

NeuroCom Systems are the Gold Standard in Postural Assessment and Rehabilitation Solutions for your Orthopedic patients

Preventing Injuries

NeuroCom Balance Systems can play a vital role in preventing injury. Balance is an important indicator of ankle, knee and hip instability. If a patient loses balance under certain assessment conditions – as compared to normative or baseline data – it could indicate orthopedic limitations or pain.

Assess knee stability: Use the Weight Bearing Squat protocol to assess knee stability throughout the full functional range of motion and identify otherwise unseen compensations that may lead to overuse injuries.

Biofeedback: Allows the clinician and patient to clearly pinpoint problem areas for improvement.

Identify areas of ankle instability in weight-bearing positions with the limits of Stability protocol which measures “off the block” reaction time, speed and accuracy of movement.

Comprehensive Reports: Easy to understand “red” and “green” reports based on normative data.



VSR SPORT



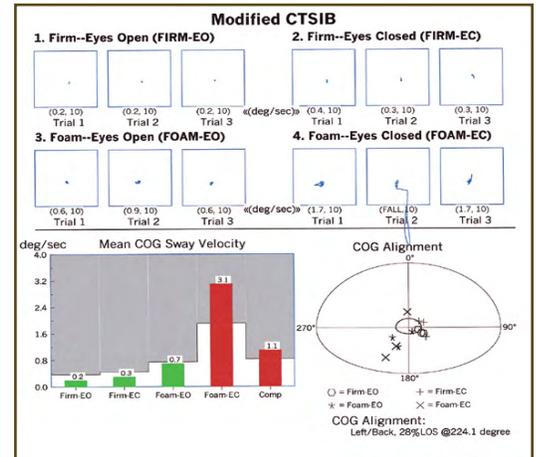
Balance Master®



SMART Balance Master®

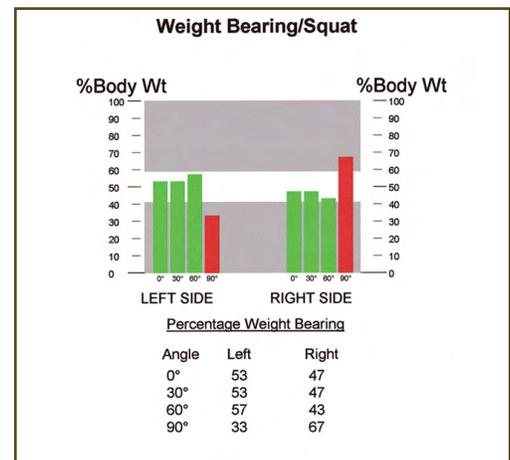
Objective Test Protocols

MODIFIED CLINICAL TEST OF SENSORY INTERACTION ON BALANCE (mCTSIB)



- Patient demonstrates abnormal sway velocity on foam with eyes closed
- This puts the patient at risk for losses of balance in environments that require high levels of balance control using vestibular cues, and may identify the cause of the perception of instability
- Using this data, rehab can be targeted toward further vestibular exam (important after concussion) and advocate for further vestibular function testing if indicated
- The patient can get the necessary follow up to ensure the best possible outcome, based on objective data

WEIGHT BEARING SQUAT (WBS)



- Patient continues to bear more weight on right leg, indicating either pain or continued instability (even subconsciously) in the left knee
- This puts the athlete at risk for injury on two levels
 - Overuse of the right leg
 - Instability in the left knee
- Using this data, rehab can be targeted toward maintaining midline position while strengthening and stabilizing the joint in different positions of knee flexion

TEST PROTOCOLS FOR ORTHOPEDIC BENEFITS

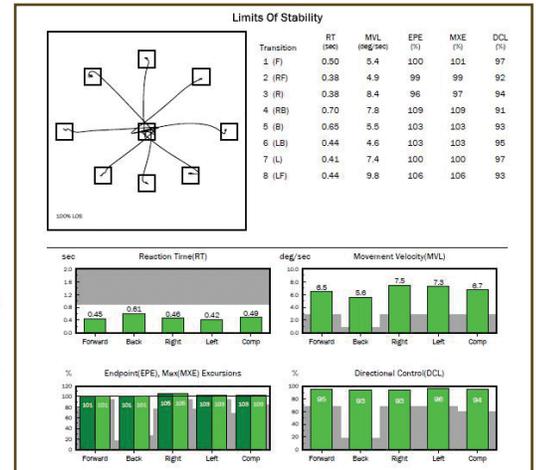
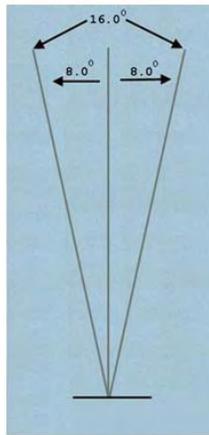
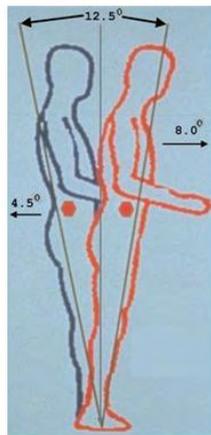
Objective Test Protocols

LIMITS OF STABILITY (LOS)



Anterior-Posterior
Total = 12.5°
8° forward
4.5° backward

Medial-Lateral
Total = 16°
8° right
8° left

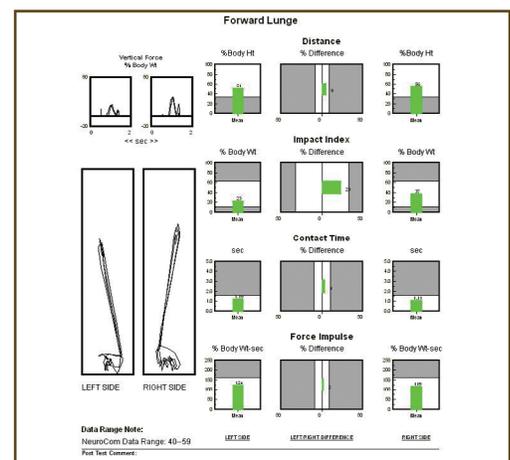


Limits of Stability - Who Should Be Tested?

- Athletes who are interested in rapid reaction responses and direction changes
- Patients recovering from sports injury who are interested in regaining optimal proprioception, strength and functional use of the lower extremities

Note how the end-point excursions (EPE) and maximal-excursions (MXE) are essentially equal, meaning the primary move toward the target was the same as the end distance – this indicates a high level of accuracy in movement trajectory.

FORWARD LUNGE (FL)



- Patient demonstrates normal scores on the forward lunge with slightly better performance on the right leg than the left
- Using this data, rehab can be targeted toward equalizing performance between the two legs

Additional Objective Test Protocols

SIT TO STAND (STS)

The STS quantifies the patient's ability to rise from a seated to a standing position. Key components of this task include shifting the body COG forward from an initial position over the seat to the final position over the feet. The body extends to an erect stand while maintaining the centered COG position. The measured parameters are weight transfer time, rising index (force exerted to rise), sway velocity after rising phase, and left/right symmetry of the rising force.

WALK ACROSS (WA)

The WA quantifies characteristics of gait as the patient walks across the length of the forceplate. The test characterizes steady state gait by having the patient begin well behind and continuing beyond the forceplate. Measured parameters are average step width, average step length, speed and step length symmetry.

STEP UP AND OVER (SUO)

The SUO quantifies motor control characteristics as the patient steps up onto a curb with one foot, lifting the body through an erect standing position over the curb, swings the other foot over the curb, and then lowers the body to land the swing leg on the force plate. Measured parameters are rising index (force to rise), movement time, and impact index (control of impact force descending onto the swing leg).



Objective documentation to assist with Performance-Based Outcomes

Tailoring effective rehab programs —Get patients up and moving after a joint injury or orthopedic surgery by adding balance into your rehabilitation program. With NeuroCom Balance Systems you can:

- **Design closed chain activities** for progressive weight bearing activities and surface complexity
- **Carry out sequence training** that provides custom treatments specific to the problems identified in assessment
- **Speed rehabilitation** by enabling joint replacement patients to monitor and improve their balance performance based on objective data

NeuroCom systems provide you the ability to document evidence of functional limitations and show great outcomes