(S02) CORRELATING INSTRUMENTED AND CLINICAL MEASURES OF BALANCE

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Background: Balance problems are common in people with multiple sclerosis (MS). The Berg Balance Scale (BBS) is a clinical measure to assess balance in tasks representing daily activities.

Purpose: Our purpose was to determine whether BBS scores were correlated to instrumented postural stability measures in ambulatory individuals with MS.

Methods: Nineteen people (4 men and 15 women) with physician-diagnosed relapsing-remitting MS and Expanded Disability Status Scale (EDSS) scores <6.5 participated. The BBS was performed and scored according to standardized instructions. The NeuroCom SMART Balance Master Sensory Organization Test was used to test static and dynamic balance. Participants underwent the testing procedure twice to minimize learning effects, and only data from the second test were used. Raw ground reaction force data were converted into postural stability measures (center of pressure [COP] displacement, velocity, and sway area). Bivariate Pearson correlations were used to determine relationships between BBS scores and COP measures in eyes closed/stable platform and eyes open/unstable platform and surround conditions. The α level was adjusted for multiple comparisons ($\alpha = .008$).

Results: The BBS was significantly and negatively correlated with eyes closed/stable platform COP displacement ($r = -0.633$, $P = .006$), velocity ($r = -0.633$, $P = .006$), and sway area ($r = -0.757$, $P = .0004$). As BBS scores decreased (indicating decreased balance), COP displacement, velocity, and sway area increased (indicating worse balance). The correlation was not statistically significant in the eyes open/unstable platform and surround condition ($P > .05$).

Conclusion: The BBS appears to be reflective of postural stability in this cohort when eyes are closed and the platform is stable. In the more challenging condition of eyes open but unstable platform and visual surround, the correlation was no longer statistically significant. It appears that the BBS is correlated with instrumented postural stability measures in balance situations considered moderate but not extremely challenging.

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