

SPORTS INJURY RISK MANAGEMENT

PROTECT YOUR ATHLETES

Biodex technology helps manage specific sports injuries and determine safe return to play.



BIODEX
www.biodex.com
1-800-224-6339
Int'l 4631-924-9000

White Paper: Evolution of a Successful New Hamstring Rehabilitation Protocol to Reduce Hamstring Injury Recurrence

By Timothy F Tyler, PT, ATC¹

Two years after
Athletic Training
was as effective
internationally
As a result of
reduce re-injury
dynamometer
athlete is re-
reviewed sta-
years later,
on which it

Background: A
The 2015 NFL
injury incidence

• Muhammad
York Jets, v
sidelined in

• Dallas Cowboys
linebacker
chronic hamstring

• Starting wide
Eagles also
after missing
year with a

• Houston Texans
back Anjan
history of hamstring

• And on Sep
Chicago Bears
Jay Cutler,
a seven-year
million contract
hamstring v
tackle Card
Jefferson, v
pass intended
Bennett de-
territory.

Hamstring strains
that require a ch
and sprinting. S
include lack of p
muscle fatigue

• Christopher
New York
account for

Clinical Test of Sensory Integration of Balance

Date 02/07/2014 1:50 PM
Name JOHN DOUGLAS
Height 5'-8"
Age 78
Diagnosis MIA-312-0 -INJURY
CPT Code 97002

FOOT PLACEMENT
Foot Angle Left Right
Heel Position 00 10 D16

PROTOCOL
Conditions mCTSIB
Test Trial Time 30 secs
Test Trials 1
Cursor ON

Eyes Open Firm Surface

Sway Index

0.72

Mean

0.43

Impair% 46%

Modifier CK

Eyes Closed Firm Surface

0.98

Mean

0.66

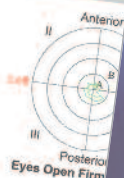
Impair% 62%

Modifier CL

Eyes Open Foam Surface

Eyes Closed Foam Surface

Composite Score (Avg.)



Biodex Concussion Management Program aids in Return-to-Play



BIODEX

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BALANCE ASSESSMENT FOR CONCUSSION MANAGEMENT

BALANCE SYSTEM™ SD & BIOSWAY™



Balance System™ SD
Static and Dynamic



BioSway™
Static. Shown with optional Printer
and Printer Stand.

Measuring Balance

Assessment of balance remains an important part of any concussion management program. A decreased ability to maintain postural sway is one of the hallmark signs of concussion which often persists after cognitive symptoms subside. Biodex technology supports the assessment from baseline to post-injury with a detailed progress report to track recovery for an objective, return-to-play decision.

Balance Technology

Biodex Balance Assessment is conducted using either the versatile Balance System SD or portable BioSway. The Balance System SD is a sophisticated measuring and training device for static and dynamic balance testing and training. The BioSway is a portable balance device with a static-only platform.

The mCTSIB can be performed on either balance device, designed to systematically test the sensory selection process by compromising available somatosensory, visual, and vestibular senses while measuring an athlete's ability to minimize postural sway.

In addition to performing the CTSIB test, the **NEW** version of the Balance System SD and BioSway software now includes the option of conducting a modified version of a Balance Error Scoring System (BESS) test of postural stability, popular for concussion management.

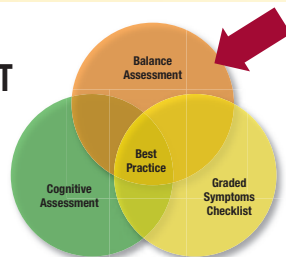
Measuring Postural Sway

The objective data provided by measuring postural sway gives clinicians the ability to quantify the elements of balance, comparing baseline to post-injury performance. In addition, test results from a healthy population of student-athletes is stored on the devices for general normative data comparison.

Detailed summary and progress reports help track recovery and provide you with quantitative data to assist with the return-to-play decision.

BEST PRACTICES FOR CONCUSSION MANAGEMENT

The proper management of concussion should include baseline Balance Assessment, Cognitive Assessment and Graded Symptoms Checklist.

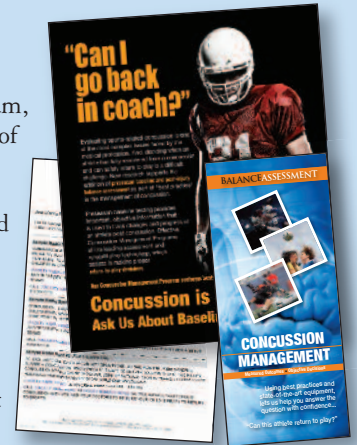


MARKETING SUPPORT

Balance Assessment for Concussion Management

Available exclusively to our customers using Balance Assessment in support of a concussion management program, Biodex provides an assortment of marketing materials to attract athletes, parents, community sports teams, school coaches and athletic directors, as well as referring pediatricians.

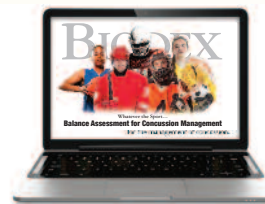
Materials can be customized to reflect your facility and used to broadcast the role of Balance Assessment in the management of concussion.



- Sample Letters • Sample Press Release
- Sample Advertisements • Educational Brochure
- Clinical Voucher • Awareness Poster

ONLINE RESOURCE CENTER

Balance Assessment for Concussion Management



A library of educational material including Concussion Management guidelines, position statements, balance assessment education, case studies, research studies, and more.

Visit the Resource Center today!

www.biodex.com/resource/concussion/16095

CONCUSSION HEALTH EDUCATION PRODUCTS

Everything
you need

Concussion Health provides valuable clinical education tools to support best practices in concussion rehab

www.biodex.com/concussionhealth



950-440 Balance System SD, 12.1" Display, 115 VAC
Includes Fall Risk Screening & Conditioning Program,
Biodex Balance Assessment for Concussion Management,
printer, printer stand and CTSIB Indexed Pad.

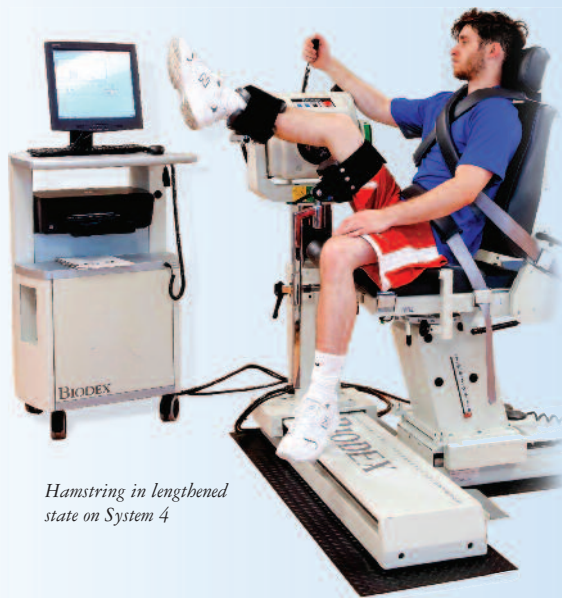
950-460 BioSway 12.1" LCD with Tabletop Stand and Case,
115V/230V 50/60Hz

950-461 BioSway 12.1" LCD with Tabletop Stand,
115V/230V 50/60Hz
Includes: Instrumented platform, CTSIB Indexed Pad, 12.1"
color touch-screen LCD display with tabletop stand/wall mount
bracket, AC adapter for 100-240 V input and two blindfolds.

www.biodex.com/concussion

HAMSTRING INJURY REINJURY

MULTI-JOINT SYSTEM



Hamstring in lengthened state on System 4

Advantage Software Supports Hamstring Protocols

Hamstring injury is serious business. Regardless of whether you have an existing process for protecting and strengthening hamstrings, the objective test protocols offered with the Biodex System 4 will provide valuable, isolated muscle-performance data. Test results, combined with established targeted outcomes, can be used for pre-emptive injury screening, managing rehabilitation and determining readiness for return to play.

PROTOCOL #1: Multiple Angle Comparison Test

Examines isometric bilateral flexion peak torque symmetry where the limb position puts the hamstring in a lengthened (stretched) state. Passive stretch is the inherent force (or torque) produced by the hamstring in the lengthened state. When deficits are within 10%, predisposition to re-injury is significantly reduced.

NOTE: This Protocol requires 830-550 Hamstring Attachment. Use of any attachment other than the 830-550, with this protocol, is outside proper and intended use.

Download Abstract:

(Paper in Review)

ECCENTRIC STRENGTHENING AT LONG MUSCLE LENGTHS REDUCES HAMSTRING STRAIN RECURRENCES.

Tyler, et al; Orthopedic J Sports Med. Aug, 2014.

www.biodex.com/research/hs151/16095

PROTOCOL #2: Mixed H/Q Ratio Test

Uses a ratio of eccentric and concentric flexion peak torque where, if the ratio exceeds 1.4, hamstring injury is nil.

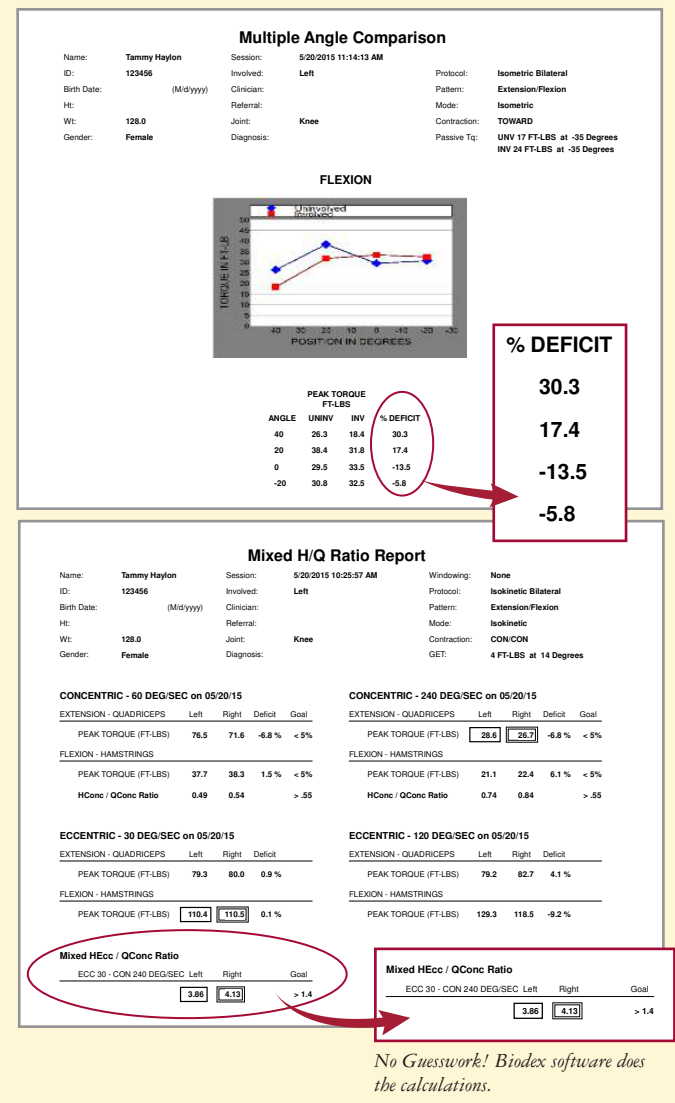
NOTE: This protocol utilizes standard Biodex knee attachment.

Download Study:

STRENGTH IMBALANCES AND PREVENTION OF HAMSTRING INJURY IN PROFESSIONAL SOCCER PLAYERS.

Croisier, et al; The American Journal of Sports Medicine. April 30, 2008.

www.biodex.com/research/hs213/16095



Have you considered adding lengthened state eccentric training to your current hamstring program?

If so, check out this protocol:

HAMSTRING INJURY REHABILITATION AND PREVENTION OF REINJURY USING LENGTHENED STATE ECCENTRIC TRAINING: A NEW CONCEPT

www.biodex.com/protocol/hs214/16095

830-550 Attachment, Hamstring (set)

For use with System 4 models to perform Multiple Angle Comparison (Lengthened State) Test

Advantage Software Update, visit www.biodex.com/software/s4hamstring
Upgrade path available for existing System 4 and System 3 dynamometers.

www.biodex.com/hamstring

SPORTS INJURY RISK MANAGEMENT

PROTECT YOUR ATHLETES

www.biodex.com/sportsinjury

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