

EFFICACY OF THE COLOR TRAILS TEST FOR ASSESSMENT OF COGNITIVE IMPAIRMENTS AND MEASUREMENT OF THERAPEUTIC OUTCOMES: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Accurate assessment of cognition is important in planning interventions for best outcomes for patients with neurologic deficits. The Color Trails Test (CTT) examines attention, sequencing, and mental flexibility, however, few studies examine the efficacy of the CTT in therapeutic rehabilitation. The objective of this systematic review was to examine the efficacy of the CTT for determining appropriate interventions and assessing functional outcomes. **Methods**: PubMed, CINAHL, and EMBASE databases were searched in April 2018 with no date restrictions. The search yielded 352 articles to be screened by title, duplication, abstract, and full text application of inclusion/exclusion criteria. The final screen left 7 articles which were scored using the 2011 Oxford Centre of Evidence-Based Medicine (CEBM) criteria to assess level of evidence based on design. Additionally, three of the articles, which incorporated physical therapy interventions, were scored using the PEDro scale to assess quality. **Results:** Of the seven articles selected for review, four used the CTT as a method of assessment, while three used it as an outcome measure. Findings suggest the possible usefulness of the CTT both as an assessment tool, and a measure of progress in motor control related to attention and sequencing deficits. **Conclusion:** The CTT may be a useful tool for clinicians to utilize as a method of assessment prior to establishing treatment plans and in measuring outcomes related to improvement in motor sequencing and function in patients with neurologic deficits related to stroke and other diagnoses.
Keywords: Color Trails Test, attention, sequencing, rehabilitation, motor control

INTRODUCTION

Cognition, specifically attention span and sequencing, are important components in recovery from neurologic deficits. Decreases in the duration of care, coupled with limitations in the number of allowed physical therapy treatments, create a vital need for physical therapists to accurately assess patients to develop a comprehensive plan of care for optimal outcomes. In a study by Donoghue et al. [1] a correlation was shown between performance of a functional activity as measured by the Timed Up and Go (TUG) and executive function including attention and sequencing as measured by the Color Trails Test (CTT). Lower scores on cognitive tests correlated with slower performance of the TUG. This indicates the importance of including cognitive tests such as the CTT into initial assessments for optimal outcomes.

Fast, accurate assessment of cognition is important in planning and implementing a comprehensive plan of care for interventional strategies to achieve best outcomes. The Color Trails Test (CTT), designed in 1989, was a response to the World Health Organization's request for a test similar to the Trail Making Test in psychometric properties but without cultural and ethnic limitations for clients who speak and read a language other than English. [2] The CTT allows for multicultural application while minimizing linguistic and phonetic factors. [2, 3] Historically, the CTT has been mainly used by neuropsychologists to examine attention, sequencing, and mental flexibility. [4, 5] The CTT consists of two timed subtests: the CTT1 measures attention and the CTT2 measures sequencing. [6, 7, 8]

CTT1 consists of 25 numbered circles with yellow and pink backgrounds for even and odd numbers, respectively. [3] The use of pink and yellow are used to decrease negative effects of testing for individuals with colorblindness. The client is instructed to sequentially order the numbered circles by drawing a line from the lowest number to the highest. In the CTT1, the colors of the circles are not considered in the successful completion of the test.