

## **Use of Objective Balance Assessment for Sports Concussion Management – The Equilibrate System**

The return-to-play decision is one of the most important events following concussion in an athlete. Misdiagnosis of sports concussion – especially a false negative – has the potential for serious, perhaps fatal, repercussions for long-term neurological and physical health. Conversely, unnecessary delay in return-to-play can have negative impact on the overall goals of the athlete and his or her team. Balance assessment plays a key role in this critical decision by providing additional information beyond important symptomatic diagnosis or cognitive testing. Subjective balance assessment, however, can blur the return-to-play decision by providing ambiguous or even false information regarding an athlete's neuro-physiological status. The Equilibrate System by Balance Engineering eliminates subjectivity from balance assessment by providing an affordable platform for the quantitative measurement of whole-body postural stability with output data that is interpretable, actionable, and rapidly delivered.

***Equilibrate provides unbiased, evidence-based, objective balance data for the most informed decisions in the critical areas of sports concussion management and return-to-play***

**A NEED FOR OBJECTIVE BALANCE ASSESSMENT** – In designing the Equilibrate System, Balance Engineering incorporated input from Sports Medicine Physicians, Athletic Trainers, Athletic Directors, Coaches, Athletes, and other health professionals to develop a balance assessment system to meet specific gaps in available tools for sports concussion management.



These needs included:

- ◆ An **easy to use** and **affordable** system that delivers rapid, objective, non-ambiguous, and actionable information regarding the current balance status of an athlete
- ◆ A testing platform that **removes subjectivity** and variability stemming from the dependency on human test operators
- ◆ **Quantitative output** that allows a direct comparison of post-concussion balance scores with pre-concussion baseline data, and also **tracks recovery** over time
- ◆ Fully **documented** and **evidence-based input** for the return-to-play decision, able to be archived for future referral

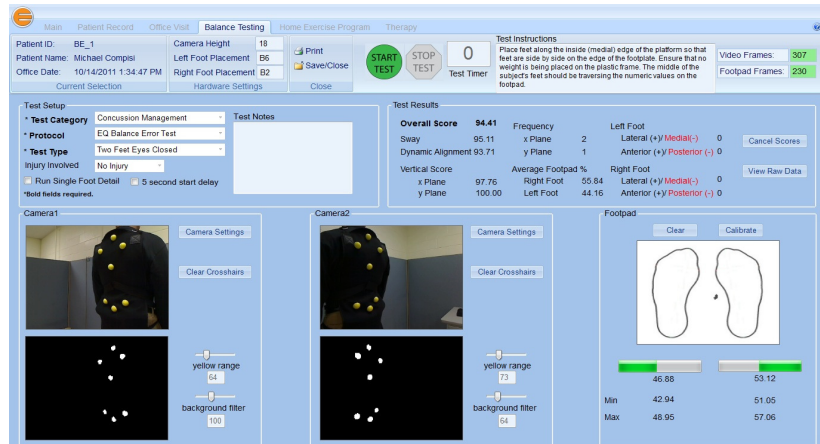
**In short, sports medicine professionals wanted more *dependable* and *objective* information about the true neuro-physical state of an athlete following a concussive event, contributing to a *more informed decision* for return-to-play...**

***The Equilibrate Balance System answers that need.***

**BALANCE ENGINEERING'S MISSION** – *The overriding priority throughout the concussion management process is the ultimate wellbeing of the athlete over the long term.* In developing an optimal system for balance assessment, experts at Balance Engineering addressed commonly voiced concerns and even fears of professionals seeking to manage sports concussion, including:

- ◆ The continual challenge to accurately and more completely diagnose possible concussion, especially in overenthusiastic athletes seeking to return to play at any cost
- ◆ Concern about the subjectivity of current methods of balance assessment, both in variable results of different test operators and also in the reported ability of athletes to “cheat” tests
- ◆ Acknowledged shortcomings in alternative elements of concussion management: (1) symptomatic diagnosis, dependent in part on accurate reporting by the athlete, and (2) neuro-cognitive testing, dependent on the presence of validated baseline tests, among other things

**THE EQUILIBRATE ADVANTAGE** – The computer-integrated Equilibrate System moves beyond current subjective balance tests and footplate-only center-of-pressure systems, to provide objective assessment of the athlete's *whole-body balance state*. Within minutes of a concussive event, tests can be carried out wherever the portable system has been set up (training room, office, hallway, gymnasium, or virtually anywhere). Sensitive inputs from two high definition (HD) cameras and individual left and right footplates record upper and lower body movement during a brief series of short, simple balance tests. Instantly, computational algorithms generate quantitative output of an athlete's postural stability, including an overall balance score, individual values for sway and dynamic alignment, frequency of movement, proportional weight distribution, and more, resulting in interpretable balance data for informed analysis by the sports concussion professional.



**THE EQUILIBRATE SOLUTION** – The Equilibrate System eliminates subjectivity from a key element of sports concussion diagnosis – that of *balance assessment* – by providing an objective and quantitative measure of whole-body postural stability in a platform that is user-friendly, portable, and able to deliver evidence-based results quickly and easily. Moreover, Equilibrate is priced for virtually any sized team or athletic department.

### Benefits of EQUILIBRATE to your concussion management program:

- ◆ **Affordable objective balance assessment:** The Equilibrate System provides rapid, objective, and actionable information regarding the balance status of an athlete during all phases of concussion management, including pre-concussion, immediately after a concussive event, and during recovery.
- ◆ **System ease-of-use and mobility:** Equilibrate is completely portable and sets up within 5 minutes. Balance assessment protocols such as the Equilibrate Balance Error Test (EBET) take as little as 5 minutes and can be conducted almost immediately after a concussive event.
- ◆ **Evidence-based documentation:** All test scores and activities are archived on Equilibrate and can be instantly accessed to show specific balance data contributing to the return-to-play decision.
- ◆ **Adaptability:** Balance assessment can occur either from professionally-developed pre-populated protocols or from protocols developed specifically *by you* to suit your athlete, sport, or level of activity. Equilibrate can also be used for *non-concussion applications* such as neuro-physical performance testing, injury rehabilitation, video-capture for playback, and identification of subtle ankle, knee, and hip instabilities.

**The Equilibrate System provides unbiased, evidence-based, objective balance data to the sports professional for the most informed decisions in the critical areas of sports concussion management and return-to-play.**

For additional information about Equilibrate, including sports concussion data and case studies, visit [www.balanceengineering.com](http://www.balanceengineering.com)

To schedule a demonstration or to arrange a free trial, call (585) 286-2205 or email [info@balanceengineering.com](mailto:info@balanceengineering.com)