

The Star Excursion Balance Test: An Update Review and Practical Guidelines

Brice Picot, PT, MSc,^{1,2,3,4} Romain Terrier, PhD,^{2,3,5} Nicolas Forestier, PhD,^{3,4}
François Fourchet, PT, PhD,^{2,4,6} and Patrick O. McKeon, PhD, ATC, CSCS⁷

¹French Handball Federation; ²French Society of Sport Physiotherapist; ³Savoie Mont-Blanc University;

⁴Laboratoire Interuniversitaire de Biologie de la Motricité; ⁵Whergo SARL; ⁶Hôpital de La Tour; ⁷Ithaca College

The Star Excursion Balance Test (SEBT) is a reliable, responsive, and clinically relevant functional assessment of lower limbs' dynamic postural control. However, great disparity exists regarding its methodology and the reported outcomes. Large and specific databases from various population (sport, age, and gender) are needed to help clinicians when interpreting SEBT performances in daily practice. Several contributors to SEBT performances in each direction were recently highlighted. The purpose of this clinical commentary is to (a) provide an updated review of the design, implementation, and interpretation of the SEBT and (b) propose guidelines to standardize SEBT procedures for better comparisons across studies.

Keywords: assessment, functional performance, lower limb, procedure, recommendations, reliability

KEY POINTS

- ▶ The modified Star Excursion Balance Test (mSEBT) should be used as a reliable clinical tool to assess dynamic postural control. We propose a compact version of the mSEBT for clinicians.
- ▶ All three directions as well as the composite score should be evaluated independently.
- ▶ Procedure consistency is needed (Table 1). Scores obtained from Y-Balance TestTM and mSEBT cannot be considered as identical.
- ▶ Key baseline characteristics should be captured among healthy athletes from various sports.
- ▶ It remains unclear whether connections exist between qualitative analysis of mSEBT performance and injury risk.
- ▶ Clinicians should refer to existing Smallest Detectable Changes scores for potentially meaningful cutoffs for injury risk estimates. Important anterior asymmetry should be reported as it might be considered as a potential risk factor for lower-extremity injury.

Sport injury prevention is a major goal for sports medicine and performance professionals.¹ Developing meaningful and easily implemented clinical tests to identify at-risk individuals and target them for prevention programs is therefore necessary.² The Star Excursion Balance Test (SEBT), initially described by Gray,³ is a functional test originated from rehabilitation exercises of the lower limb. Since its inception, the SEBT has been frequently described in the scientific literature and evaluated for its ability to (a) assess dynamic postural control of the lower limb,⁴ (b) elucidate functional deficits during return to sport phase,⁵⁻⁸ and/or (c) identify at-risk individuals for future injuries.⁹⁻¹¹ In their systematic review, Hegedus et al.¹² revealed that across multiple functional assessments, only the SEBT has shown consistent utility

for identifying increased injury risk among sport populations. Recently, evidence has emerged to suggest that the SEBT is highly reproducible.¹³ The intersession reliability estimates, and smallest detectable changes (SDCs) reported suggest that the SEBT performance is stable over time with a predictable amount of error that can be accounted for in overall performance and in each direction. It is critically important that clinicians have meaningful tools for (a) capturing potential impairments in function that may increase the risk of injury and (b) charting improvements in rehabilitation function. The SEBT appears to have these qualities.

Performance rules of SEBT appear to be heterogeneous among studies. Methodological considerations regarding testing procedures may explain a large part of the observed variability in the SEBT directional values across studies. Indeed, a precise analysis of testing conditions reported in several studies revealed a critical inconsistency due to a lack of standardized procedure.^{8,10,14,15} Thus, cutoff scores and smallest detectable differences reported in the literature are blurred, making challenging the interpretation and comparison of scores between samples or studies.^{13,16,17} In 2009, an instrumented device, the Y-Balance TestTM (YBT), was developed by Plisky et al.¹⁸ in order to help experimenters during data collection. Several research teams have used this tool to evaluate dynamic postural control among various populations.¹⁹⁻²² In their systematic review, Gribble et al.⁷ in 2012 provided a starting point for the SEBT and YBT utility in clinical practice. The evidence

Picot is with the French Handball Federation, Créteil, France. Picot, Terrier, and Fourchet are with the French Society of Sport Physiotherapist (SFMKS Lab), Pierrefitte sur Seine, France. Picot, Terrier, and Forestier are with the Savoie Mont-Blanc University, Chambéry, France. Picot, Forestier, and Fourchet are also with the Laboratoire Interuniversitaire de la Biologie et de la Motricité (LIBM), Chambéry, France. Terrier is also with the Whergo SARL, Technolac, France. Fourchet is also with the Hôpital de La Tour, Geneva, Switzerland. McKeon is with the Department of Exercise Science and Athletic Training, Ithaca College, Ithaca, NY, USA. Picot (b.picot@ffhandball.net) is corresponding author. This is the English translation and updated version of a French article published in *Mains Libres* in December 2018: Picot B, Terrier R, Forestier N. Le Star Excursion Balance Test: Mise à jour et recommandations sur son utilisation en pratique, *Mains Libres* (2018) Vol 4.

since this review has substantially evolved. The aim of this commentary is to provide readers with a clinical update from recent evidence concerning SEBT procedure and interpretation with implications for clinical practice. In this commentary, we propose practical recommendations concerning the standardization of the test in order to reduce the variability of the outcomes across studies.

Procedures

A careful and precise analysis of the procedures revealed important variations in (a) the methodology, (b) the data collection and analysis, and (c) the interpretation of the results. The suggested recommendations will be discussed in the next section. The practical recommendations for the SEBT standardization in order to obtain reliable and comparable results from one study to the other are reported in Table 1.

An Overview of Procedures

The SEBT was initially described with the individual standing in the center of eight lines forming an eight-pointed star with 45° between each of them.²³ Several studies revealed that this procedure could be simplified with only three lines (or directions, named according to the stance foot): anterior (ANT), posteromedial (PM), and posterolateral (PL).^{7,16,24} This “simplified” version is now frequently but not systematically, used and named in the literature as the mSEBT.^{13,25} The mSEBT saves time during testing by avoiding redundancy of testing directions while maintaining consistency and reliability from the original SEBT.^{16,26} The average of the three directions is then often calculated to create a composite score (COMP). Most clinicians and researchers regularly refer to YBT when describing the test despite there being a trademarked name of a device developed by Plisky et al.¹⁸ (see the specific section below). When carefully analyzing the literature, studies

could either refer to SEBT,¹⁰ mSEBT,⁵ YBT,²⁷ or even the Y-Balance Test-Lower Quarter (YBT-LQ)²⁸ in the title or abstract although the testing procedure was similar.

Although ANT, PM, or PL refer to stance foot (Figure 1), some discrepancies exist in the literature when the procedure is carefully examined especially on the PL and PM directions. Indeed, recent publications switched the posterior directions in their descriptions of the procedure.^{9,19,20,29} Those mistakes lead to potential misinterpretations of the results (see the cutoff section below). This underlines the importance and necessity for operationally defining the directions and ensuring consistency in the procedure and rigor when reading the studies.

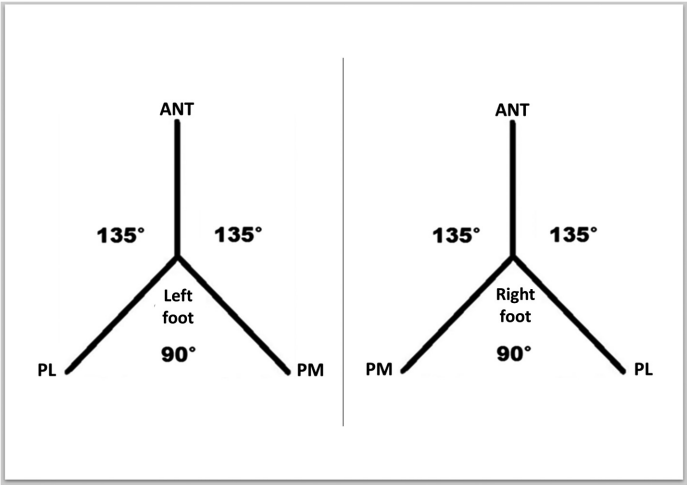


Figure 1 — Setup of the mSEBT grid with three lines SEBT for left and right foot. ANT = anterior; PL = posterolateral; PM = posteromedial; mSEBT = modified Star Excursion Balance Test; SEBT = Star Excursion Balance Test.

Table 1 2021 Updated Recommendations for the SEBT Procedure

Important criteria	Recommendations
Number of directions	Three (ANT, PM, and PL) representing a “Y” instead of eight. ^{13,16,31} See the proposed compact versions (Figure 3).
Setup of the test	Demonstration prior to the test by the experimenter (or video). ^{7,17}
Number of familiarization trials	Four in each direction for both limbs, until familiarization with procedure. ^{7,17}
Number of recorded trials	Three per direction. ^{7,17} <i>Performances should be stabilized.</i> Switch from one leg to the other between each direction to avoid fatigue. ¹⁸
Hand position	Hands should remain on the hips to target lower limb performance. ^{14,21}
Foot placement	Barefoot (or socks), the most distal aspect of the great toe on 0 (crossroad of three lines) during the entire procedure. Need to be standardized across studies. This method avoids possible foot placement errors. ¹⁴
Failure criteria	(a) Subject falls or loses his/her balance (the reaching foot touch the ground). (b) Subject shifts his/her weight on the reach limb when contacting the floor or contacts the floor at multiple times or miss the tape measure. (c) Stance foot moves or heel rises or any part of the foot lifts from the ground. (d) Hands are removed from the hips.
Parameter	(a) Mean of the three trials for each direction and limb. ⁴⁶ (b) Calculation of the composite score (mean of three directions) for normalized (in percentage) and nonnormalized (in centimeters) scores. (c) Qualitative analysis of the movement. ^{56,57}
Limb length normalization	Scores are expressed as a percentage of the tested lower limb length (<i>from ASIS to medial malleolus preferably, or lateral malleolus</i>). ²¹

Note. ASIS = anterior and superior iliac spine; ANT = anterior; PL = posterolateral; PM = posteromedial; SEBT = Star Excursion Balance Test.

For the testing procedure, individuals stand barefoot in double limb stance (i.e., feet together) at the center of the testing grid. Participants attempt to reach the maximal distance along each direction with the most distal portion of the reaching foot, touch the directional line, and return while keeping balance on the support.⁷ When the participant regains double limb stance after the reach, the trial is over. As hand placement during the test as well as criteria for success remain different across studies, particular instructions and the exact definition of a failed trial will be discussed in specific sections. The obtained distance (typically measured in centimeters) reflects the dynamic postural performance of the stance limb.

Number of Practice Trials

We recommend that participants should be familiar with the test to prevent any learning effect with this procedure. Several authors studied the number of trials needed to obtain a stable and reliable performance by limiting a learning effect and/or muscular fatigue. The original test was described with six practice trials in every direction for each limb. More recently, this number was lowered to four for each limb in every direction. This number (four) provides reproducible scores without additional warm-up and decreases the procedure duration because maximum performance is normally reached and the lower limb kinematics are usually stabilized.^{7,15,30,31}

Number of Recorded Trials

Regarding the assessed parameters, the mean (in centimeters) is calculated from three trials for each direction. Some authors¹⁰ only selected the best performance of the three trials. As reliability of both methods appears to be acceptable, no strict recommendation can be made for this criterion (mean or maximum of the three trials). It appears also relevant to switch the tested limb for each direction to reduce the onset of fatigue.¹⁸ However, it may be worth carefully observing the evolution of performance across trials and potentially asking individuals to repeat attempts until a relative stabilization of scores during three consecutive trials. We therefore recommend that deviation between trials for the same direction on the same foot should not exceed 2 cm (based on the *SE* of measurement from Powden et al.¹⁷).

Participant Hand and Foot Placement During the SEBT

Another source of inconsistency was linked to both foot and hand placements of participants during SEBT testing.¹⁴ Several investigators described testing procedures with participants maintaining hands on hips throughout the mSEBT reach,^{7,10,32–36} while others did not control for hand placement.^{6,16,22,23,34} The use of upper limbs makes balance control easier during the test,^{14,37} and so if hands are not maintained on the hips, the participant may compensate or conceal a postural control deficit of the lower limb.²¹ Moreover, dynamic postural control varies according to specific sports. Differences in SEBT performance across sports could therefore be linked to some participants using their hands during the test compared with others who did not. This would then create a spurious relationship between sport participation and SEBT performance. Thus, in order to compare several populations (or sports activities), we recommend that participants place their hands on their hips in order to standardize trunk displacement and

the consistency of errors when performing the protocol^{7,14,21} (Figure 2).

With regard to stance foot placement, some variations were reported across studies. In the eight lines version of the SEBT, the foot (i.e., the virtual line between both malleoli) was placed at the center of the grid.³⁸ Several authors continue to use this alignment for the mSEBT. However, the foot can move due to loss of balance or unexpected fall during failed trials. Small changes during positioning with the ANT reach can make significant differences, therefore the foot-centered position is not recommended as it can lead to misleading results.¹⁴ In order to improve the procedure reliability, two easily reproducible positions are proposed. The first is to position the most distal aspect of the great toe at center of the grid during the entire procedure.^{10,23} In this case, the foot is in a more posterior position when performing the ANT reach, leading to relatively lower performances in the ANT, but higher on both PM and PL directions compared with the initial foot placement.¹⁴ The second option consists of positioning the foot according to the reached direction.³⁹ For the ANT, the most distal aspect of the great toe is placed at 0; but, for PM and PL directions, the most posterior aspect of the heel is placed at 0. This placement seems to minimize the influence of foot length on performance⁷ but leads to significant lower PM, PL, and COMP scores¹⁴ and requires moving the foot during the test, leading to potential errors. Similarly, reported SDCs may be different according to the position of the foot. In order to allow comparisons across studies using different foot placements, building a correction factor could be relevant, based on the foot

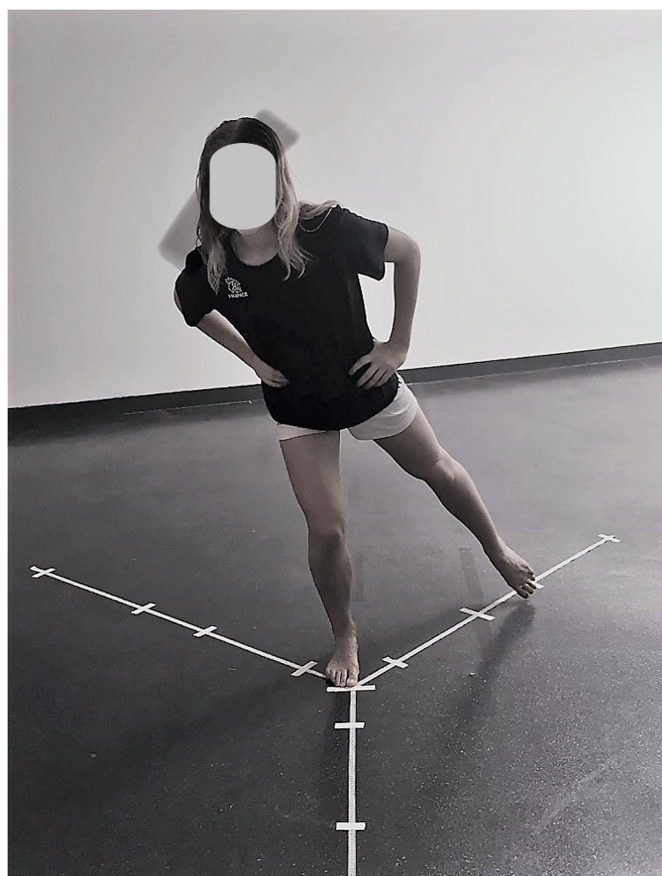


Figure 2 — Position of the subject for the evaluation of the right limb in the posteromedial direction.

length. For example, important results from large prospective cohort studies have used the procedure with the toe at 0,^{10,35,36} revealing high PM, PL, and COMP scores. We encourage researchers to determine an accurate proportionality coefficient to account for foot placement between each procedure. Therefore, a consistent foot position should be necessarily used when evaluating various athletes and during longitudinal comparison regardless of the chosen procedure.

A Proposed Compact Solution

For clinicians who do not have enough space for the entire Y of the mSEBT, we propose a “compact” version of the mSEBT using only a single measurement line to allow space efficiency (Figure 3a and 3b). However, when using this procedure, the participant is required to change foot position for each direction leading to possible errors. We therefore recommend that the investigator carefully check the foot position before collecting the data. Further reliability studies are needed for this version, but it stands to reason that participants may achieve similar performance values.

The YBT™ Device

In 2009, Plisky et al.¹⁸ developed an instrumented device showing good to excellent intrarater and interrater reliability (intraclass correlation coefficient [ICC] = .97–1 and .85–.89, respectively). A recent study among adolescent female athletes reported that SDCs for normalized reach distance were 2.4% for the composite score, 2.4% for ANT, 3.2% for PM, and 3.2% for PL directions.⁴⁰ However, it seems that results obtained with the YBT™ are not systematically comparable with those obtained with the standard SEBT.^{25,28,32} Fullam et al.³¹ recently detailed that main differences related to ANT direction with the YBT™ leading to significant lower values compared with ANT direction of the SEBT. Similarly, Ko et al.⁴¹ reported significant differences between mSEBT and YBT in individuals with chronic ankle instability in ANT and PM directions. In order to compare scores across studies, it is important to assess if the YBT or the mSEBT was utilized, as outcomes from these two procedures are not interchangeable.

Interpretation of Data

Criteria for Success

Several general considerations should be applied to validate the trial. Participants have typically been asked to lightly touch the directional line while maintaining both hands on the hips (see related section). They have not been allowed to shift weight on the reaching limb,^{15,42} lose their balance, or fall. Plisky et al.¹⁸ allowed the stance foot to move or lift during the YBT so that the rater does not need to control it, thereby simplifying the evaluation of the test. However, it is recommended to forbid moving or lifting the heel of the stance foot⁷ during the mSEBT in order to increase validity of the procedure. Specifically, during the ANT reach, participants might lift their heel to compensate for impaired weight-bearing ankle dorsiflexion.^{17,18} There is mounting evidence that ankle dorsiflexion accounts for a significant proportion of ANT direction.^{42,43} As a decreased range of motion in that direction is considered an important risk factor for ankle sprains,⁴⁴ we recommend not lifting the stance foot during the procedure.

Reliability

Several investigators have reported excellent intra and interrater reliability regarding all three directions (ICC_{intra} = .85–.91 and ICC_{inter} = .99–1).^{18,23,26,32,38,45–47} A recent systematic review also revealed that in healthy adults, both mSEBT and YBT have excellent intra and interrater reliability for each direction.¹⁷ Median ICC values for interrater reliability were .88 (from .83 to .96), .87 (from .80 to 1.00), and .88 (from .73 to 1.00) for the ANT, PM, and PL directions, respectively. Concerning intrarater reliability, median ICC values were .88 (from .84 to .93), .88 (from .85 to .94), and .90 (from .68 to .94) for the ANT, PM, and PL directions, respectively.¹⁷ These ICC values suggest that performance measures are relatively consistent between sessions and raters. In addition, excellent reliability estimates have been reported for both mSEBT (ICC from .87 to .93)¹³ and YBT (ICC from .85 to .93)⁴⁷ when comparing raters with various qualifications.

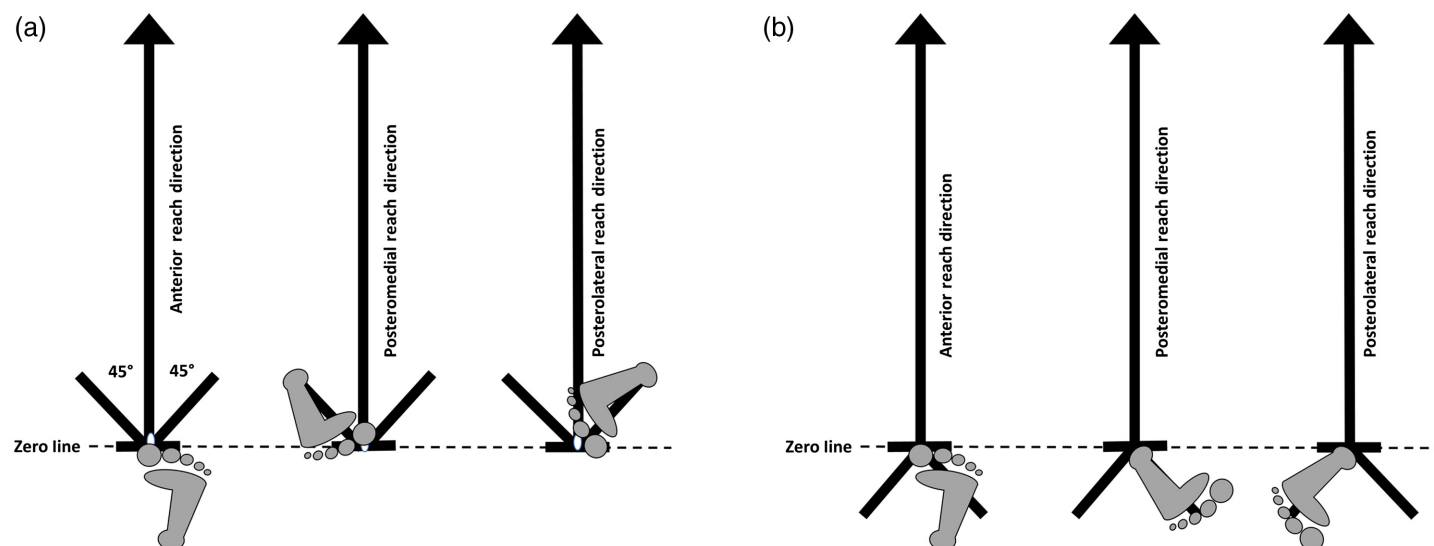


Figure 3 — A proposed “compact” version of the mSEBT. (a) With foot position in “toe fixed” at 0 for the three directions and (b) the changing toe/heel position according to the reached direction. mSEBT = modified Star Excursion Balance Test.

Responsiveness: The SDC

Regarding the SDCs (the smallest amount of change, which falls outside the measurement error of the instrument) in clinical practice, a meaningful change of normalized reach distance (see below for normalization recommendations) should exceed 5.9%, 7.8%, and 7.6% for ANT, PM, and PL directions respectively¹⁷ (Table 2). When using nonnormalized reach distances, a minimum of 6.4, 7.1, and 8.8 cm for ANT, PM, and PL directions is necessary to consider a clinically relevant change in healthy adults.¹⁷ It is also suggested that there can be differences in SDC between limbs.¹³ When focusing only on the COMP, van Lieshout et al.¹³ calculated intrarater SDCs of 7.2% and 6.2% and interrater SDCs of 6.9% and 5% for both right and left leg, respectively, from recreational athletes between 18 and 30 years old.

Normalization With Respect to the Lower Limb

Due to body size length variability within a population, it is necessary to normalize reached distances to lower limb length^{7,42} from the following equation:

$$\text{ANT normalized score (\%)} = \frac{\text{Mean of the three trials in ANT direction (cm)}}{\text{Tested limb length (cm)}} \times 100.$$

The obtained results should be expressed as a percentage of lower limb length for each direction. The measure of limb length is performed in supine position, from the anterior and superior iliac spine to the medial malleolus^{7,42} (Figure 4). This measurement appears to be the most reliable and easily applicable in daily practice.⁴⁸ While some authors have used the distal aspect of the lateral malleolus,^{14,49} recent studies have shown trivial differences on normalized scores between both methods.²¹ However, it is critically important for investigators to use the same procedure and remain transparent in their reporting of how reach distances were normalized. Based on the study by Neelly et al.,⁴⁸ we therefore recommend using the anterior and superior iliac spine and medial malleolus as body landmarks to ensure comparable results.

Composite Score Calculation

After recording performances in each direction, several investigators have calculated the normalized composite score of all directions from the equation:

$$\text{normCOMP score (\%)} = \frac{\text{normANT(\%)} + \text{normPM(\%)} + \text{normPL(\%)}}{3},$$

where normANT, normPM, and normPL are normalized scores for each ANT, PM, and PL directions, respectively.

This value (in percentage) reflects the overall dynamic postural performance of the tested lower limb.^{7,10}

Interpretation and relevant comparison

Several intrinsic factors can influence SEBT performances between participants, such as sex,^{36,50} age,⁵¹ level of play,⁵² and injury history^{6,53} (Table 3). Moreover, understanding the Specific Adaptations to Imposed Demands principle, type of sport also influences SEBT values^{36,54} (Table 3). Caution should be taken when comparing outcomes across different populations. Some normative data have been established,^{36,52} these data sets may however not be large enough to reflect accurate normative values for these different populations. Large databases from healthy participants are therefore needed to allow relevant comparison with what is considered “normal” SEBT performance within each sport. We also insist on the importance of capturing individuals baseline characteristics to identify changes over time from an injury risk or risk reduction standpoint. However, when the athlete baseline status is not available for clinicians, we recommend searching for existing databases among similar healthy individuals.^{36,52}

Means and Cutoff Scores

Although it remains unclear what contributes to maintaining the postural control necessary to perform the SEBT, many studies have documented links between mSEBT performance and injury.^{10,22,35}

In order to target at-risk athletes for lower limb injuries, cutoff scores are needed. However, while the SDCs have been



Figure 4 — Preferred measurement of lower limb length. From ASIS to the medial malleolus. Lateral malleolus measurement provides trivial differences.²¹ ASIS = anterior and superior iliac spine.

Table 2 SDC for Normalized Reach Distances

Measurement Technique	Composite score	Anterior direction	Posteromedial direction	Posterolateral direction
SEBT ^{a,13,26}	6.7%	5.87%	7.84%	7.55%
YBT ^{a,40}	2.44 %	2.40%	3.20%	3.20%

Note. SDC = smallest detectable changes; SEBT = Star Excursion Balance Test; YBT = Y-Balance TestTM.

^aAveraged SDCs in case of different limb values.

Table 3 2021 Updated List of Intrinsic Factors Influencing SEBT Performance Between Individuals

Sex ^{7,36,42,50,55}	Controversial results. Females tend to exhibit higher performance, especially in ANT direction when compared with males. Gender differences are attenuated with normalized reach distance.
Foot type ⁴²	Most of studies revealed no influence of foot type, while recent investigations highlight slight differences between pronated and supinated foot.
Limb dominance ^{16,42,50,55}	No influence on SEBT performance among healthy individuals. However, depending on studies, the dominant limb could either refer to “the one used to kick a ball” or “the one used to push off during a jump task.”
Age ⁵¹ and level of play ^{50,52}	Older athletes playing at higher level tend to exhibit better normalized performances than young players or sedentary individuals, especially on PM and PL direction.
Type of sports ^{36,50,52}	Normalized performances varied across sports. Large normative database of healthy athletes from several disciplines are therefore needed to help practitioners put the patient in perspective.
Injury status ^{6,53}	Lower limb injuries reduce SEBT performances. Clinicians should refer to preinjury level or healthy individuals’ comparable normative database.

Note. ANT = anterior; PL = posterolateral; PM = posteromedial; SEBT = Star Excursion Balance Test.

established, the actual predictive values for reach distances for athletes who are at risk of future injuries are widely different across studies.^{10,35} Plisky et al.¹⁰ were the first to establish cutoff scores among 235 high school and collegiate basketball players. Females who displayed a normalized composite score below 94% were 6.5 times more at risk of sustaining lower limb injury during the season. For males, the risk was three times higher among players who did not reached 94% of the lower limb length. When focusing on each direction, Attenborough et al.,³⁰ revealed that a PM normalized score below 77.5% is associated with an increased risk of lateral ankle sprain in 94 netball players (odd ratio = 4.04, 95% confidence interval [1.00, 16.35]) while de Noronha et al.⁹ showed that higher PL normalized scores above 80% decreased ankle sprain risk among 125 participants (hazard ratio = 0.96, 95% confidence interval [0.92, 0.99]). As previously mentioned, the description of the PL direction in the de Noronha et al.^{9,30} studies was actually the PM direction described in the Attenborough et al.³⁰ study. When viewed through this lens, the findings are very similar and highlight the need for careful examination of testing procedure description. In addition, side to side asymmetry appears to be an important characteristic for the injury risk profile. Indeed, an absolute asymmetry ≥ 4 cm in the ANT direction was associated with a 2.5 times increased risk of lower limb injuries for both males and females.¹⁰ More recently, Stiffler et al.³⁵ showed that a normalized asymmetry $>4.5\%$ in the ANT direction could identify athletes at increased risk of lower-extremity injury with 82% accuracy ($n = 147$ healthy National Collegiate Athletic Association athletes). However, side to side asymmetry did not benefit identifying at-risk individuals among 59 football players.²² Further studies are needed to clarify the relationship between injury risk and mSEBT performances. When evaluating healthy athletes, several research teams^{16,42,50,55} did not reveal any differences between dominant and nondominant foot on SEBT performances (Table 3). Those results suggest that contrary to what one might think, athletes do not perform better on their dominant limb. Clinicians therefore should check for potentially meaningful performance asymmetry during baseline screening test and return to sports evaluations.

Contributing Factors Between SEBT Directions

The SEBT reflect the dynamic postural control of the lower limb; however, it remains somewhat unclear what contributes to the performance, whether it be the kinematics of the ankle, knee, or hip strength and coordination of the lower-extremity muscles

important for maintaining postural control, or the sensorimotor elements of global postural control.⁷ As previously mentioned³¹ and recently confirmed by Gabriner et al.,³³ weight-bearing ankle dorsiflexion is considered as the main contributor to the ANT performance. Interestingly, PL and PM were conversely influenced by frontal stabilization component, such as evor strength, medio-lateral postural stability, and proximal function.^{27,56} We therefore recommend investigating performance in each direction in addition to the composite score. Thus, clinicians should explore arthrokinematics alterations at the ankle for low ANT scores, and neuromuscular deficits in the frontal plane when patients exhibited low PL and PM scores.

Qualitative Analysis

Finally, most of studies used maximum reach distance as the main quantitative parameter; while, recent findings suggest that maximal performance may not be the only relevant outcome. Indeed, qualitative analysis of the movement (i.e., excursion from sagittal plane, excessive knee valgus, trunk rotation, etc.) may play important roles when assessing individuals.^{57,58} Further studies are needed to better understand compensations as well as kinetic and kinematic alterations among injured and at-risk athletes for musculoskeletal pathologies, such as patellofemoral or heel pain.^{59,60} Indeed, kinetic and kinematic alterations are frequent among symptomatic patients and qualitative analysis during the test could help practitioners to identify deficits at baseline, improvements following rehabilitation, and help clinicians regarding return to sport decision. Clinicians could also further use collected qualitative information as useful feedback to improve instructions delivered to the patient during dynamic postural balance exercises. Thus, we encourage clinicians to evaluate the quality of performance of each reach direction^{13,16,17} and if possible, to use one of the numerous available free software programs for further accurate kinematic analysis. Further studies are needed to evaluate the relevance of qualitative analysis for clinicians.

Conclusion

The SEBT is a valid and reliable functional tool to evaluate dynamic postural control of the lower limb. However, transparency in reporting of the SEBT procedures are required to ensure comparable results across studies. Key to this transparency are six recommendations:

- (a) Clinicians should utilize the three reach directions of the mSEBT (ANT, PM, and PL) for the assessment of dynamic postural control. We have proposed a compact version of the mSEBT for clinicians.
- (b) These directions should be evaluated independently as they each provide information about the postural control profile and contributors to postural performance. A composite score should not be the only variable reported.
- (c) Overall instructions need to be standardized especially regarding foot/hand position, number of practice and recorded trials as well as proper identification of posterior directions according to the tested limb. We recommend that clinicians should not use scores from YBT™ and mSEBT interchangeably.
- (d) Normative values should be captured among heterogeneous healthy populations according to sport, gender, and level of play.
- (e) Further studies are needed regarding the qualitative analysis of the test.
- (f) Individual performance should be evaluated using the established SDC scores. Important anterior asymmetry should be carefully reported and might be considered as a potential risk factor for lower-extremity injury.

Large normative databases developed from the consistent use of transparent mSEBT procedures are needed in order to help clinicians to interpret the obtained scores with peers' samples, and to target at-risk individuals for future injuries, or to better plan the return to sport process. The mSEBT is a clinically meaningful test for assessing dynamic postural control that can be easily implemented. By encouraging clinicians to use the same performance tests with known performance estimates, SDCs, and cutoff scores for risk, it may be possible to develop more robust prevention strategies for sport injuries.

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