



## Letter to the Editor

## Clarity in applying and reporting on functional tests in therapeutic settings



Dear Editor-in-Chief

Functional tests as well as screening and assessment tools have been increasingly employed in athletic and rehabilitation settings over the past decades (Reiman & Manske, 2009). Since the pioneering work of Frank Noyes and colleagues in the 1990s (Noyes, Barber, & Mangine, 1991), those tools aim not only to evaluate performance but also to monitor progress during an active rehabilitation process and judge the timing of patients' return to pre-injury activity levels.

We read the work of Ko and collaborators (Ko, Rosen, & Brown, 2018) on “Functional performance deficits in adolescent athletes with a history of lateral ankle sprain(s)” with interest. The authors investigated whether deficits in unilateral functional performance tests were present in adolescent athletes with one or more previous lateral ankle sprain injuries. For this purpose, the authors applied two frequently used functional performance tests: the modified Star Excursion Balance Test (SEBT, Hertel, Braham, Hale, & Olmsted-Kramer, 2006) as a low-threshold test and the Single Leg Hop Test (SLHT) representing higher-threshold lower limb performance. However, although Ko et al. (2018) clearly defined SLHT as being performed as a Side Hop Test (SHT), the terminology selected is confusing. Various modes of the SHT exist. The most frequently reported are the SHT within 10 or 30 seconds over distances of

30 or 40 cm, respectively (Gustavsson et al., 2006; Itoh, Kurosaka, Yoshiya, Ichihashi, & Mizuno, 1998).

The lack of uniform nomenclature results in continuing confusion, not only in therapeutic but also in physical education and sports performance settings as well as scientific contributions. Here, the transferability from academic work is jeopardized. A consensus on conceptual definitions and criteria nomenclature are prerequisites for communication between professionals. To avoid misunderstandings, a clear utilization of terminologies is crucial. Per definition, a Hop Test suggests a one-sided execution, different to Jump or Bound Tests (cf. Clark, 2001, see Fig. 1). The direction or execution mode would make it possible to distinguish between the type of test being performed.

Moreover, consistent execution of functional performance tests would enhance the comparability between studies. For the low-threshold test (SEBT), the investigators allowed four practice trials before three trials were rated. For the high-threshold test (SLHT), in contrast, no practice trial was permitted. According to our practical experience, functional performance tests should be executed with participants' arm movements in a natural or functional fashion (cf. Tegner, Lysholm, Lysholm, & Gillquist, 1986). Tests which aim to evaluate participants' ability to control positions or movements (quality), in contrast, would benefit from placing hands on hips by default (Keller, Kurz, Schmidlein, Welsch, & Anders, 2016).



**Fig. 1.** Differentiation between lower extremity test executed bilaterally, side-to-side or unilaterally in the frontal plane. Please note that this categorization applies also to different directions or planes of movement.

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