

Sway Balance Mobile Application: Reliability, Acclimation, and Baseline Administration.

Abstract

OBJECTIVES: To describe historic baseline session administration practices, to assess the utility of a practice trial (an acclimation trial) before the official balance session, and to examine the within-session reliability of the Sway Balance Mobile Application (SBMA).

DESIGN: Retrospective observational study.

SETTING: Middle schools, high schools, and colleges across the United States.

PARTICIPANTS: More than 17 000 student-athletes were included in the Sway Medical database with 7968 individuals meeting this study's inclusion criteria.

INDEPENDENT VARIABLES: The Sway Medical database included the following subject characteristics for each student-athlete: age, sex, weight, and height.

MAIN OUTCOME MEASURES: Balance assessment score generated by the SBMA.

RESULTS: Variable administration practices with significant differences between baseline session averages across methods were found. Individuals who performed an acclimation trial had a significantly higher baseline session average than those who did not. Within-session reliability estimates were in the low to adequate range ($r = 0.53-0.78$), with higher estimates found for 2 consecutive baseline tests ($r = 0.75-0.78$).

CONCLUSIONS: For maximum clinical utility, a standardized protocol for postural control baseline acquisition is necessary. Acclimation trial should be administered before a baseline session to minimize variability, especially with only 1 to 2 baseline tests. The highest reliability was observed across 2 consecutive baseline tests within the same baseline session. We suggest obtaining baseline balance measurements with an acclimation trial followed by a baseline session with 2 baseline tests. Prospective studies are required for validation.