



Balance Assessment Using the Balance Error Scoring System: 10 Seconds versus 20 Seconds Evaluation Time

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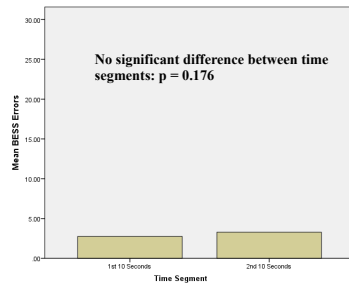
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Abstract

INTRODUCTION: The Balance Error Scoring System (BESS) is a subjective clinical balance assessment frequently used by various healthcare providers. A test administrator records the number of pre-defined errors committed by the test subject as they perform a number of balance stances. **PURPOSE:** The purpose of this study was to determine if there is a difference in the number of observed errors between the 1st and 2nd 10 second time intervals of the assessment. **METHODS:** 44 subjects (19.6 ± 1.2 yrs) performed a familiarization trial immediately followed by an experimental trial. All trials were scored by a Certified Athletic Trainer. **RESULTS:** BESS errors during the 1st and 2nd 10 second time intervals were 2.8 ± 2.4 and 3.3 ± 2.8 respectively. Paired samples t-test reveals no significant difference between the means. **CONCLUSION:** Our results conclude that there is no significant difference in observed errors between the 1st and 2nd 10 second time intervals of BESS.



Introduction

Human balance is a complex and multi-dimensional process which allows for the maintenance of a specific posture, or postures, while executing any number of different tasks, and has been identified as a chief component in maintaining mobility, performing ADL's, and preventing falls. As such, the assessment of balance is important for identifying those with balance deficiencies (Rose, 2005; Horak, 1987; Shumway-Cook, 2001).

A recently developed balance evaluation method is the Balance Error Scoring System (BESS). The BESS is a clinical balance assessment utilizing modified Romberg stances which are performed on two different surfaces. The assessment consisting of a total of 6 balance trials lasting 20 seconds performed with the eyes closed. Subjects perform bipedal standing, single leg standing (non-dominant leg), and tandem standing (non-dominant leg in back) on a solid support surface. The stances are then repeated while standing on a foam support surface. During each trial, a test administrator counts the number of pre-defined errors that occur. A final score is calculated by totaling the errors for both floor conditions (Bell et al., 2011).

Methods

44 NCAA Division I track athletes (22m, 22f; aged: 19.6 ± 1.2 yrs) volunteered to participate in this study. After receiving informed consent, subjects performed a familiarization trial of the Abbreviated BESS (Iverson & Koehle, 2013), immediately followed by an experimental trial. Each trial included 3 stances performed on a firm surface for 20 seconds with eyes closed. Stances included bipedal, non-dominant tandem, and non-dominant single leg. Each trial was recorded using an Apple iPad approximately 15 feet from the participant. All recordings were later analyzed by a Certified Athletic Trainer to count the number of errors committed during the 1st and 2nd 10 seconds of the test.



Results

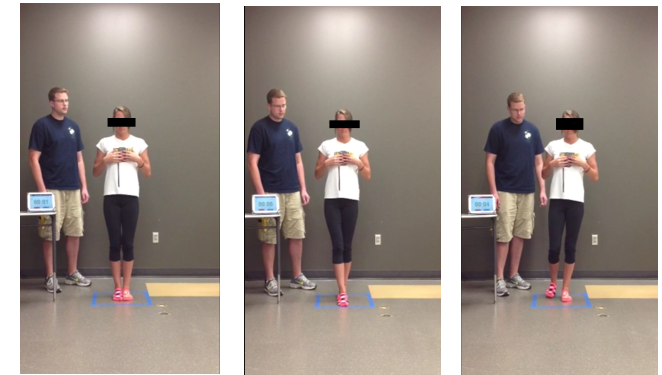
	Mean $\pm$ SD
Abbreviated BESS	5.9 $\pm$ 4.5
1st 10 Sec.	2.8 $\pm$ 2.4
2nd 10 Sec.	3.3 $\pm$ 2.8

Paired Samples t-Test

$t(43) = -1.38, p = 0.176$

Discussion

The results of this study show that there was no significant difference between the mean balance errors committed by subjects during the 1st 10 seconds of the Abbreviated BESS test when compared to the 2nd 10 seconds. This may indicate that limiting each balance stance to 10 seconds may provide sufficient evidence of a subjects overall balance status.



References

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