Intendu Functional Brain Trainer

UTILIZING INTENDU TO TRANSFORM COGNITIVE REHABILITATION FOR INDIVIDUALS WITH MILD TRAUMATIC BRAIN INJURY

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Introduction – What It Is

- Software program combining cognitive training with physical movements
- Target users: clients with acquired brain injury
- Current focus: Executive Functions
- Functional environments in the program (e.g., food truck, bus stop, grocery store)

Introduction – Underlying Principles

- Transfer to daily life is improved through training in realistic environments
- Personalized and adaptable training to enhance range of use for target population
- Physical and cognitive challenge together enhance neuroplasticity
- Motivation is increased through engaging software
- Training cognitive functions in multiple contexts improves generalization
Introduction – How It Works

- Purchase software, camera, computer able to run software, cords
- Need strong internet, large screen, room to train
- Set up account for client, set level of challenge
- Therapist demonstrates each game, reviews instructions with client
- Client practices each game
- Computer software tracks client’s progress
- Used in the clinic and developing a version for the home
Video – Staff Demonstration

Comparable Programs

- Lumosity
- CogniFit
- Captain’s Log from BrainTrain
- NeuroPsychOnline (NPO) Cognitive Rehabilitation Therapy System
Evidence – Peer Reviewed

- Computer-based cognitive rehabilitation programs demonstrate an improvement in objective measurements of cognitive performance (Prokopenki et al., 2013; Hardy et al., 2011; De Luca et al., 2014; Larson et al., 2014)
- Limited evidence regarding the generalization of cognitive improvements to functional performance, participation, and life satisfaction. (Cicerone et al., 2003; Prokopenki et al., 2013; Finn et al., 2011; Li, K. et al., 2013; Larson et al., 2014)

Evidence: Recommendations for Therapy

- Remediation of memory should be tailored to the severity of memory impairment, with different interventions for mild versus severe impairment
- Interventions should address the cognitive, emotional, and interpersonal difficulties of people with acquired brain injury
- Applying the interventions to functional, everyday activities
- Providing treatment in a comprehensive, holistic way
- Avoiding the use of repetitive computer-based tasks without some involvement and intervention by a therapist

Cicerone, et. al. (2011)

Evidence – Intendu Team

1. Pilot study of feasibility and usability
   - Participants reported low fatigue, high enjoyment and success
   (Eliav, R., Blumenfeld, B., Swartz, Y., Preminger, S., Rand, D., & Sacher, Y., 2014)
2. Study of usability and effectiveness of the program
   - Preliminary results from an ongoing RCT
   - Participants gradually able to perform games with higher cognitive demands
   - Preliminary results show improvement in functional task
   (Eliav, R., Blumenfeld, B., Swartz, Y, Preminger, S, Rand, D. & Sacher, Y., 2014)
Our Process

- Set up: Purchasing computer, lining with Intendu team, training BCMA staff (2 orientations)
- Developed pre and post self-report measures for clients and staff
- Recruited clients with the following inclusion criteria: ABI, funding for therapy, able/willing to travel
- Acquired written informed consent to participate in program
- 3 clients participated and provided feedback
- 5 staff members participated and provided feedback
- Literature review

Findings – Client

What they liked
- Movement enjoyable
- Fun to do
- Interesting and novel experience
- Enjoys seeing success
- Positive activity, productive use of time

Findings – Client

What they didn’t like
- Pictures of items should be more clear
- Instant replay of their performance
- Clearer information on benefit of using software
- Concern over cost of program
- Repetitive UE movement leading to pain
Findings – Client

Would they keep using it

- Two of the three participants interested in continuing with the program
- Ongoing participation was preferable in the home setting
- Third participant was not interested in continuing due to perceived lack of challenge

Findings – Therapists

What we liked

- Exciting new potential direction for therapy
- Automatically increases difficulty
- Tracks client progress
- Incorporate of cognitive and physical elements

Findings – Therapists

Recommendations

- All tasks should be functional
- In-game baseline assessment to rapidly determine level of difficulty
- Fully developed version for in-home use (simpler, less cords etc.)
- Pause game to review instructions
Take Away Points

- Not replacing therapy, to be used in addition to occupation-based therapy
- New direction for therapy that has potential
- Clean-cut and intrinsically motivating
- Potentially more beneficial in an inpatient or outpatient setting
- Need to be aware of potential conflict of interest
- Peer reviewed, third party research to be completed

References


