

# Does Computerized Cognitive Rehabilitation Generalize?

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Computerized cognitive training is a very flexible intervention. Patients can do the exercise anytime they want and any place they want. The training software can adapt to the patient's current ability in a statistically optimal way, even if that ability fluctuates. Being automated means that it can be deployed on a very large scale at low cost.

This talk will get you up to date in the field of computerized cognitive training and rehabilitation with practical advices on how to separate the wheat from the chaff.

Interventions that improve Working Memory (the ability to sustain and process information simultaneously) are particularly important, and sadly also lacking, in brain injury rehabilitation. Working memory is one of the most prevalent cognitive impairment following acquired brain injury across etiologies (Serino et al., 2006; Roca et al., 2010). Furthermore, Working Memory functioning has several times been identified as the strongest predictor of the patient's social life as well as quality of life (Engberg & Teasdale, 2004; Teasdale et al., 1997; Ip, Dornan & Schentag, 1995; Ruff et al., 1993).

The feasibility of computerized cognitive rehabilitation depends on cognitive transfer: to what extent does computerized cognitive training and rehabilitation improve general cognitive functions, such as attention, working memory and decision making? The training should transfer to the patient's ability to process information in everyday life.

Current research on healthy subjects is ambiguous with respect to whether this goal is attainable. For example, Jaeggi et al., (2008, 2010) showed large effects but they did not replicate (Jaeggi et al., 2011, Redick et al., 2012, Chooi & Thomson, 2012). Trials on brain injured patients are sparse with some evidence of positive effects (e.g. Westerberg et al., 2007).

In my research I've created an online adaptive training task which aims at transfer to working memory. In a controlled randomized trial, 39 patients started the training and 19 completed. The effect of training was evaluated on everyday activity as well as cognition. Prospects and perils for computerized cognitive training in a rehabilitation setting will be evaluated in light of these data.

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