

Introduction:

- Compensatory memory aids are effective in the rehabilitation of memory impairment secondary to acquired brain injury (ABI). Memory aids include message boards, calendars, diaries, pagers, smart phones, and voice recorders.
- But how do we train people with ABI the effective use and maintenance of memory aids (Sohlberg & Turkstra, 2011) ?
- We report the preliminary findings from an outpatient Memory Aids Clinic (MAC), a structured approach to training the use of memory aids to improve everyday memory functioning.



Table 1: Mean (S.D.) performance on neuropsychological and psychosocial measures at baseline and follow-up.

Measure	Treatment Group (n = 59)		Control Group (n = 21)		Time p value	Group x Time p value
	Baseline Mean (S.D.)	Follow-up Mean (S.D.)	Baseline Mean (S.D.)	Follow-up Mean (S.D.)		
Neuropsychological Measures						
RBMT FS	18.6 (9.4)	17.0 (8.8)	14.4 (6.9)	15.7 (7.2)	0.87	0.12
Campcomp	19.0 (8.9)	22.5 (9.9)	17.5 (12.4)	19.6 (12.9)	0.01	0.52
WAIS3 DSym SS	6.9 (2.9)	7.4 (3.3)	6.7 (2.7)	7.4 (2.7)	<0.01	0.40
WAIS3 LenNo SS	7.0 (3.3)	7.5 (3.6)	6.2 (2.5)	7.1 (3.0)	0.05	0.48
El Count	6.1 (1.5)	6.1 (1.6)	6.0 (1.4)	6.0 (1.5)	0.70	0.87
Tel Search SS	7.4 (3.0)	5.5 (4.3)	7.1 (2.4)	4.4 (3.6)	<0.01	0.34
Tel Search Count SS	7.9 (4.7)	7.6 (4.5)	8.0 (3.8)	7.1 (4.7)	0.32	0.56
Zoo Map PS	1.7 (1.0)	1.7 (1.1)	1.4 (1.1)	1.5 (1.1)	0.85	0.70
Binon PS	4.4 (2.4)	4.9 (2.4)	3.3 (2.2)	3.9 (2.7)	0.03	0.89
Psychosocial Measures						
BDR 2	14.8 (10.2)	12.4 (10.1)	20.0 (11.8)	18.3 (12.9)	0.07	0.75
Rosenberg	19.0 (5.4)	20.4 (4.9)	17.0 (5.2)	18.0 (5.2)	0.03	0.74
PRMQ self	37.2 (12.7)	37.1 (11.8)	36.1 (12.7)	36.6 (12.6)	0.87	0.83
PRMQ other	35.7 (8.9)	40.0 (8.7)	32.7 (13.2)	37.7 (42.0)	0.26	0.93
CRQ	16.9 (4.8)	16.8 (4.8)	17.4 (5.0)	17.3 (4.5)	0.88	0.98
CSI	7.0 (5.4)	6.5 (8.6)	5.4 (5.0)	6.5 (8.3)	0.78	0.44

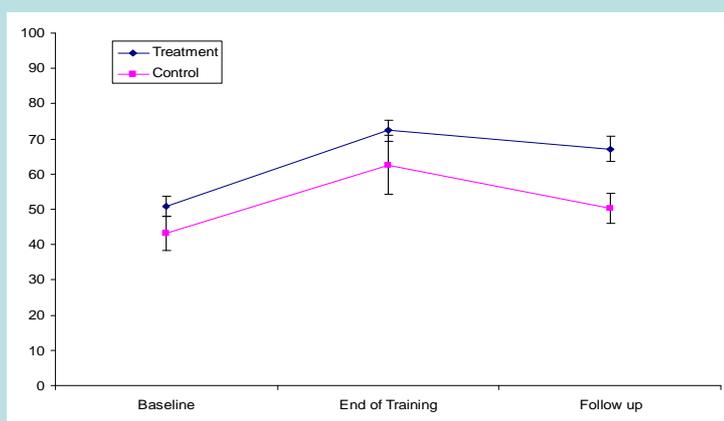
Method:

- Subjects were a mixed neuropsychiatric group.
- Comparison was made between a treatment (n = 59) and waiting list control group (n=21). There was no difference between groups on age, education or premorbid IQ at baseline.
- Pre and post treatment assessment (see Table 1).
- Main outcome measure was attainment of everyday memory goals. Secondary measures were neuropsychological and psychosocial measures, and a problem solving inventory. Outcome measured at baseline, end of treatment and at 3 month follow-up.
- Treatment attempted to match memory aids to individual memory goals and then train patients in the effective use of the memory aids. Sohlberg and Mateer's (1989) acquisition, application and adaptation approach to training memory aids was adopted, across 3 sessions. Direct instruction, errorless learning, homework and compliance assessment also utilised.
- After an initial provision of written information, the control group received treatment after an 18 week wait.

Results:

- On the diary measure of everyday memory function, comparing follow-up with baseline, there was a significant group by time-period interaction, $F(1, 55) = 3.295, p = 0.05$, indicating a significant treatment effect. Refer to Figure 2.
- There was no group by time interaction on any neuropsychological or psychosocial measures. Refer to Table 1. Prospective memory, cognitive speed, verbal processing, non verbal problem solving and self esteem improved for both groups across time.
- Training generalised as the treatment group reported use of more memory aids on a problem solving inventory than control subjects, across the baseline to follow-up period, $F(1, 40) = 5.44, p < 0.05$.

Figure 2: Percent goal attainment on memory performance diary for treatment and control subjects across baseline, end of training and follow-up.



Discussion:

- Our study provides support for the longer-term benefits of compensatory memory aids within a specialised Memory Aids Clinic.
- Memory aids can be successfully trained in an outpatient setting focusing on acquiring the skills required to use the memory aid and applying this to meet specific goals. Errorless learning, direct instruction and goal management training can be useful to train memory aids.
- Generalisation of memory aid use may be facilitated by within session adaptation training to novel problems.
- Future analyses will examine predictors of outcome, including impact of progressive neurological conditions.

References:

- Sohlberg, M. M. & Turkstra, L.S. (2011). Optimizing cognitive rehabilitation: Effective instructional methods. Guildford Press: NY.
 Sohlberg, M. M. & Mateer, C. A. (1989). Training use of compensatory memory books: a three stage behavioural approach. *Journal of Clinical and Experimental Neuropsychology* 11(6), 871-91

