Novel, Academically-Focused Cognitive Rehabilitation Program Provides a Ramp to College Success for Young Adults with Acquired Brain Injury

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BACKGROUND

- Young adults are a frequently affected and growing population to suffer acquired brain injury (ABI).[1,2]
- ABI often leads to chronic cognitive-linguistic impairments.
- College is challenging for young adults with ABI.[3,4]
- Cognitive rehabilitation (CR) is the standard of care.[5]
- Limited CR services are sufficiently intense, salient, specific, or complex to support young adults with ABI aiming for college.[6]
- Intensive Cognitive-Communication Rehabilitation (ICCR) was developed to fill this gap in care.
- ICCR shows promise as experimental participants (*n* = 4) demonstrated significant gains in cognitive-linguistic function, while controls did not (*n* = 2).[7]
- Yet, generalization of these findings is limited by small *n*.

OBJECTIVE

To evaluate if young adults with ABI demonstrate gains in cognitive-linguistic function, participation and quality of life (QOL) after ICCR in a larger participant sample

METHODS

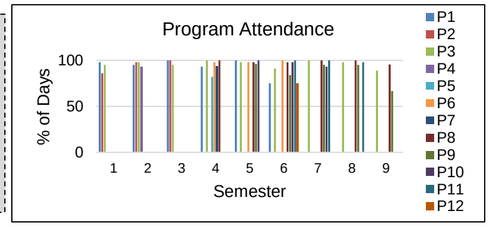
Demographic Information							
	Etiology	**Age**	**Sex**	**MPO**	**Edu. Level**	**Lang. Sev.**	**Cog. Sev.**
Exp. (n=12)	TBI = 7 Stroke = 4 Tumor = 1	25.9 (4.0)	M = 9 F = 3	58.3 (34.6)	14.7 (1.3)	74.2 (22.1)	52.5 (10.1)
Cont. (n=9)	TBI = 5 Stroke = 3 Tumor = 1	25.1 (4.9)	M = 5 F = 4	59.4 (44.6)	13.2 (2.0)	91.8 (8.8)	63.4 (13.0)

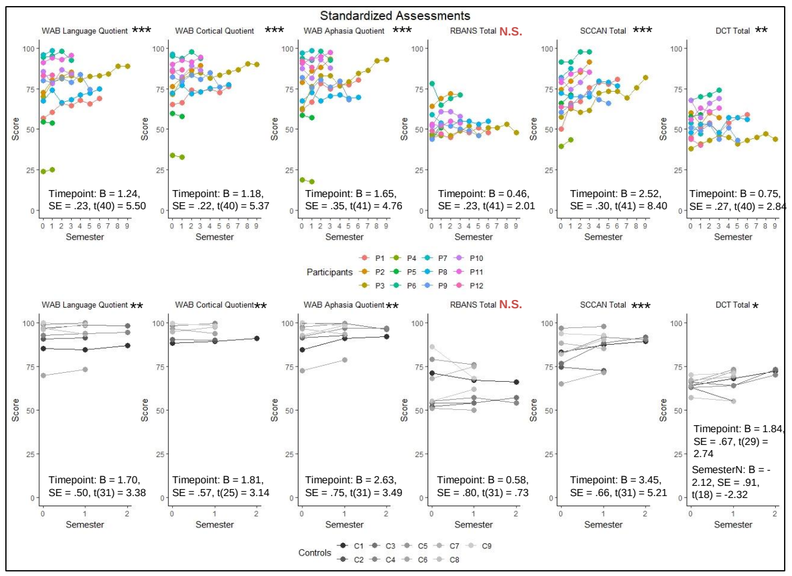
Note: MPO = months post onset; TBI = traumatic brain injury; Language Severity = Western Aphasia Battery (WAB) Aphasia Quotient[8]; Cognitive Severity = Repeatable Battery of Neuropsychological Status (RBANS)[9] Total Index Score

Sample Weekly ICCR Schedule				
	Monday	**Tuesday**	**Thursday**	**Friday**
10:00-11:00	**Economics Lecture**	**Biology Lecture**	**Economics Lecture**	**Biology Lecture**
11:00-12:00	**Lecture Review**	**Lecture Review**	**Lecture Review**	**Lecture Review**
12:00-1:00	**Quiz Review**	**Quiz Review**	**Quiz Review**	**Quiz Review**
1:00-2:00	***Lunch***	***Lunch***	***Lunch***	***Lunch***
2:00-3:00	**Statistics**	**English Literature**	**Statistics**	**English Literature**
3:00-4:00	**Tech**	**Tech**	Tech	**Tech**

RESULTS

- Avg. attendance = 93 % days
- Avg. hrs. of tx per semester = 220 hrs.

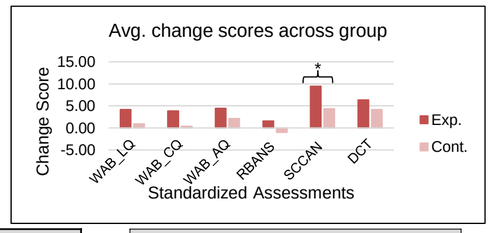




Note: AQ = Aphasia Quotient; CQ = Cortical Quotient; LQ = Language Quotient; SCCAN = Scales of Cognitive Communicative Ability for Neurorehabilitation;[10] DCT = Discourse Comprehension Test[11]

Summary: Young adults with ABI demonstrated significant longitudinal gains on standardized assessments of cognitive-linguistic function.

Summary: Extent of gains greater for experimental than control group across all metrics.



Therapy & personal goals			
Context	**Goal**	**Pre**	**Final**
1:1	**Recall details**	**2-3**	**3-4**
GAS	**Make friends**	**-2**	**0**

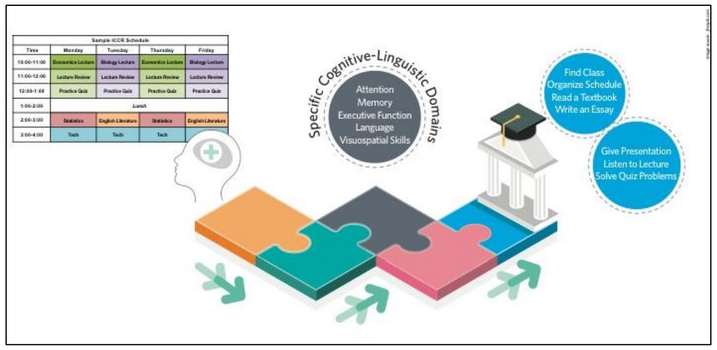
Note: Sample participant (P7); GAS = Goal Attainment Scaling

Post-program outcomes		
College after ICCR	**Exp.**	**Cont.**
N/A	3	0
Yes	5	0
No	4	9

Summary: 1) Majority of experimental participants showed gains in 1:1 therapy and personal goals (GAS). 2) 5/12 experimental participants enrolled in college in contrast with 0/9 control participants; and 3) no significant changes found on the Child and Adolescent Scale of Participation[12] (CASP), on TBI[13]/Neuro-QOL.[14]

DISCUSSION

- Significant gains in cognitive-linguistic function across five of six measures.
- Improvements seen in both groups, but magnitude of change in experimental group was consistently larger than active controls.
- Many experimental participants have enrolled in college post-program in contrast with zero controls.
- All experimental participants improved on 1:1 therapy and personal goals.
- Lack of gains in participation and QOL were likely multi-factorial (e.g., inconsistent patient evaluation).
- Overall, findings align with emerging work demonstrating that repetitive, intensive and specific training within a meaningful context promotes neuroplasticity in individuals with chronic ABI.



CONCLUSION

- ICCR promotes significant gains in cognition and college enrollment, confirming prior work.[7]
- Integration of principles of neuroplasticity, individual and group CR, and functional skills training/application drive significant gains.
- Future work will investigate 1) longitudinal gains in specific cognitive-linguistic domains (e.g., attention); 2) therapy-induced neuroplasticity; and 3) long-term functional outcomes (e.g., career).

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