

University of Massachusetts Medical School

eScholarship@UMMS

---

UMass Center for Clinical and Translational  
Science Research Retreat

2013 UMass Center for Clinical and  
Translational Science Research Retreat

---

May 8th, 12:30 PM - 1:30 PM

## A Pilot Study of Neuroplasticity Based Cognitive Remediation in Early Onset Psychosis

Ann E. Maloney

*University of Massachusetts Medical School*

*Et al.*

Let us know how access to this document benefits you.

Follow this and additional works at: [https://escholarship.umassmed.edu/cts\\_retreat](https://escholarship.umassmed.edu/cts_retreat)



Part of the Behavior and Behavior Mechanisms Commons, Mental and Social Health Commons, Mental Disorders Commons, Neurology Commons, Psychiatry Commons, and the Translational Medical Research Commons

---

Maloney AE, Baluyot K, Hazzard L, Alderman C, George R, Noyes N, Bethea TC, Verdi M, Nahum M, Johnson JL, Hooper SR, Sikich L. (2013). A Pilot Study of Neuroplasticity Based Cognitive Remediation in Early Onset Psychosis. UMass Center for Clinical and Translational Science Research Retreat. Retrieved from [https://escholarship.umassmed.edu/cts\\_retreat/2013/posters/30](https://escholarship.umassmed.edu/cts_retreat/2013/posters/30)

Creative Commons License



This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 3.0 License](https://creativecommons.org/licenses/by-nc-sa/3.0/).

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in UMass Center for Clinical and Translational Science Research Retreat by an authorized administrator of eScholarship@UMMS. For more information, please contact [Lisa.Palmer@umassmed.edu](mailto:Lisa.Palmer@umassmed.edu).

# A Pilot Study of Neuroplasticity Based Cognitive Remediation in Early Onset Psychosis

## Affiliations of Authors, COI, References, Funding source

Ann Maloney, MD<sup>1,2\*</sup>, Kristine Baluyot<sup>3\*</sup>, Lindsey Hazzard, LCSW<sup>3</sup>, Cheryl Alderman<sup>3</sup>, Rose George, MD<sup>1</sup>, Nancy Noyes, NP<sup>1</sup>, Terrence C. Bethea, MD<sup>3</sup>, Mary Verdi<sup>1</sup>, Mor Nahum, PhD<sup>4</sup>, Jacqueline Johnson, Dr PH<sup>3</sup>, Steven Hooper, PhD<sup>3</sup>, Linmarie Sikich, MD<sup>3</sup>

\*Shared 1<sup>st</sup> author status

<sup>1</sup>Maine Medical Center Research Institute, <sup>2</sup>University of Massachusetts Medical School, <sup>3</sup>University of North Carolina at Chapel Hill, <sup>4</sup>Brain Plasticity, Inc

**Introduction** – Neuroplasticity based auditory and visual training programs appear to improve neurocognitive function in adults with schizophrenia, but use in younger individuals has not been determined. We hypothesized that adolescents might play more often and respond better than adults to training using a game-like laptop in their home environment.

**Methods** -- Youth 10-19 years with Early Onset Psychosis (EOP) were provided a laptop and randomly assigned to play games to enhance basic auditory, visual and social processing neuroplasticity games (NPG) or assigned to control games with cognitive components, such as Sudoku or hangman or (CG). All received neurocognitive assessments at baseline, intervention completion and 4 months post treatment.

**Results** — 12 youth (15.5 ±3.2 yrs) were assigned to NPG and 10 participants (16.2 ±2.1 years) were assigned to CG. More NPG than CG participants completed the prescribed hours of game play (block 1 - 92% vs. 70% over the first 40 hours), with both groups engaged less over time. Although most neurocognitive functions did not change, the NPG group did show improvements in WRAML Visual Learning, WISC Digit Span Forward, Spatial Span Backwards and CPT omission errors. Surprisingly, satisfaction was lower for NPG than CG.

**Conclusions** — Groups were well matched for baseline illness characteristics. On the global measures of cognition, both EOP groups showed improvement over time but those improvements were generally greater in the CG than in the NPG group, with potentially significant differences favoring the CG evident in the neurocognitive composite score (p=0.072) and BRIEF metacognition (p=.117). Youth did not play as frequently or as long as requested despite providing a laptop for their home use and stipends for playing.

## References

Fisher M., et al. Using neuroplasticity-based auditory training to improve verbal memory in schizophrenia. *Am J Psychiatry*. 2009. 166(7): 805-11.

Keefe R.S., et al. Feasibility and pilot efficacy results from the multisite Cognitive Remediation in the Schizophrenia Trials Network (CRSTN) randomized controlled trial. *J Clin Psychiatry*. 2012. 73(7). 1016-22.

## Disclosures

Dr. Sikich has received research funding in the past 5 years from or participates in clinical trials sponsored by NIMH, Autism Speaks, Foundation of Hope, Bristol Myers-Squibb, Curemark, Merck, Forest, Otsuka Research Institute, Synapdx and Seaside Pharmaceuticals, and received software for a computer intervention in schizophrenia from Posit Science. She serves on Data Safety and Monitoring Boards for NICHD Rare Disease Network and Research Foundation for Mental Hygiene. In the past, Dr. Sikich received research funding from Eli Lilly, Janssen, Pfizer, Otsuka, and Astra Zeneca, and Neuropharm and has served as a consultant for Sanofi Aventis (2008) and ABT Associates (2008). Mor Nahum, PhD is affiliated with UCSF and Brain Plasticity, Inc. which is a commercial company that develops and tests neuroplasticity games and has developed the social cognition intervention used here. All other authors have no disclosures.

**Funding source:** ARRA funding from 1-R34-MH08508 8-01