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Occupational Therapy Interventions for Activities of Daily Living in Adults Post-Traumatic Brain Injury with Visual Symptoms: A Systematic Review

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PURPOSE: Studies have shown that up to 90 percent of individuals who suffer from traumatic brain injuries (TBIs) also experience a related visual dysfunction (Armstrong, 2018). There are many common sensorimotor visual symptoms present by those who have sustained traumatic brain injuries (TBIs): blurred vision, double vision, eyestrain, dizziness, visual field defects, light sensitivity, and color blindness (Greenwald et al., 2012). Visual symptoms present in adults post-TBI can inhibit their abilities to perform activities of daily living (ADLs) such as personal hygiene, dressing, feeding, functional mobility, financial management, and health maintenance. The purpose of this systematic review is to synthesize research regarding interventions within the scope of occupational therapy for adults post-TBI with visual symptoms.

DESIGN: Researchers conducted a systematic review relevant to adults post-TBI experiencing visual symptoms, intervention strategies, and measurable ADL outcomes. Peer-reviewed articles published between 2002-2022 and in the scope of occupational therapy were included.

METHOD: Researchers reviewed 163 articles and abstracts from four databases. Eighty-seven articles were eligible for full-review and seven articles met inclusion criteria. U.S. Preventative Services Task Force levels of certainty and grade definitions were used to describe the strength of evidence.

RESULTS: Two key themes were identified: oculomotor and compensatory scanning training and training in device use. For oculomotor and compensatory scanning training, five articles were synthesized containing Level I-III evidence. There was moderate strength of evidence for individual intervention. This indicated that compensatory scanning strategies can heighten performance levels when performing ADLs by using horizontal scanning. Regarding training and device use, two articles were synthesized containing Level II-III evidence. Low levels of evidence were presented within this theme to improve ADL performance in adults post-TBI. It is recommended for adults post-TBI who have visual symptoms to engage in oculomotor and compensatory scanning training. Interventions should range from 20–90 mins, 1-2x per week, and last for 4 to 11 weeks. For training and device use, 5-10 hours of training in devices such as the horizontal, convergent fusion with prisms, dichoptic device, and cheiroscope is recommended on a case-by-case basis due to low evidence.

CONCLUSION: Occupational therapy practitioners provide their clients intervention approaches to improve performance in ADLs which can include visual functioning. Based on the findings in this review, adults experiencing visual symptoms related to a post-TBI, should consider oculomotor and compensatory scanning training as an option for intervention using horizontal scanning strategies. Training in device use should be used on a case-by-case basis due to low levels of evidence. Future research related to visual symptoms post-TBI should include

more occupation-based interventions facilitating ADL performance. Larger sample sizes should also be used to ensure the results are more generalizable.

The collaboration of both an occupational therapist and a vision specialist would provide expertise from both professions. Research regarding intervention approaches suitable to their clients with problematic visual symptoms has the potential to increase effectiveness in ADL performance.

IMPACT STATEMENT: This study provides evidence that oculomotor compensatory scanning training can be an effective intervention approach for adults experiencing visual symptoms post-TBI. Collaboration between vision specialists and occupational therapist in addition to further research can assist in making future intervention approaches more occupation-based. This collaboration and research has the potential to optimize performance levels and overall quality of life in adults post TBI.

Title: 145 characters (including spacing)

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