BTrackS Sport Balance - Testing Report

BALANCE
TRACKING SYSTEMS

Name: Sample Athlete

Sport: Football
Birthdate: 05/05/1989
Sex: Male
Height: 6'0"
Weight: 220

GENERAL INFORMATION

What is BTrackS?

The Balance Tracking System (BTrackS) is an FDA Class 1 Medical Device (Registration #3010668481) that is licensed for development and manufacture by the California Food and Drug Branch (License # 73881). This device consists of two components: 1) The BTrackS Balance Plate and 2) Application Software called BTrackS Sport Balance. The BTrackS Balance Plate is a lightweight (<15lbs) force plate specialized for sensing the center of pressure (COP) of foot forces placed on it during standing. COP is a proxy for body sway control and a known indicator of poor balance in numerous clinical populations including individuals with concussions. The BTrackS Sport Balance Software integrates with the BTrackS Balance Plate through USB. The software guides the user through the testing process to collect and analyze the COP forces. Since being introduced to the market in 2014, BTrackS has been used to test thousands of athletes from around the United States.

What is the BTrackS Balance Test (BBT)?

The BTrackS Balance Test (BBT) is the standard testing protocol implemented by the BTrackS Sport Balance Software. This protocol is a derivative of the Romberg test utilized by neurologists for balance assessment over the past century. The BBT consists of four, 20-second trials with that begin and end with an auditory tone. As shown in the picture to the right, the BBT is performed with the athlete's eyes closed, hands on hips and feet shoulder width apart. The first trial is a familiarization trial, while the remaining three trials are used to calculate the BBT result. The BBT result is equal to the average COP path length, displayed in centimeters, from the three testing trials.

How do I interpret a BBT Result?

BBT Results are useful for two primary purposes: 1) injury/concussion management and 2) general balance assessment. For injury/concussion management, an athlete's post-injury BBT is compared to the athlete's healthy baseline BBT. Until the post-injury BBT consistently returns to the baseline range for that athlete, their balance is not back to baseline. For general balance assessment, each athlete's BBT is compared to thousands of other similar athletes and they will be placed in a percentile ranking from 0-100. The ranking, which is called the BBT Performance Ranking (BPR), is automatically displayed by the software. Athletes who are in the lower percentile rankings are candidates for balance improvement training. The percentile rankings are based on data from thousands of athletes that have been collected by Balance Tracking Systems since 2014. The rankings provide an age and gender-based percentile value indicating the percentage of the population an athlete's balance is equal to, or better than.

Is BTrackS Accurate and Reliable?

The accuracy of BTrackS has been quantified in several ways. First, a comparison of BTrackS has been made with state of the art laboratory-grade force plates, and has shown near perfect agreement (ICC=0.999) for the measurement of COP. Second, advanced pressure point testing of BTrackS using a computerized numerical control (CNC) machine has found the COP measurement accuracy of BTrackS to be within a fraction of a millimeter.

BASELINE SCREENING RESULTS

Baseline BBT
COP Excursion (cm)

20

BBT Performance Ranking
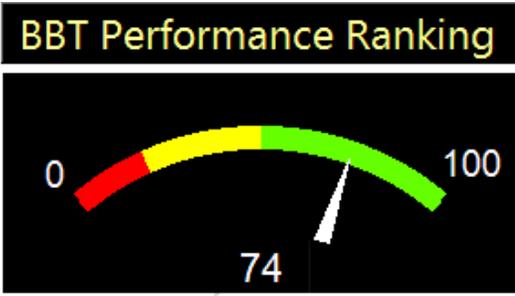
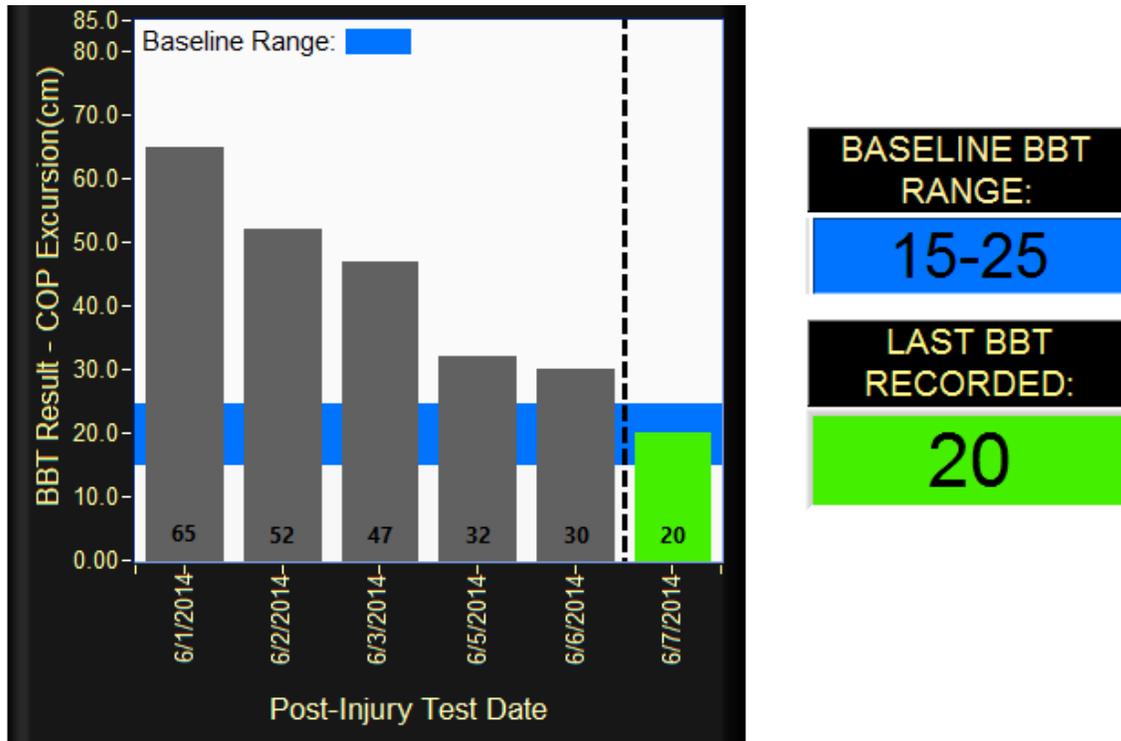The most recent baseline BBT result for this athlete was 20cm, as measured on 4/12/2014.

The age and gender specific BBT percentile ranking (BPR) for this athlete is 74, which means that the athlete performed equal to, or better than, 74% of athletes in his or her age/gender group.

For the purposes of injury tracking, this athlete's baseline range consists of BBT results between 15 and 25cm. After sustaining an injury, this athlete should be tested on a regular basis until BBT scores remain consistently within this baseline range.

Detailed results for all baseline BBTs are displayed below:

TEST DATE	FAM	T1	T2	T3	BBT	BPR
4/12/2014 4:14:44 PM	20	22	18	20	20	74

INJURY DATE: 6/1/2014

Above, the most recent testing results are displayed for the injury occurring 6/1/2014. This athlete's baseline was taken 4/12/2014 and the BBT result was 20cm. This translates to a baseline range between 15-25cm.

The baseline range is based on the Minimum Detectable Change statistic for the BBT, which was calculated from a large sample of healthy adults using a 90% confidence level (MDC90). The MDC90 for the BBT is 5cm which means 90% of healthy young adults who repeatedly take the BBT will have results that vary by 5cm or less from one test to the next. Conversely, a change in BBT of greater than 5cm is seen in only 10% of young adults and indicates a likely change in balance from baseline.

The most recent BBT result for this athlete was 20cm. This BBT result is within the baseline range. Continue tracking this athlete until BBT results remain consistently at, or below, the baseline range.

Detailed results for all BBTs related to this injury are displayed below:

TEST DATE	FAM	T1	T2	T3	BBT	BPR	BASELINE COMPARISON
6/1/2014 5:55:44 PM	72	70	60	65	65	0	Higher than baseline
6/2/2014 5:10:01 PM	55	52	48	56	52	1	Higher than baseline
6/3/2014 5:15:42 PM	50	49	49	43	47	1	Higher than baseline
6/5/2014 4:23:36 PM	31	33	35	29	32	15	Higher than baseline
6/6/2014 6:01:29 PM	34	26	31	33	30	21	Higher than baseline
6/7/2014 5:31:03 PM	20	20	21	19	20	74	Within baseline range