







Home ► All Journals ► Medicine ► Brain Injury ► List of Issues ► Volume 34, Issue 3 ► The ability of CNS vital signs to detect ....

### Brain Injury >

Volume 34, 2020 - Issue 3

544 7
Views CrossRef citations to date Altmetric

# The ability of CNS vital signs to detect coached sandbagging performance during concussion baseline testing: a randomized control trial

M. N. Anderson , L. B. Lempke, D. H. Bell, R. C. Lynall & J. D. Schmidt Pages 369-374 | Received 15 Apr 2019, Accepted 28 Jan 2020, Published online: 06 Feb 2020

**66** Cite this article

▶ https://doi.org/10.1080/02699052.2020.1724332





Full Article

Figures & data

References

**66** Citations

**Metrics** 

Reprints & Permissions

Read this article

**⋖**Share

## **ABSTRACT**

Objective: Despite widespread use of baseline neurocognitive testing in concussion management, suboptimal performance due to sandbagging still readily occurs without detection. The purpose of this study is to determine CNS Vital Signs validity indicator accuracy in detecting coached sandbagging compared to controls.

Method: We compared rates of invalidity and domain composite scores for neurocognitive test performance between two groups of twenty-five college-aged students (age =  $20.8 \pm 1.1$  years, range 18-25, 48% female) completing CNS Vital Signs instructed to either 1) give their best effort (control) or, 2) give suboptimal

performance (sandbag). The sandbagging group was given standardized instructions on how to sandbag without detection. All participants rated their effort after completing on a Visual Analog Scale (0–100 mm).

Results: Built in invalidity indicators successfully identified 68.0% of sandbaggers, while only 12% in the control group presented with invalid scores. Participants in the sandbagging group on average reported significantly lower effort (sandbag:  $51.0 \pm 21.0$ , control:  $86.0 \pm 12.0$ , p < .001)

Conclusions: Built-in CNS Vital Signs validity indicators have an overall high accuracy in identifying those attempting to purposefully sandbag and are comparable to other computerized neurocognitive tests. Given that 32% of intentional sandbaggers went undetected, clinicians should consider additional safeguards to detect these individuals at baseline.

### **KEYWORDS:**

Psychometric mild-traumatic brain injury neurocognitive testing

# Declaration of interest

The authors report no declarations of interest.



People also read

Recommended articles

Cited by

Information for

**Authors** 

**R&D** professionals

**Editors** 

Librarians

**Societies** 

Opportunities

Reprints and e-prints

Advertising solutions

Accelerated publication

Corporate access solutions

Open access

Overview

Open journals

**Open Select** 

**Dove Medical Press** 

F1000Research

Help and information

Help and contact

Newsroom

All journals

**Books** 

### Keep up to date

Register to receive personalised research and resources by email



Sign me up











Accessibility



Copyright © 2025 Informa UK Limited Privacy policy Cookies Terms & conditions



Registered in England & Wales No. 01072954 5 Howick Place | London | SW1P 1WG