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Articles

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

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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 ± 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 ± 21.0, control: 86.0 ± 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.

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