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Determinants of Performance on Specific On-Road Skills in Multiple Sclerosis

Abiodun E Akinwuntan

School of Health Professions, University of Kansas Medical Center, Kansas City, KS

Hannes Devos

School of Health Professions, University of Kansas Medical Center, Kansas City, KS

Deborah Backus

Eula C. and Andrew C. Carlos MS Rehabilitation and Wellness Program, Shepherd Center, Atlanta, GA

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**DETERMINANTS OF PERFORMANCE ON SPECIFIC ON-ROAD SKILLS
IN MULTIPLE SCLEROSIS**

Abiodun E. Akinwuntan¹, Hannes Devos,¹ Deborah Backus²

¹School of Health Professions, University of Kansas Medical Center
Kansas City, KS

²Eula C. and Andrew C. Carlos MS Rehabilitation and Wellness Program, Shepherd
Center, Atlanta GA

E-mail: aakinwuntan@kumc.edu

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ABSTRACT

Summary: In this prospective cross-sectional study, we investigated the cognitive, visual, and motor deficits underlying poor performance during on-road driving in 102 individuals with multiple sclerosis (MS). Thirteen specific skills categorized into hierarchic clusters of operational, tactical, visuo-integrative, and mixed driving were assessed during the on-road evaluation. Stepwise regression analysis identified the off-road skills that influenced overall performance on the on-road test and in each cluster. Study results showed that visuospatial function ($p=0.002$), inhibition ($p=0.008$), binocular acuity ($p=0.04$), vertical visual field ($p=0.02$), and stereopsis ($p=0.03$) together accounted for the highest variance in total on-road score ($R^2=0.37$). Attentional shift ($p=0.0004$), stereopsis ($p=0.007$), glare recovery ($p=0.047$), and use of assistive devices ($p=0.03$) best predicted the operational cluster ($R^2=0.28$). Visuospatial function ($p=0.002$), inhibition ($p=0.002$), reasoning ($p=0.003$), binocular acuity ($p=0.04$), and stereopsis ($p=0.005$) best determined the tactical cluster ($R^2=0.41$). The visuo-integrative model ($R^2=0.12$) comprised binocular acuity ($p=0.007$) and stereopsis ($p=0.045$). Inhibition ($p=0.0001$) and binocular acuity ($p=0.001$) provided the best model of the mixed cluster ($R^2=0.25$). These results provide more insights into the specific impairments that influence different dimensions of on-road driving and may be used as a framework for targeted driving intervention programs in MS.

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Supplier

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