

Validation of Reflexion Edge Neuro-Fitness Device and Effectiveness as a Visual, Reaction Time, and Cognitive Training Tool

Brian Tran¹, Amberly Tran², Chonnor Ludolph³, Colby Hall³, Thinh Huynh³, Christian Yabut³,
C. Brendan Clark⁴, Heidi A. VanRavenhorst-Bell³

Department of Biomedical Engineering¹, Department of Public Health Sciences², Department of Human Performance Studies³, Department of Psychology⁴
Wichita State University, Wichita, KS

Reflexion Interactive Technologies, Inc. has developed a portable, touchscreen, light-board neurocognitive sport and therapy training tool, called the Edge. The Edge engages central vision and peripheral visual drills to test visual, reaction time and cognitive functions. The purpose of this study is to (1) determine the accuracy of the visual, reaction time and cognitive function tests of the Edge compared to the FDA cleared ImPACT and Sway tests and (2) identify the effectiveness of the Edge as a neurocognitive training tool. Twenty-two healthy adults aged 18 years or older were randomly assigned to either the (1) training group that completed six Reflexion Edge training modules, two sessions per week for three weeks or (2) control group. All subjects completed Pre/Post testing on the Reflexion Edge, ImPACT, and SWAY neurocognitive devices. Analysis will include a multiple correlation statistical analysis to test for validity and a repeated-measures ANOVA will determine pretest-posttest training differences. All analyses tested at $p < 0.05$. Based on current literature, it is anticipated that the Reflexion Edge will assess reaction time, pattern recognition, memory, and inhibitory control comparable to that of both ImPACT and SWAY assessments. In addition, it is anticipated that one's eye-hand coordination and neurocognitive performance will improve following routine neurocognitive training on the Reflexion Edge. In summary, this preliminary work may elucidate the potential of the Reflexion Edge device to serve as an additional neurocognitive assessment and training tool for clinical and physical/electronic-sports applications.