Computerized Functional Skills Training in Older People: Preliminary Results from a Randomized Clinical Trial

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ABSTRACT

Background: Functional skills training is facilitated by computerized cognitive training (CCT) in many populations. Further, CCT often yield functional benefits in the absence of formal skills training, which is commonly unavailable due lack of access or trainers. Many current functional skills are actually technology based, so development of a technology-based computer administered training program has ecological validity. Here we present preliminary results from a technology-based training program that was paired in half of the participants with a commercially available CCT program.

Methods: Healthy older (age>59) individuals (n=32) and similarly aged individuals who met diagnostic criteria for mild cognitive impairment (MCI; n=26) were randomized to receive 12 weeks of twice-weekly one hour computerized functional skills training (CST) sessions or 12 weeks of one-hour sessions split between Double Decision from Brain HQ and skills training. The functional skills trained were ATM and internet banking, ticket purchase from a kiosk, telephone and internet prescription refill, medication label comprehension and medication management, and internet shopping. There are multiple performance based outcomes, but in line with previous functional capacity measures and for parsimony, we focus on completion time for each simulation.

Results: Thirty-two participants had fully completed the training program, either by mastering all 6 tasks prior to 24 training sessions (23) or completing 12 weeks of training. 26 participants had completed 4 or more training sessions on all 6 tasks so they were also analyzed for improvement over their last training session. Paired t-tests found that completion time for all 6 tests significantly improved from the baseline assessment to the final training assessment in both groups of participants, all t >4.31, all p <.001. Average improvement in time to completion was 45%. Further, none of 6 tests improved differently in the two samples, as indexed by percentage of improvement from baseline to end of training: all t <1.66, all p >.12. Finally, combined CCT plus CFST did not differ from CSFT alone on any of the %-change score measures: all t <1.64, all p >.11.

Implications: Both groups evidenced substantial improvements in performance. CCT supplementation led to similar CST gains with half as many CST training sessions.

CONCLUSION

In this study, a training program that focuses on performance of everyday functional skills was deployed to older people with normal cognition or diagnosed mild cognitive impairment and we also randomized half of the participants to receive concurrent training with computerized cognitive training, using the Brain HQ platform.

HYPOTHESES

1. Both MCI and NC individuals will make functional gains with training
2. Concurrent computerized cognitive training will lead to more rapid gains than skills training alone
3. Functional gain will be similar to our previous studies with patients with SMI and order people: efficiency will increase by 50% or more with training

Conflict of Interest Statement

In the past year Dr. Harvey has received consulting fees or travel reimbursements from Alkermes, Boehringer Ingelheim, Intra-Cellular Therapies, Jazz Pharma, Minerva Pharma, Otsuka America, Roche Pharma, Sanofi Pharma, Sunovion Pharma, Takeda Pharma, and Teva. He receives royalties from the Brief Assessment of Cognition in Schizophrenia. He is Chief Scientific Officer for I-Function. Peter Kallestrup is CEO of I-Function. Lize Tibiriçá is a part-time employee of I-Function. Sara Czaja is Chief Scientific officer of I-Function.