

Assessment and treatment of visual spatial deficits using computerized visual search tasks

Asnat Bar-Haim Erez¹, Racheli Kitzony^{2,3}, Noomi Katz³

¹*The School of Occupational Therapy, Hadassah and the Hebrew University, Jerusalem, Israel,*

²*Department of Occupational Therapy, Haifa University, Haifa, Israel,* ³*Research Institute for the Health and Medical Professions, Ono Academic College, Kiryat-Ono, Israel*

Introduction: visual spatial attention deficits post stroke are common and one of the factors affecting occupational performance and successful rehabilitation. Visual scanning is found to have sufficient evidence for use in rehabilitation of these deficits. One of the common assessment and treatment modes in occupational therapy employes paper and pencil, tests and exercises, that might not be sensitive enough. Theoretical models of spatial attention underline the role of two seemingly different processes operating in visual search tasks demanding stimulus detection and discrimination, feature and conjunction, which can be studied and utilized better using computer programs.

Objectives: the purpose of this presentation is to present and discuss the diagnostic sensitivity and training effectiveness of computerized tasks employing feature and conjunction visual searches in right hemispheric stroke patients with and without unilateral spatial neglect.

Methods: Two studies, which employed the computerized software Visual Spatial Search Task (VISSTA), will be described. One used the VISSTA in the assessment (Seventy-two stroke patients) and training of patients post right hemispheric stroke (with and without spatial neglect) in the early stages of rehabilitation. The program provides measures of both success-rate and reaction-time. Results showed that patients with spatial neglect had significant contralesional disadvantage in both feature and conjunction visual search tasks. Patients without neglect also showed decreased reaction time and success rates in visual search compared to healthy and left hemispheric stroke patients. Furthermore, using VISSTA training program appeared to improve alertness and performance of these patients. These results will be discussed in relations to standardized paper and pencil tests and functional status. The second study examined the efficacy of the VISSTA in Driving Rehabilitation of patients post stroke, both for assessment and training. Data of this study is still under analysis and will be presented.

Contribution to the practice occupational therapy: A computerized program for the assessment and training of visual-spatial inattention after stroke provides sensitive and useful information. It provides both success-rate and reaction-time quantitative measures that can serve to monitor recovery and evaluation of the efficacy of rehabilitation efforts directed toward normalization of lateralized inattention and neglect.