical intervention
- Rapid notification of off-site health care providers
- Notification of administrators and parents
- Monitor recovery in both the clinic and the home
- Remote evaluation of drug effects
- Extremely low cost technology for monitoring large groups of people
- CogSpeed testing also detects fatigue, alcohol impairment, and senility

THE BUSINESS OPPORTUNITIES

Based on Software as a Service (SaaS), rapid and unlimited cognitive testing, complete data storage, impairment alerts by e-mail, and entire team, league, or school district data visualization can be achieved at a very economical per athlete cost. Taking positive steps for concussion screening of athletes on the field will lead to reduced liability and insurance costs for schools and organizations sponsoring those events.

Combining minimum overhead, high ROI, and advanced, proprietary technology, *CogSpeed* has the potential to create and dominate the world market of behavior-based biometrics for monitoring cognitive performance. The universal nature of this single tool has countless applications throughout the world in situations where cognitive impairment must be rigorously and reliably evaluated. When people are curious about whether their cognitive capability has declined due to due to fatigue, alcohol, drugs, TBI, or senility, *CogSpeed* can help.



CONTACT

To find out how *CogSpeed* can deliver a revolutionary solution for your organization's cognitive monitoring requirements, call **Gray Matter Metrics, LLC**, at **(210) 867-7172** or e-mail lperel@me.com .