





MOVING AHEAD CRE

NEWSLETTER 2016/17





WELCOME

Dear Reader,

Welcome to our 2017 newsletter for MOVING AHEAD. MOVING AHEAD is a NHMRC Centre of Research Excellence in Brain Recovery that commenced in 2012. The aim of the CRE is to improve psychosocial outcomes for people who have sustained traumatic brain injuries by

- (1) pursuing specific research projects to improve psychosocial outcomes after TBI
- (2) facilitating knowledge transfer between research and clinical practice
- (3) training the clinical researchers of tomorrow and
- (4) increasing collaboration between research teams.

Over the six years of the CRE we have worked on these four goals on many fronts and we provide a brief overview of what we have done overpage.

Our team of chief investigators comprise some of the most well-known researchers in this field in Australia: Prof Skye McDonald (UNSW), Prof Vicki Anderson (MCRI), Prof Jennie Ponsford (Monash University), Prof Robyn Tate (Syd Uni), Prof Leanne Togher (Syd Uni), Prof Angela Morgan (MCRI), Prof. Jenny Fleming (UQ), Prof Jacinta Douglas (La Trobe), Prof Tamara Ownsworth (Griffith University).

We have worked with a fantastic team of Associate Investigators many of whom play important roles in rehabilitation services and are pivotal to the translation of research into practice while others provide unique research skills to our team. One of the major thrusts of our CRE has been to bring forward a new cohort of clinician researchers from a range of disciplines, capable of high quality, effective research and well versed and able to collaborate across disciplinary boundaries. We are very proud of our early career researchers. You can see all these people by visiting our “people of the CRE” commencing page 68.

We have also networked with our friends and colleagues across the world who are internationally esteemed experts in the field of brain injury. Their input as members of our Expert Advisory Board (EAB) has been invaluable, especially with respect to guiding our project in the development of a common set of outcome measures. Members of the EAB are also detailed also in our “people of the CRE” pages.

As you can see from the list of chief investigators, we represent a network across Melbourne, Sydney and Brisbane. We are each engaged in pursuing specific research studies and a sample of some of these that have been conducted in 2016 and 2017 are detailed for you in the coming pages and the reference list details all publications in the 2016-2017 period. Our previous newsletters also contain information on other projects now completed and relevant references. We have also collaborated on some core CRE projects, specifically development of a common set of outcome measures for assessing psychosocial outcomes in adults and children, clinical and publishing guidelines and a clinician survey. You can find information about these on pages 4-7.

We do hope you find this newsletter of interest. Please visit our website: www.movingahead.com.au for further information. You can also find a fuller description of the CRE in the following journal article.

McDonald, S., Anderson, V., Ponsford, J., Tate, R., Togher, L., Morgan, A., Fleming, J., Ownsworth, T., Douglas, J. & Murdoch, B. (2012) Moving Ahead: A new centre of research excellence in brain recovery, focusing on psychosocial reintegration following traumatic brain injury. Brain Impairment, 13 (2), 256-270.

Best wishes
Skye McDonald

Achievements

OF THE CRE

Aim 1: To pursue specific research projects to improve psychosocial outcomes

Many specific projects across CRE members have been conducted over the past six years. Between 2012 and 2017 we published 734 journal articles on the following topics:

Basic science

1. Neural basis of empathy disorders in TBI (UNSW: McDonald)
2. Neural correlates of social cognition (MCRI: Catroppa & Anderson)
3. Understanding emotion dysregulation in TBI (UNSW: McDonald & Tate)
4. Speech production in adults (MCRI: Morgan)
5. Neural correlates of language disorders in pediatric TBI (MCRI: Morgan)
6. Developing a scale for methodological quality of single case experimental designs (USyd: Tate)

Clinical assessment

1. PEERS: A paediatric assessment tool for social competence (MCRI: Anderson & McDonald)
2. TASIT-S: development of a short social cognition measure for adults (UNSW: McDonald)
3. CAVEAT: development of a measure of complex emotion perception (UNSW: McDonald)
4. New measures of social disinhibition (UNSW: McDonald)

Treatment research

1. Improving self-awareness (UQ: Fleming & Ownsworth)
2. Goal planning in rehabilitation (UQ: Fleming)
3. Error based vs error-free learning in rehabilitation (Griffith, Ownsworth, Fleming & Tate)
4. Addressing anxiety and depression in adults with TBI (Monash University: Ponsford)
5. Tackling fatigue and sleep disorders after TBI (Monash University: Ponsford)
6. Treating social anxiety after child TBI (MCRI: Soo, Catroppa & Anderson)
7. Trialling novel treatments for emotion dysregulation (UNSW: McDonald & Tate)
8. Communication training for people with TBI (USyd/Latrobe: Togher, Douglas)

Community outcomes

1. Sexual changes following TBI (Monash, Ponsford)
2. Psychiatric disorders following TBI (Monash: Ponsford)
3. Long term functional, social and psychological outcomes in adult TBI (Monash: Ponsford)
4. Long term social impairment after child TBI (MCRI: Catroppa & Anderson)
5. Longitudinal communication outcomes for adults with TBI (USyd: Togher)
6. Maintaining self, experiences and decision making post TBI (Douglas, LaTrobe)

Facilitating community engagement

1. Facilitating home-life (MCRI: Anderson & Catroppa)
2. Facilitating friendships (USyd/ Latrobe: Togher & Douglas)
3. Improving meaningful occupation (USyd: Tate)
4. Parenting interventions for challenging behaviours after child TBI (MCRI: Anderson & Catroppa)
5. Communication training for conversational partners of people with TBI (USyd: Togher)

Facilitating translation

1. Common measures for outcomes following adult and paediatric TBI (UNSW: McDonald and all CIs)
2. Survey of clinicians needs in rehabilitation (Griffith U: Ownsworth)
3. Developing TBI paediatric guidelines (MCRI: Morgan)
4. Development of guidelines for cognitive rehabilitation (INCOG) (Monash: Tate, Ponsford, Togher, Douglas, Ownsworth)
5. Development of publishing guidelines for single case experimental designs (USyd: Tate, McDonald, Togher & Douglas)

Achievements

OF THE CRE

Aim 2: To facilitate transfer of research knowledge to practice

In addition to specific projects we:

- (1) developed and maintained Moving Ahead's website providing a portal to:
 - (a) research activities of the CRE
 - (b) newsletters
 - (c) PsycBITE and SpeechBITE (providing access to all published empirical research on remediation for problems associated with TBI)
 - (d) evidence based resources for treating/assessing psychosocial disorders
- (2) provided continuing education via 214 national and international keynotes and workshops and webinar series presented via ASSBI between 2012 and 2017.
- (3) commenced a network of clinician-researcher translational groups, the first being at MCRI and Griffith Universities

Aim 3: Research training

Training the next generation of clinician researchers is core to the CRE's goals. To this end we:

- (1) appointed PDs and PhD students on stipends and fostered a network of 56 early career researchers
- (2) provided annual workshops and travel funds for interstate visits and meeting attendance
- (3) allocated a total of 18 seed grants between 2012 and 2017 to foster research by clinicians with three awarded annually.

Aim 4: Increase collaboration between CRE members and the national/international community

Working within the CRE has fostered a new era of collaboration between CIs on grants and joint research projects and generated a new generation of researchers comfortable with working across disciplines. We have completed a major six year collaborative project to produce a set of core measures for assessing outcomes in paediatric and adult TBI (see overpage). We have also engaged with an international panel of experts as the CRE Advisory Board.

CRE Core Projects

Developing a set of measures for assessing psychosocial outcomes in TBI research

Severe traumatic brain injury (TBI) leads to detrimental changes in psychosocial functioning, resulting in relationship difficulties, increased family stress, and employment difficulties. One of the major hindrances to research into the predictors for these difficulties and also the effectiveness of treatments, is that researchers vary widely in how they choose to assess outcomes. This makes it difficult to compare across studies or to collate information. In order to address this issue the CRE decided to develop a coherent framework with which to guide the future research activities of those examining psychosocial functioning and remediation following TBI. Over six years in a process of consultation, research and expert advice, the CRE developed a set of recommendations for the use of outcome measures in moderate-to-severe TBI psychosocial research.

Assessing adults with TBI

A detailed review and assessment of 108 measures was conducted across 11 domains of psychosocial functioning including: (1) Global Outcome, (2) Communication, (3) Social Cognition, (4) Behavioural and Executive Function, (5) Other Neuropsychological Functioning, (6) Psychological Status, (7) TBI-related Symptoms, (8) Activities and Participation, (9) Support and Relationships, (10) Sense of Self, and (11) Health-related Quality of Life.

The final list of recommendations, organised in accordance with the World Health Organisation International Classification of functioning taxonomy, comprised fifty-six measures for use in Early Recovery, Outcome, and Intervention psychosocial studies. These recommendations provide a coherent framework along with identified outcome instruments to guide psychosocial research in moderate-to-severe TBI. Adherence to the recommendations will enable data-pooling and comparison across studies and research settings facilitating consistent measurement across the lifespan.

The study and set of outcome measures is reported in the following publication:

Honan, C.A., McDonald, S., Tate, R.L., Ownsworth, T., Togher, L., Fleming, J., Anderson, V., Catroppa, C., Douglas, J., Francis, H., Wearne, T., Ponsford, J. (In press) Recommendations for the use of Psychosocial Outcome Measures in Traumatic Brain Injury Research Neuropsychological Rehabilitation 2017 Jul 2:1-21. doi: 10.1080/09602011.2017.1339616. [Epub ahead of print]

The full list of outcome measures, including a brief synopsis of each one, its description, use and psychometric properties, can be found at the following website:

http://movingahead.psy.unsw.edu.au/adult_outcome_measures_from_tbi.html

Assessing children with TBI

A similar process has been undertaken for paediatric TBI, resulting in the identification of 50 instruments. The paper is currently being finalised for publication. The brief descriptions of each measure can be found at: http://movingahead.psy.unsw.edu.au/paediatric_outcome_measures_from_tbi.html

Measuring Outcomes from TBI - Adult Outcomes

Adult Outcome Measures from TBI

On this page you can find basic information on instruments that measure adult outcomes following traumatic brain injury across the lifespan.

Resource Centre

- * About Brain Injury
- * Resources for Clinicians
- * Find Evidence for Treatments
- * Measuring Outcomes from TBI
- * Texts & Treatment Manuals
- * Books

Here you can find basic information on over 100 different instruments that measure outcomes in Global Function, Behavioural Function, Family Environment, Health Related Quality of Life, Social Participation, Language and Communication, Measures of Self, Neuropsychology, Psychological Status, and Social Cognition. Information includes reliability, validity, sensitivity to change, advantages and disadvantages.

DOMAIN	OUTCOME MEASURE
BEHAVIOURAL FUNCTION	Adaptive Behavior Assessment System-II (ABAS-II)
	Behavior Rating Inventory of Executive Function - Adult Version (BRIEF-A)
	Dysexecutive Questionnaire (DEX)
	Frontal Systems Behavior Scale (FrSBe)
	Over Behaviour Scale (OBS)

Clinical Practice Guidelines

1. Managing cognitive disorders in adults with TBI

Introduction: Traumatic brain injury results in complex cognitive sequelae. However, clinicians have difficulty implementing the available evidence. An international group of researchers and clinicians (known as INCOG) including numerous members of the CRE convened to develop clinical practice guidelines for cognitive rehabilitation after traumatic brain injury.

The group used the Guidelines Adaptation and Development cycle to derive the recommendations. Previously published cognitive rehabilitation recommendations were identified and tabulated. An expert panel met to select appropriate recommendations. Afterward, the team enhanced the recommendations by reviewing available literature. To address shortfalls of previous guidelines, the team developed decision algorithms incorporating the recommendations based on inclusion and exclusion criteria of published trials and expert opinion. The team then prioritized the recommendations for implementation and developed audit criteria to evaluate adherence to best practice. (see (Bayley et al., 2014) for method overview) As a result the team recommended that individuals have detailed assessments of cognition after resolution of posttraumatic amnesia. They also recommended that cognitive assessment and rehabilitation should be tailored to the patient's neuropsychological profile, premorbid cognitive characteristics, and goals for life activities and participation. Clinical algorithms and audit tools to evaluate current practice are provided with specific guidelines for managing Post Traumatic Amnesia (Ponsford et al., 2014), attention and information processing speed (Ponsford et al., 2014), executive function and self-awareness (Tate et al., 2014), memory (Velikonja et al., 2014) and cognitive communication disorders (Togher et al., 2014).

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INCOG Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury: Methods and Overview

*Mark Theodore Bayley, MD; Robyn Tate, PhD; Jacinta Mary Douglas, PhD;
Lyn S. Turkstra, PhD; Jennie Ponsford, PhD; Mary Stergiou-Kita, PhD, MSc, BSc OT;
Ailene Kua, MSc; Peter Bragge, PhD; On behalf of the INCOG Expert Panel*

Introduction: Traumatic brain injury results in complex cognitive sequelae. However, clinicians have difficulty implementing the available evidence. An international group of researchers and clinicians (known as INCOG) convened to develop clinical practice guidelines for cognitive rehabilitation posttraumatic brain injury. **Methods:** The Guidelines Adaptation and Development cycle was used to derive the recommendations. Previously published cognitive rehabilitation recommendations were identified and tabulated. An expert panel met to select appropriate recommendations. Afterward, the team enhanced the recommendations by reviewing available literature. To address shortfalls of previous guidelines, the team developed decision algorithms incorporating the recommendations based on inclusion and exclusion criteria of published trials and expert opinion. The team then prioritized the recommendations for implementation and developed audit criteria to evaluate adherence to best practice. **Results:** The team recommends that individuals have detailed assessments of cognition after resolution of posttraumatic amnesia. Cognitive assessment and rehabilitation should be tailored to the patient's neuropsychological profile, premorbid cognitive characteristics, and goals for life activities and participation. Clinical algorithms and audit tools to evaluate current practice are provided. **Conclusion:** Cognitive rehabilitation should be offered to select individuals with traumatic brain injury. These guidelines provide assistance to clinicians who want to provide evidence-based care. **Key words:** cognitive rehabilitation, guidelines, knowledge translation, neuropsychology, rehabilitation,

Papers Detailing Clinical Guidelines:

- Bayley, M. T. , Tate, R. , Douglas, J. , Turkstra, L. , Ponsford, J., Stergiou-Kita, M., . . . Bragge, P. P. (2014). INCOG Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury: Methods and Overview. *Journal of Head Trauma Rehabilitation* July/August, 29(4), 290-306.
- Ponsford, J., Bayley, M., Wiseman-Hakes, C., Togher, L., Velikonja, D., McIntyre, A. . . . Tate, R. (2014). INCOG Recommendations for Management of Cognition Following Traumatic Brain Injury, Part II: Attention and Information Processing Speed. *Journal of Head Trauma Rehabilitation* July/August, 29(4), 321-337.
- Ponsford, J., Janzen, S., McIntyre, A., Bayley, M., Velikonja, D., & Tate, R. (2014). INCOG Recommendations for Management of Cognition Following Traumatic Brain Injury, Part I: Posttraumatic Amnesia/Delirium. *Journal of Head Trauma Rehabilitation* July/August, 29(4), 307-320.
- Tate, R., Kennedy, M., Ponsford, J., Douglas, J., Velikonja, D., Bayley, M. & Stergiou-Kita, M. (2014). INCOG Recommendations for Management of Cognition Following Traumatic Brain Injury, Part III: Executive Function and Self-Awareness. *Journal of Head Trauma Rehabilitation* July/August, 29(4), 338-352.
- Togher, L., Wiseman-Hakes, C., Douglas, J., Stergiou-Kita, M., Ponsford, J., Teasell, R., . . . Turkstra, L. (2014). INCOG Recommendations for Management of Cognition Following Traumatic Brain Injury, Part IV: Cognitive Communication. *Journal of Head Trauma Rehabilitation* July/August, 29(4), 353-368.
- Velikonja, D., Tate, R., Ponsford, J., McIntyre, A., Janzen, S. & Bayley, M. (2014). INCOG Recommendations for Management of Cognition Following Traumatic Brain Injury, Part V: Memory. *Journal of Head Trauma Rehabilitation* July/August, 29(4), 369-386.

2. Managing Communication and Swallowing Disorders following Paediatric TBI

Traumatic brain injury (TBI) is a leading cause of disability, affecting approximately 765 to 2008 per 100 000 Australian children each year. Its effects are vast and this particular project was focused upon speech, language and swallowing disorders that are a consequence of TBI.

To ensure a standard, best-evidence approach to the clinical care of children with communication and swallowing disorders following moderate or severe TBI, a multidisciplinary guideline committee lead by CI Angela Morgan and post-doctoral fellow Christine Mei developed recommendations to guide assessment and treatment of these disorders.

The process involved the following stages: (1) development of key questions focused on the assessment and treatment of speech, language and swallowing disorders, (2) a systematic review of the literature since 1995 focused on children from 0 to 18 years, (3) a Delphi survey completed by members of the guideline development committee to inform the development of consensus-based recommendations, (4) release of the guideline for public consultation (5) an independent methodological and clinical expert review. The final guideline, published in March 2017 consists of 30 recommendations to be used by health professionals who are involved in the management of communication and swallowing disorders following paediatric TBI. Of the developed recommendations, five were evidence-based and 25 were consensus-based. The recommendations aim to optimise children's outcomes and ensure equality of care.

Guideline and Recommendations can be found here:

Clinical Practice Guideline for the Management of Communication and Swallowing Disorders following Paediatric Traumatic Brain Injury Short Form Guideline (Recommendations)

Reporting Guidelines

Publication of single case experimental studies

It is frequently assumed that randomized controlled trials (RCTs) are the best means for determining whether a new treatment is effective. However, in many clinical contexts, including when working with people with TBI, such RCTs can be either impractical or inappropriate. The number of research participants may be few, or their characteristics too heterogeneous for a group. In such cases, a single case experimental design (SCED) may be more effective. There is a long tradition of SCEDs in behavioural treatment research, however, the quality of the design and reporting of the study can be highly variable. Reporting guidelines, such as the Consolidated Standards of Reporting Trials (CONSORT) Statement, have been shown to improve the reporting of research in the medical literature.

Consequently, members of the CRE developed the Single-Case Reporting guideline In BEhavioural interventions (SCRIBE) via two Delphi surveys and a consensus meeting of experts. The resulting 26-item SCRIBE 2016 checklist (Tate, Perdices, Rosenkoetter et al, 2016) was published in ten journal articles simultaneously in 2016 (see CRE Publications). The article complements the more detailed SCRIBE 2016 Explanation and Elaboration article (Tate, Perdices, Rosenkoetter et al, 2016b) that provides a rationale for each of the items and examples of adequate reporting from the literature.

Surveying clinicians about their practices in TBI rehabilitation

Little is known about clinicians' experiences in rehabilitation for people TBI. Consequently we conducted a survey aimed to investigate clinicians' scope of practice, perceived barriers to practice, factors influencing confidence levels and professional development preferences.

Participants included 305 clinicians (88% female, 97% aged 20–60 years) from psychology (28%), occupational therapy (27%), speech pathology (15%), physiotherapy (11%), social work (6%), rehabilitation medicine (3%) and nursing (3%) disciplines.

Survey results indicated that goal setting, client or family education, and assessment for rehabilitation, were the most common activities across all disciplines (>90%). Clinicians were more likely to report barriers to practice that related to the client, their family or the client-therapist relationship than barriers due to the workplace context or professional skill.

Clinicians working with clients with mild TBI reported significantly fewer barriers, yet, they were less confident in overcoming barriers than clinicians working with clients with more severe TBI. Clinicians with fewer years of experience (<2 years) reported significantly lower confidence in overcoming barriers than clinicians with 2–10 years and >10 years of experience.

The most commonly selected professional development areas included new interventions and therapies, translating rehabilitation research into everyday practice and client specific topics. These findings provide a unique multidisciplinary perspective on clinicians working in TBI rehabilitation in Australia. Understanding of the perceived barriers to practice and professional development needs has been an important source of information for the CRE in terms of training and support initiatives for clinicians that, in turn, should enhance the quality of brain injury rehabilitation.

To read about the full study: Pagan, E., Ownsworth, T., McDonald, S., Fleming, J., Honan, C., & Togher, L. (2015). A Survey of Multidisciplinary Clinicians Working in Rehabilitation for People with Traumatic Brain Injury. *Brain Impairment*, 16(3), 173-195. doi:10.1017/BrImp.2015.34

Small Seed Grants

From 2012 to 2017, the CRE has awarded three small seed grants per annum to the value of \$2,000. The aim of these grants is to provide assistance to outstanding clinical researchers who were undertaking, or about to undertake promising research that is consistent with the overall goals of Moving Ahead. The recipients, their research topics and the use of funds are summarised below.

2012

Researcher	Project	Use of funds
Rachael Rietdijk Speech pathology clinician and PhD student USyd	Using telehealth for improving the communication skills of people with traumatic brain injury and their carers	Payment of independent raters to rate outcome measures and purchase webcam cameras
Ali Crichton PhD student, clinical neuropsychology, MCRI	Serum biomarkers to predict fatigue outcome after paediatric traumatic brain injury	Purchase of neuropsychological tests forms and mail costs
Paul Gertler Clinical psychologist (private practice) and PhD student, USyd	Benefits of psychological treatment for depression after TBI	Pay independent raters to rate outcome measures and treatment fidelity

2013

Researcher	Project	Use of funds
Diane Whiting Clinical psychologist, Liverpool Brain Injury Unit) and PhD student, UWS	A trial of Acceptance and Commitment Therapy to facilitate psychological adjustment after severe TBI	Pay independent raters of treatment fidelity
Sylvia Nguyen Doctoral student, clinical neuropsychology, Monash University	Cognitive Behaviour Therapy to treat fatigue and sleep disturbance after TBI	Print recruitment brochures and to pay travel costs to visit participants at home.
Elise Elbourne PhD student, speech pathology, U Syd	Communication recovery after TBI	Payment for transcription and coding of narrative discourse samples

2014

Researcher	Project	Use of funds
Nicholas Behn PhD student, Speech pathology, City University London and USyd	Improving quality of life and communication skills for people with acquired brain injury (ABI) following project based therapy	Pay room hire and transport costs for participants and therapists to attend sessions.
Nicholas Ryan PhD student, Clinical Neuropsychology, MCRI	Structural imaging biomarkers and predictors of social cognitive and behavioural functioning after paediatric TBI: A longitudinal prospective analysis	Support travel costs to attend international conference
Claire Willis PhD student, Sports science, UWA	The participate project: Preparing children with acquired brain injury for integration into community recreation and leisure activity	Facilitate collaborative research with researchers in Norway.

2015

Researcher	Project	Use of funds
Hayley Walsh PhD student, Occupational Therapy, UQ	Sensory motor function and the effects of multisensory stimulation and enriched environments during post-traumatic amnesia following a traumatic brain injury	Payment for blind assessor of treatment outcome measures
Melinda Hickey PhD student, Clinical Psychology, UoW	Neurocognitive training in traumatic brain injury: Cognitive, behavioural and electrophysiological outcomes	Purchase of portable EEG headsets, IPADS and participant payment
Sarah Prescott PhD student, Occupational Therapy, UQ	Goal setting in community-based brain injury rehabilitation - Exploration of the process and relationship between client-centredness, contextual factors and outcome	Pay for transcription of qualitative data

2016

Researcher	Project	Use of funds
Anneli Cassel Clinical psychologist and PhD candidate, UNSW	SIFT [®] that social information! Feasibility of a novel social cognition treatment for people with acquired brain injury	Payment to facilitate development of treatment materials
Freyr Patterson PhD student, Occupational Therapy, UQ	Group therapy interventions in traumatic brain injury rehabilitation: processes, perceptions and effectiveness.	Fund training in video analysis, using specialized software and qualitative analysis techniques
Leah Zelencich Doctoral student, clinical neuropsychology, Monash University	Cognitive Behaviour Therapy following Traumatic Brain Injury – Role of Working Alliance and In/Between-Session Interventions	Payment for a second rater to establish the inter-rater reliability of rating scales.

2017

Researcher	Project	Use of funds
Genevieve Rayner Postdoctoral research fellow, Psychology, Florey Institute	Understanding the role of family dynamics in mood disorder after TBI	Payment for a junior RA for 56 hours of work to assist with administrative/ IT tasks.
Lucy Ymer Doctoral student, clinical neuropsychology, Monash University	Cognitive Behavioural Therapy for Sleep Disturbance and Fatigue Following Traumatic Brain Injury and Stroke	Purchase of Livestream Echo pens to allow therapists to accurately record sessions. Fund the cost of text message reminders to participants.
Owen Lloyd Clinical neuropsychologist and PhD student, Griffith University	Self-awareness of deficits in children and adolescents after TBI	Payment of casual RA to assist with assessments.

Continuing Education Offered by Moving Ahead

one to two day workshops

Presenter	Topic	Venue and year
Vicki Anderson	Neuropsychology, theory and practice	Hong Kong, 2016
Vicki Anderson	Children with early brain trauma: neuroscience and early intervention	Hong Kong, 2016
Vicki Anderson	Modifying outcomes: Practical, sustainable interventions	Hong Kong, 2016
Vicki Anderson	Recovery from child and youth concussion: What's the evidence?	International Brain Injury Association, Orleans, USA 2017
Jacinta Douglas	Supporting people with Complex needs: Decision making and Connecting	Summer Foundation, Newcastle, NSW, 2016
Jacinta Douglas	Rehabilitation of Cognitive-communication Problems in the Context of the Self	Speech Pathologists in Adult Rehabilitation, Annual Workshop, Melbourne, 2016
Jacinta Douglas	Measuring and coping with cognitive-communication problems following brain injury	ASSBI workshop, London, 2016
Jenny Fleming	Self-awareness workshop for occupational therapists (2 days),	University of Toronto, Canada. 2016
Jenny Fleming	Cognitive rehabilitation: one-month (6 city) 2-day workshop tour of Canada	Canadian Association of Occupational Therapists, 2017
Skye McDonald	Understanding, assessing and treating social cognition disorders	INS, Montreal, 2012; Sydney, 2014, Newcastle, 2015; ASSBI; London and Macau 2016; Centre for Brain Injury Rehabilitation, Copenhagen and the University of Buenos Aires, Buenos Aires, 2017
Tamara Ownsworth & Jenny Fleming	Facilitating psychosocial adjustment: Goal planning and self-awareness	ASSBI workshops: Sydney, 2012; Hobart 2013; ABI Outreach Service, Brisbane, 2013
Tamara Ownsworth	Self-awareness and psychological well-being after brain injury (2 days).	South Australia Brain Injury Rehabilitation Service, Adelaide, 2016
Jennie Ponsford, Dana Wong and Adam McKay	Using CBT to treat anxiety and depression after TBI	Melbourne, 2015
Jennie Ponsford, J., Gould, K., Alway, Y., Spitz.	Psychiatric disorders following traumatic brain injury: Their nature and treatment.	11th World Congress on Brain Injury, The Hague, Netherlands, 2016.

Jennie Ponsford	Traumatic brain injury: The challenge to improve outcome.	Center for Brain Injury Rehabilitation, Copenhagen, 2016.
Jennie Ponsford, J., Nguyen, S., Wong, D., McKay, A.	Treating fatigue and sleep disturbance following brain injury with Cognitive Behavioral Therapy.	International Brain Injury Association 12th World Congress on Brain Injury, New Orleans 2017
Robyn Tate	Single-case design studies: development, clinical use, reporting and evaluation for the rehabilitation evidence base	American Congress of Rehabilitation Medicine, Chicago, USA. 2016; Australian Catholic University, Sydney-Melbourne-Canberra-Brisbane. 2017; Flying Faculty of the World Federation of Neurorehabilitation, Kolkata, India. 2017
Robyn Tate	Assessment and management of psychological disorders after acquired brain injury: anger and challenging behaviours.	Flying Faculty of the World Federation of Neurorehabilitation, Kolkata, India. 2017
Robyn Tate and Michael Perdices	(i) Understanding nonprogressive conditions: traumatic brain injury and stroke (ii) Behavioural disorders: focusing on nonpharmacological management in adults with traumatic brain injury (iii) How to do it: combining research and clinical practice (3 day workshop)	Flying Faculty of the World Federation of Neurorehabilitation, Chennai, India. 2014
Barbara Wilson and Robyn Tate.	Research for practicing clinicians: how to combine clinical work and research (half day workshop)	Raphael Medical Centre, UK. 2013
Michael Perdices and Robyn Tate	Taller del caso único. 1-day workshop	Clinical neuropsychologists, Madrid, Spain. 2012



Continuing Education Offered by Moving Ahead

ASSBI Webinars

2014	Skye McDonald	Understanding evidence based practice. Introduction to PsycBITE,
	Leanne Togher	Training communication partners how to interact with people with TBI: Assessment and treatment considerations
	Jim Malec (Indiana University)	Evaluating and managing depression after TBI
	Michael Perdices (Royal North Shore Hospital)	Effect sizes: How to calculate them, interpret them and generally make sense of them
	Jan Ewing (private practice)	Are You for Real? Feigning, Exaggeration & Overwhelm: a Current Approaches in Clinical and Medico-legal Settings
	Jennie Ponsford	Fatigue and sleep disturbance - creating an evidence base development of efficacious treatments.
2015	Skye McDonald	Improving first impressions: Social skills training for adults with brain injury
	Wendy Longley (private practice)	Overview of the neuropsychology of MS: for health professionals working clinically with people with MS
	Roy Kessels, Donders University	Assessment of visuospatial memory in clinical practice
	David Shum (Griffith Uni)	Prospective memory
	Tamara Ownsworth	Understanding self-identity change after brain injury
	Maurice Finn (Royal North Shore Hospital)	Cognitive Interventions for Mild Cognitive Impairment
2016	Sue Sloan (private practice)	Managing challenging behaviours in community settings
	Eli Vakil (Bar Ilan University)	Long-term Outcome Following Traumatic Brain Injury (TBI): Three-factor Cognitive Reserve Structure
	Beth Armstrong (UWA)	Aboriginal Australians' experiences of brain injury: moving forward to provide culturally secure rehabilitation services
	Grahame Simpson (Liverpool Brain Injury Unit)	Suicide prevention in acquired brain injury
	Olivier Piguet (NeuRA)	Neuroimaging in the dementias: what's the catch?
2017	McKay Moore Sohlberg (University of Oregon)	Beyond Cognitive Rest: Treating Patients with Persistent Cognitive and Somatic Symptoms Following Concussion
	Iona Novak (Uni of Sydney)	Stem Cell Interventions Hype or Hope
	Jenny Fleming	Evidence-based management of impaired self-awareness following <i>brain injury</i> .
	Vicki Anderson	Digital health and e-health technology for ill and injured child their families: What's the evidence?
	Michael Perdices	Rare and unusual syndromes

CRE Meetings

2012 Postdoctoral and Postgraduate Planning Day held at Murdoch Childrens Research Institute, Melbourne

Topics covered: applying for competitive research grants and scholarships; conducting systematic reviews; implementing the Consolidated Standards of Reporting Trials (CONSORT) guidelines; imaging techniques useful for traumatic brain injury research.

2013 Postdoctoral and Postgraduate Planning Day held at University of New South Wales, Sydney

Topics covered: conducting Acceptance and Commitment Therapy; becoming a successful researcher; applying for grants and scholarships (Dr Jacqueline Rushby), Structural Equation Modelling, a mixed models approach to analysing longitudinal data (Dr Fiona Kumfor) and the use of PsycBite to evaluate interventions.

2014 Clinical Advisory Board Meeting held at the University of Sydney

This meeting was attended by clinicians and Moving Ahead Chief Investigators who presented their latest research. Round table discussions were held about how to manage translation of research to practice and bridging gaps.

2015 Annual meeting held at UNSW

This meeting brought together ECRs and established researchers and covered a combination of topics including the CRE's core project to develop a set of standard outcome measures and also topics for ECRs including: opportunities and challenges in clinical research and clinical research career planning. A leadership ER committee was formed with the intention of coordinating a network for ECRs to exchange ideas and support researchers.

2016 Annual meeting held at UNSW

This meeting again brought ECRs and established researchers together to share updates about each others work, discuss the core outcome measures project and to introduce the updated Moving Ahead website. Additional topics covered were: TBI in the context of justice health; on-line treatments for anxiety and depression; how to publish in "The conversation". Ideas for launching a new mentoring network for clinicians were also presented (and subsequently acted upon).

2017 Annual meeting held at UNSW

In the 2017 Meeting all ECRs and CIs came together to share updates on their research. Topics covered also included: an introduction to key concepts in health economics; large scale, home-based rehabilitation in India; using social media to enhance research; strategic advice for ECRs navigating the research game.

Professor Skye McDonald

Skye McDonald conducts experimental research in emotion perception, sharing techniques and data collection with colleagues at McGill Uni, Montreal, Uni of Wisconsin, USA, Donders Institute, the Radboud University, Netherlands. She also serves as Consulting Editor of the Journal of the International Society (JINS) and was on the Board of Governors for the International Neuropsychological Society (retired 2013).



Travis Wearne has worked as a postdoctoral research fellow for the CRE since 2016. His role is to coordinate the activities of the CRE, especially bringing the outcome measures project to completion and coordinating the ECR network. Travis has a combined Masters/PhD in Clinical Neuropsychology from Macquarie University. His research interests are in heart rate variability as a measure of emotion regulation after TBI and in measures of social cognition.



Cynthia Honan worked as a postdoctoral research fellow working under the supervision of Skye McDonald, UNSW. Cynthia played a key role in the coordination of CRE-related activities and projects from the inception of the CRE until her departure in 2015 to take up a tenured academic post at the University of Tasmania. One of her major contributions was the leadership of the project to develop a set of common outcome measures and protocols for use across a variety of rehabilitation research projects within the CRE. Cynthia also has a specific interest in the development of valid and reliable measures to assess social cognition in clinical practice. She developed a Social Disinhibition task and a shortened version of TASIT.

McDONALD

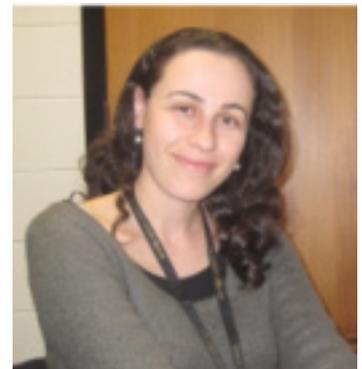
Dr Heather Francis was appointed as a post-doctoral research fellow working at the University of New South Wales under the supervision of Skye McDonald. She completed a Combined PhD/Master of Clinical Neuropsychology in 2013 and her research and clinical interests lie in assessment and intervention of cognitive and emotional impairments following traumatic brain injury. She was also involved in coordination of CRE-related activities and projects, such as the outcome measures project. Heather left the CRE in 2016 to pursue her other research passion, dietary influences on neuropsychological function. She has recently taken up a tenured academic post at Macquarie University.



Katie Osborne-Crowley completed her PhD working under the supervision of Professor Skye McDonald and Dr Jacqueline Rushby. Her research interests are in neuropsychological deficits underlying disinhibited social behaviour in people with traumatic brain injury. Katie continued to work as a post-doc with Skye researching the neuroscience of empathy disorders in people with TBI. She has since taken up a post at University College London conducting research in people with Huntington's Disease.



Hannah Rosenberg completed her PhD/Master of Psychology (Clinical) Candidate at UNSW under the supervision of Skye McDonald. Her research area involved the study of emotion perception deficits in individuals with traumatic brain injury (TBI). She is especially interested in the differences between recognition of negative and positive facial expressions and how this recognition improves as a function of emotion intensity. Hannah completed several studies which were published in 2015-2017 and now works in private practice.





Jacqueline Rushby has worked as a senior research fellow at UNSW for the duration of the CRE. She was an NHMRC research fellow for four years and subsequent to that was worked on NHMRC and ARC research projects investigating psychophysiological indices of empathy disorders in people with TBI as well as new approaches to treating emotion dysregulation. Her research aims to examine psychophysiological processes underpinning arousal and activation, in order to inform our understanding about how and why arousal to emotional events is dysregulated after severe brain injury.



Dr Anneli Cassel is a Clinical Psychologist and PhD candidate at the Moving Ahead Centre for Research Excellence (CRE) in Brain Recovery, receiving supervision from Professor Skye McDonald (UNSW) and Dr Michelle Kelly (University of Newcastle). Anneli is conducting her research investigating the feasibility of a new social cognition treatment, developed particularly for people with acquired brain injury. The treatment aims to help improve peoples' ability to detect, and respond to, the cues important in understanding other peoples' feeling, thoughts, and intentions during social interactions. Anneli is interested to find out if this treatment can be run as a group therapy and as an individual therapy via telehealth.



Emily Trimmer is a clinical psychologist who completed her PhD under the supervision of Skye McDonald in the area of empathy and Autism Spectrum Disorders. She is currently appointed as a postdoctoral researcher conducting a study to design web-based materials for families to assist them in the management of challenging behaviours after TBI.

Melinda Hickey is a PhD candidate at the University of Wollongong being supervised by Ian Johnstone and also Jacqui Rushby at UNSW. Melinda is investigating the feasibility and efficacy of a neurocognitive training (combined cognitive and neurofeedback training) program that aims to improve state control (attention and relaxation), impulse control and working memory in adults with a traumatic brain injury. She is interested in the cognitive, electrophysiological and behavioural outcomes of this training program.



Melinda Drew is a psychologist with training in clinical neuropsychology. She has been the administrative assistant for the CRE, responsible for the day to day running, communications and meeting organisation.



Normative data for the TASIT-S: A comparison between Australian and North American performance

By Skye McDonald, Samantha Allen, Cynthia Honan, Cristy Padgett, Michelle Kelly, Fiona Kumfor, Olivier Piguet, Jessica Hazelton and Hannah Keage

What the study is about:

Social cognition refers to the way people process and interpret information about other people and social situations to make social judgements. The Awareness of Social Inference Test (TASIT) is a clinical measure of Social Cognition that has been found to be sensitive to a number of groups including TBI, fronto-temporal Dementia, Alzheimer's disease and Stroke. However, the TASIT has been criticised for its lengthy administration time (90 minutes) and its lack of applicability in other English-speaking countries due to the use of actors with Australian accents. Recently a shortened version of the TASIT was developed (TASIT-S) and we decided to compare Australian and American participants performance on this new measure as well as examining older adults.

What we did:

We had 616 Australian participants aged 13 to 75+ and 181 U.S. participants aged 20 - 74 complete the TASIT-S. U.S. participants were recruited via M-Turk and completed an online version of qualtrics. Australian participants' data originated from a number of research studies in Australia. All participants were reimbursed for their participation equivalent to the minimum wage in that country.



What we found:

There were only minor differences between the responses of U.S. participants and those of Australian participants on part three of TASIT-S. Additionally there were no differences between genders. Performance deteriorated with older age

Picture: a summary of the components of the TASIT-S items.

What our findings mean:

U.S participant's performance does not seem compromised by a difficulty perceiving the Australian accents of the actors in TASIT-S. Older adults do find TASIT more difficult. This means TASIT-S could be a suitable test of social cognition in the US. Additionally US participant's data could be useful in establishing a normative data set for the test. The finding of poorer performance in older age highlights the need for age-appropriate norms.

To read more about this study:

Honan, C. A., McDonald, S., Sufani, C., Hine, D. W., & Kumfor, F. (2016). The awareness of social inference test: development of a shortened version for use in adults with acquired brain injury. *The Clinical Neuropsychologist*, 30(2), 243-264.

McDonald, S., Honan, C., Allen, S.K., El-Helou, R., Kelly, M., Kumfor, F., Piguet, O., Hazelton, J.L., Padgett, C., Keage, H.A. (2017) Normal adult and adolescent performance on TASIT-S, a short version of The Assessment of Social Inference Test *The Clinical Neuropsychologist*. doi: 10.1080/13854046.2017.1400106

Changes in brain white matter after a traumatic brain injury may be linked to problems with social cognition

By Skye McDonald, Katie Dalton, Jacqueline Rushby and Ramon Landin-Romero

What the study is about:

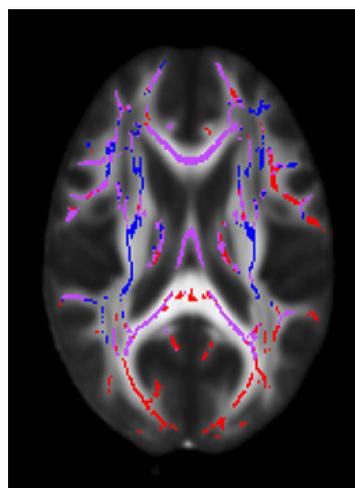
The circumstances of a traumatic brain injury can differ greatly between people. Different areas of the brain are affected depending on the site of injury, yet problems with understanding social and emotional cues is a common issue following an injury. Therefore, there must be common areas in the brain that are affected, regardless of the nature of the injury. Damage and change to grey matter (the brain tissue involved with information processing) can be obvious, whereas change to white matter (the brain tissue which forms connections and facilitates communication between regions) may not be as obvious, and can occur far from the original injury location. In this study we explored the network of white matter in the brain to see how changes may affect social cognition abilities after a brain injury.

What we did:

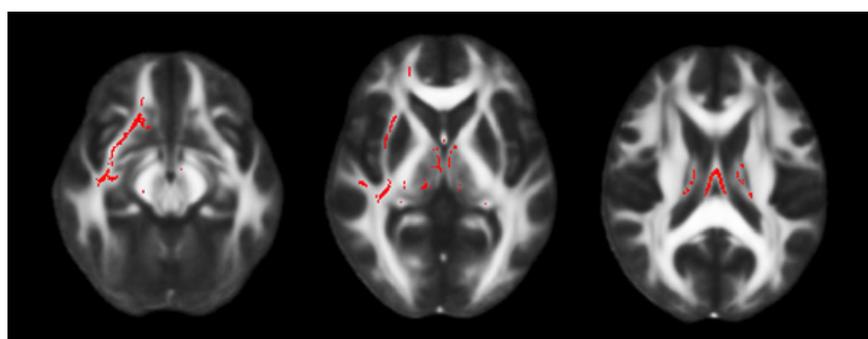
A group of people with a traumatic brain injury and a control group completed The Awareness of Social Inference Test (TASIT) and had diffusion MRI scans. Using neuroimaging software, areas across the brain that showed differing white matter characteristics were highlighted, to indicate common areas of change after a brain injury. These changes were then examined to see if they were related to TASIT performance.

What we found:

TASIT scores revealed those with brain injuries were not able to assess emotions and social meanings as well as control participants. By comparing the brains with injuries to the control brains, we found that a large number of white matter tracts across the brain had changes in their structural nature. When these regions were examined with TASIT scores, some specific areas were found to be related to TASIT performance: the corpus callosum (central white matter tract across the brain which communicates information across hemispheres), the fornix (small central fiber bundle, important in memory recall), and the thalami (a deep brain structure involved in processing emotional information).



Picture: A view through the middle of the brain of the areas of white matter fibers that were different between the control and brain injury participants. The colours depict different structural changes, with purple showing areas of most common change after a traumatic brain injury.



Picture: Three different views through the brain showing the areas that were related to TASIT performance (seen in red).

What our findings mean:

This research shows there are common areas in the brain that are affected after a traumatic brain injury. Changes to these particular white matter structures may be causing the emotional and social changes seen after a traumatic brain injury. It is necessary to understand why and how these changes occur in order to find ways to improve social and emotional outcomes for people with a traumatic brain injury.

Disrupted communication: Does damage to the corpus callosum impair emotion identification and social cognition?

By Skye McDonald, Katie Dalton, Jacqueline Rushby and Samantha Allen

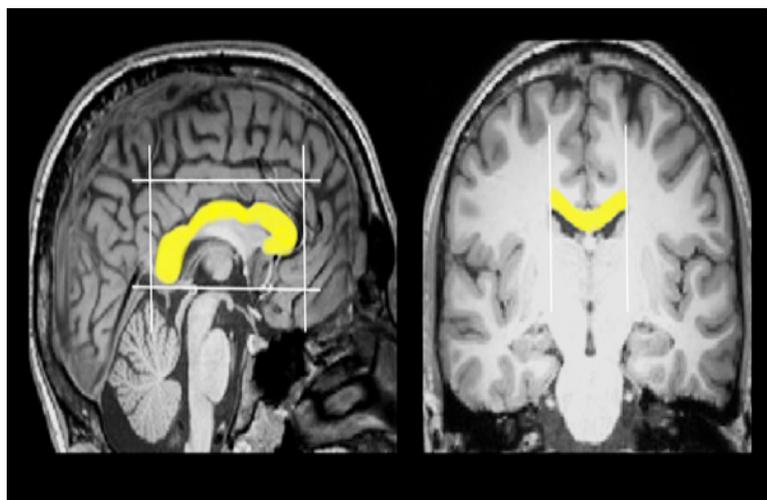
What the study is about:

The corpus callosum (CC) is a large bundle of white matter fibers which connects the two hemispheres of the brain. Due to its midline location, the stress put on the CC during a head injury can cause damage to the fibers, which can impair communication between brain regions. Emotion and social cognition are complex tasks which utilise many different regions across the brain. It is likely the social and emotional cognition deficits, commonly seen after a traumatic brain injury, may be influenced by the decreased connection between regions across the two hemispheres of the brain. In this study, we examined the structural quality of the three sections of the corpus callosum, and how changes related to performance in an emotion and social cognition task.

What we did:

Diffusion MRI scans were obtained for a group of 17 people who had suffered a traumatic brain injury, along with 17 control participants. Participants also completed The Awareness of Social Inference Test (TASIT) to gauge their emotion identification and social cognition abilities. Using diffusion tensor imaging, the structures of the three regions of the corpus callosum were examined and compared between brain injury participants and controls. Additionally, these measurements were correlated with TASIT performance.

Picture: A side and front view of the corpus callosum, seen in yellow.



What we found:

Participants with a brain injury had structural changes in all three regions of the corpus callosum compared to the control participants. Additionally, TASIT results revealed reduced performance for emotion identification and social cognition for those who had sustained a brain injury compared to control participants. When structural changes and TASIT performance were examined together, all regions of the corpus callosum were related to social cognition performance, and emotion perception was involved with the posterior corpus callosum.

What our findings mean:

This work indicates that changes do occur in the corpus callosum following a traumatic brain injury, and the social deficits seen in traumatic brain injury may be due to the reduced ability for the corpus callosum to communicate information between the necessary brain regions. More work needs to be done to determine whether the reduced communication between brain hemispheres is a large contributor to social deficits observed, or whether there are more brain areas involved.

To read more about this study:

McDonald, S., Rushby, J., Dalton, K., Landin-Romero, R., Parkes, N. (In press) The role of the corpus callosum in social cognition deficits after severe traumatic brain injury *Social Neuroscience*, DOI: 10.1080/17470919.2017.1356370

Emotion recognition depends on experience of emotion and not emotional expressivity

By Travis Wearne, Katie Osborne-Crowley, Hannah Rosenberg, Marie Dethier, Roy Kessels, Fred Westerbrouk, Skye McDonald

What the study is about:

The ability to recognize how other people feel is crucial in a variety of social situations. Difficulty in recognizing emotion is commonly reported in traumatic brain injury. In this study, we tested whether problems identifying emotion in others is related to problems expressing or feeling emotion in oneself. This ties into theories of emotion perception that suggest we simulate someone else's expression in ourselves as a means to understand it.

What we did:

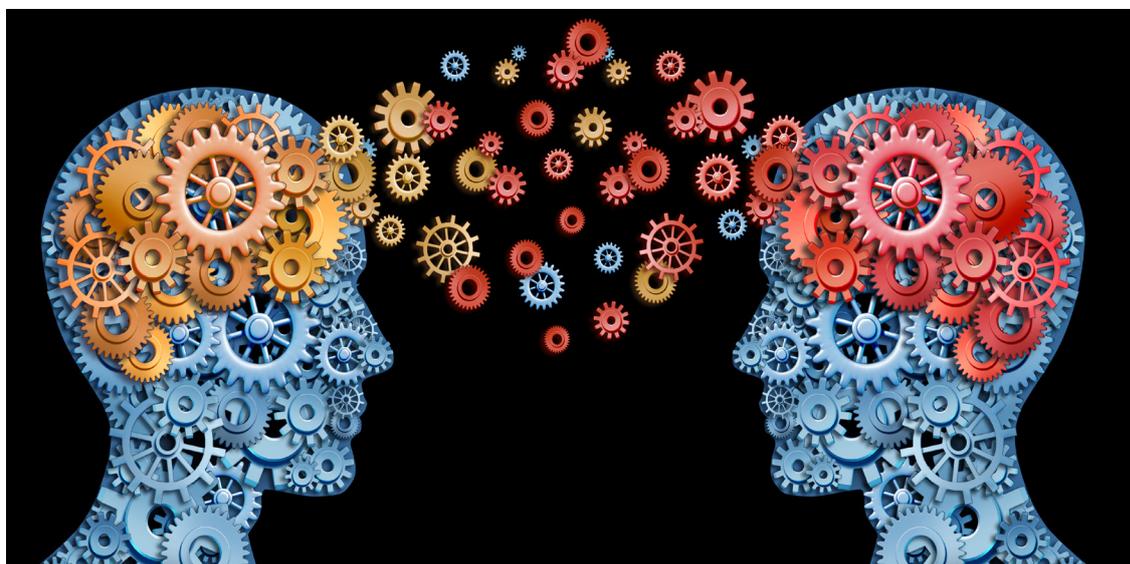
Individuals with a brain injury as well as control participants were asked to view a series of real-time interactive faces of happiness, anger and sadness and asked to select what emotion best described how the person in the picture was feeling. We then asked participants to produce an emotional facial expression based the presentation of happy, sad and angry stimuli (photos, words and stories) and asked them to rate their subjective feelings of anger, sadness and happiness on a 7-point scale ranging from "not at all" to "very intensely".

What we found:

We found the same pattern of results for happy, sad and angry emotions. That is, the ability to identify emotion in others depends on the subjective experience of that emotion and not on the ability to express that emotion in oneself (i.e. your ability to identify happiness in others depends on your ability to feel happiness rather than express happiness). Interestingly, we also found that of all the variables and stimuli examined, cognitive function and the ability to experience emotion from a story mostly predicted emotion recognition. This suggests that our ability to recognize emotion is also aided by context and other information in the stimuli.

What our findings mean:

When we identify an emotion in someone else, we rely on our ability to experience that emotion within ourselves. We are currently conducting a follow-up study using physiological and facial muscle movements to objectively measure whether simulation and experience of emotion are involved in recognizing emotion in others.



Investigating empathy impairments following traumatic brain injury

By Katherine Osborne-Crowley, Emily Wilson, Travis Wearne, Skye McDonald and Jacqueline Rushby

What the study is about:

People with traumatic brain injury may have difficulty empathising with others. Specifically, people with a brain injury can lack 'emotional empathy', or the ability to feel what another person is feeling. Of course, this can have significant impacts on their ability to maintain friendships and romantic relationships. Research suggests that people automatically and subconsciously mimic other people's emotions, and that this mimicked expression sends feedback signals to the brain to help the person feel what the other person is feeling. In fact, previous research in people with brain injury suggests that this feedback mechanism may be impaired after a TBI. That research showed that when asked to pose emotional expressions in the face and body (eg happy, sad, angry), participants with a TBI did not report feeling the associated emotion to the same extent as did healthy control participants. We are looking to further investigate this impairment in this feedback mechanism after TBI in a study we are running currently. One way we are extending on past research in this current study is to investigate the role that physiology might play in this impaired feedback system. For instance, we would expect in healthy controls that posing an emotional expression would cause detectable changes in heart rate and skin conductance, and that these bodily changes may play an important role in generating the feeling of the associated emotion. Thus, we aim to determine whether our participants with TBI show the expected physiological changes when they pose emotional expressions, and whether these physiological changes (or lack of changes) relates to subjective reporting of feeling the emotion.

What we are doing:

We have recruited participants who have experienced a traumatic brain injury to attend 2 two-and-a-half-hour testing sessions, approximately 1-2 weeks apart. In these sessions, electrodes were attached to the fingers of participants to measure heart rate and skin conductance. Participants were given instructions to move muscles in their face and body to create various emotional expressions (eg an angry expression involves a furrowed brow, clenched teeth and clenched fists). Participants were then asked to report on how holding the postures made them feel on a variety of different scales. Participants were also asked to report on their empathic abilities. Finally, participants completed a range of neuropsychological tests measuring processing speed, memory and cognitive ability. This study also involves a number of other tasks which will test related hypotheses.

What are our next steps:

This study is currently being analysed and papers are being prepared.



Validating a cognitive enhancement protocol using brain stimulation

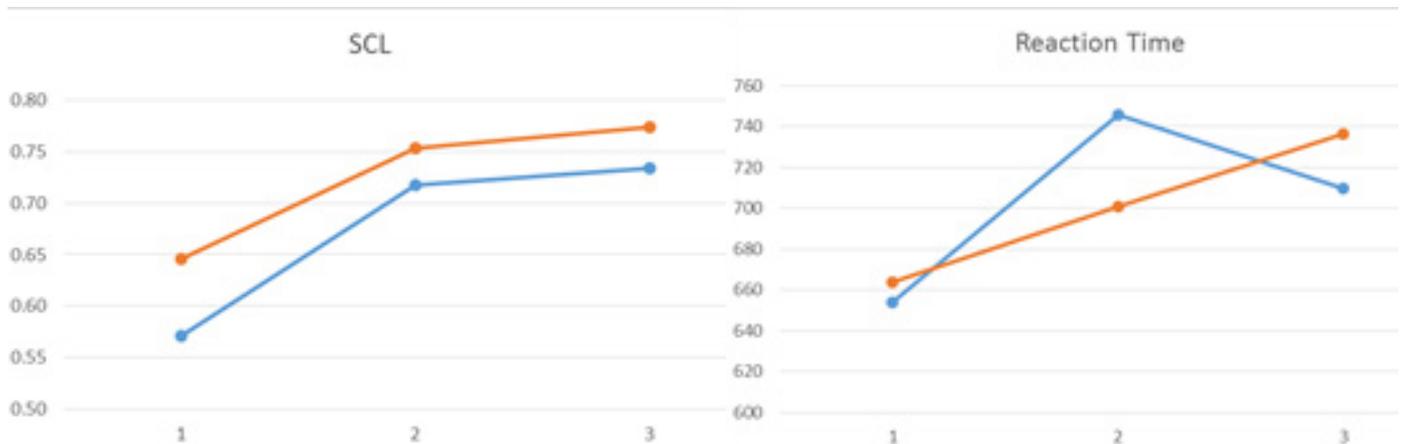
By Jacqueline Rushby, Frances De Blasio, Katie Osborne-Crowley, Travis Wearne, Colleen Loo and Skye McDonald

What the study is about:

Transcranial direct-current stimulation (tDCS) is a painless and relatively safe form of non-invasive brain stimulation (NIBS) that modulates spontaneous cortical brain activity. tDCS uses weak electric currents delivered by scalp electrodes over a targeted cortical area to induce sustained changes in membrane potential and excitability of cortical cells and fibers. While tDCS is showing great promise as a tool to understand how information is processed, methodology is still to be refined and is not yet standardized, and to date reports in the literature show some striking inconsistencies. It is currently unclear which regions of the brain are the best to stimulate for specific tasks, how long the stimulation should last, as well as what strength of stimulation is best. For the current study we investigated which of three brain locations were better at improving memory.

What we did:

Ninety three undergraduate participants were randomly assigned to one of three stimulation groups (focal frontal, broad frontal, and broad parietal), in which they received both an active/real stimulation session and a sham/placebo stimulation session (1-2 weeks apart), while they completed a simple memory task. As well as behavioural performance, changes in mood, and arousal (measured by brain electrical activity and skin conductance level) were examined.



What we found:

To date, preliminary results indicate that skin conductance level (SCL) is increased for active (red line) relative to sham (blue line) irrespective of region of stimulation (left figure). In contrast only broad frontal stimulation was associated with a decrease in error-rates and faster reaction-times (right figure). We are continuing to process and analyse the other measures we collected, and expect to publish the research later this year. The outcomes from this study will help us to design better therapeutic studies for our participants with brain injuries.

Biofeedback as a way of modulating emotional regulation for individuals with severe traumatic brain injury

By Travis Wearne, Samantha Allen, Katie Osborne-Crowley, Emily Wilson, Poss Logan, Emily Trimmer, Jacqueline Rushby and Skye McDonald

What the study is about:

Emotions are a normal aspect of everyday life, but following a brain injury, an individual may lose the capacity to control their emotional behaviour or their emotions may be out of proportion to the situation. Heart rate variability is thought to reflect a person's capacity to regulate their emotions and behaviour. Heart rate variability can be improved by biofeedback, a method that teaches individuals how to control their physiological output with breathing techniques. This study aims to examine whether multiple sessions of heart rate variability biofeedback can alter emotional and behavioural output for people with TBI.

What we are doing:

Individuals with severe traumatic brain injury recruited to the study undergo 6 sessions of HRV biofeedback training. Both before and after the treatment phase, participants complete cognitive tests related to drive and control, mood questionnaires and have their heart rate variability recorded: (a) at rest, (b) in response to emotional stimuli (angry & sad films) and (c) during a cognitive task, the paced auditory serial addition test (PASAT). We do this to elicit emotional responding.



What we expect to find:

We anticipate that repeated biofeedback training to regulating HRV for individuals with TBI can directly improve:

- (a) Initiation and drive
- (b) Emotional and cognitive control
- (c) Emotion regulation to anger-inducing material
- (d) Symptoms of depression and anxiety

For more information about this study:

So far we have recruited 19 participants with TBI to the study, with 17 completed! We are still recruiting and are looking forward to see what the results reveal! If you are interested in participating, please contact Emily at e.trimmer@unsw.edu.au.

A pilot project for a standardised assessment tool (Systematic Assessment for Brain Injury Rehabilitation - SABIR) for patients after a traumatic brain injury and its correlation with functional outcome measures

By Travis Wearne, Tram Bui, Stuart Browne, Clayton King and Skye McDonald

What the study is about:

A challenge facing clinicians working with individuals following mild to moderate brain trauma is how to identify those at risk of problems and to implement appropriate assessment that can inform patient management. Although detailed assessment techniques exist, the resources, time constraints and restricted availability of staff and patients make them unsuitable for guiding clinical decision-making. Nevertheless, there are many existing cognitive screening tests that have been designed for patients with mild cognitive impairment in dementia, and even though brief cognitive screening tests are likely to have greater application because of their accessibility, their usefulness has not been examined in TBI. The aim of this study is to determine whether early brief cognitive screening tests can predict long-term outcomes for individuals following TBI and whether they show the same benefit as formal neuropsychological testing (the “gold standard” of cognitive assessment).

What we are doing:

Individuals aged 18 to 65 and within 6 months of sustaining a traumatic brain injury (TBI) of sufficient severity are invited to participate in the study. A range of cognitive screening tests and outcome measures are administered at baseline and at 3 and 6 months. A comprehensive neuropsychological assessment is also administered within 12 months. We plan to recruit a total of 40 participants in the study.

What we expect to find:

Primary Aim is to:

To determine whether early brief cognitive tests correlate with functional outcomes after a traumatic brain injury .

Secondary Aim is to:

Assess validity of cognitive screening tests by comparison with formal neuropsychological testing (i.e. Gold Standard).

For more information about this study:

So far we have recruited over 24 participants with TBI to the study. If you would like more information, please contact Travis, at t.wearne@unsw.edu.au



Can non-invasive brain stimulation improve memory following traumatic brain injury?

By Frances De Blasio, Jaqueline Rushby, Travis Wearne and Skye McDonald

What the study is about:

Treatments to improve memory in the traumatic brain injury population usually target working memory, or the ability to hold and manipulate information in your mind. Although such treatments have been shown to be effective in improving working memory, they typically require many sessions and are both time-consuming and expensive. In this study we will assess the effectiveness of a newer and more economical treatment option. The treatment being assessed is a relatively safe and painless form of brain stimulation known as transcranial direct current stimulation or tDCS for short. This type of stimulation involves the application of a weak direct electrical current to the scalp as shown in the picture. This stimulation can be used to increase or decrease the natural electrical signals in select regions of the brain. Our aim is to increase the electrical activity in brain areas involved in working memory processes. We expect that this stimulation will result in improved performance in a working memory task.



What we are doing:

We recruited participants who have experienced a traumatic brain injury to attend 4 two-hour testing sessions, each approximately 1-2 weeks apart. In the first session electroencephalography (or EEG) will be used to record brain activity during rest and during a simple computer task. This will allow us to identify which region or regions of the participant's brain have been affected by their injury. This information will be used to identify where the brain stimulation will be applied for the remaining testing sessions. For each of the remaining 3 sessions participants will receive 20 minutes of brain stimulation while completing a working memory task on a computer. The strength of the brain stimulation will differ between the sessions: one session will be a fake brain stimulation, one will be delivered at 1 milliamp, and the other will be at 2 milliamps. The order of these stimulation strengths will differ for each participant, and we will not tell them the order of the stimulation strength they received until the end of the last session. This will allow us to identify the effects of each stimulation strength with more accuracy. During each of these stimulation sessions we will also record brain and sweat gland activity during resting conditions before and after the brain stimulation. We will also ask participants to complete short questionnaires about how they are currently feeling and about their mood. This will allow us to assess the effects of the brain stimulation on each of these other measures.

What are our next steps:

This study is currently underway.

For more information about this study:

If you are interested in participating, or would like to find out more information, please contact Frances by email at f.deblasio@unsw.edu.au or by phone (Mondays and Wednesdays only) at (02) 9385 3590.

How do people with brain injury experience ostracism?

By Michelle Kelly, Skye McDonald and Jacqueline Rushby

What the study is about:

It is well known that many people find themselves socially isolated after experiencing a brain injury. This can be due to changes in living and work circumstances, or changes in their ability to interact in social settings. We wanted to know what effect a very short experience of social exclusion (ostracism) has on people who have had a brain injury.

What we did:

We asked 21 adults with TBI and 17 matched adults without brain injury (control group) to play an online game of 'catch-and-throw'. Participants played this game on a computer where they saw four players, one of which is themselves. Participants did not know that we had programmed the other 'players' to either include them in the ball game, or to exclude them. During the game we measured what happens to their level of stress, via measuring what is called skin conductance (sweat on their fingers). We also asked them how they felt about the game.

What we found:

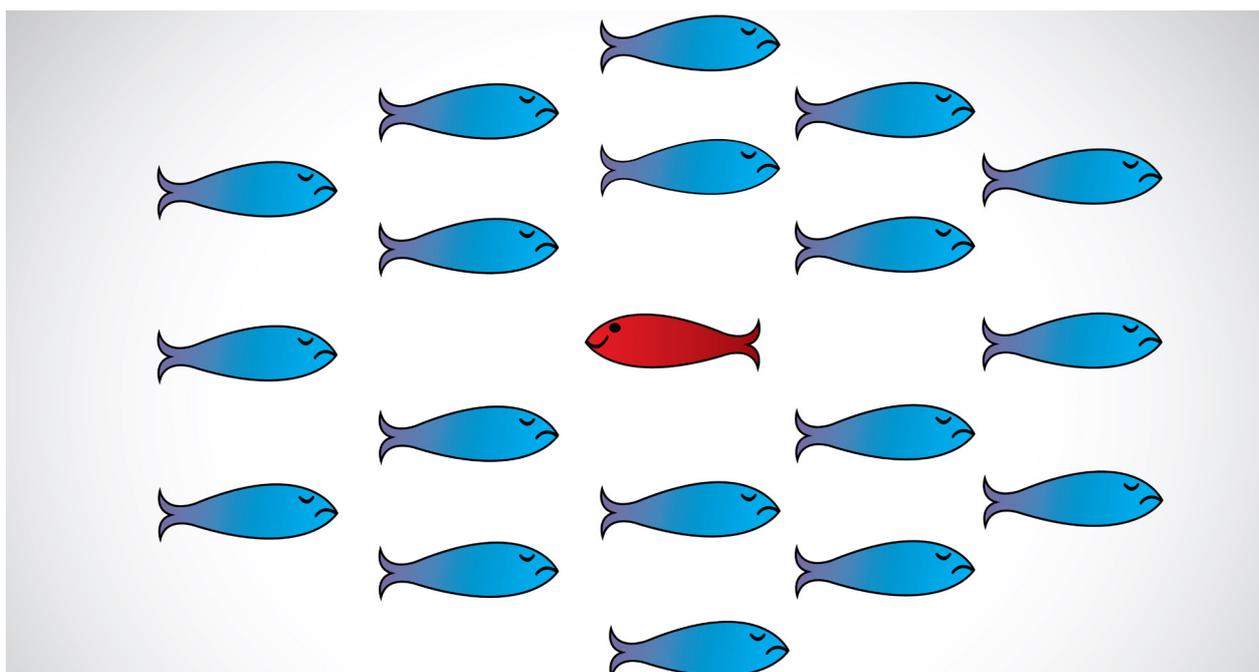
We found that people with TBI knew when they were being excluded by the other players just as the control group did, but that they reported feeling less emotionally affected by being excluded. However, their level of stress measured by skin conductance was not different to controls.

What our findings mean:

We think that the different response experienced by people with brain injury could be explained by many possible factors. Some people with brain injury reported to us that they were 'used to' being excluded. This may be one reason why they were not as emotionally affected. In the future we hope to investigate this outcome further as we think it might predict whether people with brain injury will engage in activity that will help them remake social connections in the future.

For more information about this study:

If you're interested in getting involved or keeping in the loop about our progress, please contact: Michelle at michelle.kelly@newcastle.edu.au.



Professor Leanne Togher

Professor Leanne Togher is a speech pathologist who has worked in the area of communication disorders following acquired brain injury for over 25 years. Leanne is the Professor of Communication Disorders following Traumatic Brain Injury (TBI), recipient of her 2nd NHMRC Senior Research Fellowship, Principal Research Fellow and Research Team Leader for the Communication Sciences and Disorders team.



Rachael Rietdijk is working with Professor Leanne Togher and Dr Emma Power at The University of Sydney. Her project, entitled “Using telehealth for communication skills training for people with traumatic brain injury and their communication partners”, aims to compare the outcomes of a Skype-based communication skills training program to a traditional face-to-face communication skills training program for people with TBI and their communication partners.



Dr Nicholas Behn is a Research Fellow at City, University of London who works with Leanne Togher. He completed his PhD on communication and quality of life outcomes for people with acquired brain injury (ABI) following project-based treatment. His Masters was on communication partner training for paid carers of people with traumatic brain injury (TBI). With more than 15 years of experience, Nicholas is also a Speech Pathologist keenly interested in working with adults who have communication disorders following an ABI. He frequently lectures and conducts talks and seminars on the topic. Currently, he has taken up post at City, University of London as Trial Manager on the SUpporting wellbeing through PEer Befriending (SUPERB) trial funded by The Stroke Association. This trial is aimed at evaluating the feasibility of peer befriending for people with aphasia post-stroke

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Dr Kimberley Docking is a Research Fellow with the Moving Ahead: NHMRC Centre of Research Excellence in Brain Recovery, joining the team under the leadership of Professor Leanne Togher at the University of Sydney. Kimberley is also a Lecturer in Speech Pathology in the Faculty of Health Sciences at the University of Sydney. Her research is in paediatric acquired language disorders in populations of children who are recovering from childhood brain tumours and traumatic brain injury, in identifying the potential for long-term communication deficits and recovery patterns in these populations



Tennille Thomasz is a Part-time Masters student, and has enrolled at The University of Sydney to commence work on a project investigating the issue of friendships following TBI. Tennille Thomasz is a Senior Speech Pathologist who works at the Brain Injury Unit at Bathurst Base Hospital. Tennille's research will provide the foundations for our planned RCT with friends of people with TBI. Tennille has worked on her literature review, methodology and is now submitting her ethics application



Mr Matthew Frith is a qualified speech language pathologist with 10 years of experience in the field. He is currently Research Higher Degree candidate in the Faculty of Health Sciences at the University of Sydney examining the efficacy of standardised language assessments for children with acquired cognitive communication impairments after a traumatic brain injury. Frith is also service manager with Kaleidoscope's Paediatric Brain Injury Rehabilitation Team in Newcastle and has facilitated a number of research projects within the team.



Elise Bogart is a doctoral candidate at the University of Sydney. Her current research interests are investigating the recovery of spoken discourse following severe traumatic brain injury.





Dr Belinda Kenny has worked on a project that traces communication recovery in people with severe TBI over a two year period following their injury. The study is lead by Professor Leanne Togher in collaboration with three major Brain Injury Rehabilitation Units in Sydney, NSW. The aims of the project were to determine predictive factors underlying recovery of communication deficits after TBI and identify the optimal period of recovery for communication skills. Several publications are now available (see publication list).



Joanne Steel is undertaking her PhD research on cognitive-communication assessment during post-traumatic amnesia (PTA) and the early recovery period after severe TBI. Stage 1 of the research investigated speech pathology practice and clinical reasoning with cognitive-communication assessment during PTA. Stage 2 examined the cognitive-communication recovery of patients during PTA and at three months after PTA emergence. The research is supervised by Professor Alison Ferguson and Dr Elizabeth Spencer at the University of Newcastle, and Professor Leanne Togher at the University of Sydney.



Melissa Brunner is a certified Speech Pathologist and PhD candidate at the University of Newcastle, investigating the use of social media, specifically twitter by people with traumatic brain injury. Her research aims to yield important insights into how people with TBI might be supported to use Twitter for communication, participation and inclusion in on-line communities. She is supervised by A/Prof Bronwyn Hemsley at the Uni of Newcastle and also Professor Leanne Togher at University of Sydney

Using Technology in Rehabilitation after Traumatic Brain Injury (TBI) for Cognitive-Communication Skills

By Melissa Brunner, Bronwyn Hemsley, Stuart Palmer, and Leanne Togher

What the study is about:

This study is a follow up Melissa's first PhD paper investigating use of social media by people after TBI. Social media may offer another way for people to connect with their family, friends, and other people in the community, which may help to improve social opportunities and participation for people with TBI. When thinking about using social media in cognitive-communicative rehabilitation, it is important to consider all types of technology used with people after TBI to support communication to find out what helps people to use it successfully.

What we did:

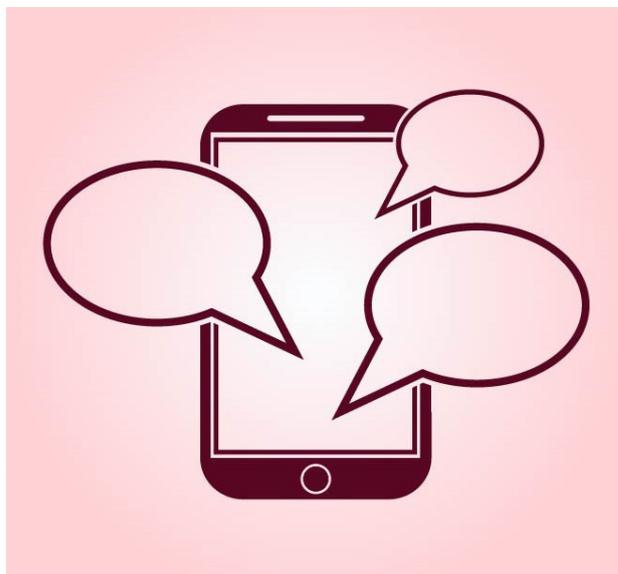
A systematic review of the research investigating communication technology in TBI rehabilitation and cognitive-communication was conducted.

What we found:

We included 95 studies in the review that investigated three major types of communication technologies: a) Assistive Technologies (AT) (n = 6), including Augmentative and Alternative Communication technologies (AAC) (n = 27); and b) Information and Communications Technologies (ICT) (n = 69). There were many factors identified in the research that related to how to use technology successfully. These factors were used to develop an evidence-based framework to use when speech pathologists incorporate technology into clinical practice and research.

What our findings mean:

Using the proposed model, researchers and clinicians might be able to better address the needs of people following a TBI, helping them to use technology and online communities to increase their communication, social participation, and social support.



For more information about this study:

The paper has been accepted for publication in 2017:

Brunner M, Hemsley B, Togher L, Palmer S (accepted 02/02/2017). Technology and its role in rehabilitation for people with cognitive-communication disabilities following a Traumatic Brain Injury (TBI). *Brain Injury*.

To read more about Melissa's first PhD publication on social media:

Brunner, M., Hemsley, B., Palmer, S., Dann, S., & Togher, L. (2015). Review of the literature on the use of social media by people with traumatic brain injury (TBI). *Disability and rehabilitation*, 37(17), 1511-1521, <http://www.tandfonline.com/doi/abs/10.3109/09638288.2015.1045992>. Open access to this publication is available from the University of Newcastle's online research repository: <http://hdl.handle.net/1959.13/1326578>.

You can also contact Melissa for more information via email: melissa.brunner@uon.edu.au, or Twitter: https://twitter.com/LissBEE_CPSP.

A Hashtag Study: How do Traumatic Brain Injury communities communicate and network in Twitter?

By Melissa Brunner, Bronwyn Hemsley, Leanne Togher, Stephen Dann, and Stuart Palmer

What the study is about:

Twitter is used by millions of people worldwide as a social networking site. There are currently no studies report on Twitter data of people with Traumatic Brain Injury (TBI) or cognitive-communication impairment. The aim of this study was to gather and analyse TBI-related tweets to provide an understanding of how Twitter is being used to share information about TBI.

What we did:

Tweets that were tagged with TBI-related terms (#hashtags) were captured in Twitter every day for one month. The tweets that were captured were then analysed using multiple methods: (a) Using a content classification framework to classify the tweets by what type of information was in them; (b) By coding the content of the tweets qualitatively to find if there were any common themes or issues being tweeted about; and (c) Using computer analysis to look at the networks of people communicating in Twitter and the content of the text in the tweets.

What we found:

From the 1st to 31st of March 2016, a total of 52581 tweets were captured. A total of 29199 tweets sent by 893 people were in the dataset analysed, after 23382 tweets were excluded. Preliminary analysis showed that TBI-related tweets were used to discuss and share information around: (i) health issues; (ii) awareness of TBI; (iii) life experiences after TBI; (iv) recovery and rehabilitation; (v) popular issues surrounding sport and TBI; and (vi) inspiration or motivation after TBI.

What our findings mean:

The analysis revealed that Twitter is being used for a many reasons when communicating about TBI by a large number of people, including people who have a TBI. The results suggest that Twitter might be an important social media to consider in TBI rehabilitation, as there were people with TBI in the Twitter communities and large amounts of TBI-related information discussed.

For more information about this study:

The results of this study will be submitted for publication in 2017. You can contact Melissa for more information via email: melissa.brunner@uon.edu.au, or Twitter: https://twitter.com/LissBEE_CPSP.

TwitterMind: Twitter use by people with communication disabilities after traumatic brain injury (TBI)

By Melissa Brunner, Bronwyn Hemsley, Leanne Togher, Stephen Dann, and Stuart Palmer Palmer

What the study is about:

Twitter is useful for communicating and exchanging information, particularly for people who struggle to speak or have difficulty engaging in social networks. The TwitterMind project will examine the impact of training young people (teenagers and adults aged 16 years and over) with cognitive-communication disabilities after a traumatic brain injury (TBI) to use Twitter, looking at the barriers and facilitators to successful use to increase communication in this vulnerable group.

What we have done so far:

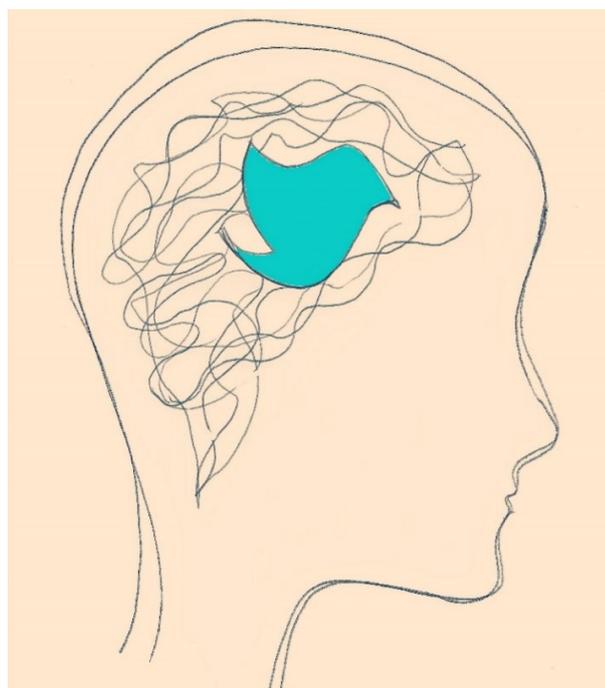
Recruitment has started for studies 1 and 2 for the TwitterMind project.

Study 1 aims to: a) Investigate the use of Twitter by people with communication disabilities after a traumatic brain injury (TBI) and provide feedback on their interactions and networks within Twitter; and b) Find out about the use of Twitter by people with communication disabilities after a traumatic brain injury (TBI), in light of analysis of their Tweet Data. Researchers will read the participant's tweets, make picture representations of their Twitter network, summarise the content of their Tweets, and then interview them about their tweeting experiences.

Study 2 aims to use a survey to discover how social media, in particular Twitter, is currently used by people with communication disabilities after a traumatic brain injury (TBI) and the nature and extent of any problems experienced in learning to use Twitter. Researchers will ask participants to complete a short survey interview about their use of social media, particularly Twitter.

What we expect to find:

The information gained from this study about barriers and facilitators will inform future research plans to develop and implement an online Twitter training module for people with a TBI.



For more information about this study:

If you have or know somebody who has had a traumatic brain injury (TBI) that may be interested in taking part in the research, more information about Studies 1 and 2 (including registering an interest in taking part) can be found here: <https://www.surveymonkey.com/r/TwitterMind>.

Or you can contact Melissa for more information about the study, via email: melissa.brunner@uon.edu.au, or Twitter: https://twitter.com/LissBEE_CPSP.

Cognitive-communication and psychosocial functioning in adults 12 months after severe traumatic brain injury

By Sarah Tran, Belinda Kenny, Emma Power, Robyn Tate, Skye McDonald, Rob Heard, Leanne Togher

What the study is about:

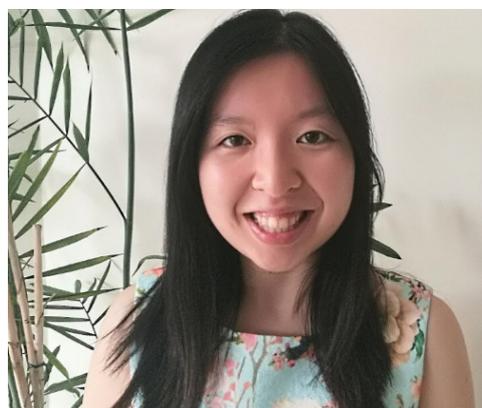
Cognitive-communication disorders encompass difficulty with any aspect of communication as a result of a cognitive deficit. It is thought that cognitive-communication difficulties as a consequence of severe traumatic brain injury may contribute to chronically poor psychosocial functioning and problems reintegrating into the community. This study investigated the link between cognitive-communication skills and psychosocial functioning in persons one-year post-injury.

What we did:

Thirty six adults with severe traumatic brain injury were evaluated at 12 months post-injury. Cognitive-communication skills were evaluated with the Functional Assessment of Verbal Reasoning and Executive Strategies (FAVRES). Participants' psychosocial functioning were assessed using the Sydney Psychosocial Reintegration Scale-2 (SPRS-2) Form A – completed by a close relative (e.g. parent, spouse).

What we found:

Cognitive-communication performance (measured by the FAVRES Total Accuracy and Total Reasoning scores), were significant predictors of overall psychosocial functioning outcome (SPRS-2 Other score). That is, individuals who achieved higher scores on the FAVRES were more likely to have less change in their post-injury psychosocial outcome when compared to their pre-injury psychosocial functioning. Similarly, higher FAVRES scores were predictive of better psychosocial functioning in the specific Work/Leisure and Interpersonal Relationships domains of the SPRS-2.



Sarah Tran is a Speech Pathologist from The University of Sydney. Her research focus is cognitive-communication in people with traumatic brain injury.

What our findings mean:

At 12 months post TBI, individuals were no longer considered to be in the acute stages of recovery. However, findings demonstrated these individuals were still experiencing significant difficulties such as resuming employment, and substantial challenges in maintaining interpersonal relationships. These same individuals performed below normal limits on the cognitive-communication measure.

Therefore, findings suggest continued speech pathology involvement in the latter post-acute stages of recovery may potentially improve social, vocational and overall psychosocial functioning. This provides argument for the role of speech pathologists in community rehabilitation teams and return to work programs for individuals following traumatic brain injury. Finally, the study demonstrates that the FAVRES was able to realistically capture the communication demands in everyday social and vocational situations. Therefore, speech pathologists should consider use of the FAVRES in clinical practice as a benchmark assessment measure, and to assist in the development of rehabilitation goals.

For more information about this study:

If you're interested in finding out more information about this study, please contact: Sarah at stra4282@uni.sydney.edu.au

Recovery of communication skills after Traumatic Brain Injury: A research review

By Elise Elbourn, Leanne Togher, Belinda Kenny, and Emma Power

What the study is about:

Traumatic Brain Injury frequently results in communication difficulties. While we are beginning to improve our understanding of the features of these communication problems, we don't have a good understanding of how the recovery process impacts on these communication problems. For example, we don't know if severe communication problems will continue in the long-term or if these will become less prominent; and what factors might aid or hinder recovery. Thus, the aim of this study was to review current research on recovery of communication after Traumatic Brain Injury.

What we did:

We conducted a systematic review of the research. We initially searched across 13 health databases for any articles relating to recovery of communication skills after traumatic brain injury. Next, we screened the articles using specific criteria such as, 'at least 50% of the participants in the study had sustained a moderate-severe Traumatic Brain Injury,' to ensure that each article was relevant. The following step involved extracting information about recovery from each study, including information about factors that might predict recovery. For example, did the participants communication difficulties improve, stay the same or even decline and was severity of injury a factor in the recovery process. Finally, we evaluated the strengths and weaknesses of each study.

What we found:

A total of 16 relevant articles were identified however weaknesses with the study quality were identified across 6 key study design areas. For example, 11 out of 16 studies did not describe the characteristics of the participants who were lost to follow-up. Improvements in communication difficulties over time was reported in 4 studies and a further 2 studies found ongoing impairment with little change over time. The following factors

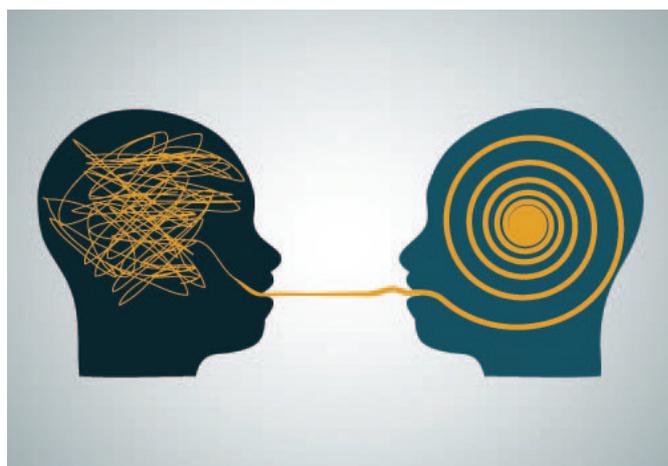
were identified as predictors of communication recovery; presence of fronto-temporal lesions, brain injury severity, left hemisphere brain volume loss, early conversational performance and cognitive variables.

What our findings mean:

Overall, there was a small amount of research evidence on the topic of communication recovery after TBI. Additionally, much of the existing research evidence is not of sufficient quality to make sound clinical decisions. Based on current evidence, we can cautiously say that communication difficulties may improve in the first couple of years following an injury. Factors that may predict communication recovery include the presence of fronto-temporal lesions, brain injury severity, left hemisphere brain volume loss, early conversational performance and cognitive variables. Further research is needed to support individuals with communication difficulties following TBI through this recovery process.

For more information about this study:

Elbourn, E. Togher, L. Kenny, B. Power, E. (2016) Strengthening the quality of longitudinal research into cognitive-communication recovery after traumatic brain injury: A systematic review; *International Journal of Speech-Language Pathology*, 17:1-16; 10.1080/17549507.2016.1193896



Changes in self and close other perceptions of communication ability following TBI: A longitudinal study

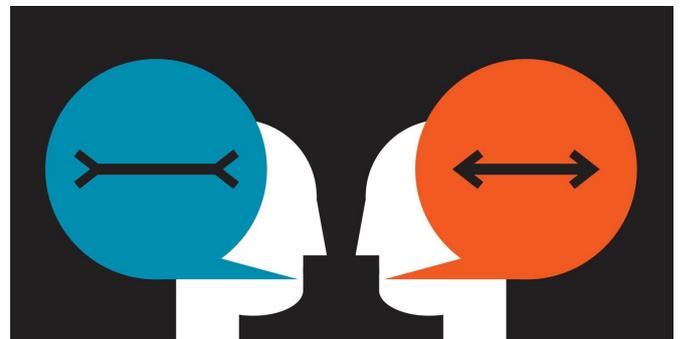
By Jason Bransby, Emma Power, Leanne Togher, Rob Heard

What the study is about:

Following a traumatic brain injury (TBI), changes to self-awareness are common. This means that people with TBI may have difficulty recognizing changes that have occurred as a result of their brain injury, especially changes related to thinking and communication. This can make therapy challenging, and can impact a person's return to independent living. We were interested in whether people with TBI report more frequent communication problems over time. We were also interested how family members perceive the person's communication over time.

What we did:

The La Trobe Communication Questionnaire was administered at 6, 12 and 24 months post injury to 27 people with TBI and a nominated family member. This questionnaire asks people to report the frequency of 30 common communication problems that occur following a TBI. We examined whether overall perceptions changed over time for people with TBI and their family members, and also how perceptions changed relating to specific groups of communication skills.



What we found:

Overall, people with TBI reported more frequent communication problems over time. People with TBI did not report more problems between 6 and 12 months post injury, but they did report more frequent problems after 12 months. In fact, from 12 months onwards perceptions of people with TBI and their family members did not differ. People with TBI appeared to perceive more problems relating to the ability to start and maintain conversations. For example, thinking of words, and thinking of things to say. Their perceptions of other problems, such as considering the information needs of their listener, did not change over time. Overall, family member's perceptions did not change over time. Instead, their perceptions tended to vary quite a lot across time.

What our findings mean:

Overall, people with TBI reported more frequent communication problems over time. This is suggestive of improvements in self-awareness. This research supports previous studies that have found self-awareness is better after 12 months post injury. People with TBI tended to perceive communication problems that impact them (such as trouble thinking of words), better than problems that might impact other people (such as talking for too long). This study also highlights the limitations of using questionnaires, as family member perceptions tended to be influenced by other factors e.g. marital breakdown.

TBIconneCT: Using telehealth for improving the communication skills of people with traumatic brain injury and their carers

By Rachael Rietdijk, Emma Power, Melissa Brunner and Leanne Togher

What the study is about:

Many families have little access to support regarding how to manage communication problems after TBI, particularly in rural and remote regions. A possible solution is the use of telehealth to provide communication training for families. The TBIconneCT project will focus on the potential use of Skype for managing social communication impairments after TBI. This will involve (a) determining whether Skype assessment is as reliable as in-person assessment, (b) determining whether Skype intervention is as effective as in-person intervention, and (c) exploring the perceptions of people with TBI and their carers regarding the use of telehealth for brain injury rehabilitation.

What we are doing:

Our reliability study involved 20 participants with TBI and their carers. This study involved comparing Skype-based with in-person assessment for (a) questionnaires about communication completed by the person with TBI and their carer, and (b) independent ratings of the conversations between people with TBI and their communication partner. Participants also completed qualitative interviews regarding their perceptions of telehealth services. Our clinical trial will compare Skype-based training to in-person training for social communication skills. 36 participants with TBI and their carers will be recruited in total. 24 participants will be recruited from the Sydney metropolitan area and randomly allocated to groups in a 1:3 ratio (6 Skype: 18 in-person). The remaining 12 participants will be recruited outside of Sydney and allocated directly to the Skype intervention. Recruitment for this intervention study is ongoing.

What we found:

Our reliability study found that Skype was usually feasible for meeting with families. For a small number of families (n=3), the quality of the Skype call was not adequate for observing the quality of conversations between people with TBI and their carers. Questionnaires about the communication skills of the person with TBI, and measures of the person with TBI's conversational participation could be administered reliably over Skype. People with TBI and their carers perceived both potential benefits and potential risks regarding the use of telehealth for brain injury rehabilitation. A pilot study of the Skype-based intervention with two participants demonstrated positive outcomes in both self-report measures and ratings by blinded observers.

What our findings mean:

These preliminary findings indicate the potential for using telehealth for providing interventions for social communication to people with TBI and the communication partners. The forthcoming results of the clinical trial will demonstrate whether the outcomes of telehealth social communication training are equivalent to in-person training.

JENNIFER

Professor Jennifer Fleming

Professor Jennifer Fleming is an occupational therapist and researcher in the field of brain injury rehabilitation. Her research interests include the development of self-awareness and metacognitive factors in brain injury rehabilitation. Other research interests include prospective memory assessment and rehabilitation, community integration and the transition from hospital to the community, and psychosocial adjustment and outcomes following brain injury.



Dr Emmah Doig

Emmah is a research fellow in the School of Health and Rehabilitation Sciences at the University of Queensland. She is an experienced occupational therapist who has worked in the field of brain injury rehabilitation in Australia and the United Kingdom across acute, inpatient rehabilitation and community-based rehabilitation in both public and private practice settings. Research interests include goal planning approaches, metacognitive and occupation-based treatment approaches, community integration, outcomes following traumatic and acquired brain injury, and community-based rehabilitation.



Hayley Walsh

Research topic: Occupational performance and rehabilitation during Post-traumatic Amnesia following a traumatic brain injury.

Hayley is a PhD student at the University of Queensland however is based at the Institut Guttmann in Barcelona, Spain, through a collaboration agreement between specialists from both centres. She is currently working with adults who are recovering from a traumatic brain injury as they progress through the phase of post-traumatic amnesia (PTA). She hopes to further understand the broader sensory, motor, cognitive, behavioural and functional characteristics of people during PTA, as well as assess the feasibility of conducting a randomised controlled trial of a new intervention protocol based on occupation-based multisensory stimulation and environmental enrichment. Finally, making use of the bilingual team, she is currently collecting data for a validation study of a Spanish translation of the Westmead Post-traumatic Amnesia Scale for use with the Spanish population.

Supervisors: Dr Jennifer Fleming (University of Queensland, Brisbane, Australia) and Dr Narda (Institut Guttmann, Barcelona, Spain)

FLEMING

Freyr Patterson

Research topic: Group therapy interventions in traumatic brain injury (TBI) rehabilitation: processes, perceptions and effectiveness.

Freyr commenced her PhD at the University of Queensland in 2012 and is investigating the use of group therapy interventions in TBI rehabilitation. She is exploring patient and clinician perceptions of group therapy interventions, specifically the perceived benefits and challenges of groups with this population group. A scoping review on the topic has been completed and concluded there is limited research evidence to guide clinicians in the facilitation of groups in TBI rehabilitation. It is anticipated that the research findings will integrate patient preferences and experiences as well as clinician perceptions about provision of group therapy in inpatient TBI rehabilitation, to inform and enhance group rehabilitation practice to patients with TBI.

Data collection has been completed, and Freyr is currently completing qualitative analysis on data obtained through in-depth interviews with patients (N=15). In 2016 her research was presented at the ASSBI conference in Macau. She will be presenting further findings at the National Occupational Therapy conference this year. Manuscripts presenting the findings of clinician and preliminary patient perspectives are under review.



Sarah Prescott

Research topic: Goal setting in community-based brain injury rehabilitation- exploration of the process and the relationship between client-centredness, contextual factors and outcome

Sarah is an experienced Occupational Therapist who commenced her PhD in 2014. Her PhD is a mixed methods study which broadly aims to examine what processes and factors result in rehabilitation goals that are important and meaningful to the client, and whether this is related to goal achievement and improvements in function after rehabilitation.

Sarah published a scoping review which aimed to identify the goal setting approaches used in research with people with ABI in the working age range. Given the need identified by the scoping review to examine what happens in clinical practice, 22 multidisciplinary clinicians from three different clinical services were interviewed about their perceptions of goal setting with community dwelling clients with brain injury. A goal setting practice framework was developed using grounded theory methodology to explain how people with brain injury can be engaged in goal setting to develop achievable client-centred goals. Additionally, a prospective cohort study with 44 clients with ABI was completed to examine the relationship between client-centredness of goals and outcome, as well as explore relationships between client-centredness of goals and motivation, therapeutic alliance and self-awareness impairment. Two manuscripts of these results have been submitted for publication. The results were also presented at the 2016 ASSBI conference in Macau.

Most recently, Sarah analysed 66 audio-recorded goal setting sessions to identify the goal setting processes used by multi-disciplinary clinicians to engage clients with brain injury in goal setting. She is in the process of writing up the results of this analysis.



Improving forgetfulness in everyday life after traumatic brain injury: A randomised controlled trial of compensatory prospective memory training and metacognitive skills training

By Jennifer Fleming, Tamara Ownsworth, Emmah Doig and David Shum

What the study is about:

Remembering to do something at a future point in time is known as prospective memory, or memory for intentions. Examples of prospective memory in everyday life are attending an appointment at the correct time, or remembering to pay a bill by the due date. People with brain injury often experience impairment in prospective memory which can compromise their safety, independence and employability. Strategies such as the use of a diary or mobile phone calendar can help compensate for prospective memory impairment and reduce memory failures in everyday life. However people with traumatic brain injury may also experience impaired self-awareness and not understand the nature or significance of their memory problems; this compromises their effective use of strategies. We aim to determine if prospective memory failures are reduced after a rehabilitation program combining compensatory strategy training with metacognitive skills training to improve self-awareness in people with brain injury.

What we are doing:

We are comparing three groups of participants with traumatic brain injury: a prospective memory training group, a prospective memory plus metacognitive skills training group, and a control group on a waitlist. Participants in the first two groups attend 6 weekly rehabilitation sessions with an occupational therapist. Both groups receive training in the use of compensatory strategies to improve prospective memory, but the second group also receives metacognitive skills training to help improve their understanding of the need to use memory strategies. We assess all groups on measures of memory, self-awareness, strategy use and daily functioning following the intervention and at 3 and 6 month follow up.

We are currently in the second year of this 4 year project. We aim to provide an intervention to 90 participants and more than 20 have been recruited to date. The results of the study, which will be completed in 2018, will provide evidence about the effectiveness of prospective memory rehabilitation. If effective, our 6-week rehabilitation program will be available for use in other rehabilitation centres.

For more information about this study see our training protocol:

Fleming, J., Ownsworth, T., Doig, E., Hutton, L., Griffin, J., Kendall, M., & Shum, D. (2017). The efficacy of prospective memory rehabilitation plus metacognitive skills training for adults with traumatic brain injury: protocol for a randomized controlled trial. *BMC Trials*, 18(3), DOI 10.1186/s13063-016-1758-6



An occupation-based, metacognitive approach to assessing error performance and online awareness

By Emmah Doig, Jenny Fleming and Tamara Ownsworth

What the study is about:

Online awareness is the ability to monitor and self-correct errors we make during activities. After traumatic brain injury, people may experience impairments in online awareness which make it harder for them to safely live independently or return to work. Current assessments of online awareness are carried out in the context of structured, uniform tasks. However, it is important to understand how performance changes during activities that are relevant and meaningful to each individual to design relevant treatment approaches. In this study, we investigated the reliability of a new approach to assessing error behaviour and online awareness during a range of activities that were meaningful and unique to the person being assessed. We also wanted to know if people with brain injury made more errors and had more difficulties self-correcting errors compared to people without brain injury.

What we did:

We videotaped two people with severe traumatic brain injury doing tasks of importance to them (making hot drinks, preparing snacks, budgeting, using a computer program, writing a timetable). We also videotaped two people without brain injury who were matched on age, sex and education doing these tasks. Two experienced occupational therapists who were trained in the assessment independently rated the number, type of errors and self-corrections of errors for all participants. We compared the ratings by the occupational therapists using exact percent agreement to determine the reliability of the assessment. We also compared the number and type of errors and the percentage of self-corrected errors of the people with brain injury to those without brain injury.

What we found:

In terms of reliability of the assessment, overall agreement about errors between the two raters was fair (76%), for which there was 65% agreement about error type and 100% agreement about error correction. We found that the people with brain injury made more errors in every error category and self-corrected less errors compared to the people without brain injury.

What our findings mean:

This assessment could be useful when combined with standardised neuropsychological assessments for providing an in-depth understanding of performance during meaningful activities. This study also highlights that people's performance during familiar tasks that have meaning and importance to them can be impacted by having a brain injury and there is a need for interventions which improve online awareness and occupational performance.

For more information about this study:

Doig, E., Fleming, J., Ownsworth, T. (2016). An occupation-based, metacognitive approach to assessing error performance and online awareness. *Australian Occupational Therapy Journal*. DOI: 10.1111/1440-1630.12322

Doig, E., Fleming, J., & Lin, B. (In Press). Comparison of online awareness and error behaviour during occupational performance by two individuals with traumatic brain injury and matched controls, *NeuroRehabilitation*

Group therapy interventions in traumatic brain injury (TBI) rehabilitation: processes, perceptions and effectiveness

By Freya Patterson, Jenny Fleming and Emmah Doig

What the study is about:

Increasingly rehabilitation services are required to deliver better and more intensive therapy services with fewer resources, and one strategy is to provide therapy to groups of patients. Benefits of group-based therapy include opportunities for peer support and learning, opportunities to receive feedback about capabilities, and to practice strategies in supportive 'real world' social and physical environments. It is important that group-based rehabilitation with people following traumatic brain injury (TBI) is informed by both the research literature and consumer perspectives, as well drawing upon the practice knowledge of clinicians who work in the area.

The overall aim of the study is to develop new knowledge about how to run effective group-based interventions in inpatient brain injury rehabilitation services. Specific aims are:

1. To investigate patient and clinician perceptions of the benefits, limitations and processes of group-based interventions in brain injury rehabilitation.
2. To examine group processes in brain injury rehabilitation including type of intervention, time on tasks, goal setting processes, and processes used to meet individual needs.
3. To evaluate the outcomes of patients with TBI following participation in group rehabilitation.

What we have done:

A scoping review was completed which highlighted that there is limited research evidence to guide clinicians in the delivery of group-based interventions for people following TBI. The current PhD study utilises a mixed-methods approach with data collected from patient questionnaires (n=83), patient interviews (n=15), videotaped recordings of therapy groups (n=4), and four clinician focus groups. A total of 35 patients participating in an inpatient occupational therapy groups program in the Brain Injury Rehabilitation Unit and 26 occupational therapists working in rehabilitation across brain injury, spinal injury and geriatric rehabilitation have participated in the study. Clinicians working in spinal and geriatric rehabilitation were included to explore group interventions across different rehabilitation populations in order to identify factors that may be uniquely important when working with people with TBI. So far, questionnaire data have been collated and analysed using descriptive statistics and focus group data have been analysed qualitatively using framework analysis. Patient interviews are being analysed using qualitative thematic analysis, guided by a phenomenological approach, and analysis of video-recordings of therapy groups will be conducted.

What we have found and expect to find:

Findings so far have highlighted that, from the perspective of clinicians, groups can create opportunities for support and learning between patients, and contribute positively to rehabilitation post TBI. Clinicians emphasised the importance of group facilitator skills and the processes to achieve a 'good fit' of patients in the group. Overall patient perspectives about participation in groups were positive. They agreed that working with others was enjoyable, that the groups provided feedback and individualised treatment, and were useful for them. Analysis of patient interview data will explore the perspectives of patients in more depth.

It is anticipated that the research findings will integrate patient preferences and experiences as well as clinician perceptions about provision of group therapy in inpatient TBI rehabilitation, to inform and enhance group rehabilitation practice to patients with TBI.

Goal statements in brain injury rehabilitation: A cohort study of client-centredness and relationship with goal outcome

By Emmah Doig, Sarah Prescott, Jenny Fleming and Nicole Weir

What the study is about:

For rehabilitation goal setting to be effective it is recommended that both content of and characteristics of goals be considered, including the importance of the goal to the client. The quality of goals is commonly judged according to whether goals meet SMART (Specific, measurable, time-limited etc.) criteria, which are important for objective evaluation of outcomes. Other potentially important characteristics include writing goals without jargon, a focus on participation goals and including the client's name. Whether the goal is remembered by the client is also considered important, as goal recall may enhance goal-directed behaviour outside of therapy sessions. This study investigated if these goal characteristics are important to clients and whether goals with such characteristics lead to better goal outcomes.

What we have done:

We examined the characteristics, content and client recall of the rehabilitation goals of 45 people with acquired brain injury who were participating in outpatient rehabilitation. We determined whether the importance and meaningfulness of the goals to the client was related to the goal characteristics and the client's goal performance at the end of rehabilitation. In total, 223 goals were independently rated by two researchers as either meeting or not meeting the criteria of specific, measurable, and including a timeframe, jargon and participation domain of the ICF. The importance and meaning of each goal to the client was measured after goal setting using the Canadian Occupational Performance Measure (COPM) and the Client-Centredness of Goal Setting scale (C-COGS). The client's recall of the goal was evaluated within 24 hours of goal setting. Goal outcomes were measured using therapist and client COPM performance ratings for each goal, which was assessed after goal setting and at 12 weeks follow-up.

What we found:

The C-COGS and COPM importance scores did not vary according to the characteristics, content and recall of goals, with the exception of goal specificity. Highly specific goals were viewed as significantly less important and meaningful when compared with less specific goals. The relationships between the importance and client-centredness of goals and goal outcomes were mostly significant and positive.

What our findings mean:

Goals that are more important and meaningful to clients are related to better performance in the goal at the end of rehabilitation. Therefore, goal setting should focus on what is important and meaningful to clients. Also, the findings suggest that if goals are set too specifically, they may be less meaningful to clients.



TAMARA

Professor Tamara Ownsworth

Professor Tamara Ownsworth is a teaching and research academic in the School of Applied Psychology at Griffith University in Brisbane, Australia, with 18 years of experience as a clinician and researcher in the brain injury field. She is internationally recognised for her work on self-awareness and the rehabilitation of metacognitive impairments after TBI.



Dr Elizabeth Beadle

Research topic: Identity change and rehabilitation after traumatic brain injury
Elizabeth commenced her PhD at Griffith University in 2013 and is investigating changes in identity (self-discrepancy) after severe TBI in adulthood. She is interested in the nature and extent of identity changes after TBI, correlates of identity change, the relationship between self-discrepancy and emotional adjustment and impact of rehabilitation. She is exploring this through self-discrepancy theory: a theory on how perceptions of who we are, and who we feel we should be, can cause emotional discomfort.

Lizzie has completed her data collection ($n = 60$) and is in the process of writing two manuscripts for publication to follow on from her systematic review on factors influencing self-discrepancy and self-concept following TBI. In 2016 she presented her research at the NR-SIG meeting in Glasgow, ASSBI conference in Macau and the Gold Coast Health and Medical Research conference.



Owen Lloyd

Research topic: Self-awareness following paediatric TBI: recovery and relationship to outcome

Owen is doing a part-time PhD at Griffith University and is the Neuropsychology Clinical Leader at the Queensland Paediatric Rehabilitation Service at the Royal Children's Hospital in Brisbane. Owen commenced his PhD in March 2013 and is investigating factors influencing awareness of deficits in children with TBI, changes in awareness of deficits between discharge and 12-months post-injury, and the impact of self-awareness on psychosocial outcomes after paediatric TBI.

Owen has published a systematic review on awareness deficits following paediatric TBI and has submitted a manuscript on a pilot study investigating the psychometric properties of a new awareness tool – the Paediatric Awareness Questionnaire. Owen presented the pilot study at the ASSBI conference in Macau.

OWNSWORTH

Kathryn Hendry

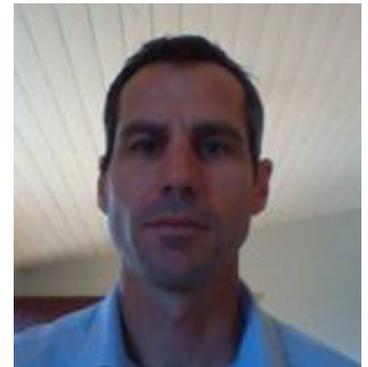
Research topic: Mental health and self-concept following paediatric TBI
Kath completed her honours research on error self-regulation in adults with TBI in 2015. After a break from her studies in 2016 to have her second child she has enrolled in a Clinical PhD commencing in 2017. Her research will focus on the impact of TBI on mental health in children. She is particularly interested in the consequences of TBI for children's emerging self-concept.



Kynan Gooding

Masters research topic: Cognitive processing styles and mood post-TBI
Kynan completed his Masters in Clinical Psychology at Griffith University in 2015-2016. His thesis investigated the relationship between neurocognitive functioning, cognitive processing styles (rumination and reflection) and mood after TBI. He aimed to determine whether more severe neurocognitive impairment was associated with increased or decreased rumination and reflection and to clarify the relationship between cognitive processing styles and mood. Kynan collected data on 55 people with severe TBI and healthy controls matched on age and gender. His key findings were as follows:

- People with severe TBI reported poorer mental health than healthy controls, yet did not differ on levels of rumination and reflection
- More severe neurocognitive impairment (especially memory and self-awareness) was related to lower levels of rumination and reflection in the TBI sample
- TBI participants with high levels of reflection but low rumination experienced better mental health than those high on both reflection and rumination



Elizabeth Pagan

Liz commenced her Masters in Clinical Psychology at Griffith University in 2013. To support one of the key aims of the CRE, she conducted a research project to investigate clinicians' perceptions of the barriers to providing effective neurorehabilitation for people with TBI and their professional development preferences. Liz's survey and results were published in Brain Impairment in 2016 and is an important contribution to the translation arm of the CRE.



Do people with severe traumatic brain injury benefit from making errors? A randomized controlled trial of error-based and errorless learning.

By Tamara Ownsworth, Jennifer Fleming, Robyn Tate, Elizabeth Beadle, Janelle Griffin, Melissa Kendall, Julia Schmidt, Amanda Lane-Brown, Mathilde Chevignard, David H. K. Shum

What this study was about

After severe traumatic brain injury (TBI) people often need to relearn skills they had previously mastered. There are mixed views on the best strategy for relearning these skills; however, one method that has been found to be successful for people with severe cognitive impairment is 'errorless learning'. Errorless learning refers to teaching the skill without ever allowing for errors to occur. The training session is designed in a way that requires the trainer to prompt with the correct response, rather than allowing the trainee to guess, and therefore risk laying down the memory of the error response. Learning in this method is often very specific and skills do not often generalise to other situations where the skill is needed outside of the training session. Error-based learning on the other hand involves structured feedback on performance (e.g., use of videos), graded prompts, and post-task reflection to teach how to anticipate errors, check for and correct errors, and generate strategies for overcoming those errors. This 'metacognitive' method has previously been shown to reduce errors on trained tasks, increase self-regulation and self-awareness, however, it was previously not known if this approach would promote greater generalisation of skills than errorless learning. This study aimed to determine this.

What we did

Fifty-four individuals with a severe traumatic brain injury were randomised either to the errorless learning group OR to the error-based learning group. They received 8 x 1.5 hour individual training sessions focused on meal preparation. The success of training was measured by total errors made during the Cooking Task (a standardised test of error self-regulation), as well as measure of broader generalisation (Zoo map test) and a number of other secondary outcome measures.

What we found

After accounting for initial performance and level of pre-injury education, individuals in the error-based learning group demonstrated significantly fewer errors on the Cooking Task following training when compared to those in the errorless learning group. Those who received the error-based training strategies also demonstrated greater levels of self-awareness and behavioural competency at completion. Forty-one participants were re-tested 6 months following completion of training. There were no significant differences in social and vocational outcomes at this point. Results from this study demonstrate that having structured opportunities to make errors and learn to correct these plays an important role in the learning of skills during rehabilitation after severe traumatic brain injury.

You can read more about this research:

Ownsworth, T., Fleming, J., Tate, R., Beadle, E., Griffin, J., Kendall, M., Schmidt, J., Lane-Brown, A., Chevignard, M., & Shum, D. H. K. (epub Nov 16, 2017). Do people with severe traumatic brain injury benefit from making errors? A randomized controlled trial of error-based and errorless learning. *Neurorehabilitation and Neural Repair*.

Development and preliminary validation of the Paediatric Awareness Questionnaire for children and adolescents with traumatic brain injury

By Owen Lloyd, Tamara Ownsworth, Jenny Fleming and Melanie Zimmer-Gembeck

What this study was about

A key factor found to influence psychosocial adjustment in adults with traumatic brain injuries (TBI) that has been largely overlooked in paediatric TBI is self-awareness. While children and adolescents with TBI experience impaired self-awareness, there is a lack of research on the course of recovery of impaired self-awareness and relationship to psychosocial outcomes. The paucity of research in this area may be due to a lack of reliable and validated tools designed specifically for the paediatric TBI population.

What we did

A new measure, the Paediatric Awareness Questionnaire (PAQ) was developed and tested on 32 children and adolescents with mild to severe TBI and their parents, and 32 age and gender matched typically developing children and their parents. The PAQ consists of child, parent, and clinician versions whereby respondents rate the child's ease at performing functional activities. The measure was refined based on feedback from parents, patients and clinicians, and was reviewed for reading age. The final measure consists of 37 items, derived to cover a range of functional areas typically affected by TBI: cognition, physical functioning, activities of daily living, interpersonal skills, and emotional/behavioural functioning. A discrepancy score is calculated (parent score minus child score), with larger negative scores indicative of poorer awareness of deficits.

In addition to the PAQ, children with TBI and their parents also completed an existing measure of awareness in TBI, the Knowledge of Injury Checklist (KIC), and all parents also completed the Depression Anxiety Stress Scale – 21 (DASS-21) to assess current mood.

What we found

The PAQ was found to have good internal consistency for the child, parent and clinician versions in the TBI group and for the parent and child versions in the typically developing group. Children with TBI demonstrated poorer self-awareness of their functioning than typically developing control group, indicating known groups validity. There was also good concordance between parent and clinician total scores. Parent and child PAQ total scores were significantly correlated with total scores on the Knowledge of Injury Checklist for both children with TBI and parent ratings, indicating convergent validity. Poorer self-awareness was significantly related to younger age at injury for the TBI group, and lower parental education for the total sample. These findings provide preliminary support for the reliability and validity of the PAQ for assessing self-awareness after paediatric TBI.

You can read more about this research:

Lloyd, O., Ownsworth, T., Fleming, J. and Zimmer-Gembeck, M.J. (2017). Development and preliminary validation of the Paediatric Awareness Questionnaire for children and adolescents with traumatic brain injury. *Child Neuropsychology*. DOI: 10.1080/09297049.2017.1332173

Professor Jennie Ponsford

Professor Jennie Ponsford is the Director of the Monash-Epworth Rehabilitation Research Centre which was created in 2000. Its aim is to conduct research in trauma rehabilitation, with a view to reducing long-term disability. Over 20 psychologists and researchers are associated with the centre and form a dynamic research team. Jennie Ponsford has published over 270 journal articles and book chapters, as well as two books on the management of traumatic brain injury.



Kelly Sinclair is a Research Fellow at Monash University in the Monash Epworth Rehabilitation Research Centre (MERRC). She completed a Doctor of Psychology (Clinic Neuropsychology) at Monash University in 2012, focusing on the assessment of fatigue and sleep disturbance following Traumatic Brain Injury and examining the use of light therapy to reduce these symptoms following injury. Kelly continues to work on projects across the research centre examining fatigue and sleep complaints following Acquired Brain Injury.



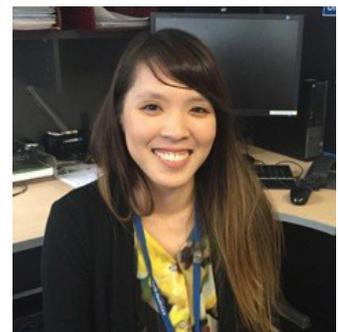
Dr Adam McKay is a senior lecturer in the School of Psychological Sciences at Monash University and a Senior Clinical Neuropsychologist at Epworth. He has investigated factors associated with return to driving after TBI, specifically the influence of cognitive test performance. He supervises students on a number of projects, including a study of the influence of family interaction on emotional adjustment after TBI. He is a lead investigator on the evaluation of early rehabilitation following TBI as well as two psychological intervention studies, for which provides therapy, including the MI/CBT for anxiety and depression, and CBT for fatigue.

PONSFORD

Dr Dana Wong is a senior lecturer in the School of Psychological Sciences at Monash and works in private practice as a clinical neuropsychologist. She supervises clinical neuropsychology students in a specialised rehabilitation clinic at the Monash Psychology Centre, supervises research and provides therapy in various clinical intervention studies including the MI/CBT for anxiety and depression, CBT for fatigue, and rehabilitation of memory studies. She also has a particular interest in the use of smart phones to support cognitive impairment in people with TBI and stroke. Dana has been instrumental in setting up a peer mentoring network for the CRE via ASSBI.



Sylvia Nguyen is a registered Clinical Psychologist and Doctor of Psychology (Clinical Neuropsychology) Candidate at Monash University. She is conducting a randomized controlled trial to investigate the effectiveness of Cognitive Behaviour Therapy in treating fatigue and sleep disturbance after TBI. This project is under the supervision of Prof Jennie Ponsford, Prof Shantha Rajaratnam, Dr Adam McKay and Dr Dana Wong. She is currently working as a research assistant at the Monash-Epworth Rehabilitation Research Centre.



Cognitive-behaviour therapy for fatigue and sleep disturbance following traumatic brain injury

By Jennie Ponsford, Sylvia Nguyen, Adam McKay, Dana Wong, Gershon Spitz, Gavin Williams, D Mansfield, Shantha Rajaratnam and Lucy Ymer

What the study is about:

Most individuals who experience stroke also experience debilitating and persisting fatigue and/or sleep disturbance, significantly limiting their capacity for re-engagement in domestic, community, work, study, social or leisure pursuits. This, in turn, leads to depression and anxiety which further impacts fatigue and sleep. However, there are currently no treatments indicated for post-stroke fatigue and sleep disturbance and there have been no well-controlled trials of psychological therapy for post-stroke fatigue. This research aims to evaluate the efficacy of a tailored psychological therapy that targets the physical, behavioural, cognitive, and emotional factors contributing to fatigue and sleep difficulties post-stroke.

What we have done:

Cognitive behaviour therapy has been adapted for fatigue and sleep difficulties (CBT-FS). This adaptation has been developed to compensate for the cognitive impairments after stroke (e.g., increased repetition, handouts, simplified concepts) and to account for the possible organic basis for post-stroke fatigue by focusing on implementing cognitive strategies (e.g. preventing information overload, memory aids, time-pressure management), specific napping schedules and re-organising activity levels as a means of energy conservation in addition to pacing and graded activity exposure.

In a parallel two-group pilot randomised controlled trial of 15 participants, 9 were allocated to eight weekly sessions of adapted CBT-FS and 6 continued usual care rehabilitation. At 4-month follow-up, the CBT-FS group demonstrated significantly reduced fatigue relative to the no treatment control (Fatigue Severity Scale -7 mean difference: 1.92, 95%CI: 0.24 to 3.60). Significant group differences also emerged for sleep quality, measured on the Pittsburgh Sleep Quality Index (PSQI). There was a significant difference between groups on the PSQI of 2.27 points (95%CI: 0.71 to 3.82) and these gains were maintained at follow-up at 2.46 points (95%CI: 0.29 to 4.64), representing large effect sizes. CBT-FS participants reported significantly greater reduction in depression relative to the no-treatment control group that was maintained at follow-up. A mean difference of 4.33 points was noted post-treatment between groups on the HADS-D (95%CI: 1.71 to 6.95), and a difference of 4.67 points at follow-up (95%CI: 1.35 to 7.99). These improvements represent large effect sizes at both time-points. Whilst this pilot study identified benefits of the intervention, it remains unclear whether the benefits of therapy are due to the CBT or to non-specific effects of talking to a therapist. To identify the active ingredients of CBT-FS, we now need to compare CBT-FS with an active health information control intervention and identify its cost-effectiveness.

What we expect to find:

We expect that individuals receiving CBT-FS will report less fatigue, improved sleep quality and greater improvements in mood, activity levels and quality of life at two months follow-up, compared with individuals in an active control condition. If effective, CBT-FS could be translated into clinical practice and substantially improve the lives of stroke survivors.

To read more about this:

Nguyen, S., Wong, D., McKay, A., Rajaratnam, S. M., Spitz, G., Williams, G., ... & Ponsford, J. L. (2017). Cognitive behavioural therapy for post-stroke fatigue and sleep disturbance: a pilot randomised controlled trial with blind assessment. *Neuropsychological Rehabilitation*, 1-16. DOI: 10.1080/09602011.2017.1326945

Longitudinal follow-up of patients with traumatic brain injury: Outcome at two, five, and ten years post-injury

By Jennie Ponsford, Gershon Spitz, John Olver, Michael Ponsford, Rose Acher, Meagan Carty and Marina Downing

What the study is about:

Traumatic brain injury is the leading cause of acquired disability in young people, resulting in a complex range of physical, cognitive, behavioural and emotional changes. This study aims to provide a comprehensive picture of the post-injury changes experienced, the impact, over time, of these changes on the young people who sustain these injuries and their families, in terms of living skills, study, employment, recreation, social and personal relationships, factors predicting outcomes in each of these domains, including factors of a demographic, cultural, genetic and injury-related nature, as well as post-injury factors. It also aims to elucidate the evolution of these changes across the lifespan and their emotional consequences.

What we have done:

All patients with TBI are routinely invited to attend a follow-up at 1, 2, 3, 5, 10 and 20 years post-injury. They are interviewed by a rehabilitation physician or over the telephone and complete questionnaires documenting their level of mobility, functional independence, living situation, relationship status, vocational activities, neurological, cognitive, behavioural and emotional problems experienced and drug and alcohol use.

To date, more than 3000 patients have been followed up, including over 1500 at 1 and 2 years, 1000 at 3 and 5 years, 430 at 10 years and 120 at 20 years post-injury. This has created one of the most comprehensive TBI outcome databases

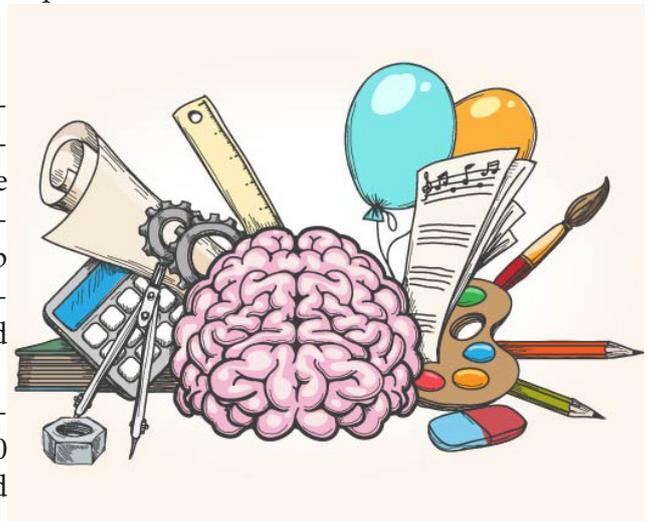
worldwide. Findings have been published in over 100 international peer-reviewed journal articles, and in over 140 national and international conference presentations. Most clients have been under TAC (84%) or Workcover (10%) and therefore the database represents a unique and valuable source of information to these organisations.

What we expect to find:

Data collection is ongoing, however we are continuing to collect longitudinal data regarding the long term cognitive outcome following TBI, the influence of cultural factors on rehabilitation and changes in the young people who sustain these injuries and their families. From 2018 we will start to include patients who are 30 years post injury, thereby expanding the database.

To read more about this:

Ponsford, J.L., Downing, M., Olver, J., Ponsford, M., Acher, R., Carty, M., & Spitz, G. (2014). Longitudinal follow-up of patients with traumatic brain injury: Outcome at two, five, and ten years post-injury. *Journal of Neurotrauma*, 31(1), 64-77. DOI:10.1089/neu.2013.2997. SJR: 1.637; IPP: 3.950; SNIP: 1.298



Professor Vicki Anderson

Professor Vicki Anderson is a paediatric neuropsychologist with over 30 years' experience. In 2002 she was appointed Director of Psychology at the Royal Children's Hospital, and in 2005 she took up the position of Theme Director, Critical Care and Neurosciences Research at the Murdoch Childrens Research Institute. She is an NHMRC Senior Practitioner Fellow. Her team is internationally recognised for theoretical models of social function and interventions for social problems post child TBI.



Associate Professor Cathy Catroppa is a research fellow of the Murdoch Children's Research Institute (MCRI). For the last 15 years she has been coordinating a large scale research program examining longterm term outcomes and predictors following traumatic brain injury (TBI), and given the research findings has placed an emphasis on developing and piloting intervention programs in this domain. She is on the Editorial Board of *Brain Injury*, *Journal of Pediatric Psychology*, *Journal of the International Neuropsychological Society* and *Neuropsychology*.



Dr Frank Muscara has been involved in the development and piloting of a new measure to assess social outcomes and functioning in children and adolescents with traumatic brain injury. The measure has already been tested in a non-clinical population, and is now being piloted in a clinical sample of children and adolescents with acquired brain injury. Frank is also coordinating a project investigating parent functioning, and its impact on child psychosocial outcomes and development, following acquired brain injury in childhood. He has supervised Stefanie Rosema, PhD student, on her project investigating long-term psychosocial outcomes following traumatic brain injury in children.



Nicholas Ryan is a PhD/Master of Psychology (Clinical Neuropsychology) Candidate at the University of Melbourne. In 2012 Nicholas completed his Honours project that examined predictors of emotion perception, and its relationship to social communication and externalizing behaviours in young adult survivors of paediatric TBI. Following on from this work, his PhD aims to investigate the neural bases of outcome and recovery of Theory of Mind in children and adolescents with TBI. He is supervised by Professor Vicki Anderson and Associate Professor Cathy Catroppa at the Murdoch Childrens Research Institute.

ANDERSON

Dr Cheryl Soo is a research fellow at the Murdoch Children's Research Institute and has worked on research projects on the psychosocial outcome of children and adults with TBI for the past 10 years. She is currently lead investigator on a multi-centre RCT of cognitive behavioural therapy for managing anxiety in adolescents with brain injury funded by the NHMRC.



Stefanie Rosema was a PhD student and research assistant at the Murdoch Children's Research Institute. Her interest is in psychosocial outcomes after childhood traumatic brain injury and she set up an intervention program for children with social and psychological difficulties. She has also been involved as a research assistant in improving attention and memory in children with a brain injury and in training to analyse (f)MRI data.



Nikita Tuli commenced her full-time PhD in March 2016 at the Melbourne Children's Campus supervised by Celia Godfrey and Cathy Ca-troppa. Her research aims to investigate the feasibility and efficacy of a computerized working memory intervention in children post TBI. She is interested in working memory, decision-making, and functional outcomes at baseline, post intervention, and 6-months post intervention.



Child Brain Injury- how do we intervene and improve outcomes?

By Cathy Catroppa and Vicki Anderson

Traumatic brain injury (TBI) is a common cause of childhood disability. Outcome research has reported cognitive difficulties following such injuries, in particular for those with more severe injury, with attention and memory often affected.

Research by my team has found difficulties in these areas both acutely and up to 10 years post-injury, suggesting that these difficulties persist over time and may not improve without intervention. This is problematic as attention and memory skills underpin one's ability to interact and function in everyday life - socially, educationally, vocationally, and therefore are a key area to target, in order to improve these skills and reduce their impact on everyday functioning. Despite this, there are limited intervention programs to assist children and adolescents post-ABI with attention and memory difficulties. Furthermore, there is limited research investigating the effectiveness of intervention programs and techniques following childhood ABI. We therefore decided to pilot an online-clinician supported version of the Amsterdam Memory and Attention Training for Children (Amat-c: Hendriksen CM & van den Broek TM, 1996.), following our successful pilot of the original face-to-face intervention format.

The Amat-c is an 18 week intervention program designed to improve attention and memory skills:

- **Phase 1** – Sustained attention (learning to concentrate for a period of time).
- **Phase 2** – Selective attention (strategies to ignore distraction, focus attention quickly & flexibly, divide attention between tasks).
- **Phase 3** – Mental tracking & memory (learning techniques to assist memory skills)

In our study we aim to:

- (i) Evaluate the feasibility (e.g. did parents and children enjoy the program, did they complete the homework tasks?) and preliminary efficacy (e.g. did attention and memory improve?) of an online-clinician-supported version of the Amat-c
- (ii) Identify evidence that the skills taught are used in everyday life and so improve quality of life for these children.

We hypothesise:

- (i) Children will show improvement in areas of attention and memory post-intervention, with maintenance at 6 months post-intervention.
- (ii) Children will show improvement in everyday functioning post-intervention, with maintenance at 6 months post-intervention

Procedure:

Intervention activities are performed at home for 30 minutes per day with a parent as coach. The child and parent meet with the therapist for 1 hour, per week, using an on-line clinician supported format, to discuss the previous week's homework and to receive instructions for the following week's activities.

Future Directions:

In collaboration with an international team, we plan to develop a fully digitised version of the Amat-c program.

Clinical Practice Guideline for the Management of Communication and Swallowing Disorders following Paediatric Traumatic Brain Injury

By Angela Morgan, Cristina Mei, Vicki Anderson, Mary-Clare Waugh, Louise Cahill

What the study is about

Clinical guidelines are increasingly being implemented within healthcare centres to improve patient outcomes and ensure consistent and efficient care. Yet there is a lack of guidelines to inform management of communication and swallowing disorders within key Australian paediatric head injury centres. We aimed to develop evidence- and consensus-based recommendations for the management of speech, language and swallowing disorders following paediatric TBI to improve clinical care of this population.



What we did

A multidisciplinary committee consisting of expert health professionals and consumers was formed to develop recommendations. Evidence-based recommendations were guided by systematic review evidence and developed using the National Health and Medical Research Council statement form. Consensus-based recommendations were developed using a three-round Delphi survey completed by the committee. Level of agreement was set at 80% for consensus.

What we found

In total, 27 recommendations (5 evidence-based and 22 consensus-based) were developed to guide management of speech, language and swallowing disorders, including: prediction of these disorders, health team required, optimal timing of assessment, assessment tools, intervention strategies, commencement of treatment, and key information to support parents.

What our findings mean

Recommendations highlight the early screening of children with moderate and severe TBI for these disorders using appropriate measures to guide intervention. In particular, patients with severe TBI and prolonged ventilation should be considered for early referral to speech pathology to support timely diagnosis and management. The recommendations provide a best practice standard approach to the management of communication and swallowing disorders that can be updated as new high-quality evidence emerges.

The guideline has been approved by NHMRC and is available online at: <https://www.mcri.edu.au/TBI-guideline>

A randomized controlled trial for treating working memory and decision-making deficits post childhood traumatic brain injury: Implementation of a working memory intervention to improve functional outcomes.

By Nikita Tuli, Cathy Catroppa, Celia Godfrey, and Vicki Anderson.

What this study is about:

Difficulties in working memory and higher-level executive skills including decision-making are common post childhood Traumatic Brain Injury (TBI). Persistent executive deficits may impede age appropriate decision-making skills in this population. While a number of studies have investigated working-memory deficits, there is limited research in the field of decision-making post childhood TBI. Decision-making deficits are typically assessed using tasks that are limited in their ability to replicate everyday functioning. Furthermore, there is a paucity of research pertaining to the effectiveness of interventions implemented following childhood TBI. The limited research in this area often lacks methodological rigour and does not focus on generalization of skills into functional areas required for everyday living.

What we are doing:

This randomized controlled trial aims to evaluate whether Cogmed has a significant effect on children with TBI presenting with difficulties in working memory, decision-making and whether these benefits generalize into other functional areas. It also purports to address some of the limitations in the previous studies by using a novel measure of decision-making that is designed to replicate real-world functioning, and following gold standard methodology in intervention research.

What we expect:

Post-intervention and at 6 months follow-up, we expect Cogmed will address a treatment gap evident for children presenting with working memory and decision-making impairments following TBI, while also improving prospects in other functional areas. The expected outcome will enhance prospects in education; and improve integration, socialization and overall quality of life in children post-TBI. Our team will then play a key role in the implementation of the intervention program into schools, rehabilitation facilities and community settings



“Managing challenging behaviour in young children post-TBI: Online clinician support”

By Kaitlyn Taylor, Cathy Catroppa, Celia Godfrey, Audrey McKinlay & Vicki Anderson

The Signposts for Building Better Behaviour program is a manualised parenting intervention, initially developed to assist parents in managing difficult behaviour seen in children with an Intellectual Disability. More recently, research from the Child Neuropsychology group suggests efficacy when used with the parents of children with an Acquired Brain Injury, where challenging behaviours are a reasonably common and persisting long-term sequelae of the injury.

What is this study about:

The current study is investigating the feasibility of delivering the program with online clinician support, via videoconferencing. Eligible participants are the parents of children who sustained a head injury within the last five years, with the children aged 2-6 years at the time of injury. It is hypothesised that after participating in the program, parents will report less externalising and internalising behaviour problems in their child, and better family functioning, parental mental health, parental disciplinary styles, and parenting sense of competency, in comparison to a wait list control group.



We hope that delivery through this medium may improve program access for families, where barriers such as living in rural areas or working full time would have prevented them from participating in the face-to-face format that is usually offered through rehabilitation services. Parents who have completed the program so far have expressed a high level of satisfaction with the program, when delivered with clinician support via videoconferencing.

Professor Robyn Tate

Robyn Tate is a research professor at the John Walsh Centre for Rehabilitation Research, Kolling Institute of Medical Research, Sydney Medical School, University of Sydney. Her background is in clinical and neuropsychology, and she has extensive clinical experience in the rehabilitation of traumatic brain injury. Prof Tate has published widely with more than 200 scientific publications. Research interests include evidence-based clinical practice, methodology of single-case designs, early recovery and long-term outcome after traumatic brain injury, and instrument development.



Dr Amanda Lane-Brown worked with Robyn Tate as a postdoctoral research fellow with 'Moving Ahead' / University of Sydney while also employed as a Rehabilitation Psychologist at the Brain Injury Rehabilitation Unit, Liverpool Hospital. Amanda's research interests include deficits of drive following brain injury, awareness of deficits, executive dysfunction, cognitive rehabilitation, adjustment to disability, dual diagnosis of traumatic brain and spinal injury, and evidence-based clinical practice.



Dr Linda Sigmundsdottir is a postdoctoral research fellow with the Rehabilitation Studies Unit, University of Sydney. She has a Doctorate in Psychology (Clinical Neuropsychology) and works clinically in the area of cognitive rehabilitation following acquired brain injury at the Liverpool Brain Injury Rehabilitation Unit. She has also worked as project manager for the PsycBITE online database (www.psycbite.com) which catalogues published psychological and cognitive rehabilitation interventions for acquired brain injury.

TATE

Ulli Rosenkoetter is a research fellow working with Robyn Tate at the John Walsh Rehabilitation Centre. Ulli is working on the PsycBITE database as well as other issues related to single case methodology.



Paul Gertler is a clinical psychologist who has extensive experience working with people with traumatic brain injury and their families to address the psychological consequences of the injury. Paul has commenced a PhD under the supervision of Robyn Tate aiming to provide empirical evidence for treatments of depression and anxiety after TBI.



Single Case Methodology

2016 was a busy year on the single-case methodology front for a number of CRE members:

Manual for the Risk of Bias in N-of-1 Trials (RoBiNT) Scale

Our manual for the critical appraisal of single-case designs (RoBiNT Scale), with co-authors including CRE members Robyn Tate, Skye McDonald, Leanne Togher, has attracted international attention with a steady flow of requests from researchers, clinicians and students in the USA, UK, Canada, and Europe, as well as Australia. During 2016, Robyn Tate was invited to run a 1-day instructional course on the scale at the Chicago meeting of the American Congress of Rehabilitation Medicine. Another 1-day workshop was conducted in 2017 in India as part of the Flying Faculty of the World Federation of Neurorehabilitation. The RoBiNT Scale and manual are helpful, not only for critical appraisal of single-case research reported in the literature, but also as a guide for the planning and conduct of a scientifically robust single-case design. The 100-page manual is also a useful pedagogical resource on single-case methods. Further details about the manual are available from Robyn Tate (robyn.tate@sydney.edu.au).

Reference:

Tate RL, Rosenkoetter U, Wakim D, Sigmundsdottir L, Doubleday J, Togher L, McDonald, S., Perdices, M. (2015) The Risk of Bias in N-of-1 Trials (RoBiNT) Scale. An expanded manual for the critical appraisal of single-case reports. Sydney, Australia: Author. pp.1-103. ISBN: 978-0-9945369-0-7

Single-case Reporting guideline In Behavioural interventions (SCRIBE)

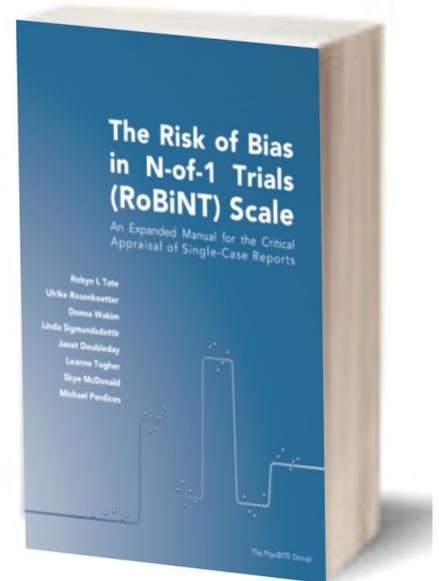
2016 saw the publication of the SCRIBE, a CONSORT-type reporting guideline for single-case designs in the behavioural sciences. This was the culmination of work spanning nine years, in which the Sydney executive (Robyn Tate, Michael Perdices, Skye McDonald and Leanne Togher) led an international team of experts in single-case methodology. The SCRIBE Statement paper, with CRE co-authors Robyn Tate, Skye McDonald, Leanne Togher, Jacinta Douglas and Tamara Ownsworth. was co-published in 10 journals simultaneously, to ensure broad dissemination among the medical and allied health disciplines who use single-case designs in intervention research. The journals comprised: Archives of Scientific Psychology, American Journal of Occupational Therapy; Aphasiology; Canadian Journal of Occupational Therapy; Evidence-based Communication Assessment and Intervention; Journal of Clinical Epidemiology; Journal of School Psychology; Neuropsychological Rehabilitation; Physical Therapy; and Remedial and Special Education.

The SCRIBE checklist can be downloaded from www.sydney.edu.au/medicine/research/scribe

References:

Tate RL, Perdices M, Rosenkoetter U, McDonald S, Togher L, Shadish W, Horner R, Kratochwill T, Barlow DH, Kazdin A, Sampson M, Shamseer L, Vohra S, for the SCRIBE Group. (2016). The Single-Case Reporting guideline In BEhavioural Interventions (SCRIBE) 2016: Explanation and Elaboration. Archives of Scientific Psychology, 4: 10-31.

Tate RL, Perdices M, Rosenkoetter U, Shadish W, Barlow DH, Horner R, Kazdin A, Kratochwill T, McDonald S, Sampson M, Shamseer L, Togher L, Vohra S, Albin R, Backman C, Douglas J, Evans J, Gast D, Manolov R, Mitchell G, Nickels L, Nikles J, Ownsworth T, Rose M, Schmid C, Wilson B. (2016). The Single-Case Reporting guideline In BEhavioural Interventions (SCRIBE) 2016 Statement. Archives of Scientific Psychology. 4: 1-9.



Using single-case methods to increase meaningful occupation in people with apathy after traumatic brain injury

By Robyn Tate, Donna Wakim, Linda Sigmundsdottir, Wendy Longley and Michelle Genders

We have finished recruitment on this clinical trial which uses single-case methods (multiple-baseline design across behaviours, replicated across a series of 10 participants) to evaluate the impact of a new intervention to increase meaningful occupation in people with apathy after traumatic brain injury. The intervention, the Program for Engagement, Participation and Activities (PEPA) is individually conducted over a 3 to 4-month period, with weekly face-to-face sessions and homework tasks. Working collaboratively, the clinician and client develop (a) a program of meaningful occupational activity and (b) strategies to implement and then sustain the program when formal contact with the clinician has concluded. We are currently analysing data and have completed a number of conference presentations (see below).

References:

Tate RL, Wakim D, Sigmundsdottir L, Longley W. (September, 2016). An intervention to increase meaningful occupation after traumatic brain injury. Paper presented at 39th annual meeting of the Australasian Society for the Study of Brain Impairment, Macau, China.

Tate RL, Wakim D, Sigmundsdottir L, Longley W. (July, 2016). Developing an intervention to increase meaningful occupation after traumatic brain injury. Paper presented at 13th annual meeting of the Special Interest Group in Neuropsychological Rehabilitation of the World Federation for NeuroRehabilitation. Glasgow, Scotland.

Tate RL. (April, 2016). Meaningful occupation after traumatic brain injury. Paper presented at Brain Sciences Symposium, University of New South Wales, Sydney.

Tate RL, Wakim D, Genders M. (July, 2015). Which interventions are effective in improving meaningful occupation after traumatic brain injury? A systematic review and recommendations for clinical practice. Paper presented at the ASSBI/INS conference, Sydney, Australia.

Tate RL. (July, 2015). No work and no play makes Jack's life dull: what can we do? Paper presented at the John Walsh Centre for Rehabilitation Research Forum, Sydney, Australia.

ANGELA MORGAN

Professor Angela Morgan is Lead of the Neuroscience of Speech group at Murdoch Childrens Research Institute. Angela is a Speech Pathologist and NHMRC Practitioner Fellow. She has expertise in speech and language phenotyping and uses cutting edge technologies (fibre tractography, fMRI) for her work in dysarthria with strong collaborative links to the Institute for Child Health, London, and UQ. She is a member of the Motor Speech Disorders committee for the International Association of Logopaedics and Phoniatics (IALP) and on the Editorial Board for the Int Journal of Therapy Rehabilitation.



Dr Cristina Mei is a speech pathologist and postdoctoral researcher at the Murdoch Childrens Research Institute. She completed her PhD at the University of Melbourne. Her thesis investigated the speech and language skills of children with cerebral palsy. Her current research focuses on children with traumatic brain injury and genetic conditions. Cristina completed pediatric guidelines for speech and swallowing after TBI with Angela Morgan as an important translational project of the CRE.

JACINTA DOUGLAS



Professor Jacinta Douglas has qualifications in the disciplines of speech pathology and clinical neuropsychology. She has extensive research and clinical experience in rehabilitation of adults with acquired brain injury. Her research interests involve evidence-based practice, cognitive-communication disorders and living well with acquired brain injury. Jacinta is the Summer Foundation Research Chair (Living Well with Brain Injury) and leads the theme 'Building the evidence base for participation and inclusion' at La Trobe University's Living with Disability Research Centre.

Dr Lucy Knox is a lecturer and postdoctoral research fellow in the discipline of speech pathology at La Trobe University. She completed her PhD under the supervision of Professors Jacinta Douglas and Christine Bigby in 2016. Lucy's doctoral research involved an exploration of the experiences of adults with severe traumatic brain injury, and those who support them, in making decisions about their lives after injury. Her doctoral research has resulted in 5 published studies.



Kate D'Cruz is a lecturer in the discipline of occupational therapy in the department of clinical and allied health at La Trobe University. Her primary teaching and research focus is acquired brain injury rehabilitation, person-centered practice, and occupational science. She is currently a full time PhD candidate supervised by Professor Jacinta Douglas and Dr Tanya Serry. Kate's research is exploring identity reconstruction and narrative story-telling following traumatic brain injury.



Margaret Mealings is a speech pathologist who works in the community rehabilitation team at Epworth HealthCare. Margaret is a PhD candidate supervised by Professors Jacinta Douglas and John Olver. Her doctoral work focuses on participation in education from the perspective of students who return to study after sustaining traumatic brain injury. Margaret's work captures the experience of young people completing secondary or pursuing post secondary study. The themes identified in her research highlight the need for clinicians and educators to adopt flexible approaches to supporting students and to use outcome measures that look beyond academic outcomes alone.





Melanie Drummond is a speech pathologist at Epworth HealthCare and a PhD candidate supervised by Professors Jacinta Douglas and John Olver. Melanie has conducted a consecutive admission 12-month longitudinal study investigating the incidence, recovery and predictive factors relating to olfactory impairment (OI) following traumatic brain injury. She also explored the lived experience of OI from the perspective of those who continued to deal with the everyday impact of OI. Her doctoral work has yielded 5 published articles and resulted in the establishment of a specialist OI clinic within Epworth HealthCare.



Elizabeth Williams is a speech pathologist who works in the Brain Injury Rehabilitation Community and Home team at Hampstead Rehabilitation in Adelaide, South Australia. Liz is a PhD candidate supervised by Professor Jacinta Douglas and Dr Tanya Serry at La Trobe University. Liz has focused her research on understanding the rehabilitation alliance from multiple perspectives including people with traumatic brain injury, those close to them (family and significant others) and members of the rehabilitation team. Her work is situated in a constructivist grounded theory framework and employs in depth interviews as the principal data generation method.

“I really hope it comes back” Olfactory Impairment following Traumatic Brain Injury: A Longitudinal Study

By Melanie Drummond, Jacinta Douglas and John Olver

What the study was about:

Our previous work has shown that more than two thirds (67.2%) of adults who sustain severe traumatic brain injury (TBI) demonstrate olfactory impairment (OI) on assessment after resolution of posttraumatic amnesia (PTA). Our objective in this study was to investigate the natural progression and consequences of OI in these individuals at 12 months post injury.

What we did:

We used a prospective longitudinal design and followed up participants 12 months after injury. Persistent OI was measured using the University of Pennsylvania Smell Identification Test (UPSIT). Each participant also participated in an open ended interview to allow exploration of their experience of having OI.

What we found:

Eighty-three per cent of the participants demonstrated persisting OI at 12 months, 53% demonstrated no change in their OI severity category, 11% produced a poorer performance and 36% demonstrated some recovery including 16% who performed within the ‘normal’ range for age and gender. Our results show that OI is an enduring impairment for a substantial proportion of individuals who experience it following severe TBI. It impacts a range of everyday activities and requires comprehensive management during rehabilitation.

Everyday impacts of OI

Theme	Participants experience
Eating and enjoyment of food	“It is so crap....just because I was a foodie, my partner and I, my partner’s in hospitality and we would always try restaurants, new restaurants that come out and have our favourites and go to at least one of them maybe every fortnight and so and now it’s kind of like I’m eating from memory and texture, it’s just shit” (P132-Anosmic)
Food Preparation	“not being able to tell if things are off in the fridge and whether food is off” (P54-moderate)
Personal Safety	“I had toast burning one day and the fire alarms over there (points in direction), still works over there and I couldn’t smell that either....like it was pretty thick smoke, I saw it but I couldn’t smell it” (P48 – Anosmic)
Personal Hygiene	“If I have BO, I can’t smell it so I don’t know if I just don’t have it or if I do have it but can’t smell it. I’m still not sure if I constantly 4 times a day spray deodorant on me and perfume as well”(P74-Moderate OI)
Work	Planned to be a chef. Having an uncle as a successful chef and planning to follow in his footsteps however having an OI “changed my whole career path.....this is the first time I haven’t worked since I was 13 and all of those jobs have been in the hospitality, you know I’ve wanted to be a chef for ages and this has all completely changed it”. (P47-Severe OI)
Leisure	“it would be nice to be able to smell flowers” (P48 – Anosmic)
Personal Relationships	“I’d like to smell (partner) – her perfumes and the beautiful smell of her skin, but I can’t and haven’t been able to for a year” (P4-Anosmic)

To read more about this study: Drummond, M., Douglas, J., & Olver, J. (2017). , “I really hope it comes back”. Olfactory Impairment following Traumatic Brain Injury: A Longitudinal Study. *NeuroRehabilitation*, 41, 241-248

‘I’ve never been a yes person’’: Decision-making participation and self-conceptualisation after severe traumatic brain injury.

By Lucy Knox, Jacinta Douglas and Christine Bigby

What the study was about:

Although adults who sustain a severe traumatic brain injury (TBI) require support to make decisions in their lives, little is known about their experience of this process. The aim of this study was to explore how participation in decision making contributes to self-conceptualisation in adults with severe TBI.

What we did:

We used constructivist grounded theory methods. Data included 20 in-depth interviews with adults with severe TBI. Through a process of constant comparison, analysis involved open and focused coding until clear categories emerged and data saturation was achieved.

What we found:

Self-conceptualisation emerged as a complex and multifaceted process, as individuals with TBI aimed to re-establish a sense of autonomy. We describe a recursive relationship in which decision-making participation assists the dynamic construction of self, and self-concept contributes to the experience of making decisions. The role of an individual’s social support network in acting as a bridge between participation and self-conceptualisation is crucial. Our findings emphasise that contributing to decisions about one’s own goals across a range of life areas can reinforce a positive self-concept. It is vital that supporters understand that participation in decision making provides a pathway to conceptualising self and aim to maximise the person’s participation in the decision-making process.

To read more about this area: Knox, L., Douglas, J., & Bigby, C. (2017). ‘I’ve never been a yes person’’: Decision-making participation and self-conceptualisation after severe traumatic brain injury. *Disability and Rehabilitation*, 39(22), 2250-2260.



“I don’t have many friends – well I don’t have any actually.” Exploring the experience of friendship from the perspective adults with severe traumatic brain injury

By Jacinta Douglas

What the study was about:

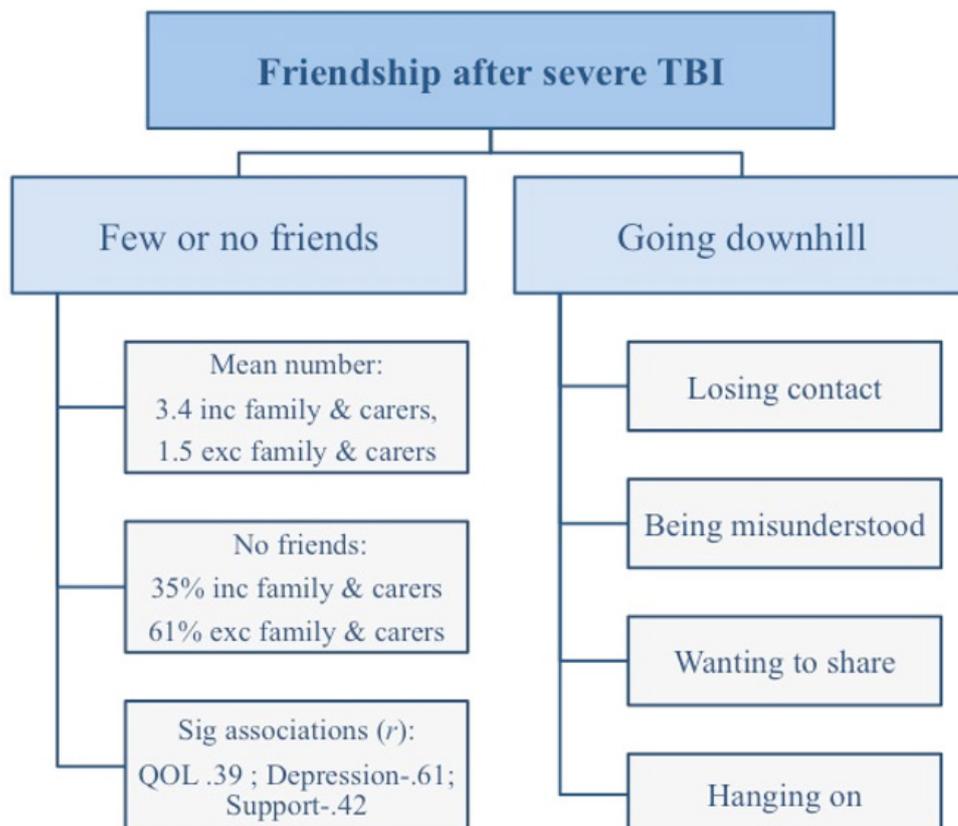
Close relationships make important contributions to wellbeing and the maintenance of self-worth. For those who sustain traumatic brain injury (TBI), life is frequently characterised by declining interpersonal relationships. The aim of this study was to understand the postinjury experience of friendship from the perspective of adults with severe TBI.

What we did:

Twenty-three adults who had sustained severe TBI on average 10 years earlier. Most participants were between 25 and 45 years old at the time they were interviewed. The experience of friendship was explored using mixed methods (quantitative measures and in-depth interviews). Qualitative analysis of interview transcripts employed open and focussed coding to reveal themes and categories.

What we found:

Participants nominated on average 3.35 (SD 2.19) friends. When paid carers and family members were not included, the mean dropped to 1.52 (SD 1.38). Exploratory correlations between number of friends and quality of life, depression and strong-tie support revealed significant associations of moderate to large effects. The postinjury experience of friendship was broadly conceptualized as “going downhill” with four overlapping phases: losing contact, being misunderstood, wanting to share and hanging on. Participants’ stories illustrated how rehabilitation can focus on friendship by supporting established relationships and facilitating access to activities that afford interpersonal encounters and opportunities to share experiences.



People of the CRE

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Tamara Ownsworth
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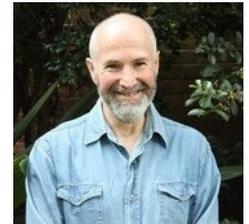
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Monash University, Medical Director, Epworth Hospital



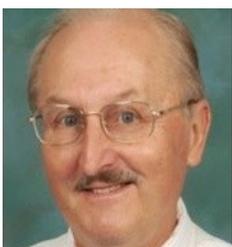
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University of Sydney



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Grahame Simpson
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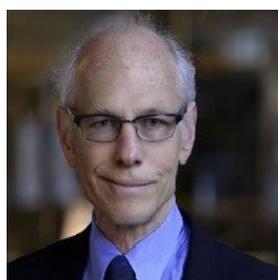
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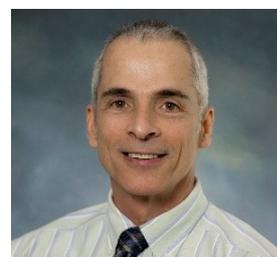
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Cheryl Soo (MCRI)
Emily Trimmer (UNSW)
Travis Wearne (UNSW)
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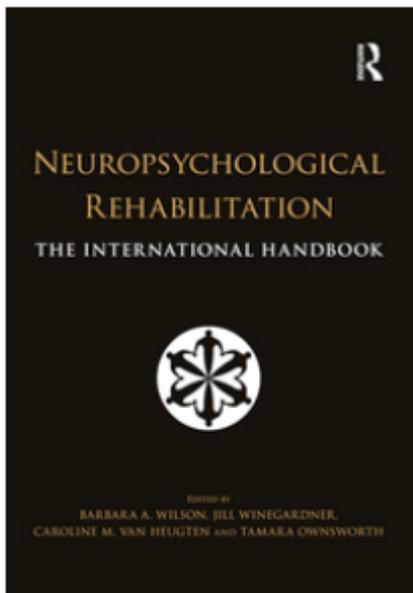
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Diane Whiting (UWS)
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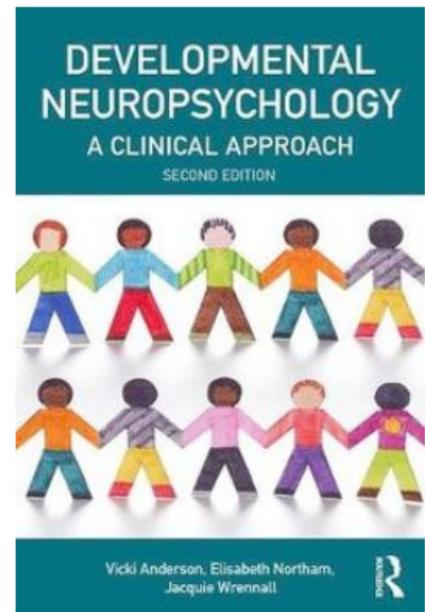


RESOURCES



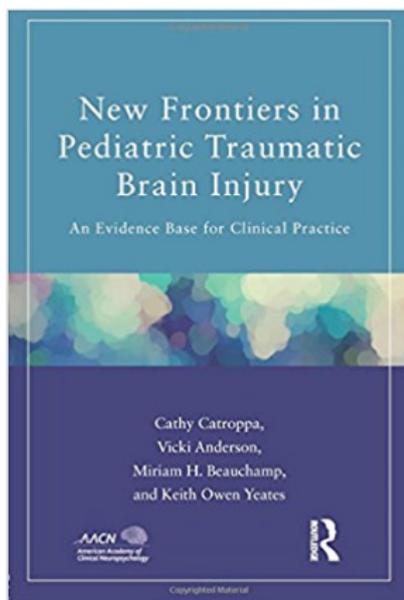
Neuropsychological Rehabilitation: The International Handbook (2017)

Barbara Wilson, Jill Winegardner, Caroline van Heugten and Tamara Ownsworth (Eds)



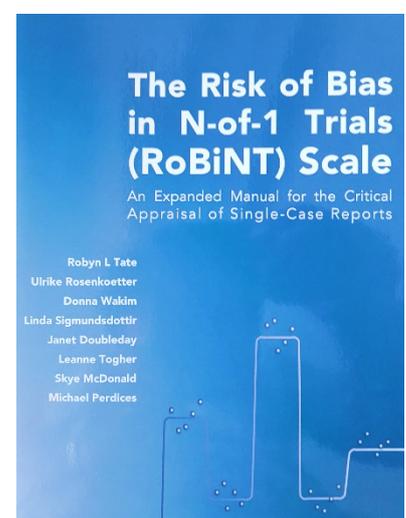
Developmental Neuropsychology: A clinical approach, second edition (2016)

Vicki Anderson, Elizabeth Northam and Jacquie Wrennall

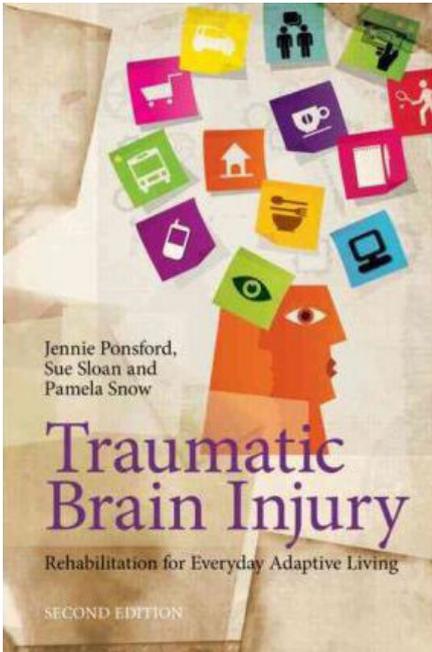


New Frontiers in pediatric traumatic brain injury (2016)

Cathy Catroppa, Vicki Anderson, Miriam Beauchamp and Keith Owen Yeates

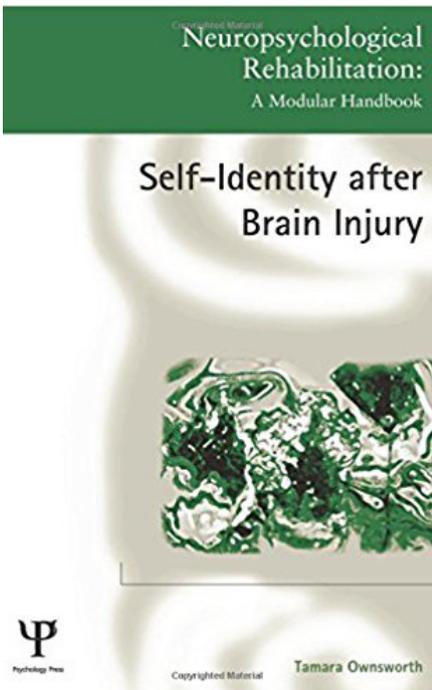
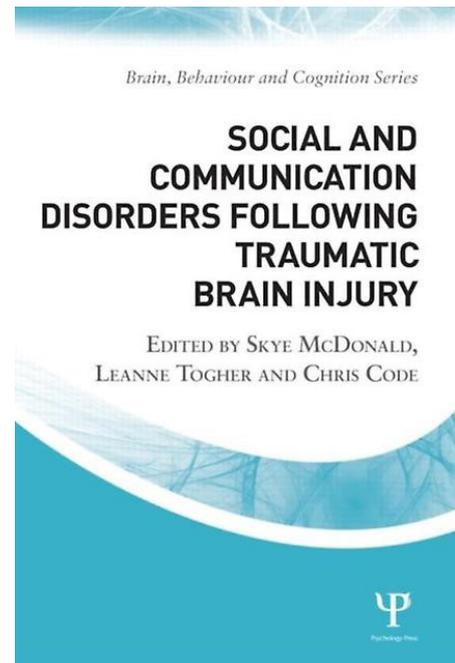


The risk of bias in N-of-1 trials (RoBiNT) scale; a users manual
Robyn Tate, Uli Rosenkoetter, Donna Wakim, Linda Sigmundsdottir, Janet Doubleday, Leanne Togher, Skye McDonald, Michael Perdices



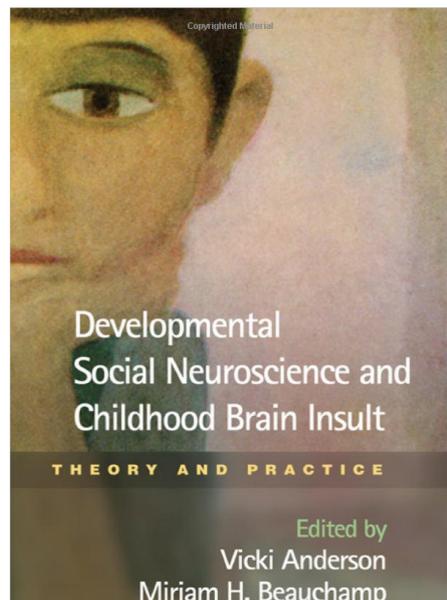
Rehabilitation for Everyday Adaptive Living, 2nd Edition
 Jennie Ponsford, Sue Sloan and Pamela Snow

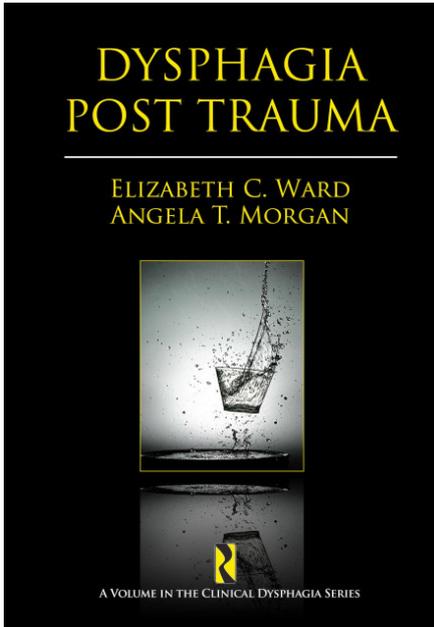
Social and Communication Disorders Following traumatic Brain Injury
 Skye McDonald, Leanne Togher and Chris Code



Self-Identity after brain injury
 Tamara Ownsworth

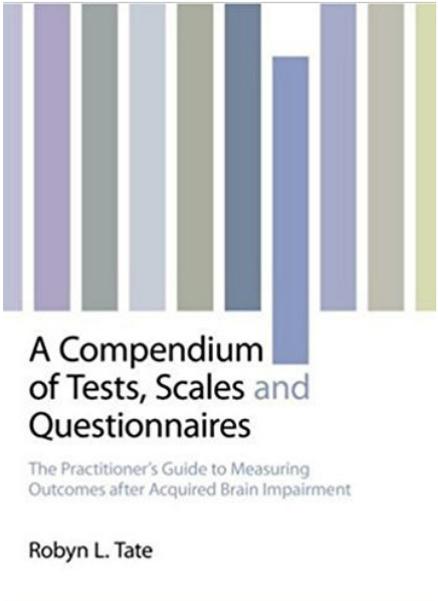
Developmental Social Neuroscience and childhood brain insult
 Vicki Anderson and Miriam Beauchamp





Dysphagia post trauma
Elizabeth Ward and Angela Morgan

A compendium of tests, scales and questionnaires
Robyn Tate

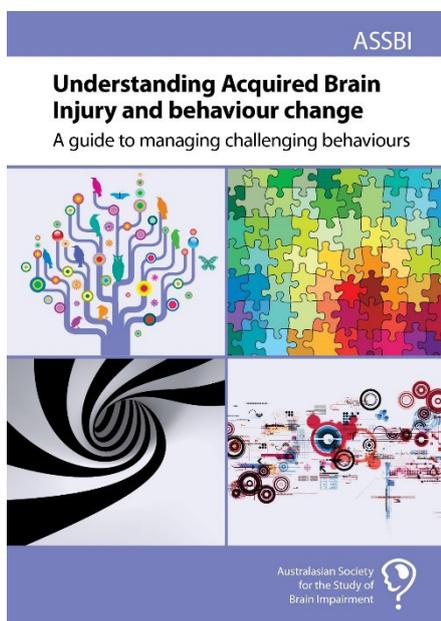


Assessment and Treatment Manuals from ASSBI Resources

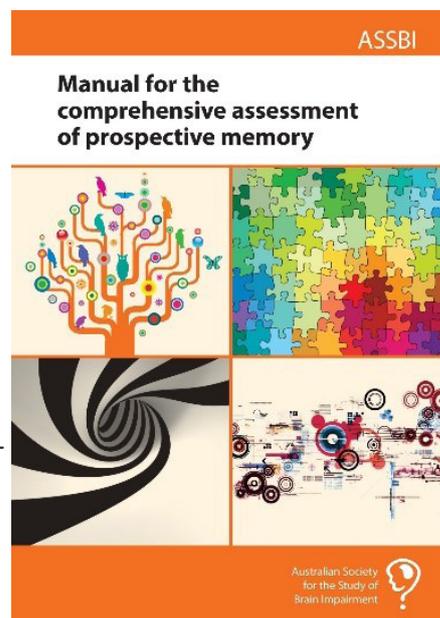
www.ASSBI.com.au

TASIT and TASIT-S two tools for assessing social cognition, both with norms from adolescence through to old age (2017)

Skye McDonald, Sharon Flanagan and Cynthia Honan

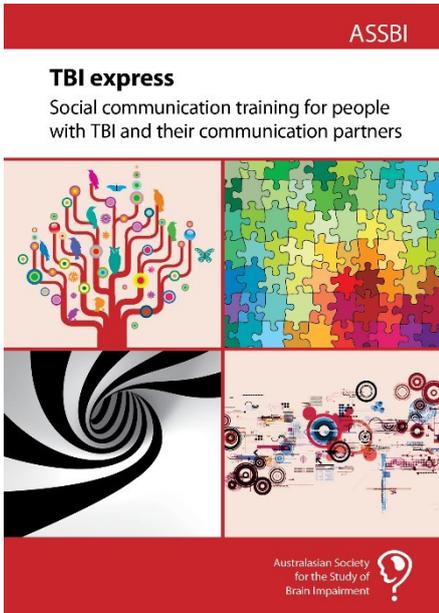


Understanding acquired brain injury and behaviour change. A detailed guide for carers and health workers (2017)
Sue Sloane



Manual for the comprehensive assessment of prospective memory (2016)

Shum, D. H. K., & Fleming, J.

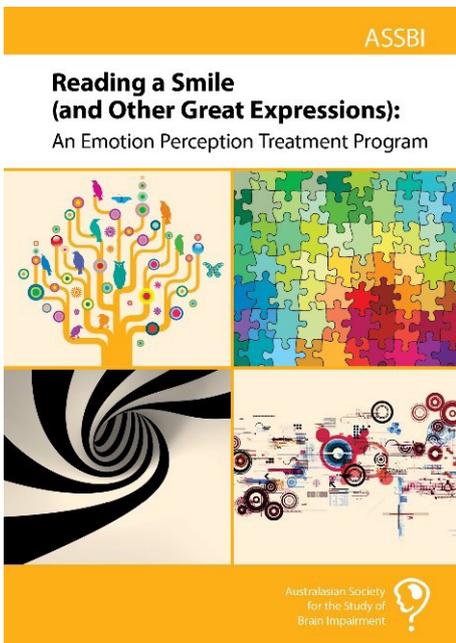
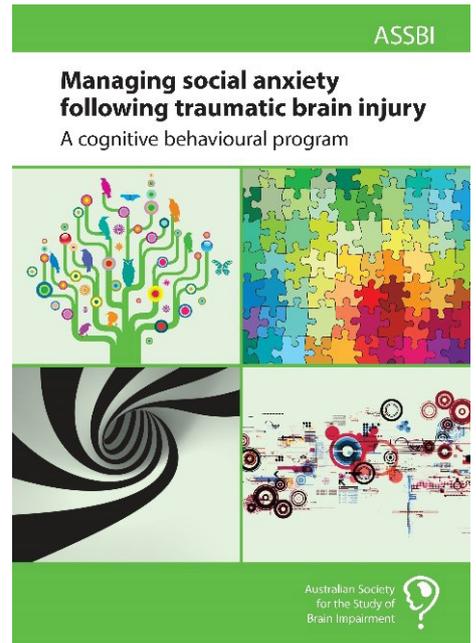


TBI-Express: Social communication training for people with TBI and their communication partners (2014)

Leanne Togher, Skye McDonald, Robyn Tate, Emma Power, Mark Ylvisaker and Rachel Rietdjik, 2014

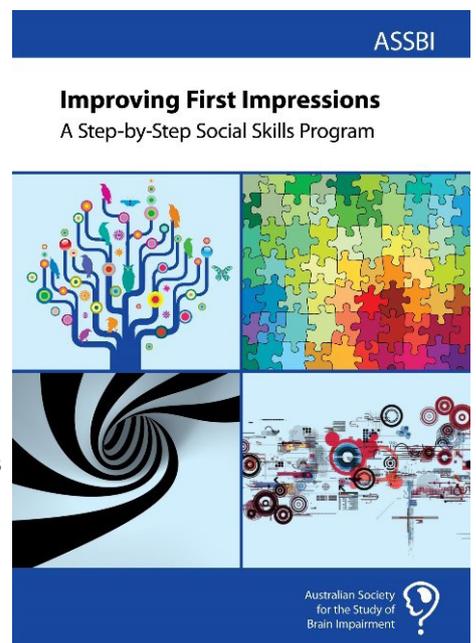
Managing social anxiety following TBI (2016)

Janet Hodkinson, Skye McDonald, Robyn Tate and Paul Gertler,



Reading a smile and other great expressions: An emotion perception treatment program (2012)

Cristina Bornhofen and Skye McDonald



Improving first impressions: A step by step social skills program (2011)

Skye McDonald, Cristina Bornhofen, Leanne Togher, Sharon Flanagan, Paul Gertler and Rebecca Bowen

PsycBITE and SpeechBITE

As part of our aim to support research in clinical practice, the Moving Ahead website provides links to both PsycBITE and SpeechBITE.

PsycBITE and its sister database SpeechBITE are readily available, free, web-resources developed by members of the CRE. These can be accessed directly via the internet or the Moving Ahead webpage. psycBITE contains all published empirical report on the effectiveness of non-pharmacological interventions for the psychological consequences of acquired brain impairment (currently over 5,000 records). SpeechBITE contains all published empirical papers attesting to the effectiveness of treatments for speech, language and swallowing disorders (also over 5,000 records). Using these databases, clinicians, researchers and consumers can, at the touch of a button, access all studies for a given treatment, which are rated for and ranked on the database by their methodological rigour. This makes it easy to identify the best evidence. Databases are updated monthly.

Some of the facilities offered on PsycBITE				
Easy search for treatments	Summaries of remediation techniques	Ratings of methodological quality	Online training in how to rate methodological quality	
Access to all papers that target a given problem (e.g. memory) at the press of a button	Access to a large selection of summaries of techniques used in good quality studies	Provision of a methodological rating by which to gauge the scientific validity of the study	Step by step training in how to evaluate RCTs	Step by step training in evaluating n-of-1 trails (in preparation)

PsycBITE

PUBLICATIONS

BOOKS AND CHAPTERS

2016

- Anderson, V., Northam, E, & Wrennall . (In press) *Developmental Neuropsychology: A Clinical Approach*. 2nd Edition. Taylor & Francis.
- Catroppa, C., Anderson, V., Beauchamp, M., Yeates, K. (2016) *New Frontiers in Pediatric Traumatic Brain Injury: An Evidence Base for Clinical Practice*. Routledge Dockett K, Morgan AT, Paquier P. (in press). Chapter 6. In Cummings L (Ed). *Research in Clinical Pragmatics*. Springer: London, UK.
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- Ponsford J. (in press). *Fatigue and sleep disturbance following TBI*. In R.L. Wood & T.M. McMillan (eds.), *Neurobehavioural disability and social handicap (Second edition)*. Hove, East Sussex: Psychology Press Ltd.
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- Douglas, J. & Togher, L. *Managing acquired social communication disorders Neuropsychological Rehabilitation: The International Handbook (2017) 251 - 265*
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- Parker, G., Haslam, C., Fleming, J., & Shum, D. (2017). Rehabilitation of memory disorders in adults and children. In: BA Wilson, J Winegardner, CM van Heugten, and T Ownsworth (Eds). *Neuropsychological Rehabilitation. The International Handbook*. pp. 196-206. UK: Routledge.
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2017

- Tate RL, Perdices M. (Eds). (2018). Quantitative data analysis. Special issue of *Brain Impairment*, Vol. 19(1). Cambridge University Press
- Wilson, B., Winegardner, J., van Heugten, C. & Ownsworth, T. (2017). *Neuropsychological Rehabilitation: The international handbook*. Hove, UK: Routledge (Taylor & Francis).

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2017

- Tate RL, Rosenkoetter U., Wakim D., Sigmundsdottir L., Doubleday J., Togher L., McDonald, S., Perdices, M. (2015) *The Risk of Bias in N-of-1 Trials (RoBiNT) Scale. An expanded manual for the critical appraisal of single-case reports*. Sydney, Australia: Author. pp.1-103. ISBN: 978-0-9945369-0-7

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- Alway, Y., Gould, K. R., Johnston, L., McKenzie, D., & Ponsford, J. (2016). A prospective examination of Axis I psychiatric disorders in the first 5 years following moderate to severe traumatic brain injury. *Psychological Medicine*, 46(6), 1331-1341. DOI:10.1017/S0033291715002986.
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